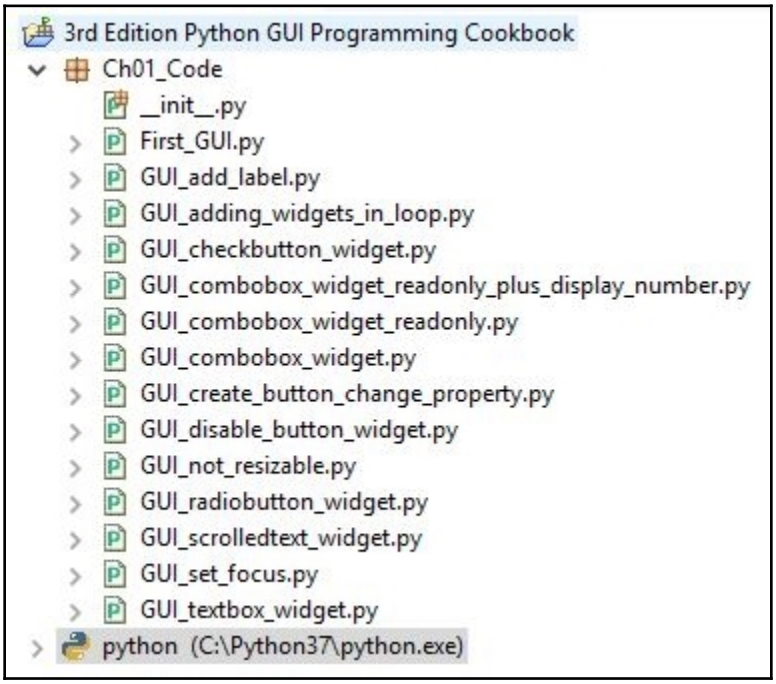
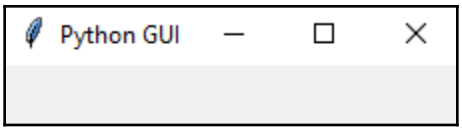
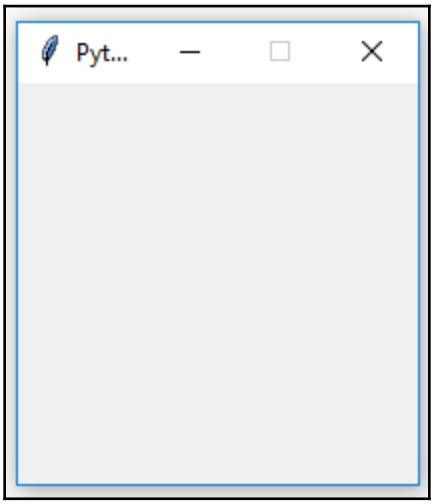
Chapter 1: Creating the GUI Form and Adding Widgets



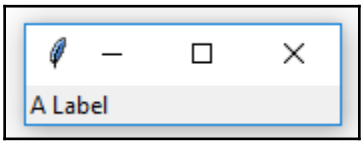

```
6  #======================
7  # imports
8  #======================
9  import tkinter as tk
10
11 # Create instance
12 win = tk.Tk()
13
14 # Add a title
15 win.title("Python GUI")
16
17 #======================
18 # Start GUI
19 #======================
20 win.mainloop()
```



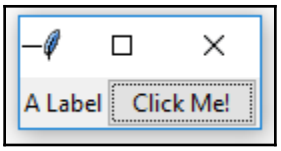

```python
#======================
# imports
#======================
import tkinter as tk

# Create instance
win = tk.Tk()

# Add a title
win.title("Python GUI")

# Disable resizing the GUI by passing in False/False
win.resizable(False, False)

# Enable resizing x-dimension, disable y-dimension
# win.resizable(True, False)

#======================
# Start GUI
#======================
win.mainloop()
```

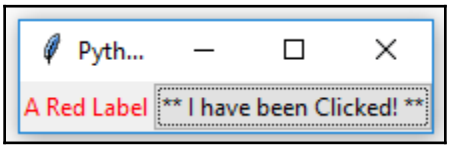


```
#======================
# imports
#======================
import tkinter as tk
from tkinter import ttk

# Create instance
win = tk.Tk()

# Add a title
win.title("Python GUI")

# Adding a Label
ttk.Label(win, text="A Label").grid(column=0, row=0)

#======================
# Start GUI
#======================
win.mainloop()
```

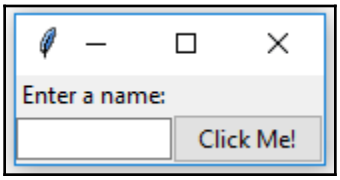


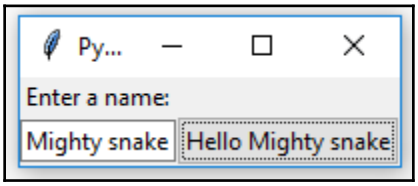

```
# Adding a Label that will get modified
a_label = ttk.Label(win, text="A Label")
a_label.grid(column=0, row=0)

# Button Click Event Function
def click_me():
    action.configure(text="** I have been Clicked! **")
    a_label.configure(foreground='red')
    a_label.configure(text='A Red Label')

# Adding a Button
action = ttk.Button(win, text="Click Me!", command=click_me)
action.grid(column=1, row=0)

#======================
# Start GUI
#======================
win.mainloop()
```



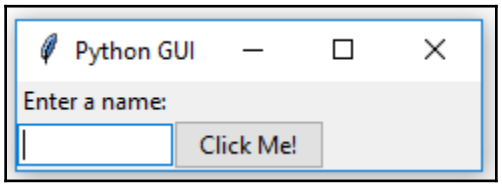



```
22  # Modified Button Click Function
23  def click_me():
24      action.configure(text='Hello ' + name.get())
25
26  # Changing our Label
27  ttk.Label(win, text="Enter a name:").grid(column=0, row=0)
28
29  # Adding a Text box Entry widget
30  name = tk.StringVar()
31  name_entered = ttk.Entry(win, width=12, textvariable=name)
32  name_entered.grid(column=0, row=1)
```

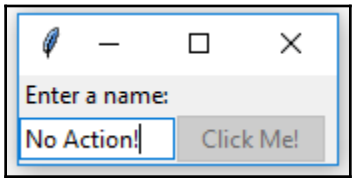




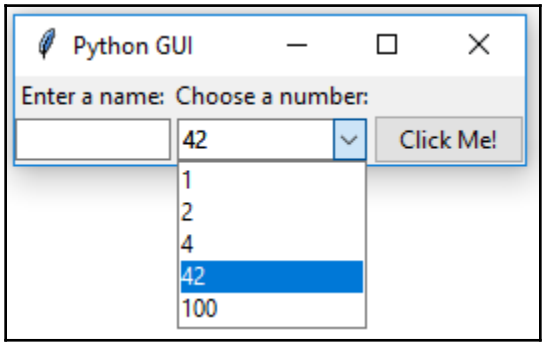
```
29 # Adding a Textbox Entry widget
30 name = tk.StringVar()
31 name_entered = ttk.Entry(win, width=12, textvariable=name)
32 name_entered.grid(column=0, row=1)
33
34 # Adding a Button
35 action = ttk.Button(win, text="Click Me!", command=click_me)
36 action.grid(column=1, row=1)
37
38 name_entered.focus()      # Place cursor into name Entry
39 #======================
40 # Start GUI
41 #======================
42 win.mainloop()
```



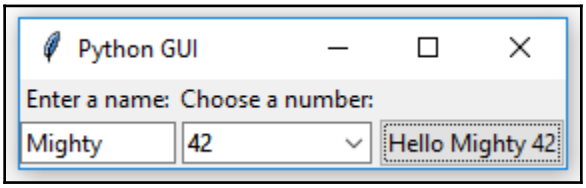

```
34 # Adding a Button
35 action = ttk.Button(win, text="Click Me!", command=click_me)
36 action.grid(column=1, row=1)
37 action.configure(state='disabled')    # Disable the Button Widget
38
39 name_entered.focus()      # Place cursor into name Entry
```



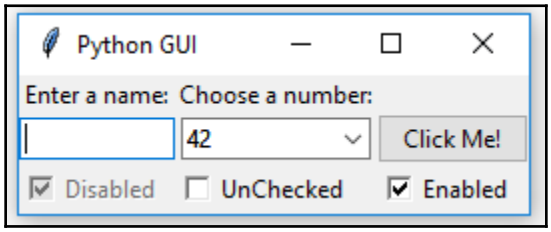
```
31 # Adding a Textbox Entry widget
32 name = tk.StringVar()
33 name_entered = ttk.Entry(win, width=12, textvariable=name)
34 name_entered.grid(column=0, row=1)                          # column 0
35
36 # Adding a Button
37 action = ttk.Button(win, text="Click Me!", command=click_me)
38 action.grid(column=2, row=1)                                # <= change column to 2
39
40 ttk.Label(win, text="Choose a number:").grid(column=1, row=0)
41 number = tk.StringVar()
42 number_chosen = ttk.Combobox(win, width=12, textvariable=number)
43 number_chosen['values'] = (1, 2, 4, 42, 100)
44 number_chosen.grid(column=1, row=1)                         # <= Combobox in column 1
45 number_chosen.current(0)
46
47 name_entered.focus()      # Place cursor into name Entry
48 #======================
49 # Start GUI
50 #======================
51 win.mainloop()
```



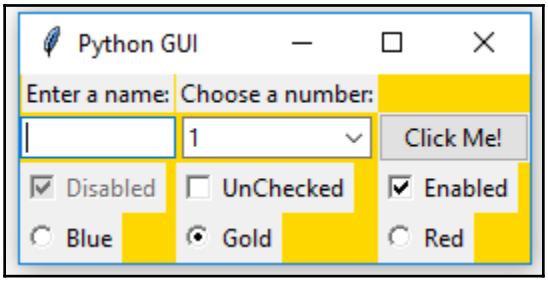

```
40 ttk.Label(win, text="Choose a number:").grid(column=1, row=0)
41 number = tk.StringVar()
42 number_chosen = ttk.Combobox(win, width=12, textvariable=number, state='readonly')
43 number_chosen['values'] = (1, 2, 4, 42, 100)
44 number_chosen.grid(column=1, row=1)
45 number_chosen.current(0)
```



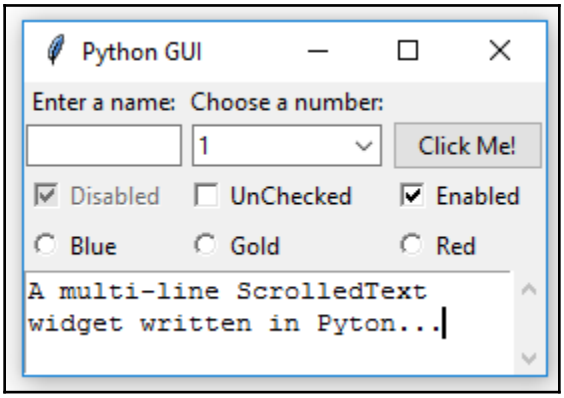
```
35 # Adding a Button
36 action = ttk.Button(win, text="Click Me!", command=click_me)
37 action.grid(column=2, row=1)
38
39 # Creating a label and a Combobox
40 ttk.Label(win, text="Choose a number:").grid(column=1, row=0)
41 number = tk.StringVar()
42 number_chosen = ttk.Combobox(win, width=12, textvariable=number, state='readonly')
43 number_chosen['values'] = (1, 2, 4, 42, 100)
44 number_chosen.grid(column=1, row=1)
45 number_chosen.current(0)
46 # Creating three checkbuttons
47 chVarDis = tk.IntVar()
48 check1 = tk.Checkbutton(win, text="Disabled", variable=chVarDis, state='disabled')
49 check1.select()
50 check1.grid(column=0, row=4, sticky=tk.W)
51
52 chVarUn = tk.IntVar()
53 check2 = tk.Checkbutton(win, text="UnChecked", variable=chVarUn)
54 check2.deselect()
55 check2.grid(column=1, row=4, sticky=tk.W)
56
57 chVarEn = tk.IntVar()
58 check3 = tk.Checkbutton(win, text="Enabled", variable=chVarEn)
59 check3.select()
60 check3.grid(column=2, row=4, sticky=tk.W)
61
62 name_entered.focus()      # Place cursor into name Entry
63 #======================
64 # Start GUI
65 #======================
66 win.mainloop()
```

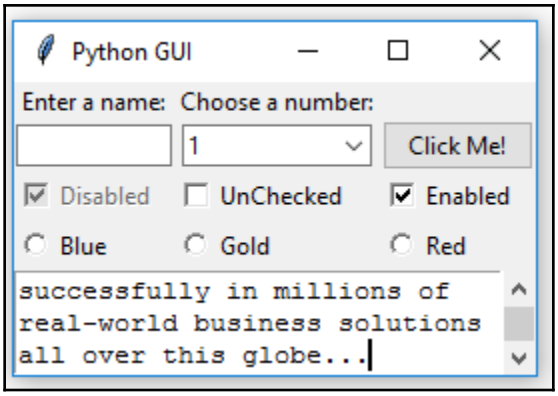


```
74  # Radiobutton Globals
75  COLOR1 = "Blue"
76  COLOR2 = "Gold"
77  COLOR3 = "Red"
78
79  # Radiobutton Callback
80  def radCall():
81      radSel=radVar.get()
82      if   radSel == 1: win.configure(background=COLOR1)
83      elif radSel == 2: win.configure(background=COLOR2)
84      elif radSel == 3: win.configure(background=COLOR3)
85
86  # create three Radiobuttons using one variable
87  radVar = tk.IntVar()
88
89  rad1 = tk.Radiobutton(win, text=COLOR1, variable=radVar, value=1, command=radCall)
90  rad1.grid(column=0, row=5, sticky=tk.W, columnspan=3)
91
92  rad2 = tk.Radiobutton(win, text=COLOR2, variable=radVar, value=2, command=radCall)
93  rad2.grid(column=1, row=5, sticky=tk.W, columnspan=3)
94
95  rad3 = tk.Radiobutton(win, text=COLOR3, variable=radVar, value=3, command=radCall)
96  rad3.grid(column=2, row=5, sticky=tk.W, columnspan=3)
97
98  name_entered.focus()      # Place cursor into name Entry
99  #======================
100 # Start GUI
101 #======================
102 win.mainloop()
```



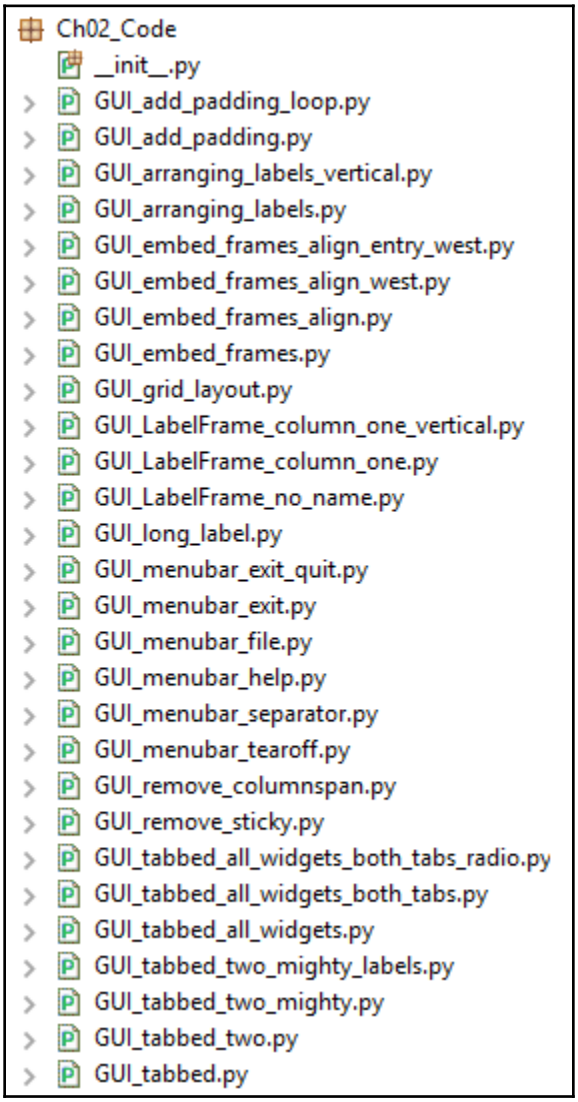
```
#======================
# imports
#======================
import tkinter as tk
from tkinter import ttk
from tkinter import scrolledtext

# Using a scrolled Text control
scrol_w  = 30
scrol_h  =  3
scr = scrolledtext.ScrolledText(win, width=scrol_w, height=scrol_h, wrap=tk.WORD)
scr.grid(column=0, columnspan=3)

name_entered.focus()      # Place cursor into name Entry
#======================
# Start GUI
#======================
win.mainloop()
```



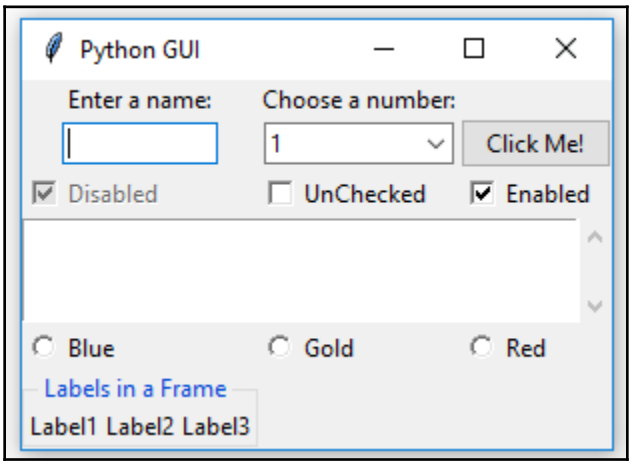


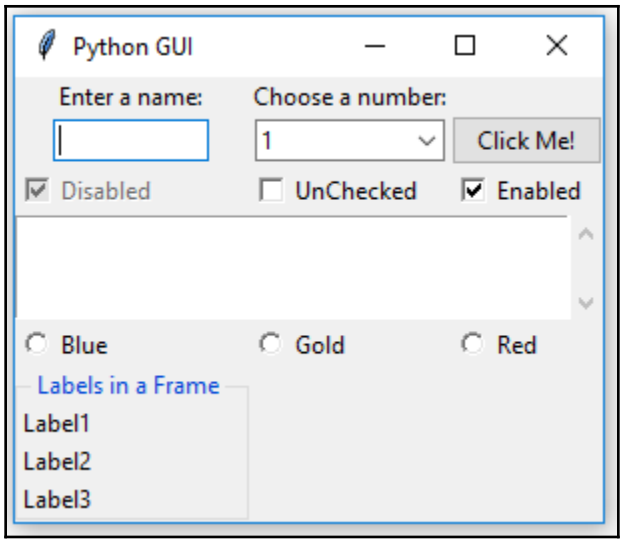
```
# First, we change our Radiobutton global variables into a list
colors = ["Blue", "Gold",  "Red"]

# We have also changed the callback function to be zero-based, using the list
# instead of module-level global variables
# Radiobutton Callback
def radCall():
    radSel=radVar.get()
    if   radSel == 0: win.configure(background=colors[0])  # now zero-based
    elif radSel == 1: win.configure(background=colors[1])  # and using list
    elif radSel == 2: win.configure(background=colors[2])

# create three Radiobuttons using one variable
radVar = tk.IntVar()

# Next we are selecting a non-existing index value for radVar
radVar.set(99)

# Now we are creating all three Radiobutton widgets within one loop
for col in range(3):
    curRad = tk.Radiobutton(win, text=colors[col], variable=radVar,
                            value=col, command=radCall)
    curRad.grid(column=col, row=5, sticky=tk.W)

```

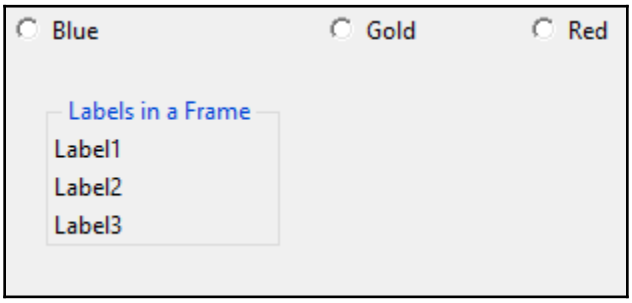
Chapter 2: Layout Management



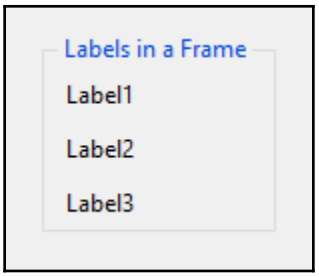
```
108 # Create a container to hold labels
109 buttons_frame = ttk.LabelFrame(win, text=' Labels in a Frame ')
110 buttons_frame.grid(column=0, row=7)
111 # buttons_frame.grid(column=1, row=7)               # now in col 1
112
113 # Place labels into the container element
114 ttk.Label(buttons_frame, text="Label1").grid(column=0, row=0, sticky=tk.W)
115 ttk.Label(buttons_frame, text="Label2").grid(column=1, row=0, sticky=tk.W)
116 ttk.Label(buttons_frame, text="Label3").grid(column=2, row=0, sticky=tk.W)
117
118 name_entered.focus()      # Place cursor into name Entry
119 #======================
120 # Start GUI
121 #======================
122 win.mainloop()
```

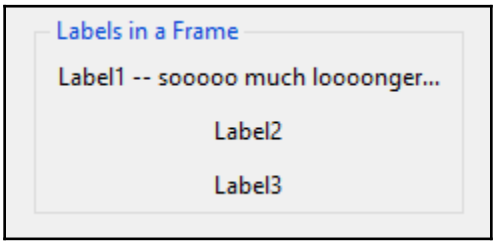




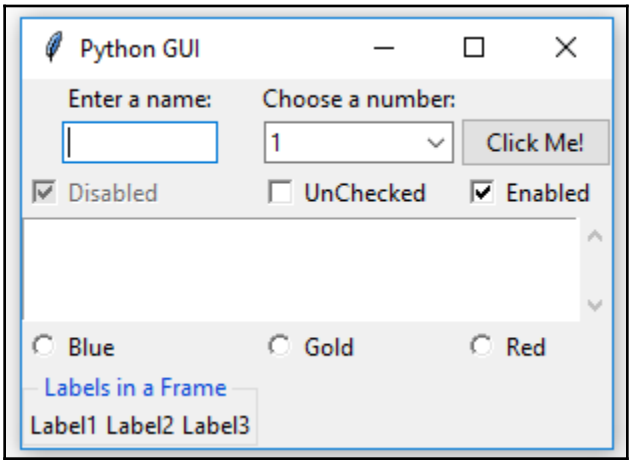



```
113 # Place labels into the container element
114 ttk.Label(buttons_frame, text="Label1").grid(column=0, row=0)
115 ttk.Label(buttons_frame, text="Label2").grid(column=0, row=1)
116 ttk.Label(buttons_frame, text="Label3").grid(column=0, row=2)
117
118 for child in buttons_frame.winfo_children():
119     child.grid_configure(padx=8, pady=4)
120
121 name_entered.focus()      # Place cursor into name Entry
122 #======================
123 # Start GUI
124 #======================
125 win.mainloop()
```

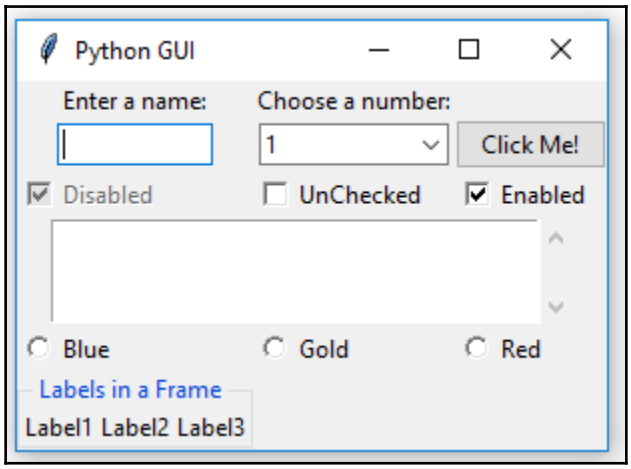

Labels in a Frame
Label1
Label2
Label3

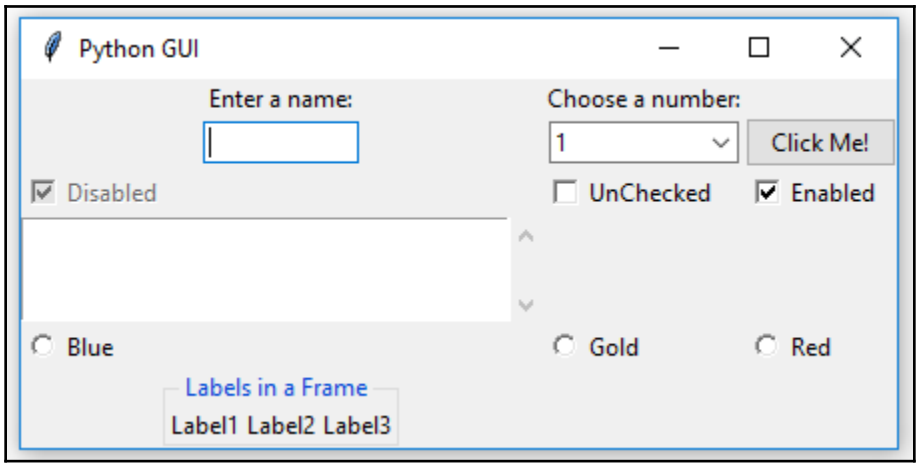

Labels in a Frame
Label1 -- sooooo much looooonger...
Label2
Label3

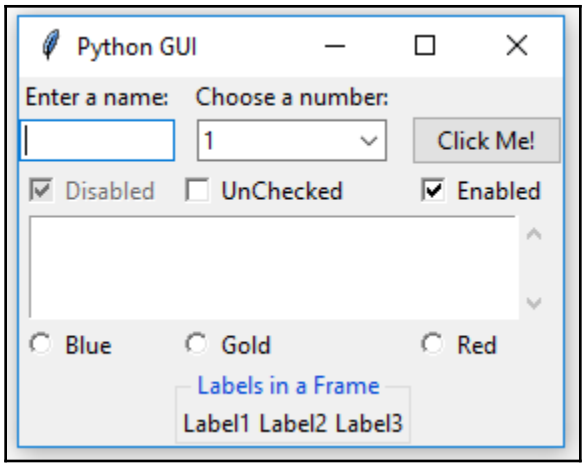

Blue
Gold
Label1
Label2
Label3

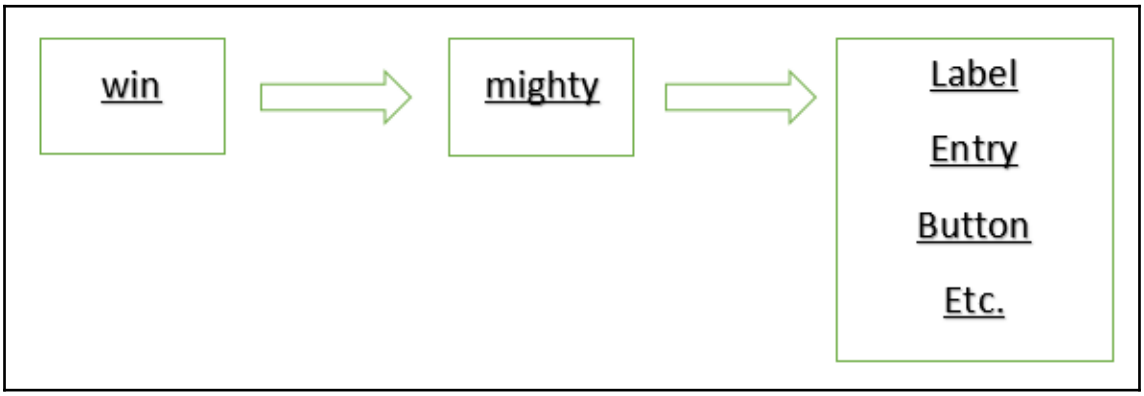

Python GUI
Enter a name:
Choose a number:
1
Click Me!
Disabled
UnChecked
Enabled
Blue
Gold
Red
Labels in a Frame
Label1 Label2 Label3

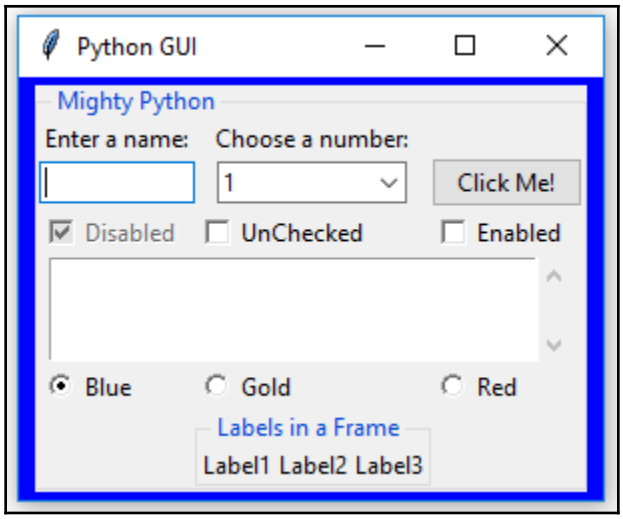
```
# Using a scrolled Text control
scrol_w  = 30
scrol_h  =  3
scr = scrolledtext.ScrolledText(win, width=scrol_w, height=scrol_h, wrap=tk.WORD)
#### scr.grid(column=0, row=5, sticky='WE', columnspan=3)
scr.grid(column=0, row=5, columnspan=3)                    # sticky property removed
```

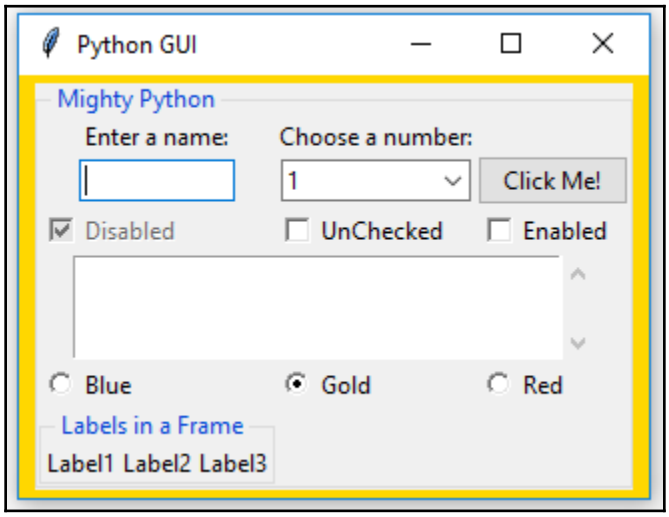


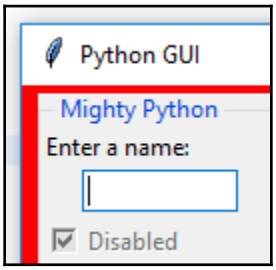


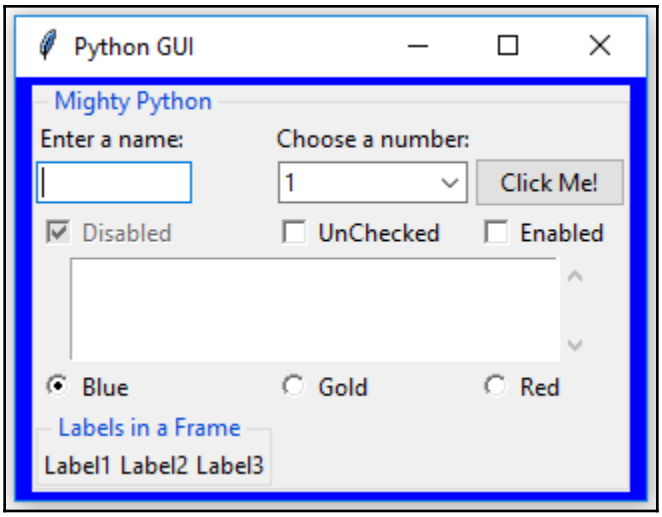

Python GUI
Enter a name:
Choose a number:
1
Click Me!
Disabled
UnChecked
Enabled
Blue
Gold
Red
Labels in a Frame
Label1 Label2 Label3


win
mighty
Label
Entry
Button
Etc.

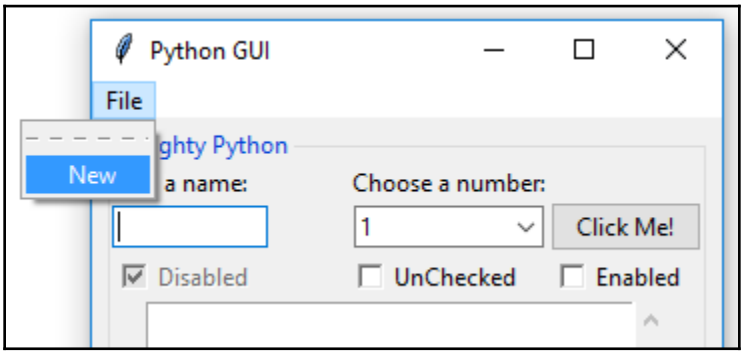

Python GUI
Mighty Python
Enter a name:
Choose a number:
1
Click Me!
Disabled
UnChecked
Enabled
Blue
Gold
Red
Labels in a Frame
Label1 Label2 Label3

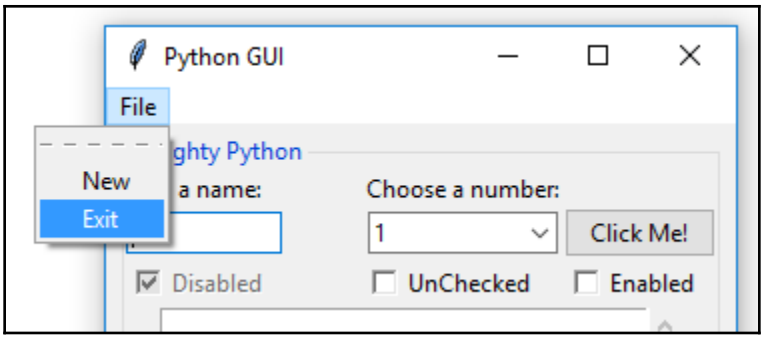

Python GUI
Mighty Python
Enter a name:
Choose a number:
1
Click Me!
Disabled
UnChecked
Enabled
Blue
Gold
Red
Labels in a Frame
Label1 Label2 Label3

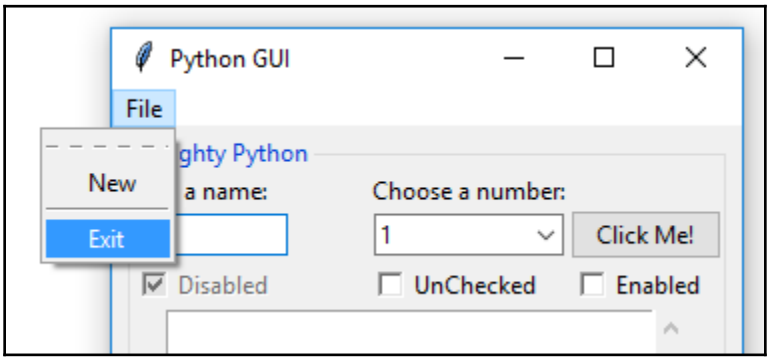

Python GUI
Mighty Python
Enter a name:
Disabled

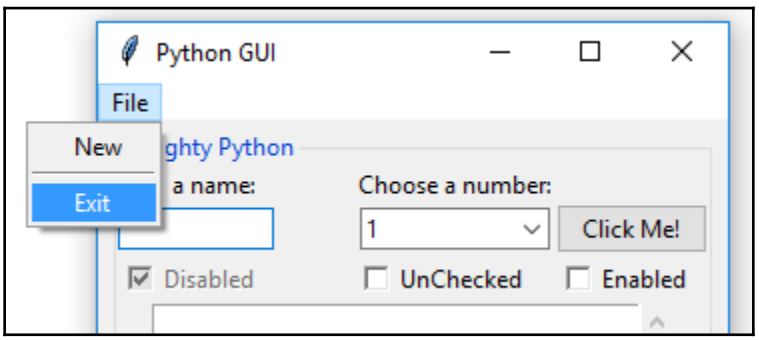



```
118 # Creating a Menu Bar
119 menu_bar = Menu(win)
120 win.config(menu=menu_bar)
121
122 # Create menu and add menu items
123 file_menu = Menu(menu_bar)                    # create File menu
124 file_menu.add_command(label="New")            # add File menu item
```

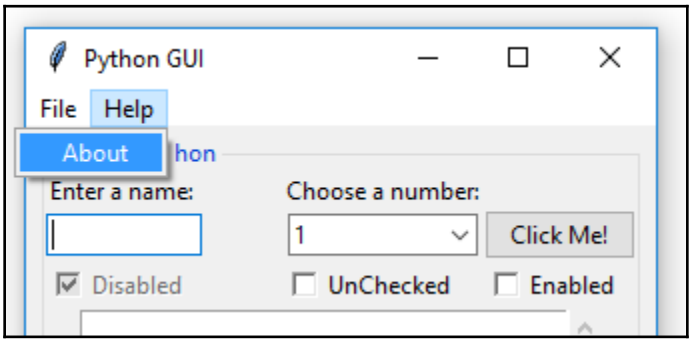



Python GUI
File
New
Exit
ghty Python
a name:
Choose a number:
1
Click Me!
Disabled
UnChecked
Enabled

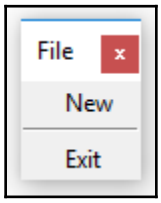

Python GUI
File
New
Exit
ghty Python
a name:
Choose a number:
1
Click Me!
Disabled
UnChecked
Enabled


Python GUI
File
New
Exit
ghty Python
a name:
Choose a number:
1
Click Me!
Disabled
UnChecked
Enabled

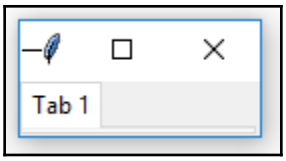
```
# Creating a Menu Bar
menu_bar = Menu(win)
win.config(menu=menu_bar)

# Add menu items
file_menu = Menu(menu_bar, tearoff=0)
file_menu.add_command(label="New")
file_menu.add_separator()
file_menu.add_command(label="Exit")
menu_bar.add_cascade(label="File", menu=file_menu)

# Add another Menu to the Menu Bar and an item
help_menu = Menu(menu_bar, tearoff=0)
menu_bar.add_cascade(label="Help", menu=help_menu)
help_menu.add_command(label="About")

name_entered.focus()      # Place cursor into name Entry
#======================
# Start GUI
#======================
win.mainloop()
```

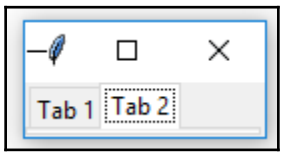


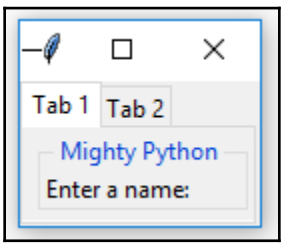
```
# Exit GUI cleanly
def _quit():
    win.quit()
    win.destroy()
    exit()

# Creating a Menu Bar
menu_bar = Menu(win)
win.config(menu=menu_bar)

# Add menu items
file_menu = Menu(menu_bar, tearoff=0)
file_menu.add_command(label="New")
file_menu.add_separator()
file_menu.add_command(label="Exit", command=_quit)
menu_bar.add_cascade(label="File", menu=file_menu)
```

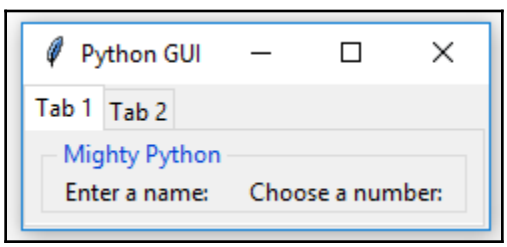


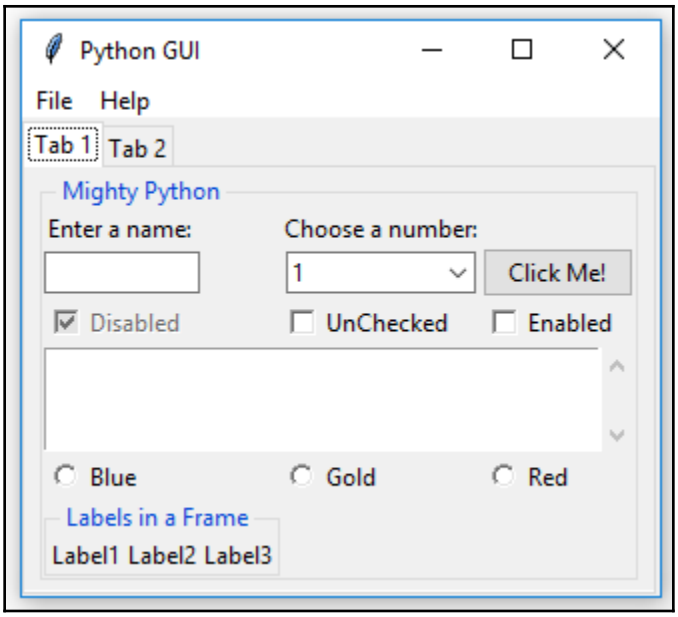

```
#======================
# imports
#======================
import tkinter as tk
from tkinter import ttk

win = tk.Tk()                             # Create instance
win.title("Python GUI")                   # Add a title
tabControl = ttk.Notebook(win)            # Create Tab Control
tab1 = ttk.Frame(tabControl)              # Create a tab
tabControl.add(tab1, text='Tab 1')        # Add the tab
tabControl.pack(expand=1, fill="both")  # Pack to make visible

#======================
# Start GUI
#======================
win.mainloop()
```

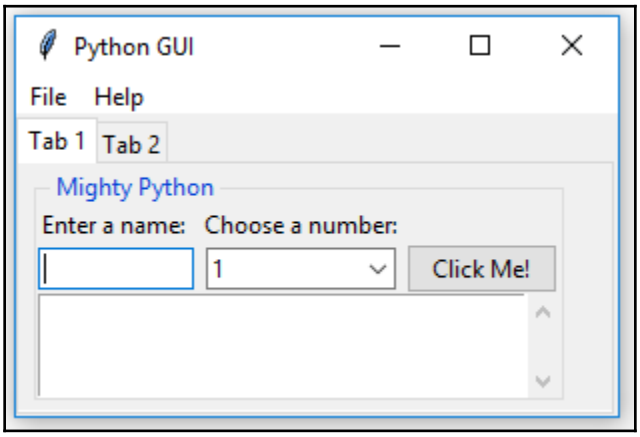

Tab 1

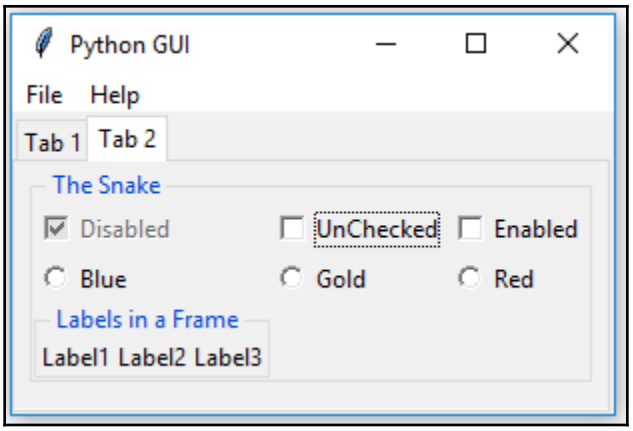

Tab 1
Tab 2

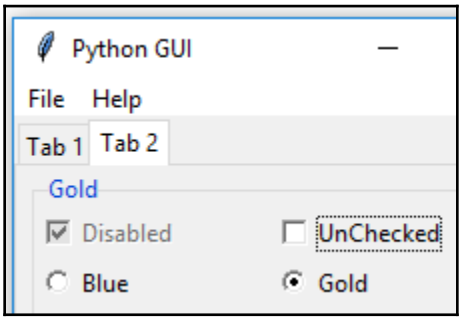

Tab 1
Tab 2
Mighty Python
Enter a name:


Python GUI
Tab 1
Tab 2
Mighty Python
Enter a name:
Choose a number:

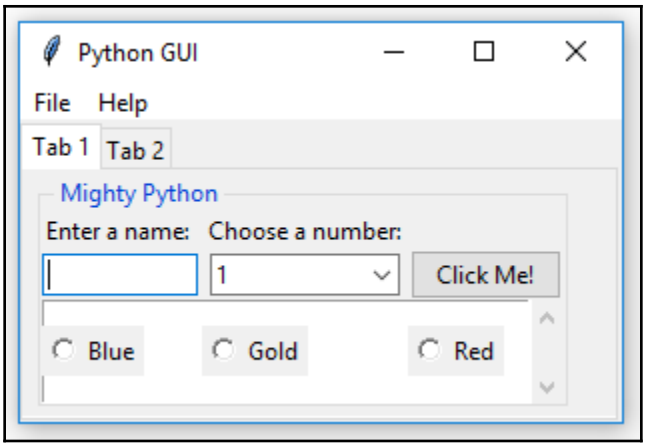

Python GUI
File Help
Tab 1 Tab 2
Mighty Python
Enter a name:
Choose a number:
1
Click Me!
Disabled
UnChecked
Enabled
Blue
Gold
Red
Labels in a Frame
Label1 Label2 Label3


Python GUI
File Help
Tab 1 Tab 2
Mighty Python
Enter a name:
Choose a number:
1
Click Me!



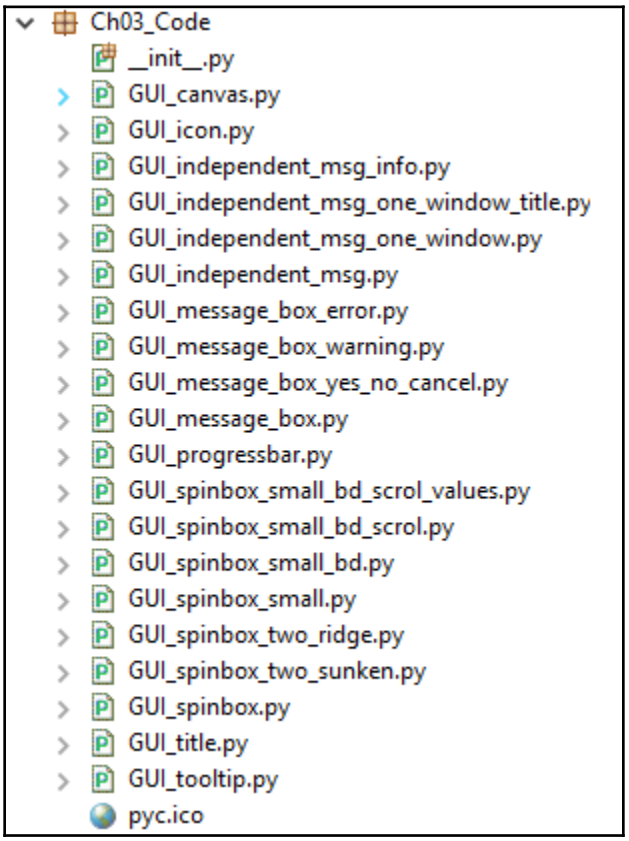



```
# Using a scrolled Text control
scrol_w  = 30
scrol_h  =  3
scr = scrolledtext.ScrolledText(mighty, width=scrol_w, height=scrol_h, wrap=tk.WORD)
# scr.grid(column=0, row=2, sticky='WE', columnspan=3)
scr.grid(column=0, sticky='WE', columnspan=3)                    # row not specified
```

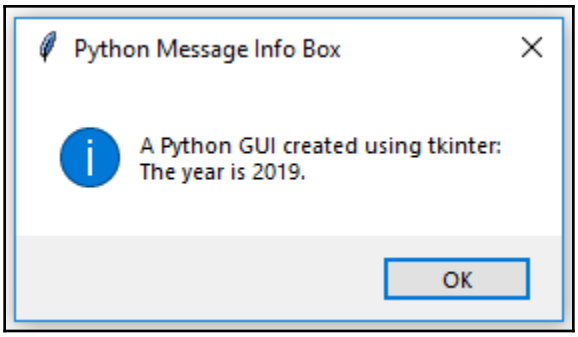



```
scr = scrolledtext.ScrolledText(mighty, width=scrol_w, height=scrol_h, wrap=tk.WORD)
scr.grid(column=0, row=5, sticky='WE', columnspan=3)
```

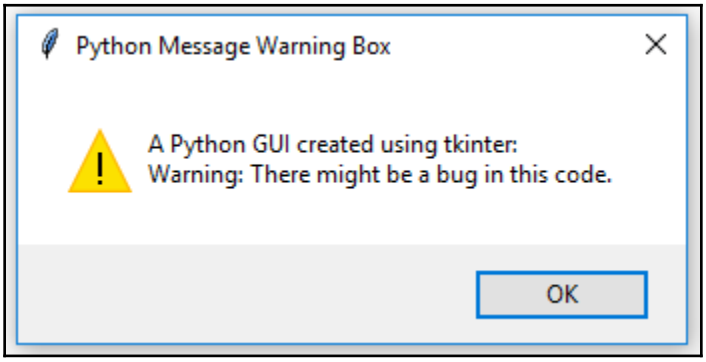
Chapter 3: Look and Feel Customization



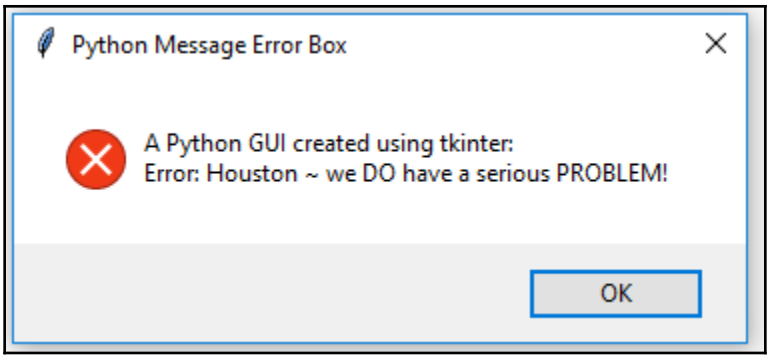

```
# Display a Message Box
def _msgBox():
    msg.showinfo('Python Message Info Box', 'A Python GUI created using tkinter:\nThe year is 2019.')

# Add another Menu to the Menu Bar and an item
help_menu = Menu(menu_bar, tearoff=0)
help_menu.add_command(label="About", command=_msgBox)   # display messagebox when clicked
menu_bar.add_cascade(label="Help", menu=help_menu)
```



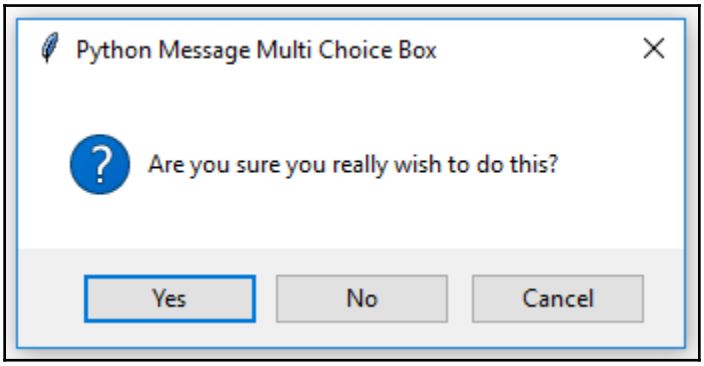

```
# Display a Message Box
def _msgBox():
#     msg.showinfo('Python Message Info Box', 'A Python GUI created using tkinter:'
#                  '\nThe year is 2019.')
    msg.showwarning('Python Message Warning Box', 'A Python GUI created using tkinter:'
                    '\nWarning: There might be a bug in this code.')
```

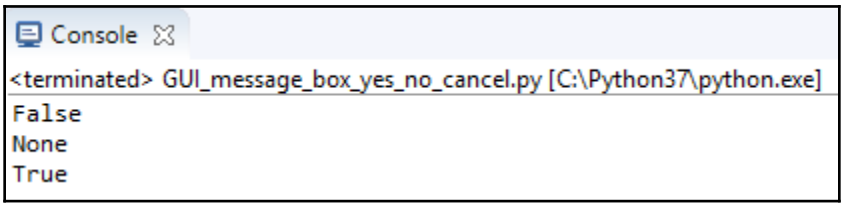


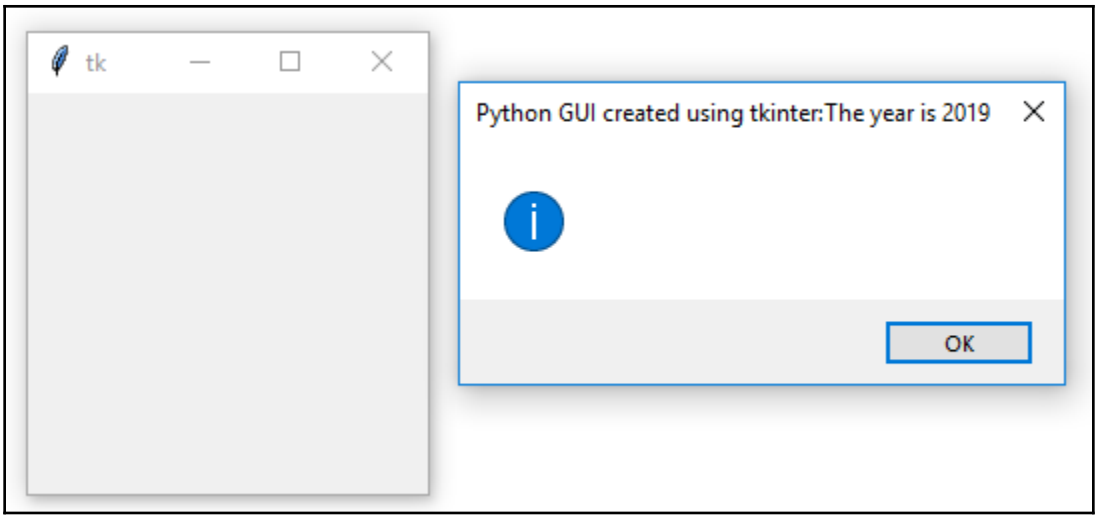

```
# Display a Message Box
def _msgBox():
#     msg.showinfo('Python Message Info Box', 'A Python GUI created using tkinter:\nThe year is 2019.')
#     msg.showwarning('Python Message Warning Box', 'A Python GUI created using tkinter:'
#                     '\nWarning: There might be a bug in this code.')
    msg.showerror('Python Message Error Box', 'A Python GUI created using tkinter:'
                  '\nError: Houston ~ we DO have a serious PROBLEM!')
```

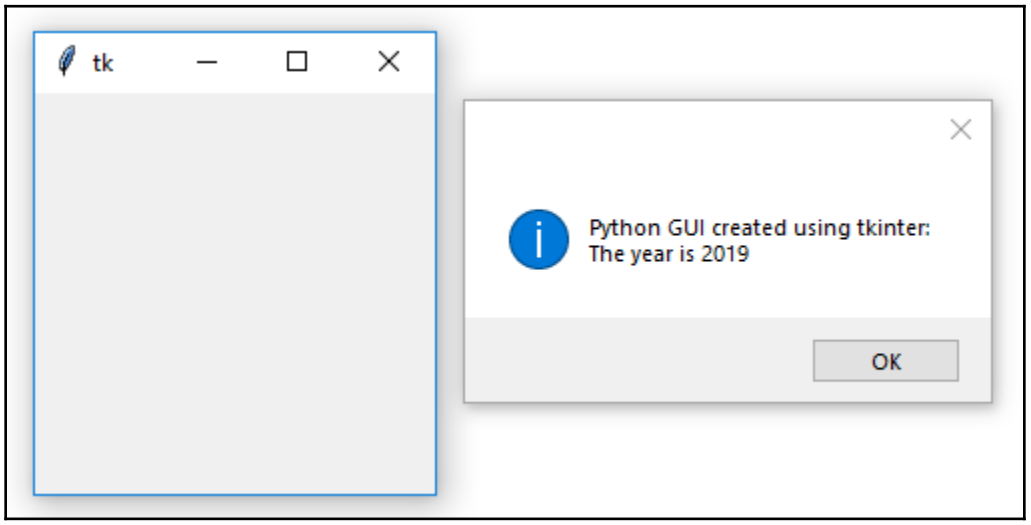


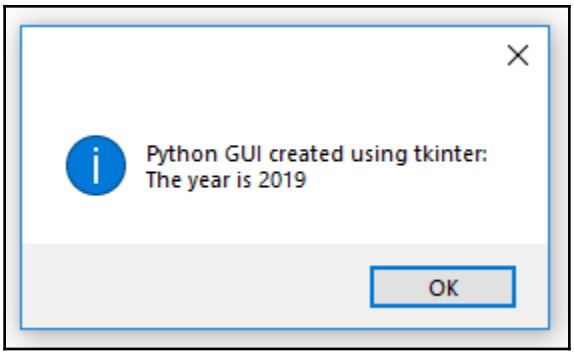

```
# Display a Message Box
def _msgBox():
#     msg.showinfo('Python Message Info Box', 'A Python GUI created using tkinter:\nThe year is 2019.')
#     msg.showwarning('Python Message Warning Box', 'A Python GUI created using tkinter:\nWarning: There might be a bug in this code.')
#     msg.showerror('Python Message Error Box', 'A Python GUI created using tkinter:\nError: Houston ~ we DO have a serious PROBLEM!')
    answer = msg.askyesnocancel("Python Message Multi Choice Box", "Are you sure you really wish to do this?")
    print(answer)
```



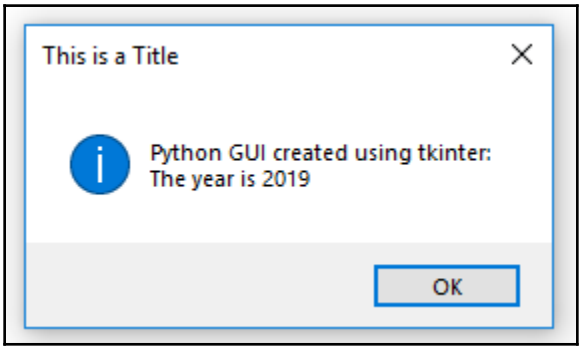


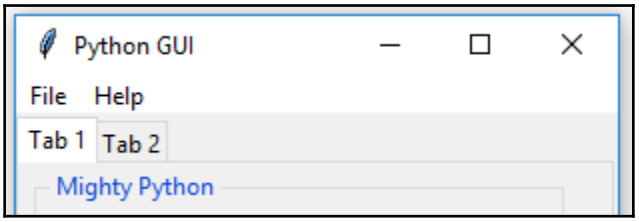

tk
Python GUI created using tkinter:The year is 2019
OK

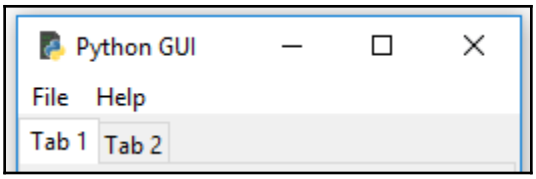

tk
Python GUI created using tkinter:
The year is 2019
OK

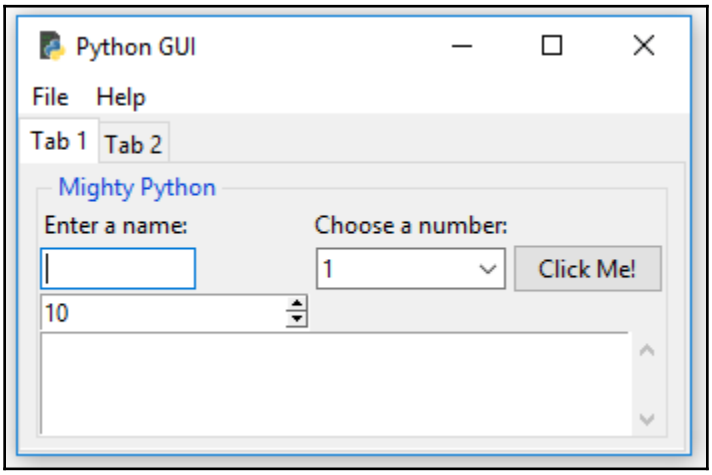


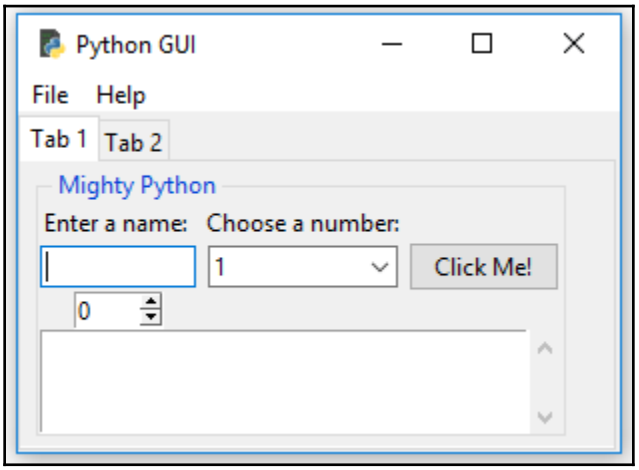

```
from tkinter import messagebox as msg
from tkinter import Tk
root = Tk()
root.withdraw()
msg.showinfo('This is a Title', 'Python GUI created using tkinter:\nThe year is 2019')
```

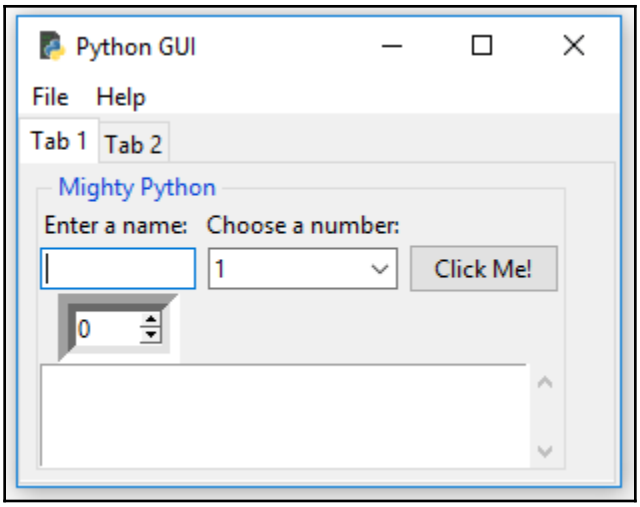


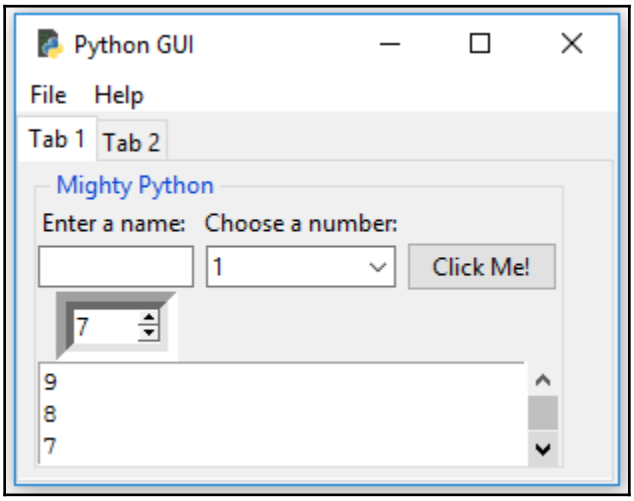


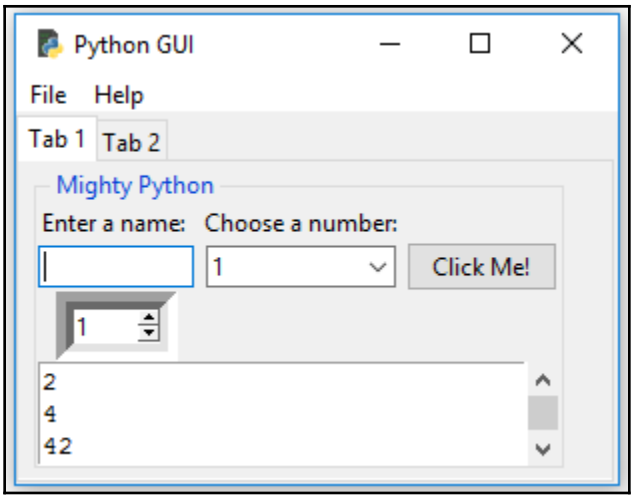

Python GUI
File Help
Tab 1 Tab 2

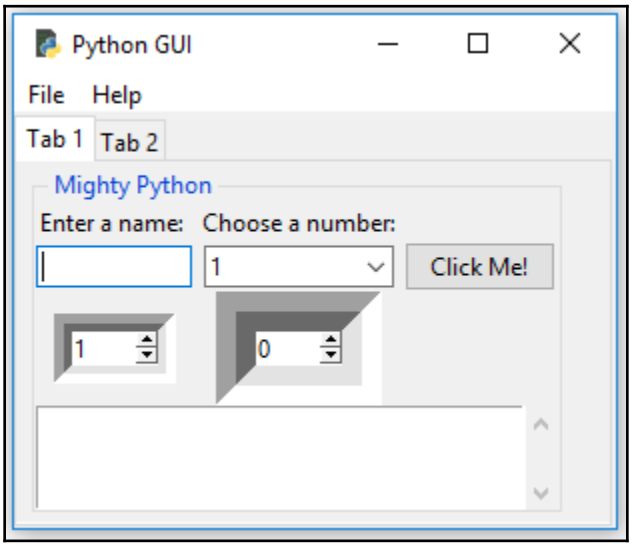

Python GUI
File Help
Tab 1 Tab 2
Mighty Python
Enter a name:
Choose a number:
1
Click Me!
10

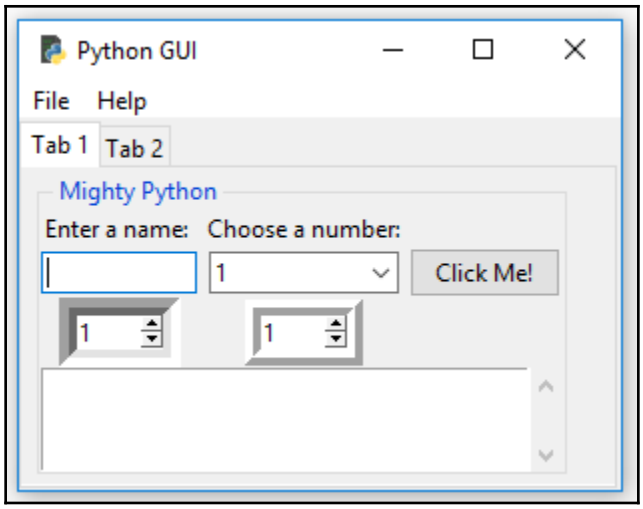

Python GUI
File Help
Tab 1 Tab 2
Mighty Python
Enter a name:
Choose a number:
1
Click Me!
0


Python GUI
File Help
Tab 1 Tab 2
Mighty Python
Enter a name: Choose a number:
1
Click Me!
0

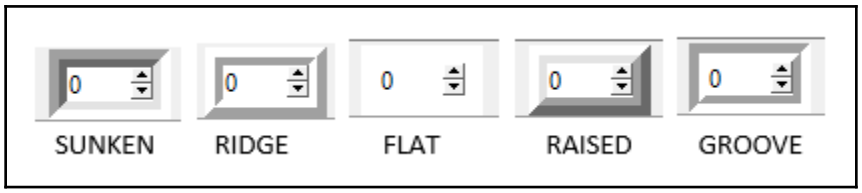

Python GUI
File Help
Tab 1 Tab 2
Mighty Python
Enter a name: Choose a number:
1
Click Me!
7
9
8
7

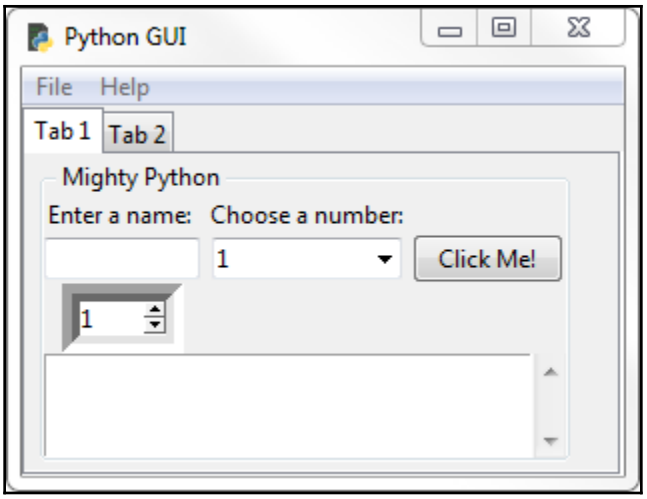

Python GUI
File Help
Tab 1 Tab 2
Mighty Python
Enter a name: Choose a number:
1
Click Me!
1
2
4
42

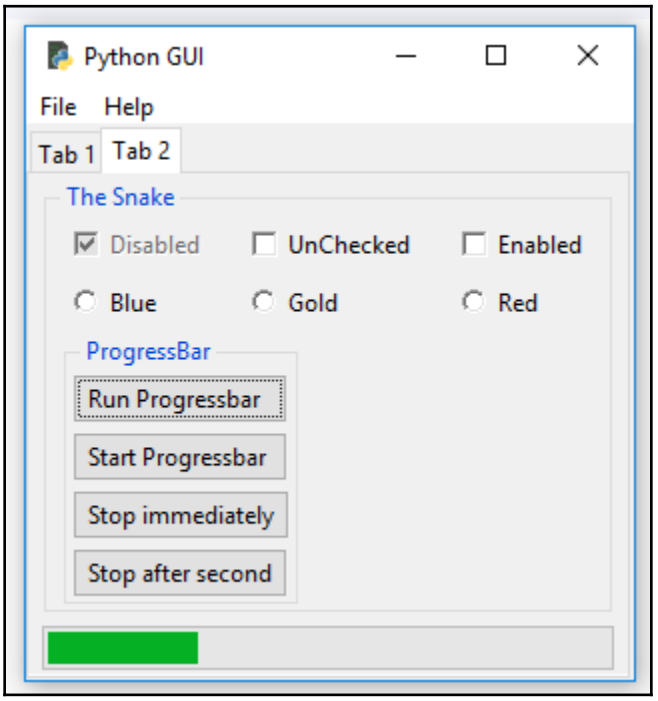

Python GUI
File Help
Tab 1 Tab 2
Mighty Python
Enter a name: Choose a number:
1
Click Me!
1
0

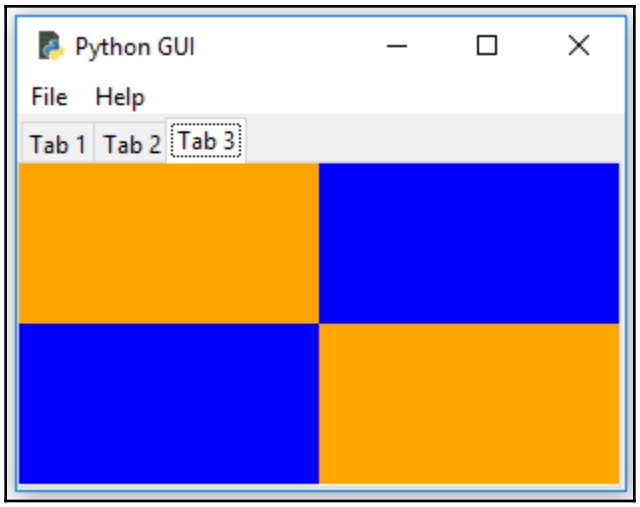



```
# Adding a second Spinbox widget displaying its relief options
# uncomment each next code line to see the different effects
spin2 = Spinbox(mighty, values=(0, 50, 100), width=5, bd=9, command=_spin2, relief=tk.RIDGE)
# spin2 = Spinbox(mighty, values=(0, 50, 100), width=5, bd=9, command=_spin2)    # default value is: tk.SUNKEN
# spin2 = Spinbox(mighty, values=(0, 50, 100), width=5, bd=9, command=_spin2, relief=tk.FLAT)
# spin2 = Spinbox(mighty, values=(0, 50, 100), width=5, bd=9, command=_spin2, relief=tk.RAISED)
# spin2 = Spinbox(mighty, values=(0, 50. 100), width=5, bd=9, command=_spin2, relief=tk.SUNKEN) # default
# spin2 = Spinbox(mighty, values=(0, 50, 100), width=5, bd=9, command=_spin2, relief=tk.GROOVE)
```

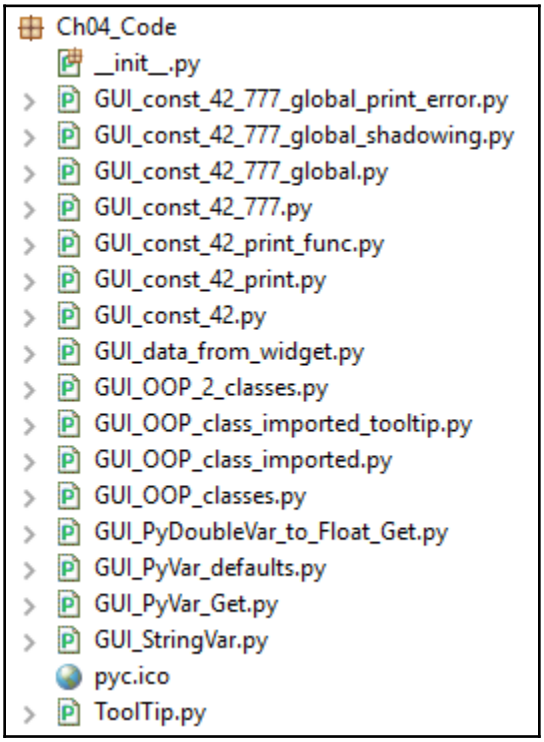



Python GUI
File Help
Tab 1 Tab 2
Mighty Python
Enter a name: Choose a number:
1
Click Me!
1


Python GUI
File Help
Tab 1 Tab 2
The Snake
Disabled
UnChecked
Enabled
Blue
Gold
Red
ProgressBar
Run Progressbar
Start Progressbar
Stop immediately
Stop after second


Python GUI
File
Help
Tab 1
Tab 2
Tab 3

Chapter 4: Data and Classes



```
import tkinter as tk

# Create instance of tkinter
win = tk.Tk()

# Create DoubleVar
doubleData = tk.DoubleVar()
print(doubleData.get())         # default value
doubleData.set(2.4)
print(type(doubleData))

add_doubles = 1.222222222222222222222 + doubleData.get()
print(add_doubles)
print(type(add_doubles))
```

Console

```
<terminated> GUI_PyDoubleVar_to_Float_Get.py [C:\Python37\python.exe]
0.0
<class 'tkinter.DoubleVar'>
3.6222222222222222
<class 'float'>
```

```
import tkinter as tk

# Create instance of tkinter
win = tk.Tk()

# Assign tkinter Variable to strData variable
strData = tk.StringVar()

# Set strData variable
strData.set('Hello StringVar')

# Get value of strData variable
varData = strData.get()

# Print out current value of strData
print(varData)
```

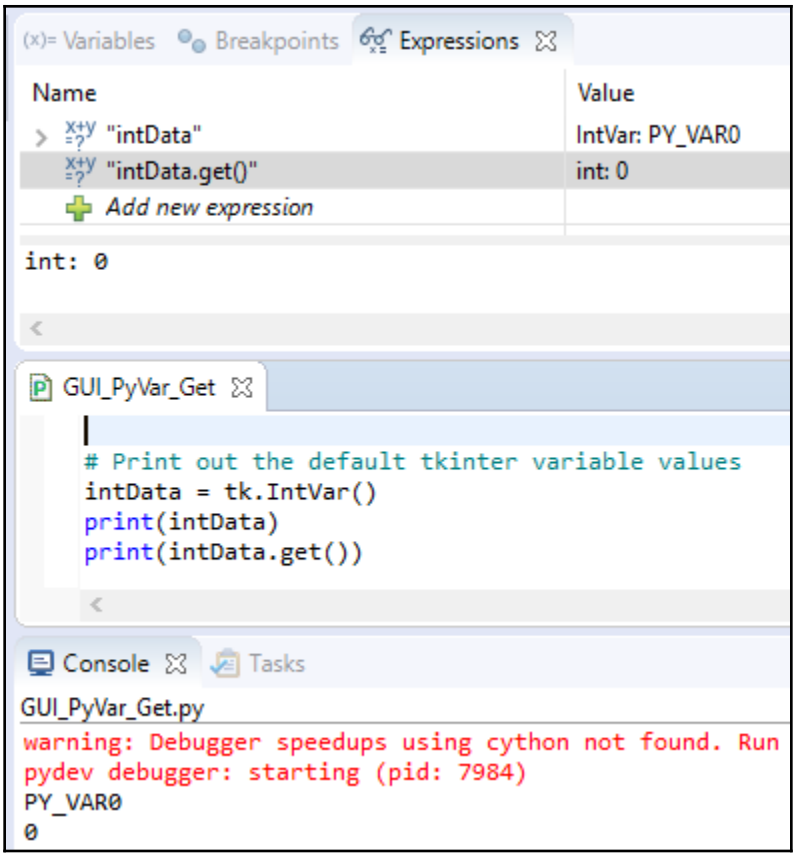
Console

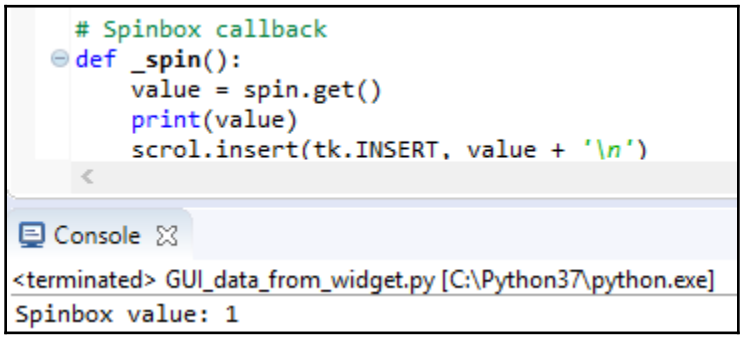
```
<terminated> GUI_StringVar.py [C:\Python37\python.exe]
Hello StringVar
```

```
# Print out current value of strData
print(varData)

# Print out the default tkinter variable values
print(tk.IntVar())
print(tk.DoubleVar())
print(tk.BooleanVar())
```

Console

```
<terminated> GUI_PyVar_defaults.py [C:\Python37\python.exe]
Hello StringVar
PY_VAR1
PY_VAR2
PY_VAR3
```


(x)= Variables
Breakpoints
Expressions
Name
Value
"intData"
IntVar: PY_VAR0
"intData.get()"
int: 0
Add new expression
int: 0
GUI_PyVar_Get
# Print out the default tkinter variable values
intData = tk.IntVar()
print(intData)
print(intData.get())
Console
Tasks
GUI_PyVar_Get.py
warning: Debugger speedups using cython not found. Run
pydev debugger: starting (pid: 7984)
PY_VAR0
0


# Spinbox callback
def _spin():
value = spin.get()
print(value)
scrol.insert(tk.INSERT, value + '\n')
Console
<terminated> GUI_data_from_widget.py [C:\Python37\python.exe]
Spinbox value: 1

```
# Printing the Global works
print(GLOBAL_CONST)

name_entered.focus()
#======================
# Start GUI
#======================
win.mainloop()
```

Console

```
<terminated> GUI_const_42_print.py [C:\Python37\python.exe]
42
```

```
def usingGlobal():
    print(GLOBAL_CONST)

# call function
usingGlobal()
```

Console

```
<terminated> GUI_const_42_print_func.py [C:\Python37\python.exe]
42
```

```
def usingGlobal():
    GLOBAL_CONST = 777
    print(GLOBAL_CONST)
```

Console

```
<terminated> GUI_const_42_777.py [C:\Python37\python.exe]
777
```

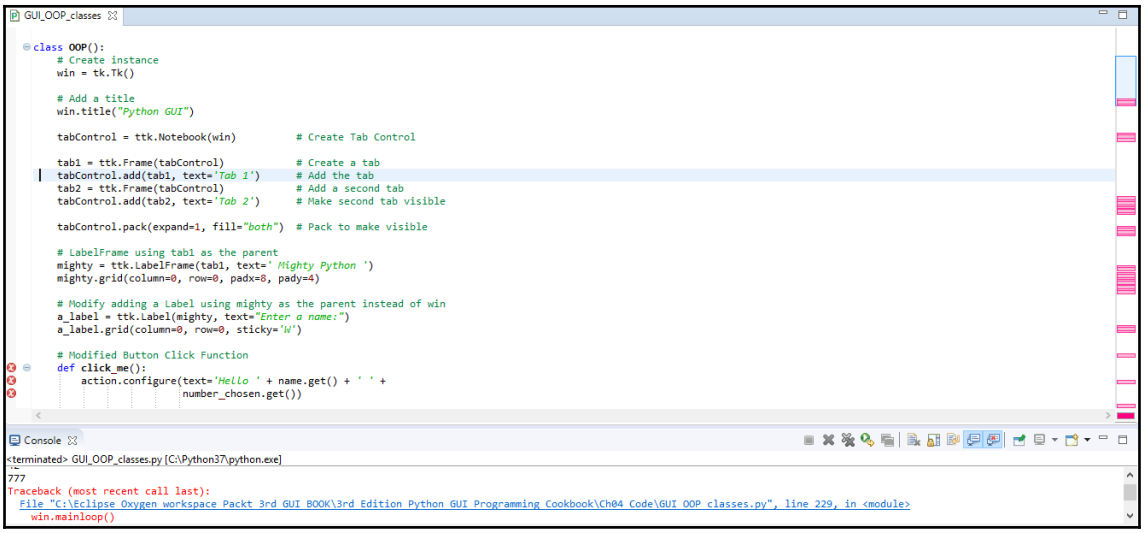
```
Console
<terminated> GUI_const_42_777_global_print_error.py [C:\Python37\python.exe]
Traceback (most recent call last):
  File "C:\Eclipse Oxygen workspace Packt 3rd GUI BOOK\3rd Edition Python GUI
    usingGlobal()
  File "C:\Eclipse Oxygen workspace Packt 3rd GUI BOOK\3rd Edition Python GUI
    print(GLOBAL_CONST)
UnboundLocalError: local variable 'GLOBAL_CONST' referenced before assignment
```

```
def usingGlobal():
    global GLOBAL_CONST
    print(GLOBAL_CONST)
    GLOBAL_CONST = 777
    print(GLOBAL_CONST)


# call function
usingGlobal()
```

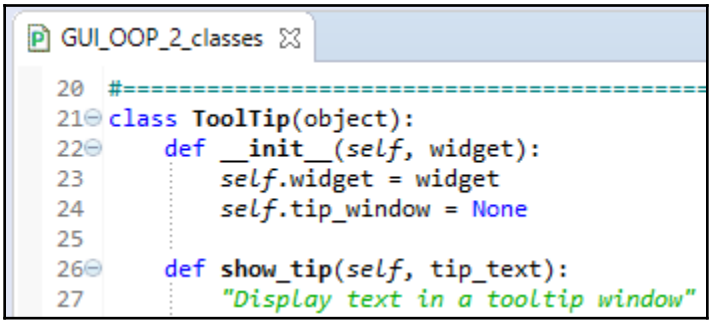
```
Console
<terminated> GUI_const_42_777_global.py [C:\Python37\python.exe]
42
777
```

```
# call function
usingGlobal()

# call the global from outside the function
print('GLOBAL_CONST:', GLOBAL_CONST)
```

```
Console
<terminated> GUI_const_42_777_global_shadowing.py [C:\Python37\python.exe]
42
777
GLOBAL_CONST: 777
```



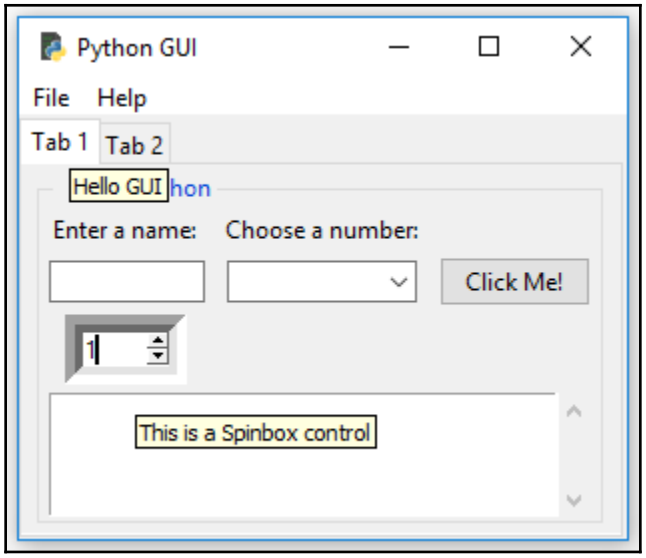

```
# Modified Button Click Function
def click_me(self):
    self.action.configure(text='Hello ' + self.name.get() + ' ' +
                          self.number_chosen.get())
```

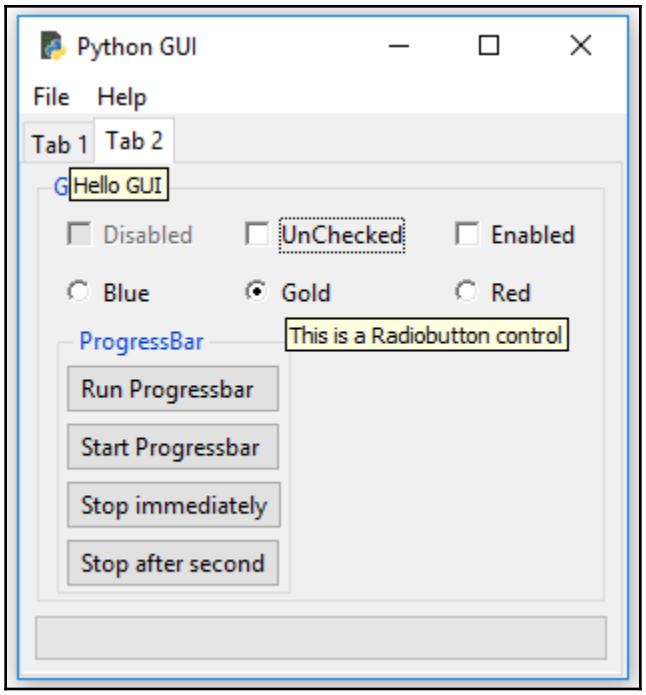


GUI_OOP_2_classes

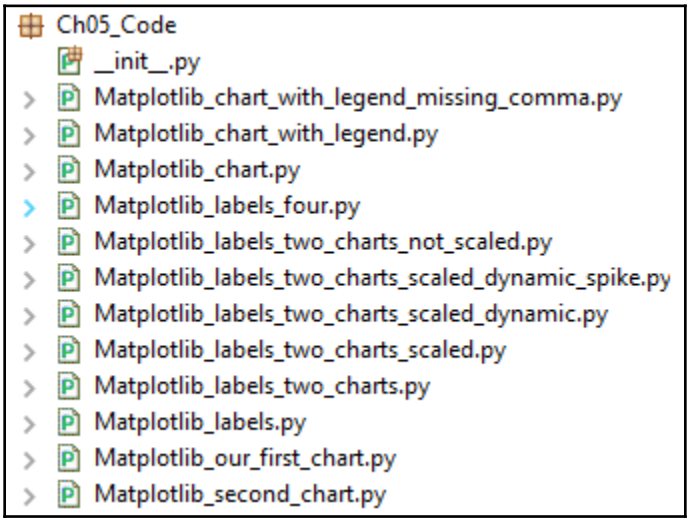
```
61  #======================================================
62  class OOP():
63      def __init__(self):          # Initializer method
64          # Create instance
65          self.win = tk.Tk()
66
67          create_ToolTip(self.win, 'Hello GUI')
68
69          # Add a title
70          self.win.title("Python GUI")
71          self.create_widgets()
```

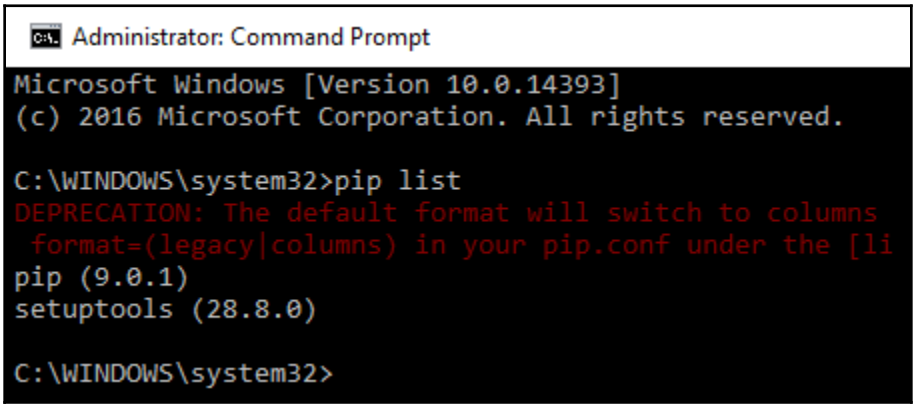
```
37      # Spinbox callback
38      def _spin(self):
39          value = self.spin.get()
40          print(value)
41          self.scrol.insert(tk.INSERT, value + '\n')

124
125         # Adding a Spinbox widget
126         self.spin = Spinbox(mighty, values=(1, 2, 4, 42, 100), width=5, bd=9, command=self._spin)
127         self.spin.grid(column=0, row=2)
```

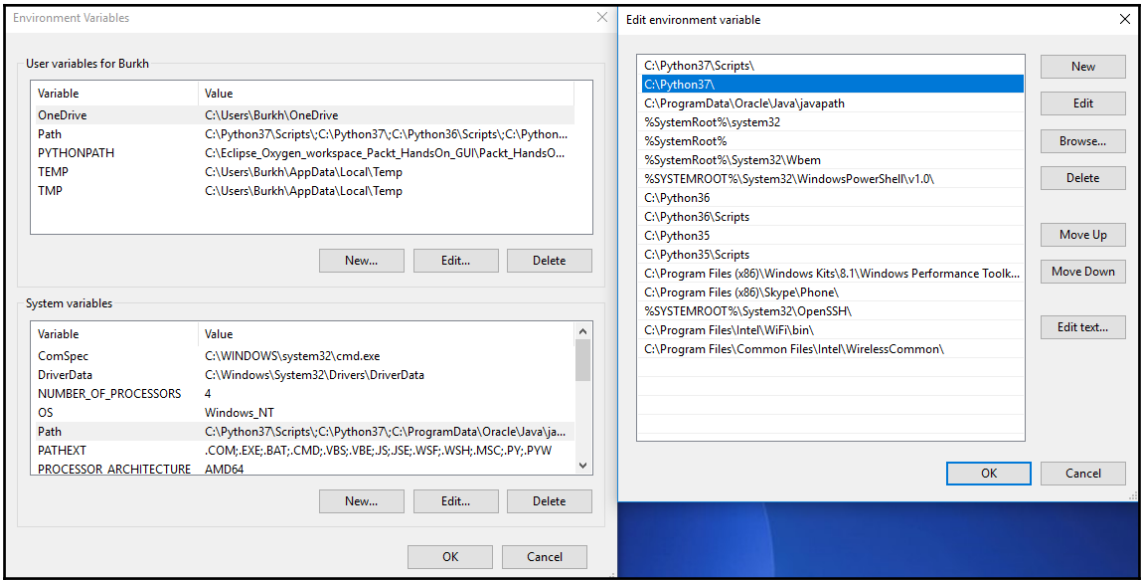


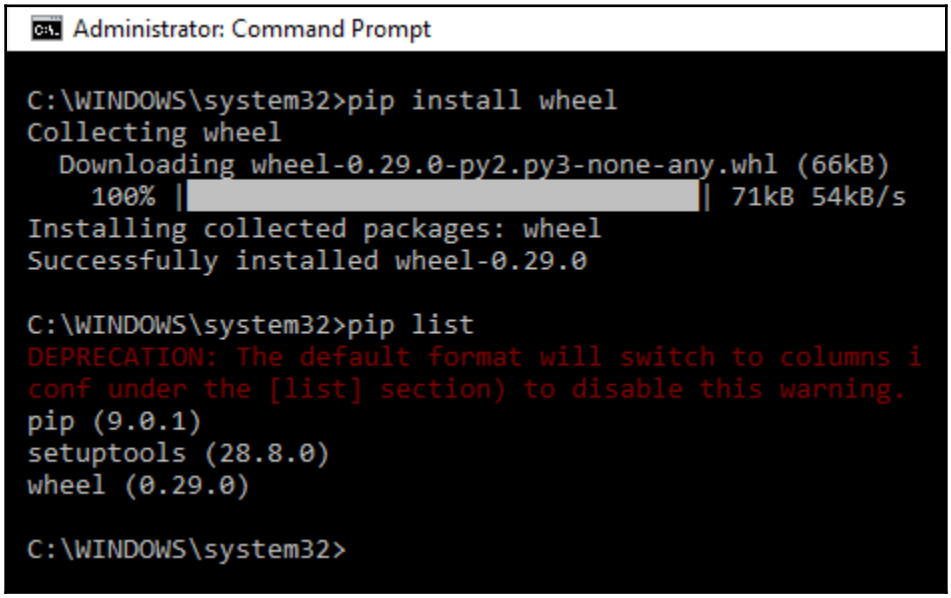

Python GUI
File
Help
Tab 1
Tab 2
Hello GUI
Disabled
UnChecked
Enabled
Blue
Gold
Red
This is a Radiobutton control
ProgressBar
Run Progressbar
Start Progressbar
Stop immediately
Stop after second

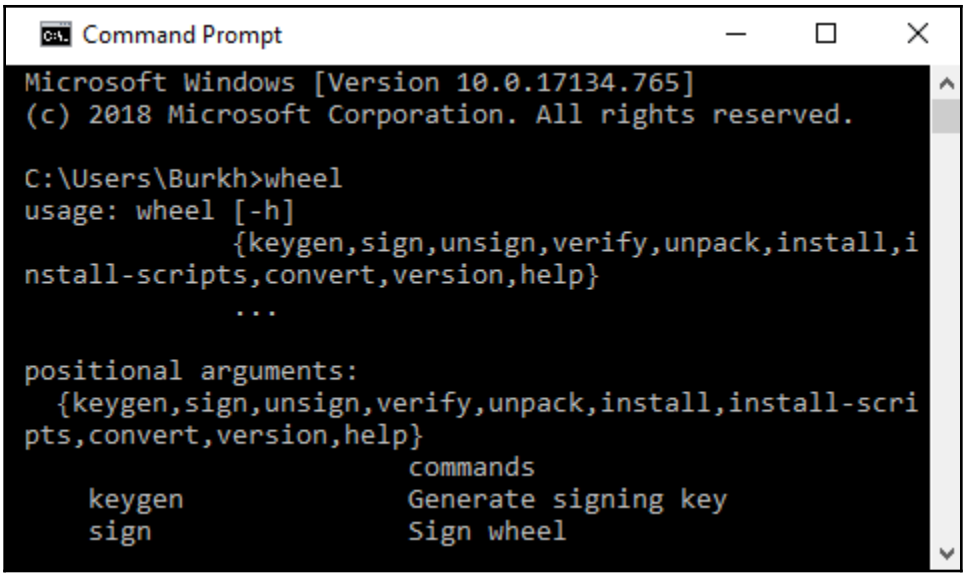
Chapter 5: Matplotlib Charts





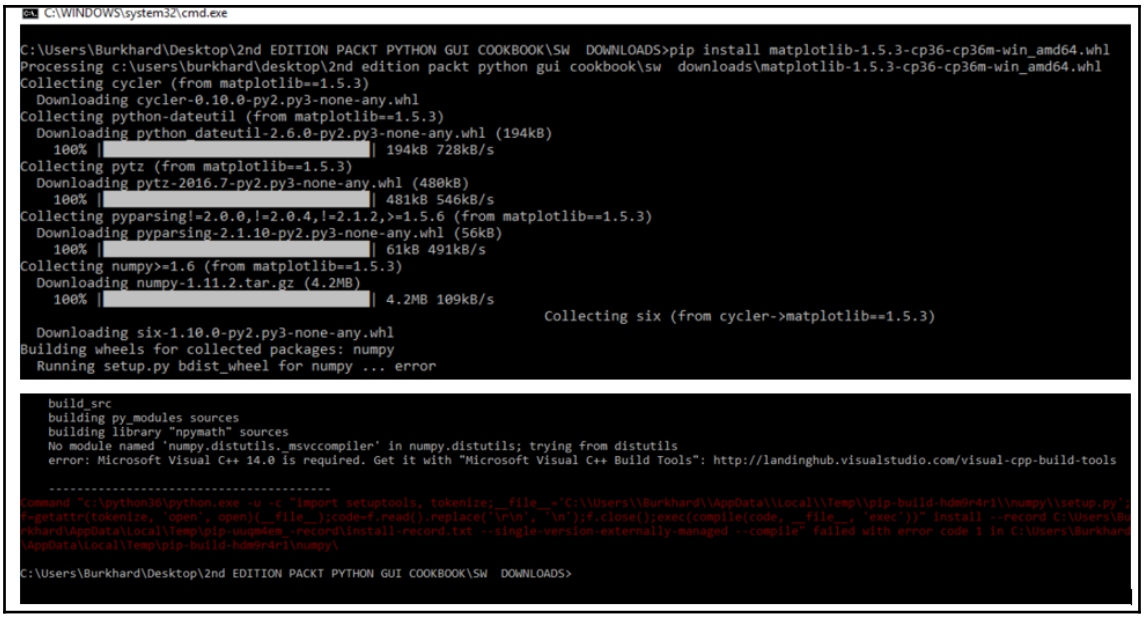

Environment Variables
User variables for Burkh
Variable
Value
OneDrive
C:\Users\Burkh\OneDrive
Path
C:\Python37\Scripts\;C:\Python37\;C:\Python36\Scripts\;C:\Python...
PYTHONPATH
C:\Eclipse_Oxygen_workspace_Packt_HandsOn_GUI\Packt_HandsO...
TEMP
C:\Users\Burkh\AppData\Local\Temp
TMP
C:\Users\Burkh\AppData\Local\Temp
New...
Edit...
Delete
System variables
Variable
Value
ComSpec
C:\WINDOWS\system32\cmd.exe
DriverData
C:\Windows\System32\Drivers\DriverData
NUMBER_OF_PROCESSORS
4
OS
Windows_NT
Path
C:\Python37\Scripts\;C:\Python37\;C:\ProgramData\Oracle\Java\ja...
PATHEXT
.COM;.EXE;.BAT;.CMD;.VBS;.VBE;.JS;.JSE;.WSF;.WSH;.MSC;.PY;.PYW
PROCESSOR_ARCHITECTURE
AMD64
New...
Edit...
Delete
OK
Cancel
Edit environment variable
C:\Python37\Scripts\
C:\Python37\
C:\ProgramData\Oracle\Java\javapath
%SystemRoot%\system32
%SystemRoot%
%SystemRoot%\System32\Wbem
%SYSTEMROOT%\System32\WindowsPowerShell\v1.0\
C:\Python36
C:\Python36\Scripts
C:\Python35
C:\Python35\Scripts
C:\Program Files (x86)\Windows Kits\8.1\Windows Performance Toolk...
C:\Program Files (x86)\Skype\Phone\
%SYSTEMROOT%\System32\OpenSSH\
C:\Program Files\Intel\WiFi\bin\
C:\Program Files\Common Files\Intel\WirelessCommon\
New
Edit
Browse...
Delete
Move Up
Move Down
Edit text...
OK
Cancel

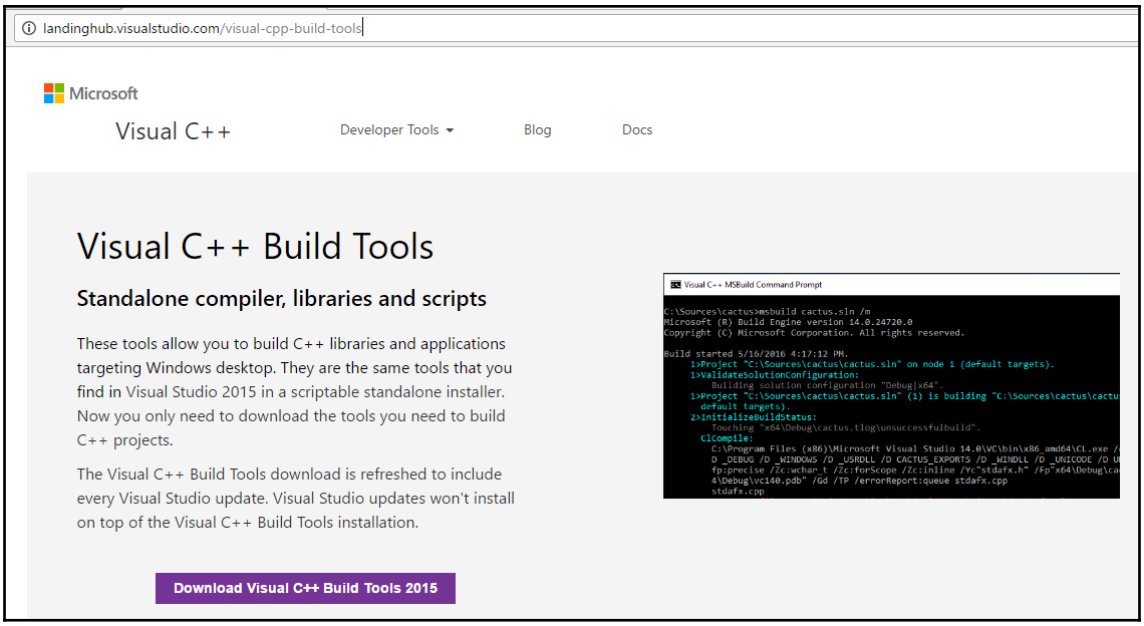

Administrator: Command Prompt
C:\WINDOWS\system32>pip install wheel
Collecting wheel
Downloading wheel-0.29.0-py2.py3-none-any.whl (66kB)
100% | | 71kB 54kB/s
Installing collected packages: wheel
Successfully installed wheel-0.29.0
C:\WINDOWS\system32>pip list
DEPRECATION: The default format will switch to columns i
conf under the [list] section) to disable this warning.
pip (9.0.1)
setuptools (28.8.0)
wheel (0.29.0)
C:\WINDOWS\system32>

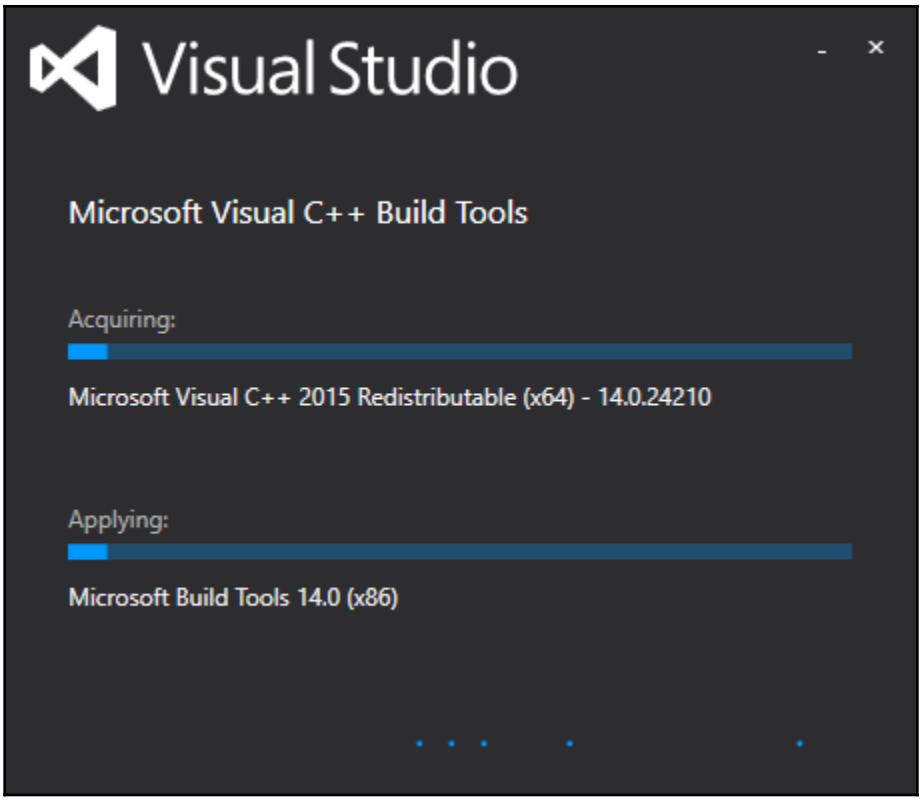

Command Prompt
Microsoft Windows [Version 10.0.17134.765]
(c) 2018 Microsoft Corporation. All rights reserved.
C:\Users\Burkh>wheel
usage: wheel [-h]
{keygen,sign,unsign,verify,unpack,install,install-scripts,convert,version,help}
...
positional arguments:
{keygen,sign,unsign,verify,unpack,install,install-scripts,convert,version,help}
commands
keygen
Generate signing key
sign
Sign wheel

Matplotlib, a 2D plotting library.
Requires numpy, dateutil, pytz, pyparsing, kiwisolver, imagemagick.

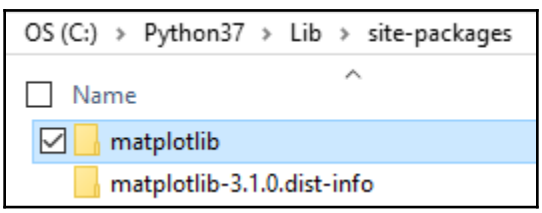
matplotlib-2.2.4-cp27-cp27m-win32.whl
matplotlib-2.2.4-cp27-cp27m-win_amd64.whl
matplotlib-2.2.4-cp35-cp35m-win32.whl
matplotlib-2.2.4-cp35-cp35m-win_amd64.whl
matplotlib-2.2.4-cp36-cp36m-win32.whl
matplotlib-2.2.4-cp36-cp36m-win_amd64.whl
matplotlib-2.2.4-cp37-cp37m-win32.whl
matplotlib-2.2.4-cp37-cp37m-win_amd64.whl
matplotlib-2.2.4-pp271-pypy_41-win32.whl
matplotlib-2.2.4-pp370-pp370-win32.whl
matplotlib-2.2.4.chm
matplotlib-3.0.3-cp35-cp35m-win32.whl
matplotlib-3.0.3-cp35-cp35m-win_amd64.whl
matplotlib-3.0.3.chm
matplotlib-3.1.0-cp36-cp36m-win32.whl
matplotlib-3.1.0-cp36-cp36m-win_amd64.whl
matplotlib-3.1.0-cp37-cp37m-win32.whl
matplotlib-3.1.0-cp37-cp37m-win_amd64.whl


C:\WINDOWS\system32\cmd.exe
C:\Users\Burkhard\Desktop\2nd EDITION PACKT PYTHON GUI COOKBOOK\SW DOWNLOADS>pip install matplotlib-1.5.3-cp36-cp36m-win_amd64.whl
Processing c:\users\burkhard\desktop\2nd edition packt python gui cookbook\sw downloads\matplotlib-1.5.3-cp36-cp36m-win_amd64.whl
Collecting cycler (from matplotlib==1.5.3)
Downloading cycler-0.10.0-py2.py3-none-any.whl
Collecting python-dateutil (from matplotlib==1.5.3)
Downloading python_dateutil-2.6.0-py2.py3-none-any.whl (194kB)
100% | 194kB 728kB/s
Collecting pytz (from matplotlib==1.5.3)
Downloading pytz-2016.7-py2.py3-none-any.whl (480kB)
100% | 481kB 546kB/s
Collecting pyparsing!=2.0.0,!=2.0.4,!=2.1.2,>=1.5.6 (from matplotlib==1.5.3)
Downloading pyparsing-2.1.10-py2.py3-none-any.whl (56kB)
100% | 61kB 491kB/s
Collecting numpy>=1.6 (from matplotlib==1.5.3)
Downloading numpy-1.11.2.tar.gz (4.2MB)
100% | 4.2MB 109kB/s
Collecting six (from cycler->matplotlib==1.5.3)
Downloading six-1.10.0-py2.py3-none-any.whl
Building wheels for collected packages: numpy
Running setup.py bdist_wheel for numpy ... error
build_src
building py_modules sources
building library "npymath" sources
No module named 'numpy.distutils._msvccompiler' in numpy.distutils; trying from distutils
error: Microsoft Visual C++ 14.0 is required. Get it with "Microsoft Visual C++ Build Tools": http://landinghub.visualstudio.com/visual-cpp-build-tools
C:\Users\Burkhard\Desktop\2nd EDITION PACKT PYTHON GUI COOKBOOK\SW DOWNLOADS>


landinghub.visualstudio.com/visual-cpp-build-tools
Microsoft
Visual C++
Developer Tools
Blog
Docs
Visual C++ Build Tools
Standalone compiler, libraries and scripts
These tools allow you to build C++ libraries and applications targeting Windows desktop. They are the same tools that you find in Visual Studio 2015 in a scriptable standalone installer. Now you only need to download the tools you need to build C++ projects.
The Visual C++ Build Tools download is refreshed to include every Visual Studio update. Visual Studio updates won't install on top of the Visual C++ Build Tools installation.
Download Visual C++ Build Tools 2015
Visual C++ MSBuild Command Prompt
C:\Sources\cactus>msbuild cactus.sln /m
Microsoft (R) Build Engine version 14.0.24720.0
Copyright (C) Microsoft Corporation. All rights reserved.
Build started 5/16/2016 4:17:12 PM.
1>Project "C:\Sources\cactus\cactus.sln" on node 1 (default targets).
1>ValidateSolutionConfiguration:
Building solution configuration "Debug|x64".
1>Project "C:\Sources\cactus\cactus.sln" (1) is building "C:\Sources\cactus\cactu
default targets).
2>InitializeBuildStatus:
Touching "x64\Debug\cactus.tlog\unsuccessfulbuild".
ClCompile:
C:\Program Files (x86)\Microsoft Visual Studio 14.0\VC\bin\x86_amd64\CL.exe /
D _DEBUG /D _WINDOWS /D _USRDLL /D CACTUS_EXPORTS /D _WINDLL /D _UNICODE /D U
fp:precise /Zc:wchar_t /Zc:forScope /Zc:inline /Yc"stdafx.h" /Fp"x64\Debug\ca
4\Debug\vc140.pdb" /Gd /TP /errorReport:queue stdafx.cpp
stdafx.cpp




```
Windows PowerShell
PS C:\Users\Burkh\Desktop\2019 Third Edition Book> pip install matplotlib-3.1.0-cp37-cp37m-win_amd64.whl
Processing c:\users\burkh\desktop\2019 third edition book\matplotlib-3.1.0-cp37-cp37m-win_amd64.whl
Requirement already satisfied: kiwisolver>=1.0.1 in c:\python37\lib\site-packages (from matplotlib==3.1.0) (1.0.1)
Requirement already satisfied: python-dateutil>=2.1 in c:\python37\lib\site-packages (from matplotlib==3.1.0) (2.7.5)
Requirement already satisfied: pyparsing!=2.0.4,!=2.1.2,!=2.1.6,>=2.0.1 in c:\python37\lib\site-packages (from matplotli
b==3.1.0) (2.3.0)
Requirement already satisfied: numpy>=1.11 in c:\python37\lib\site-packages (from matplotlib==3.1.0) (1.15.1)
Requirement already satisfied: cycler>=0.10 in c:\python37\lib\site-packages (from matplotlib==3.1.0) (0.10.0)
Requirement already satisfied: setuptools in c:\python37\lib\site-packages (from kiwisolver>=1.0.1->matplotlib==3.1.0)
39.0.1)
Requirement already satisfied: six>=1.5 in c:\python37\lib\site-packages (from python-dateutil>=2.1->matplotlib==3.1.0)
(1.11.0)
Installing collected packages: matplotlib
  Found existing installation: matplotlib 3.0.2
    Uninstalling matplotlib-3.0.2:
      Successfully uninstalled matplotlib-3.0.2
Successfully installed matplotlib-3.1.0
PS C:\Users\Burkh\Desktop\2019 Third Edition Book>
```



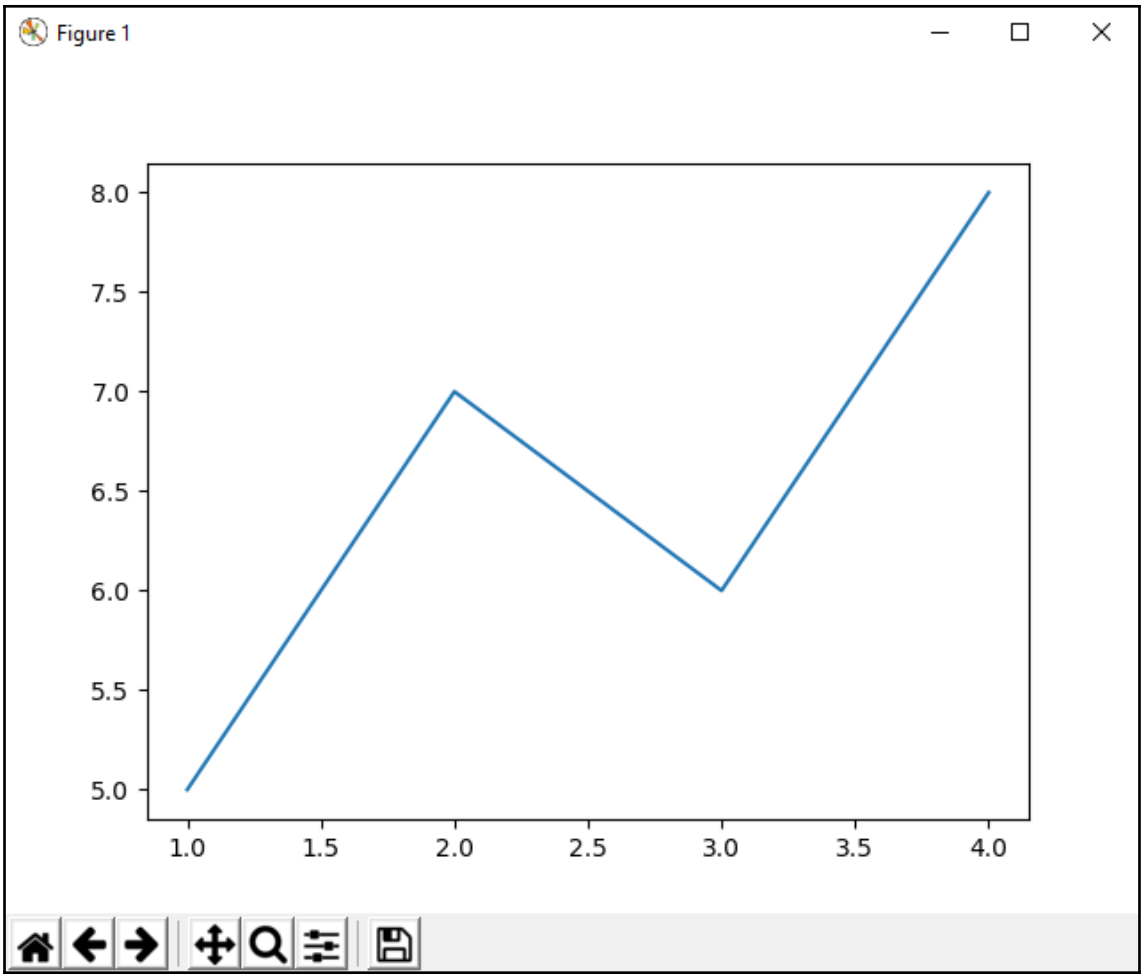
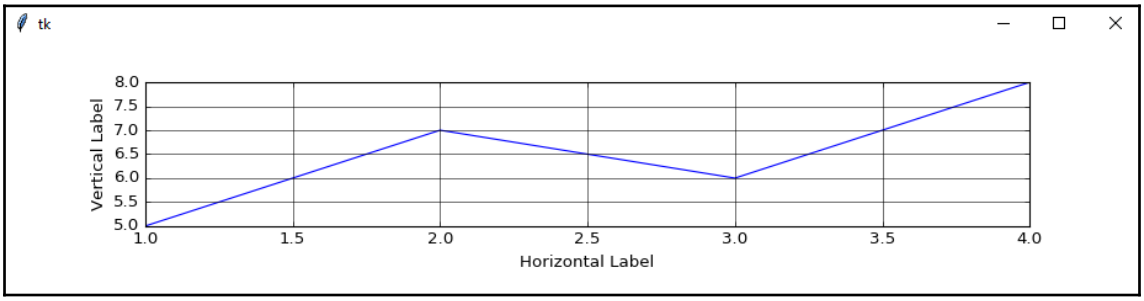
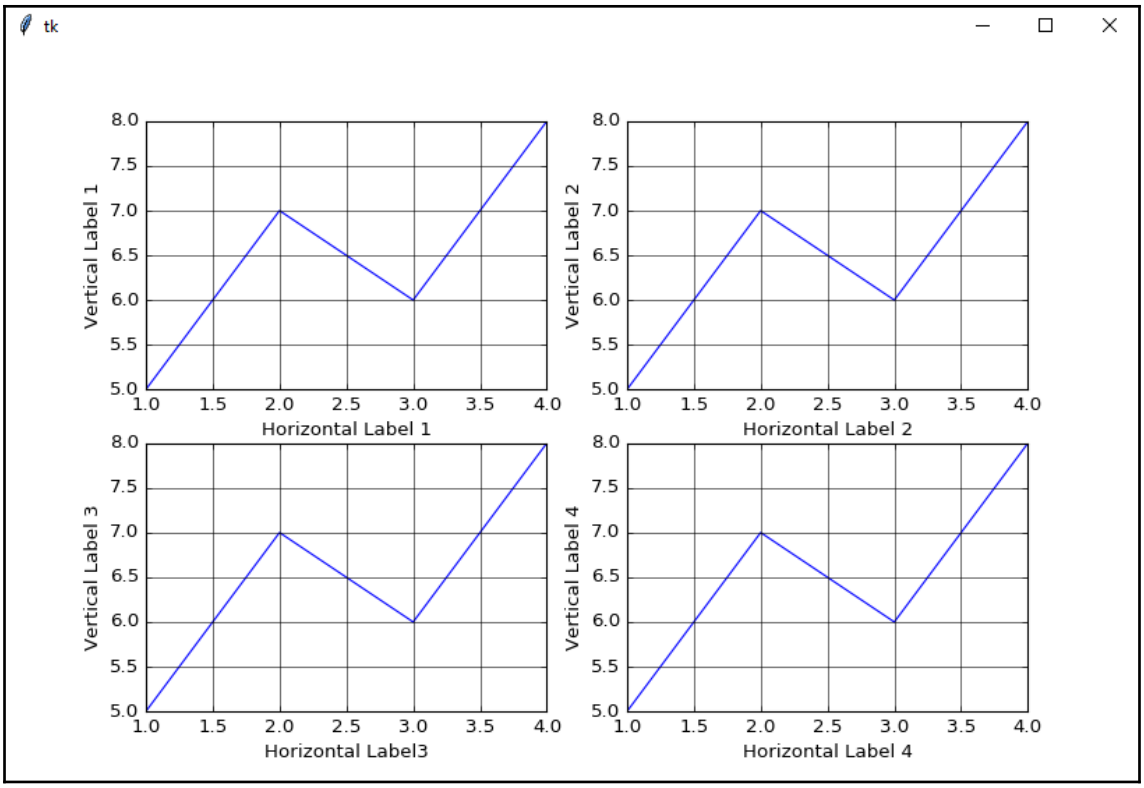
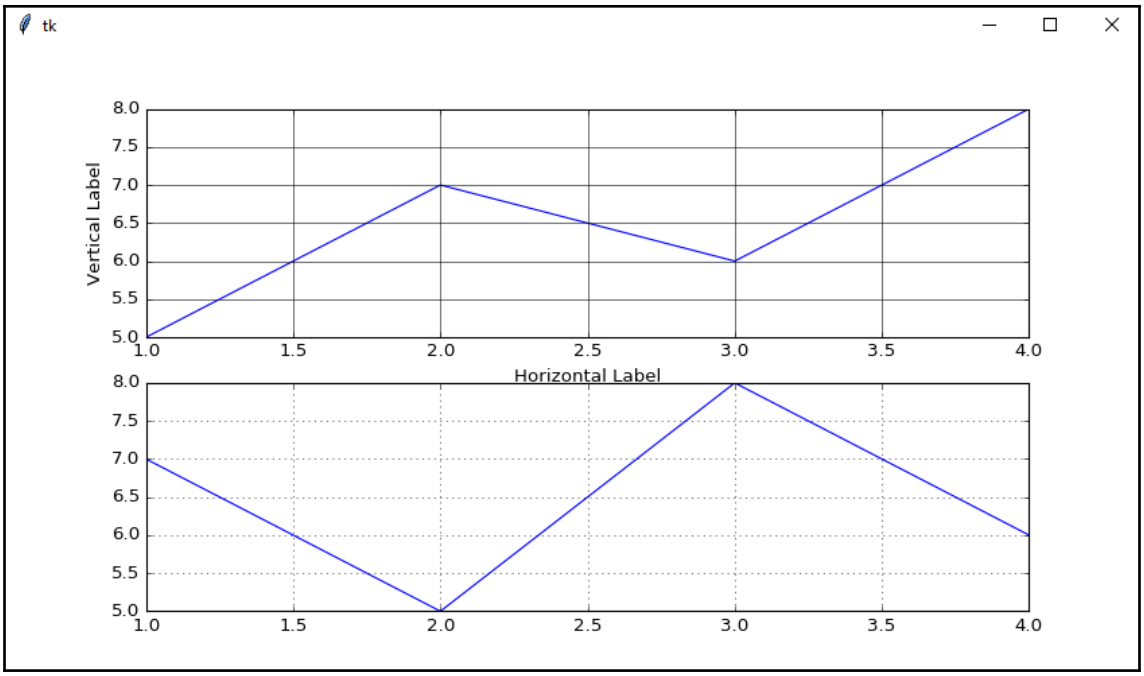
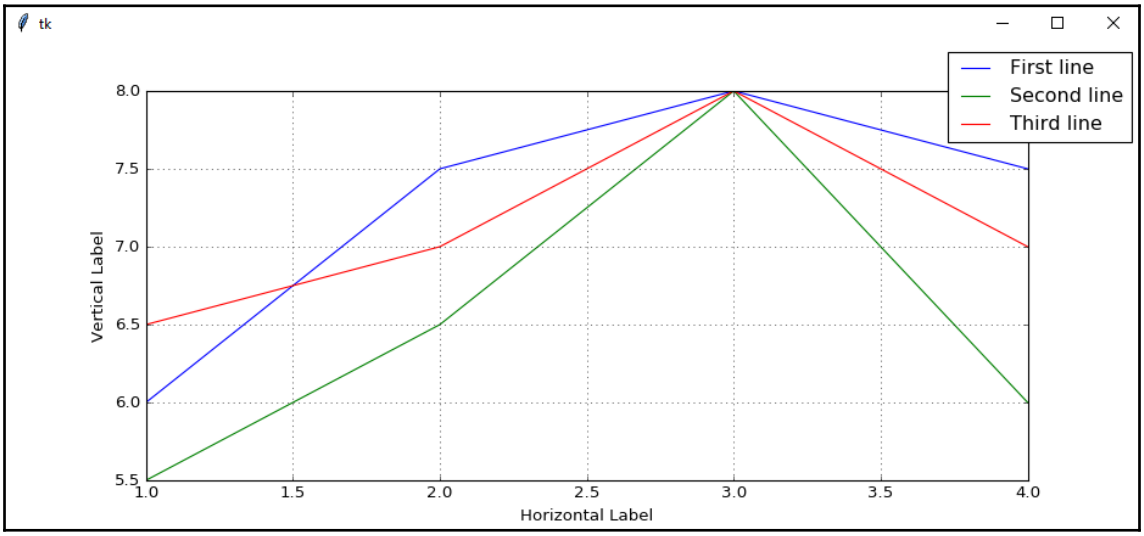


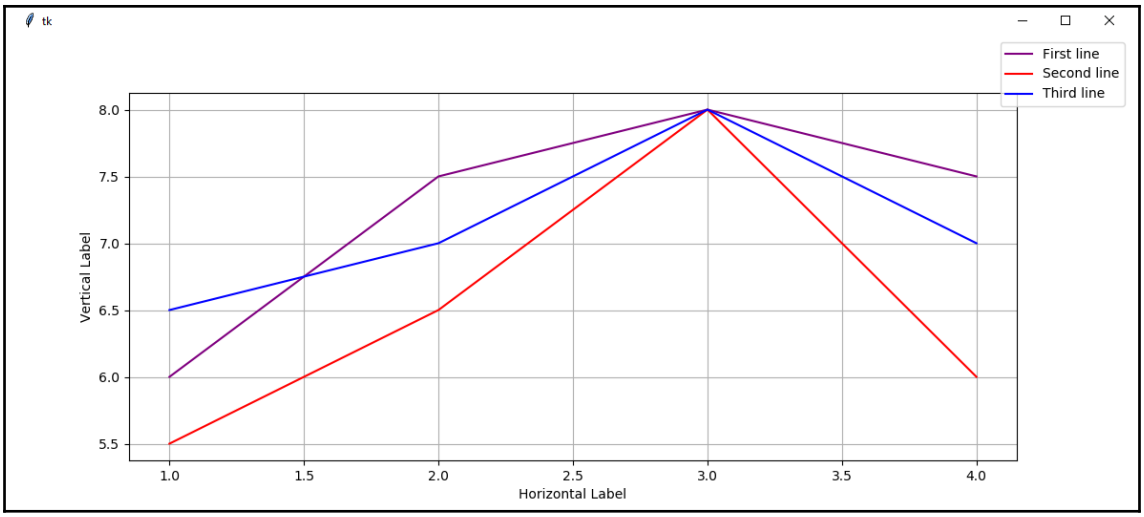
Figure 1
8.0
7.5
7.0
6.5
6.0
5.5
5.0
1.0
1.5
2.0
2.5
3.0
3.5
4.0


tk
Vertical Label
8.0
7.5
7.0
6.5
6.0
5.5
5.0
1.0
1.5
2.0
2.5
3.0
3.5
4.0
Horizontal Label

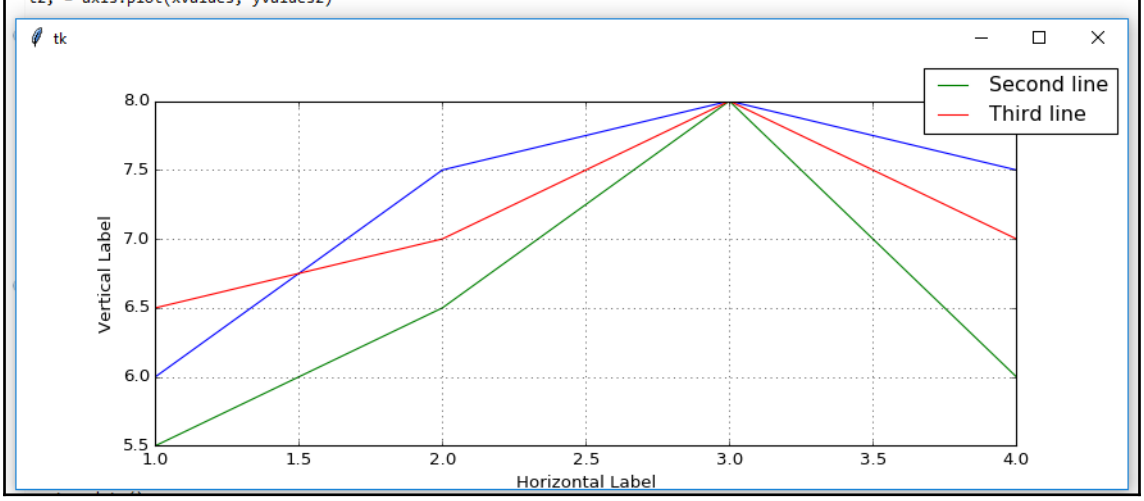

tk
Vertical Label 1
Horizontal Label 1
Vertical Label 2
Horizontal Label 2
Vertical Label 3
Horizontal Label3
Vertical Label 4
Horizontal Label 4
8.0
7.5
7.0
6.5
6.0
5.5
5.0
1.0
1.5
2.0
2.5
3.0
3.5
4.0

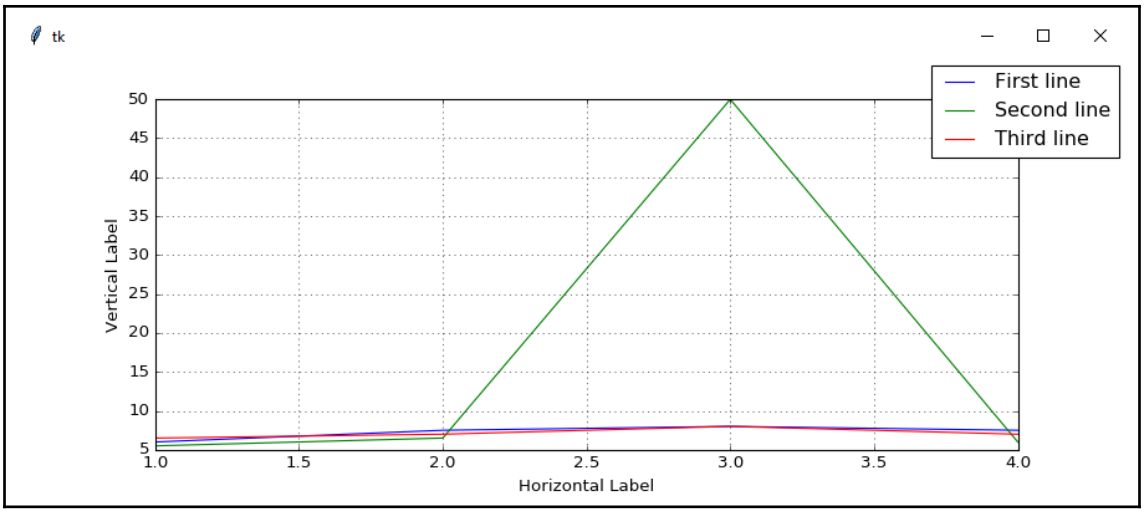

tk
Vertical Label
Horizontal Label
8.0
7.5
7.0
6.5
6.0
5.5
5.0
1.0
1.5
2.0
2.5
3.0
3.5
4.0

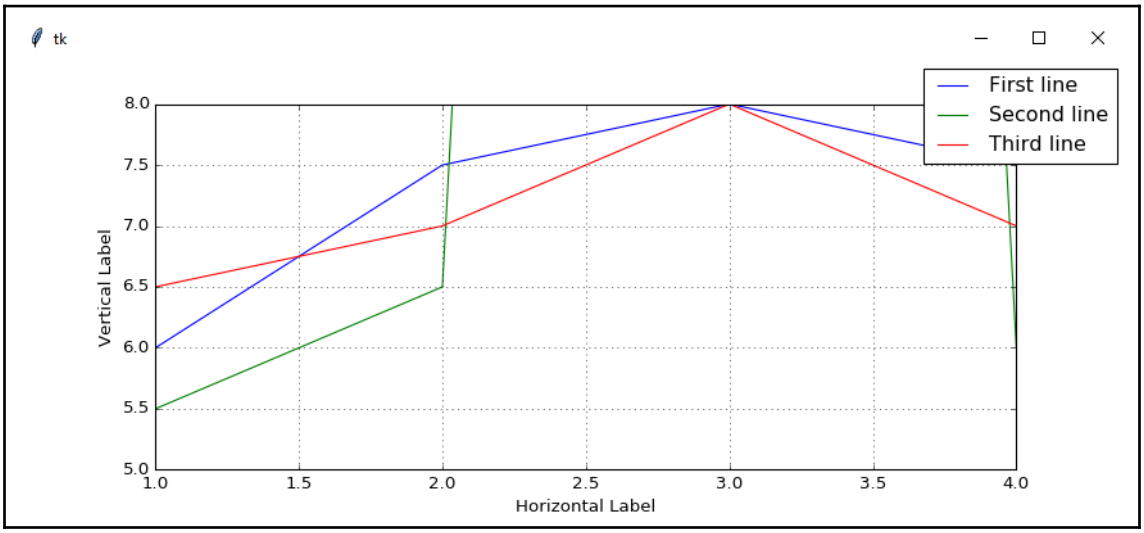

tk
First line
Second line
Third line
Vertical Label
Horizontal Label
8.0
7.5
7.0
6.5
6.0
5.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0

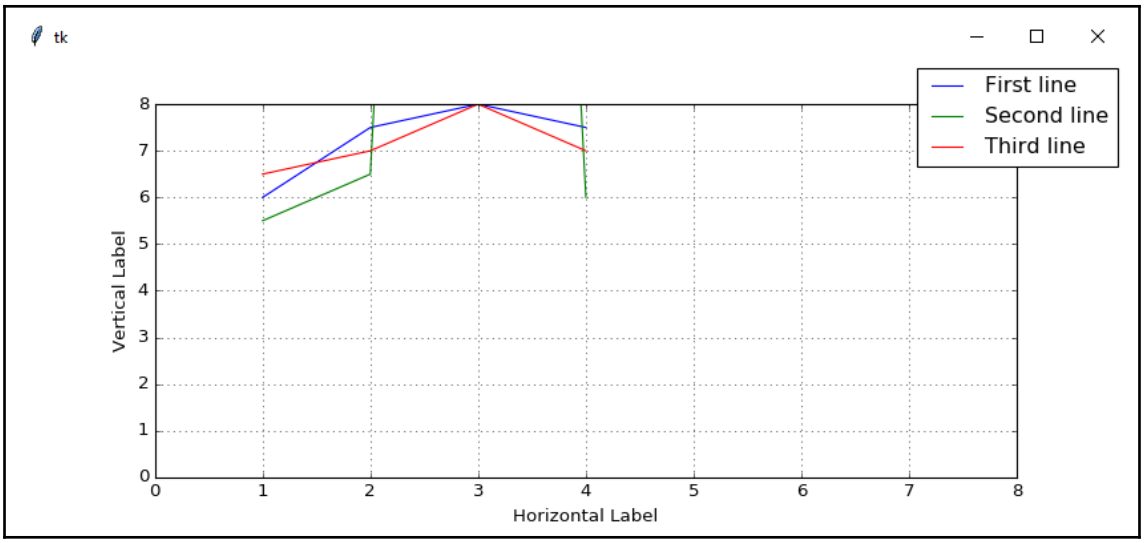


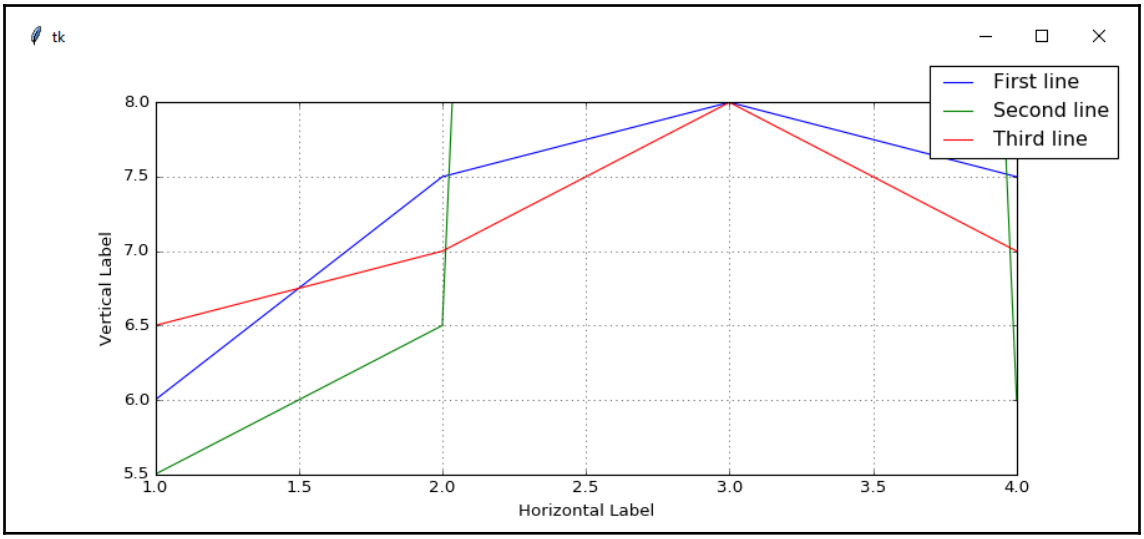

```
# the commas after t0, t1 and t2 are required
t0 = axis.plot(xValues, yValues0)              # no comma here
t1, = axis.plot(xValues, yValues1)
t2, = axis.plot(xValues, yValues2)
```



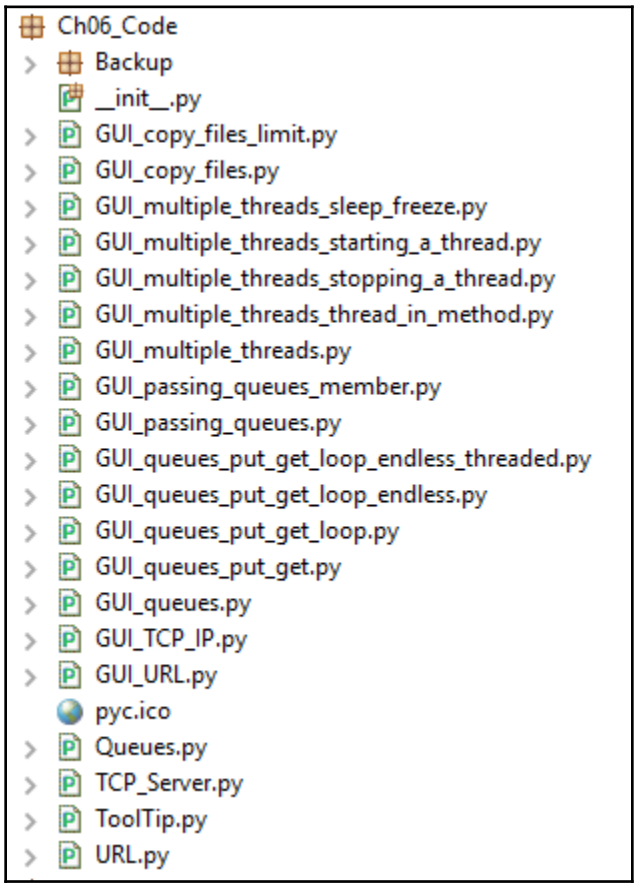

tk
First line
Second line
Third line
Vertical Label
Horizontal Label
50
45
40
35
30
25
20
15
10
5
1.0
1.5
2.0
2.5
3.0
3.5
4.0

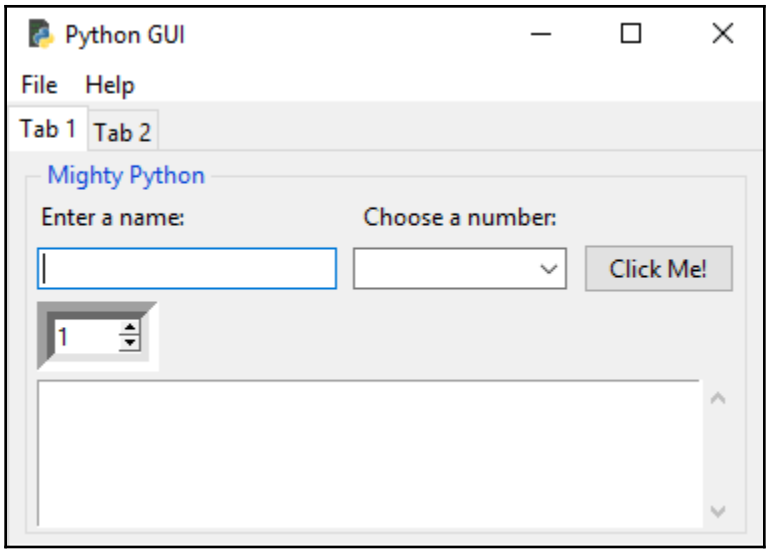

tk
First line
Second line
Third line
Vertical Label
Horizontal Label
8.0
7.5
7.0
6.5
6.0
5.5
5.0
1.0
1.5
2.0
2.5
3.0
3.5
4.0

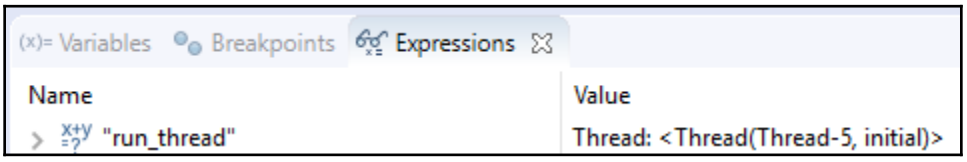

tk
First line
Second line
Third line
Vertical Label
Horizontal Label
0
1
2
3
4
5
6
7
8

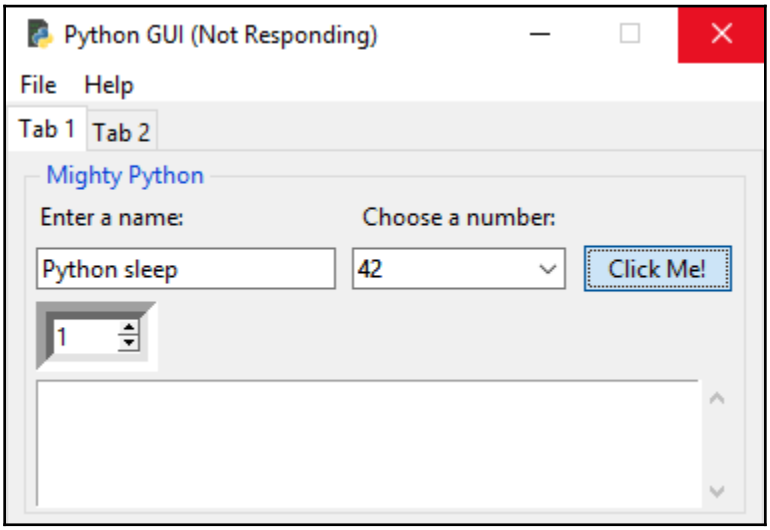

tk
First line
Second line
Third line
Vertical Label
Horizontal Label
5.5
6.0
6.5
7.0
7.5
8.0
1.0
1.5
2.0
2.5
3.0
3.5
4.0

Chapter 6: Threads and Networking

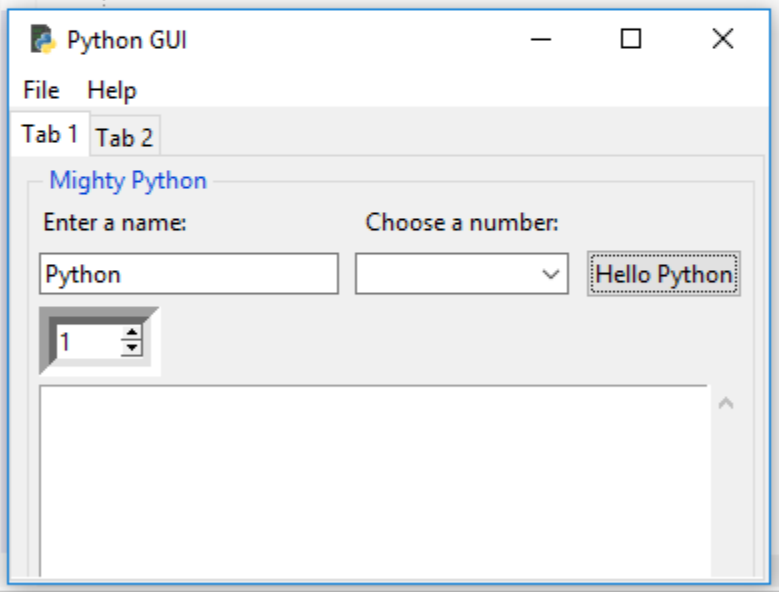



Python GUI
File
Help
Tab 1
Tab 2
Mighty Python
Enter a name:
Choose a number:
Click Me!
1


(x)= Variables
Breakpoints
Expressions
Name
Value
"run_thread"
Thread: <Thread(Thread-5, initial)>


Python GUI (Not Responding)
File
Help
Tab 1
Tab 2
Mighty Python
Enter a name:
Choose a number:
Python sleep
42
Click Me!
1

```
    def method_in_a_thread(self):
        print('Hi, how are you?')

    # Running methods in Threads
    def create_thread(self):
        self.run_thread = Thread(target=self.method_in_a_thread)
        self.run_thread.start()

    # Button callback
    def click_me(self):
        self.action.configure(text='Hello ' + self.name.get())
        self.create_thread()
```

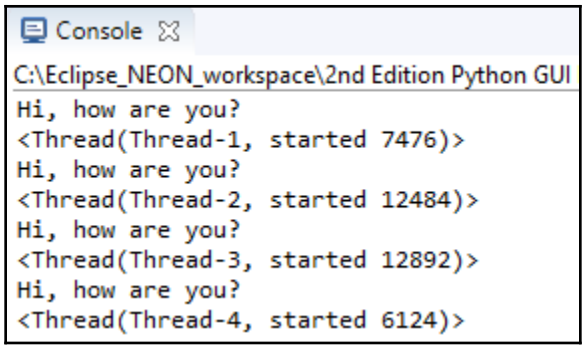


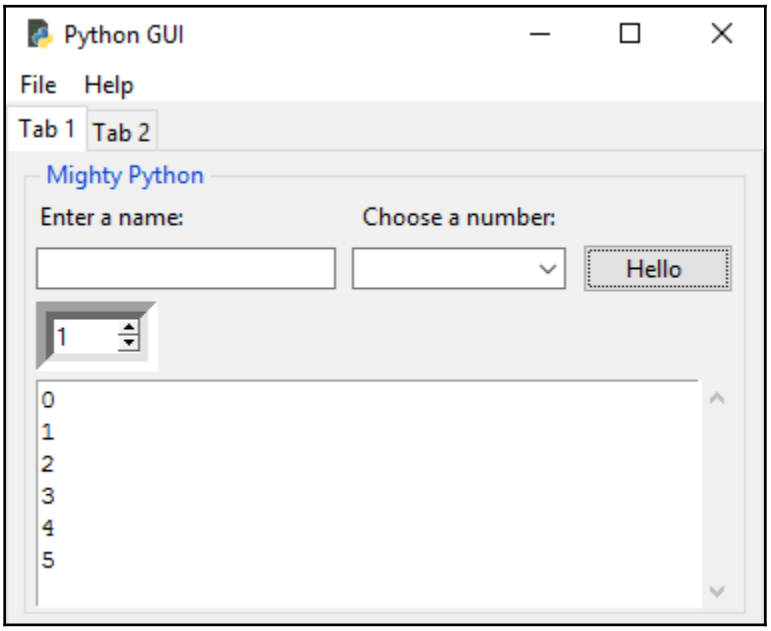
Search | Console | PyUnit

```
C:\Eclipse_NEON_workspace\2nd Edition Python GUI Programming Cookbook\Ch06_Code\GUI_
Hi, how are you?
```

Console

```
C:\Eclipse_NEON_workspace\2nd Edition Python GUI
Hi, how are you?
<Thread(Thread-1, started 7476)>
```


Console
C:\Eclipse_NEON_workspace\2nd Edition Python GUI
Hi, how are you?
<Thread(Thread-1, started 7476)>
Hi, how are you?
<Thread(Thread-2, started 12484)>
Hi, how are you?
<Thread(Thread-3, started 12892)>
Hi, how are you?
<Thread(Thread-4, started 6124)>


Python GUI
File
Help
Tab 1
Tab 2
Mighty Python
Enter a name:
Choose a number:
Hello
1
0
1
2
3
4
5

```
    def method_in_a_thread(self, num_of_loops=10):
        print('Hi, how are you?')
        for idx in range(num_of_loops):
            sleep(1)
            self.scrol.insert(tk.INSERT, str(idx) + '\n')
        print('method_in_a_thread():', self.run_thread.isAlive())

    # Running methods in Threads
    def create_thread(self):
        self.run_thread = Thread(target=self.method_in_a_thread, args=[8])
        self.run_thread.start()
        print(self.run_thread)
        print('createThread():', self.run_thread.isAlive())
```

Console

```
<terminated> C:\Eclipse_NEON_workspace\2nd Edition Python GUI Programming Cookbook\Ch06_Code\GUI
Hi, how are you?
<Thread(Thread-1, started 11304)>
createThread(): True
Exception in thread Thread-1:
Traceback (most recent call last):
  File "C:\Python36\lib\threading.py", line 916, in  bootstrap inner
    self.run()
  File "C:\Python36\lib\threading.py", line 864, in run
    self._target(*self._args, **self._kwargs)
  File "C:\Eclipse NEON workspace\2nd Edition Python GUI Programming Cookbook\Ch06
    self.scrol.insert(tk.INSERT, str(idx) + '\n')
  File "C:\Python36\lib\tkinter\  init  .py", line 3266, in insert
    self.tk.call((self._w, 'insert', index, chars) + args)
RuntimeError: main thread is not in main loop
```

```
    # Running methods in Threads
    def create_thread(self):
        self.run_thread = Thread(target=self.method_in_a_thread, args=[8])
        self.run_thread.setDaemon(True)
        self.run_thread.start()
        print(self.run_thread)
        print('createThread():', self.run_thread.isAlive())
```

Console

```
<terminated> C:\Eclipse_NEON_workspace\2nd Edition Python GUI Programming Cookbook\Ch06_Code\GUI
Hi, how are you?
<Thread(Thread-1, started daemon 12264)>
createThread(): True
```

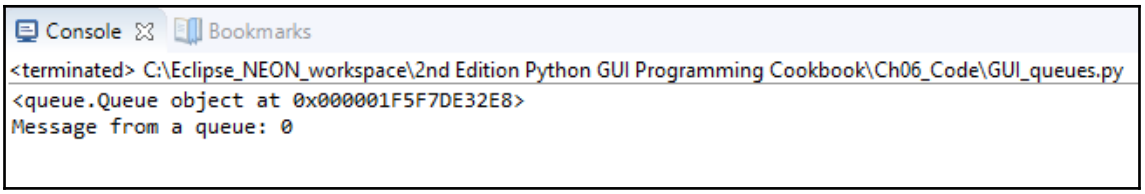
Console Bookmarks

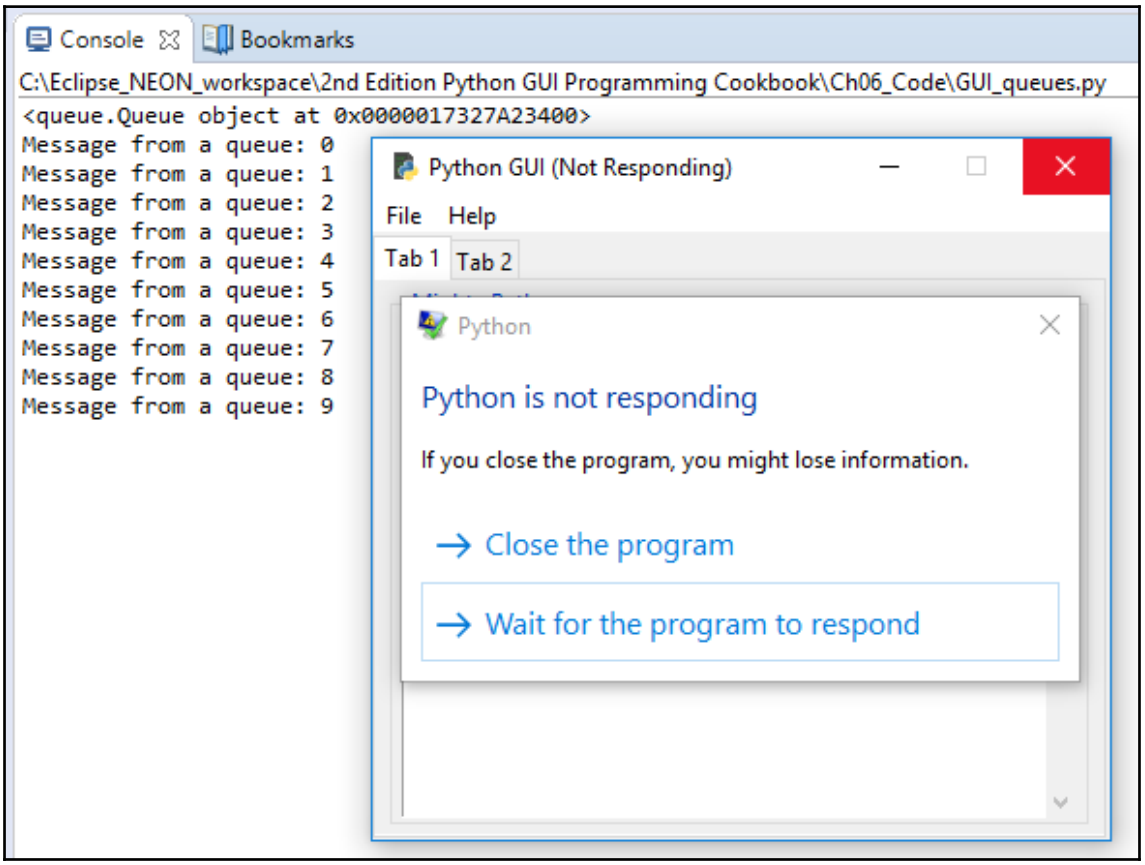
```
C:\Eclipse_NEON_workspace\2nd Edition Python GUI Programming Cookbook\Ch06_Code\GUI_queues.py
Hi, how are you?
<Thread(Thread-1, started daemon 6432)>
createThread(): True
<queue.Queue object at 0x0000023C005534A8>
method_in_a_thread(): True
```

```
    # Create Queue instance
    def use_queues(self):
        gui_queue = Queue()
        print(gui_queue)
        gui_queue.put('Message from a queue')
        print(gui_queue.get())
```

Console Bookmarks

```
<terminated> C:\Eclipse_NEON_workspace\2nd Edition Python GUI
<queue.Queue object at 0x000001B585C832B0>
Message from a queue
```

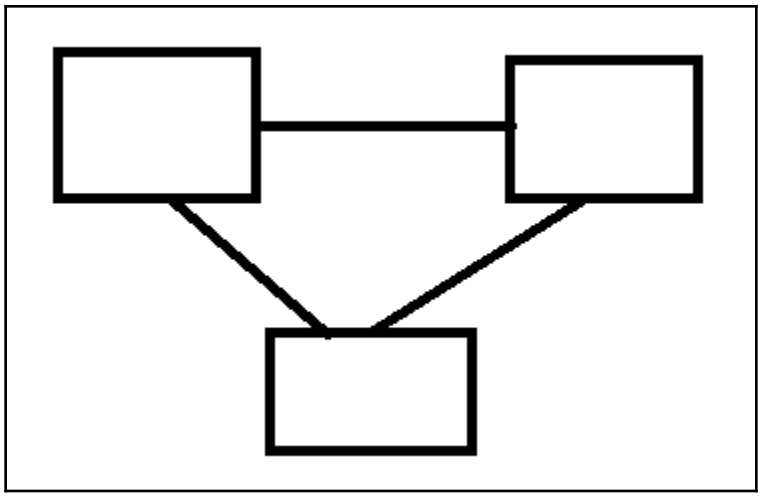

Console
Bookmarks
<terminated> C:\Eclipse_NEON_workspace\2nd Edition Python GUI Programming Cookbook\Ch06_Code\GUI_queues.py
<queue.Queue object at 0x000001F5F7DE32E8>
Message from a queue: 0

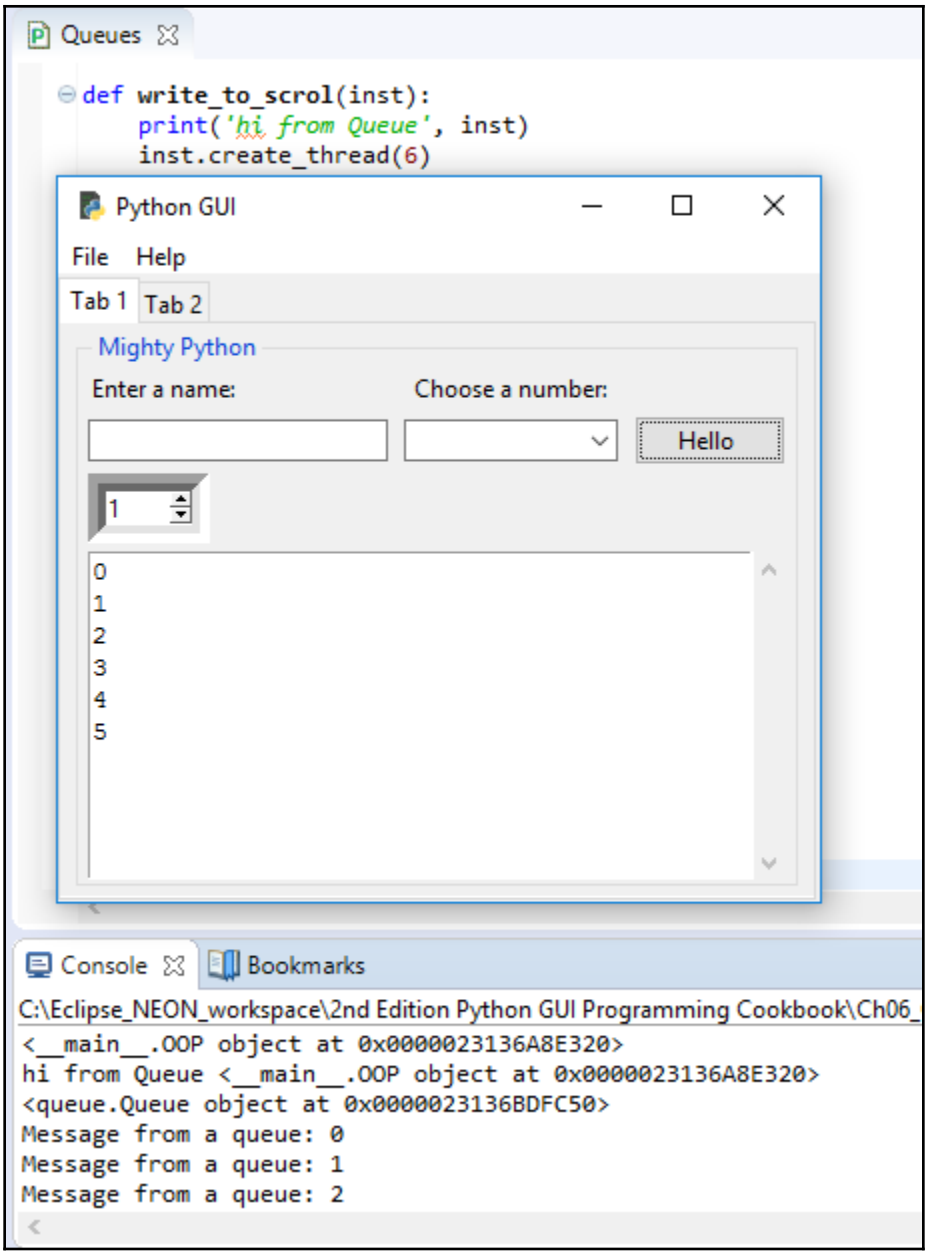

Console
Bookmarks
C:\Eclipse_NEON_workspace\2nd Edition Python GUI Programming Cookbook\Ch06_Code\GUI_queues.py
<queue.Queue object at 0x0000017327A23400>
Message from a queue: 0
Message from a queue: 1
Message from a queue: 2
Message from a queue: 3
Message from a queue: 4
Message from a queue: 5
Message from a queue: 6
Message from a queue: 7
Message from a queue: 8
Message from a queue: 9
Python GUI (Not Responding)
File
Help
Tab 1
Tab 2
Python
Python is not responding
If you close the program, you might lose information.
Close the program
Wait for the program to respond

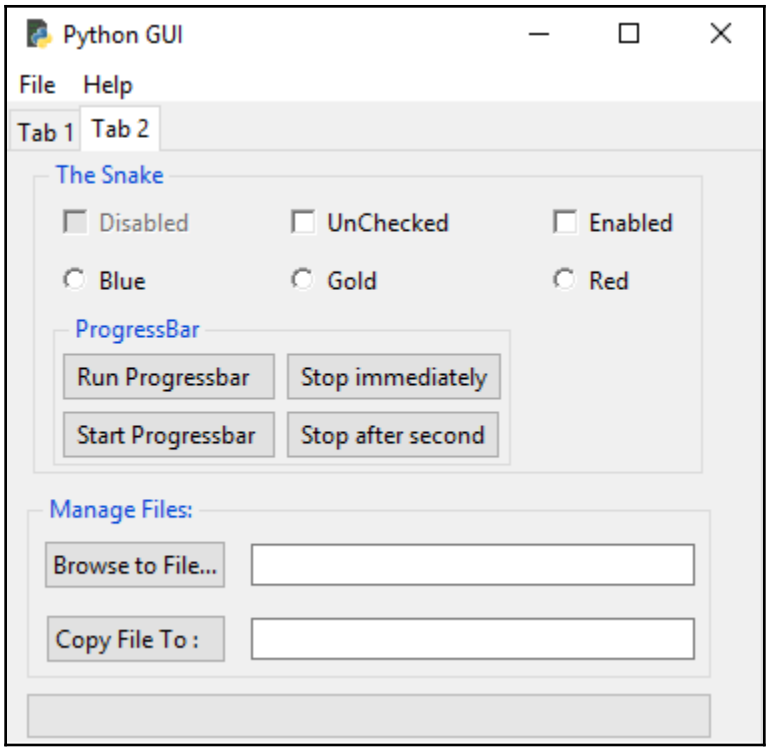
```
    # Running methods in Threads
    def create_thread(self):
        self.run_thread = Thread(target=self.method_in_a_thread, args=[8])
        self.run_thread.setDaemon(True)
        self.run_thread.start()

        # start queue in its own thread
        write_thread = Thread(target=self.use_queues, daemon=True)
        write_thread.start()

    # Button callback
    def click_me(self):
        self.action.configure(text='Hello ' + self.name.get())
        self.create_thread()
        # self.use_queues()    # now started as a thread in create_thread()
```

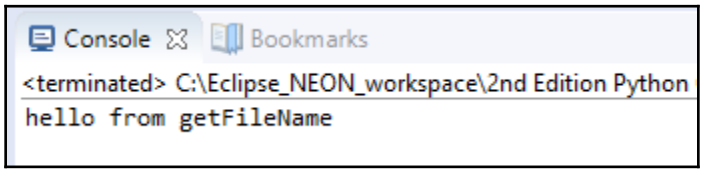
Console Bookmarks

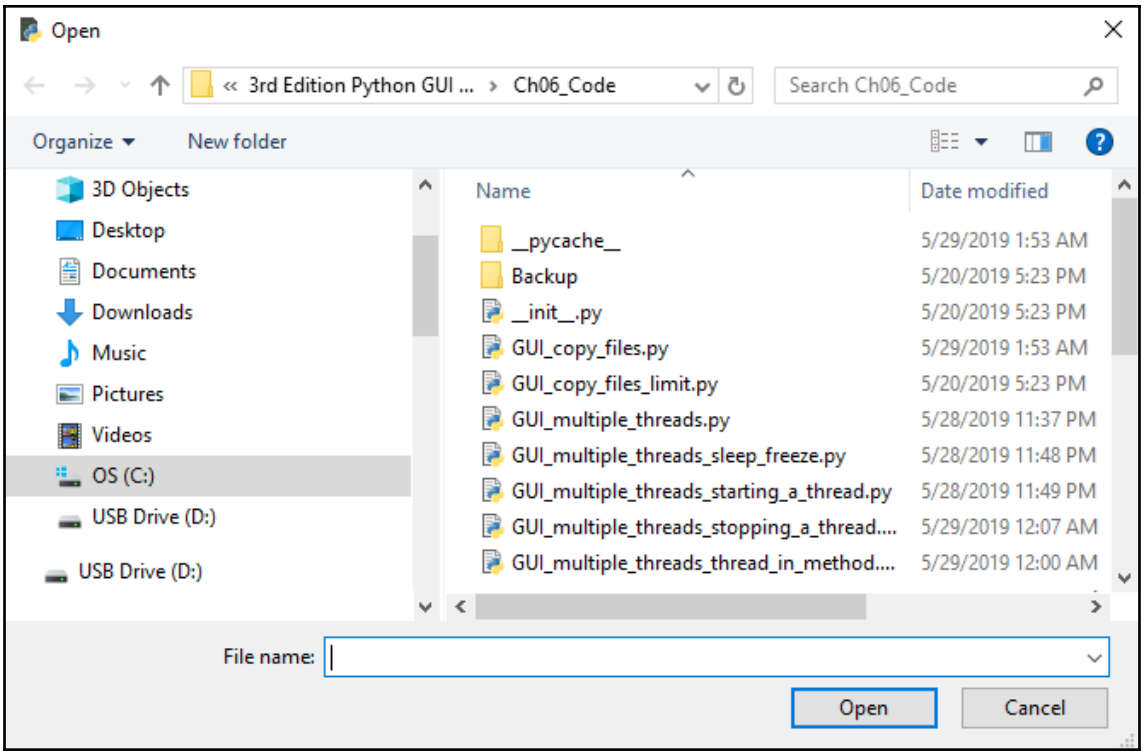
```
<terminated> C:\Eclipse_NEON_workspace\2nd Edition Python GUI Programming Cookbook\Ch06_Code\GUI_
<queue.Queue object at 0x00000195FEB013C8>
Message from a queue: 0
Message from a queue: 1
Message from a queue: 2
Message from a queue: 3
Message from a queue: 4
Message from a queue: 5
Message from a queue: 6
Message from a queue: 7
Message from a queue: 8
Message from a queue: 9
```

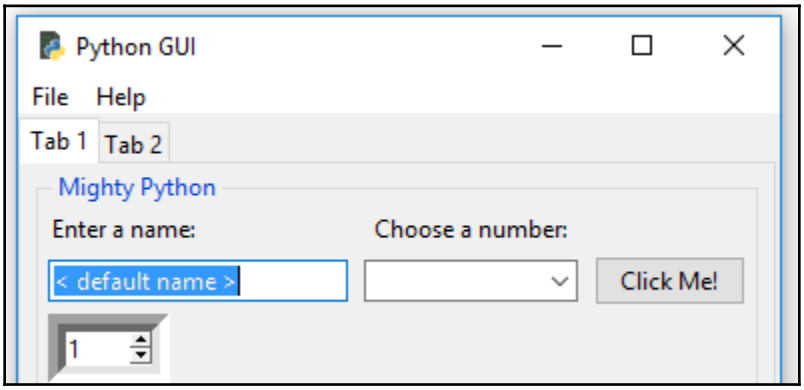


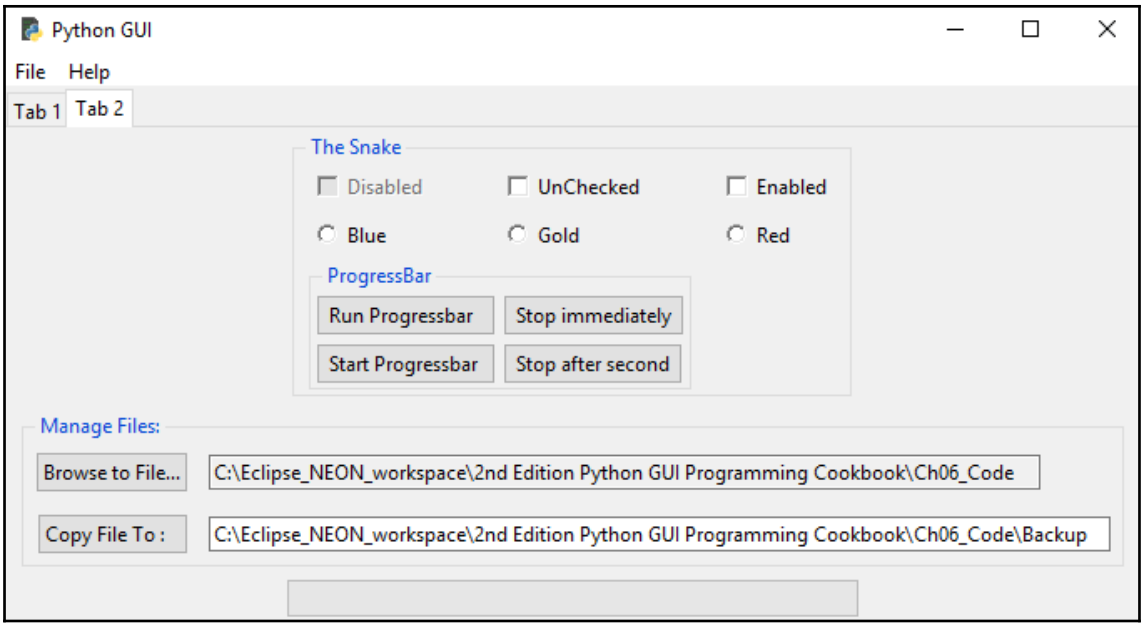

Queues
def write_to_scrol(inst):
print('hi from Queue', inst)
inst.create_thread(6)
Python GUI
File Help
Tab 1 Tab 2
Mighty Python
Enter a name:
Choose a number:
Hello
1
0
1
2
3
4
5
Console
Bookmarks
C:\Eclipse_NEON_workspace\2nd Edition Python GUI Programming Cookbook\Ch06_
<__main__.OOP object at 0x0000023136A8E320>
hi from Queue <__main__.OOP object at 0x0000023136A8E320>
<queue.Queue object at 0x0000023136BDFC50>
Message from a queue: 0
Message from a queue: 1
Message from a queue: 2

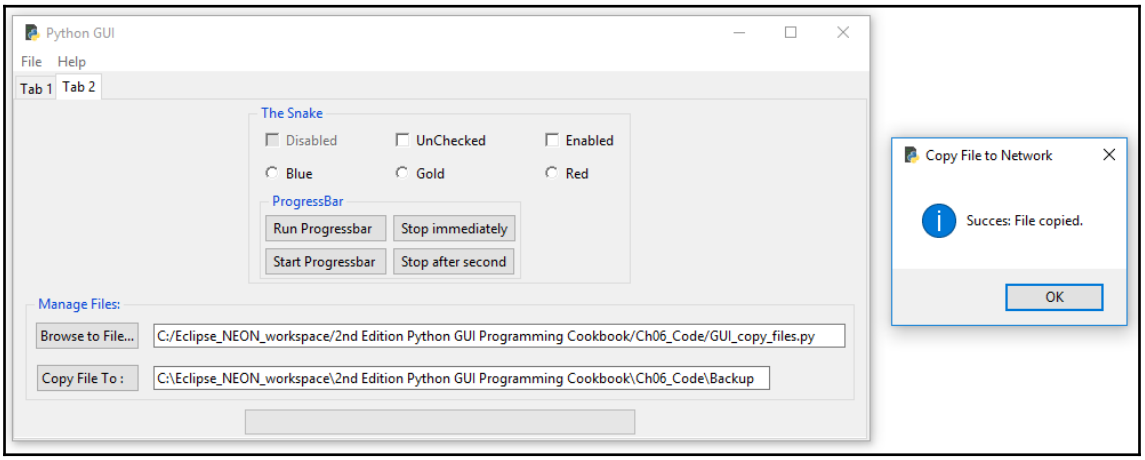

Python GUI
File
Help
Tab 1
Tab 2
The Snake
Disabled
UnChecked
Enabled
Blue
Gold
Red
ProgressBar
Run Progressbar
Stop immediately
Start Progressbar
Stop after second
Manage Files:
Browse to File...
Copy File To :

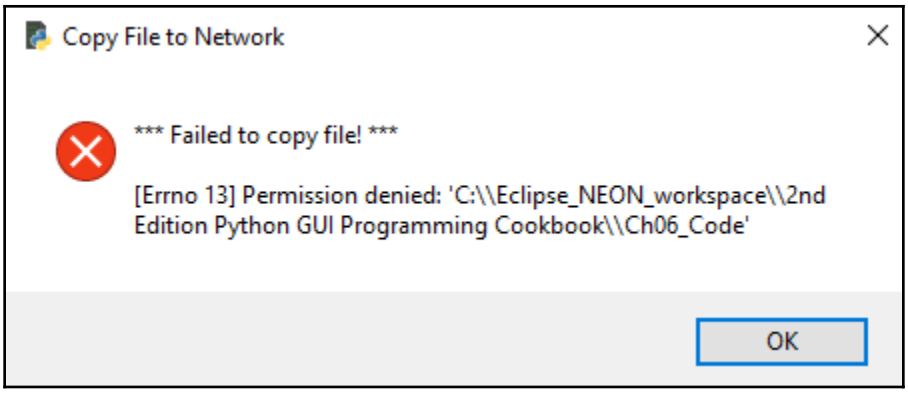

Console
Bookmarks
<terminated> C:\Eclipse_NEON_workspace\2nd Edition Python
hello from getFileName


Open
« 3rd Edition Python GUI ... › Ch06_Code
Search Ch06_Code
Organize
New folder
3D Objects
Desktop
Documents
Downloads
Music
Pictures
Videos
OS (C:)
USB Drive (D:)
USB Drive (D:)
Name
Date modified
__pycache__ 5/29/2019 1:53 AM
Backup 5/20/2019 5:23 PM
__init__.py 5/20/2019 5:23 PM
GUI_copy_files.py 5/29/2019 1:53 AM
GUI_copy_files_limit.py 5/20/2019 5:23 PM
GUI_multiple_threads.py 5/28/2019 11:37 PM
GUI_multiple_threads_sleep_freeze.py 5/28/2019 11:48 PM
GUI_multiple_threads_starting_a_thread.py 5/28/2019 11:49 PM
GUI_multiple_threads_stopping_a_thread.... 5/29/2019 12:07 AM
GUI_multiple_threads_thread_in_method.... 5/29/2019 12:00 AM
File name:
Open
Cancel


Python GUI
File Help
Tab 1 Tab 2
Mighty Python
Enter a name:
Choose a number:
< default name >
Click Me!
1

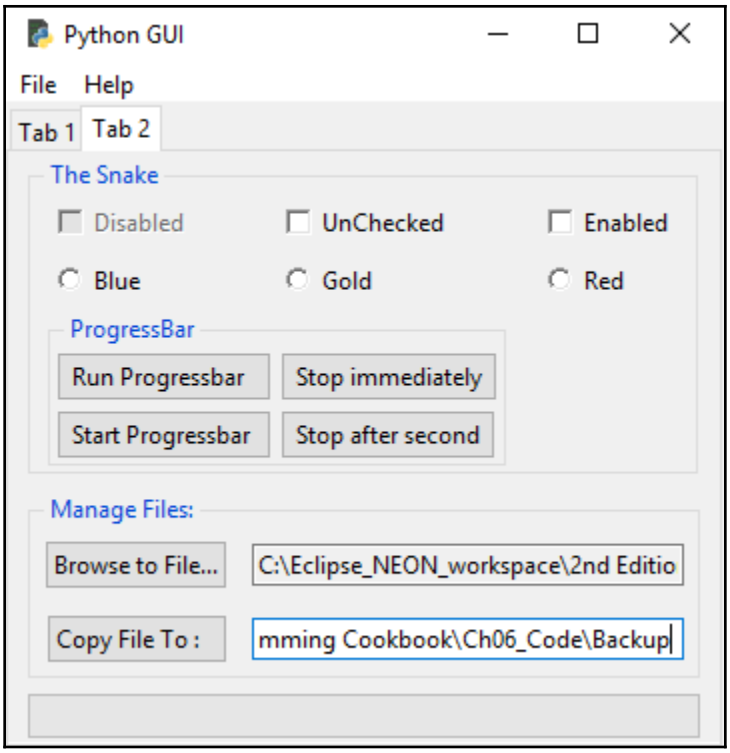

Python GUI
File Help
Tab 1 Tab 2
The Snake
Disabled
UnChecked
Enabled
Blue
Gold
Red
ProgressBar
Run Progressbar
Stop immediately
Start Progressbar
Stop after second
Manage Files:
Browse to File...
C:\Eclipse_NEON_workspace\2nd Edition Python GUI Programming Cookbook\Ch06_Code
Copy File To :
C:\Eclipse_NEON_workspace\2nd Edition Python GUI Programming Cookbook\Ch06_Code\Backup

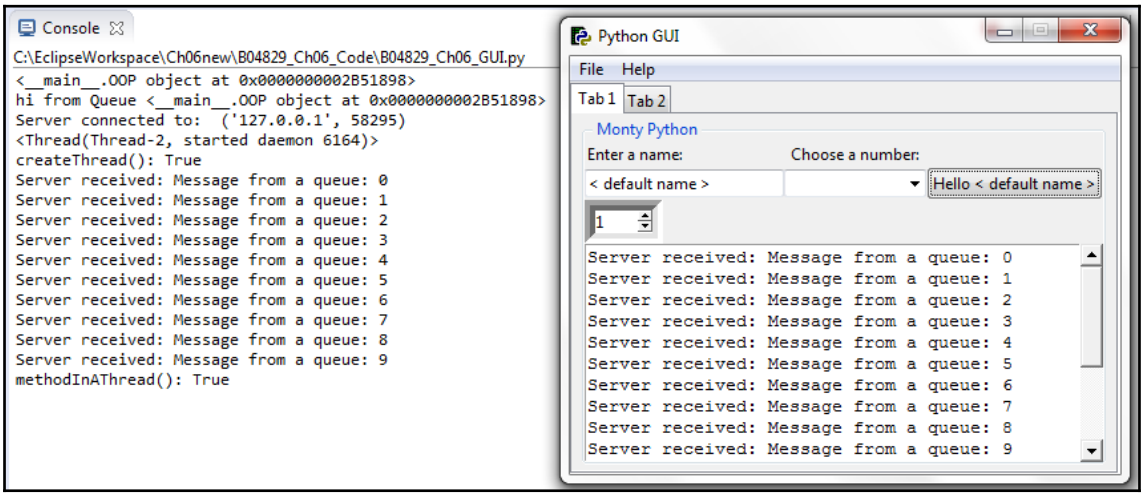

Python GUI
File Help
Tab 1 Tab 2
The Snake
Disabled
UnChecked
Enabled
Blue
Gold
Red
ProgressBar
Run Progressbar
Stop immediately
Start Progressbar
Stop after second
Manage Files:
Browse to File...
C:/Eclipse_NEON_workspace/2nd Edition Python GUI Programming Cookbook/Ch06_Code/GUI_copy_files.py
Copy File To :
C:\Eclipse_NEON_workspace\2nd Edition Python GUI Programming Cookbook\Ch06_Code\Backup
Copy File to Network
Succes: File copied.
OK

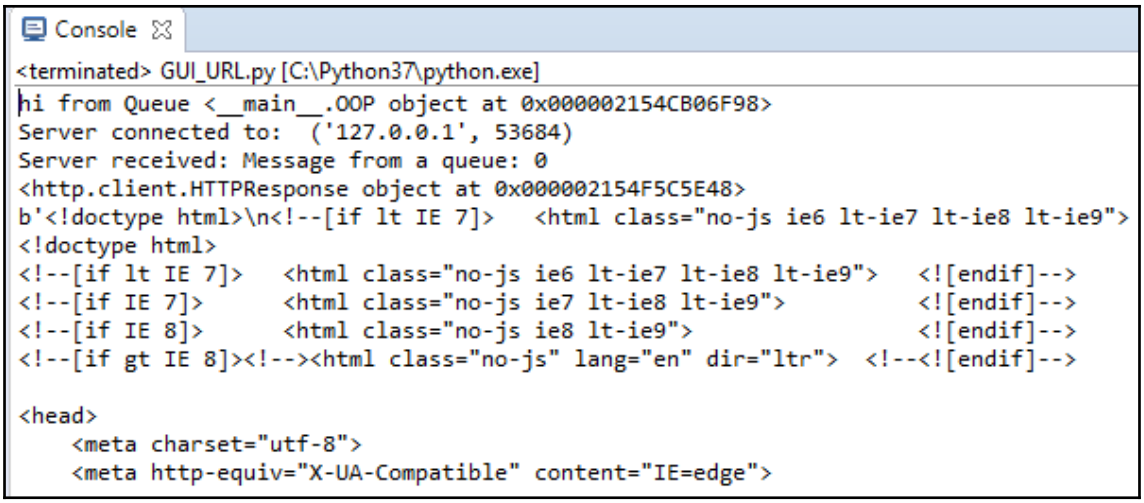


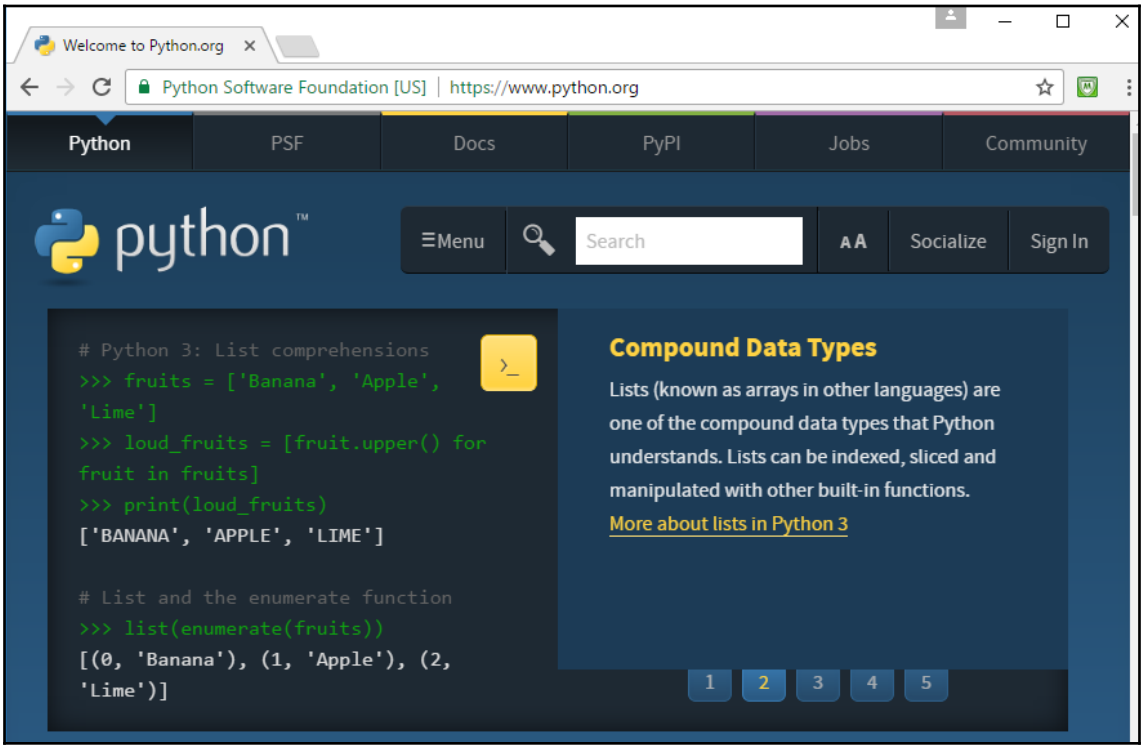
GUI_TCP_IP | TCP_Server | Queues

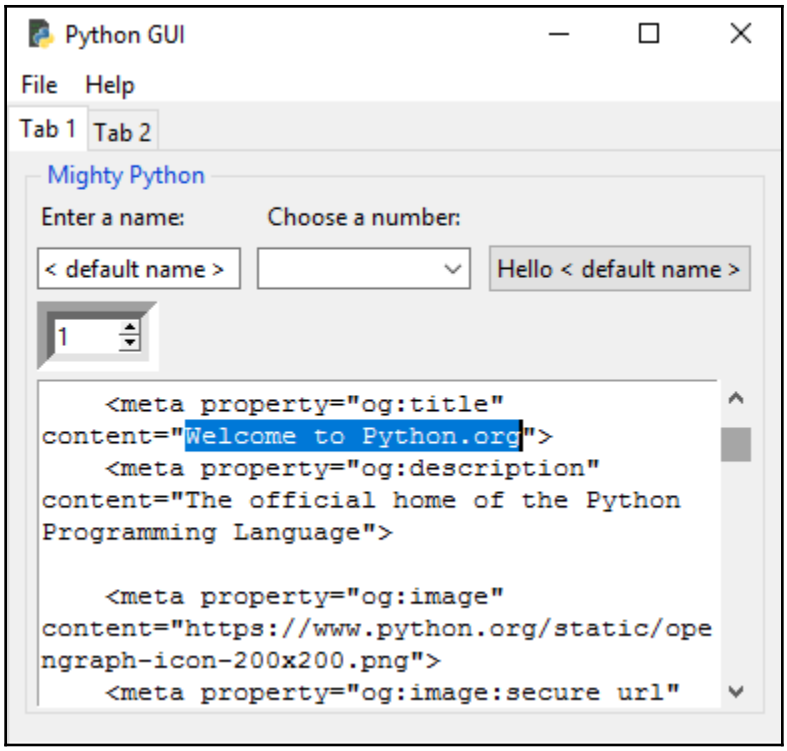
```
46
47          self.defaultFileEntries()
48
49      def defaultFileEntries(self):
50          self.fileEntry.delete(0, tk.END)
51          self.fileEntry.insert(0, fDir)
52          if len(fDir) > self.entryLen:
53  #           self.fileEntry.config(width=len(fDir) + 3)
54              self.fileEntry.config(width=35)                 # limit width to adjust GUI
55              self.fileEntry.config(state='readonly')
56
57          self.netwEntry.delete(0, tk.END)
58          self.netwEntry.insert(0, netDir)
59          if len(netDir) > self.entryLen:
60  #           self.netwEntry.config(width=len(netDir) + 3)
61              self.netwEntry.config(width=35)                 # limit width to adjust GUI
62
```


Python GUI
File Help
Tab 1 Tab 2
The Snake
Disabled
UnChecked
Enabled
Blue
Gold
Red
ProgressBar
Run Progressbar
Stop immediately
Start Progressbar
Stop after second
Manage Files:
Browse to File...
C:\Eclipse_NEON_workspace\2nd Editio
Copy File To :
mming Cookbook\Ch06_Code\Backup

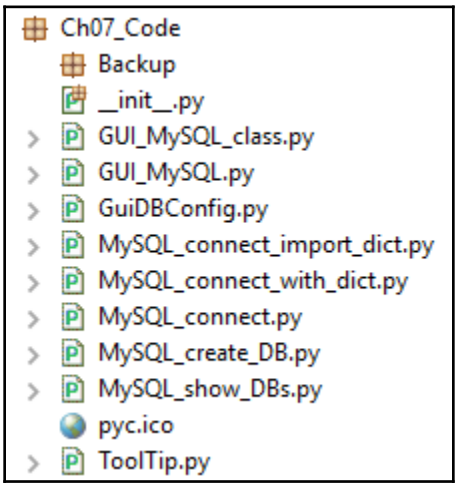

Console
C:\EclipseWorkspace\Ch06new\B04829_Ch06_Code\B04829_Ch06_GUI.py
<__main__.OOP object at 0x000000002B51898>
hi from Queue <__main__.OOP object at 0x000000002B51898>
Server connected to: ('127.0.0.1', 58295)
<Thread(Thread-2, started daemon 6164)>
createThread(): True
Server received: Message from a queue: 0
Server received: Message from a queue: 1
Server received: Message from a queue: 2
Server received: Message from a queue: 3
Server received: Message from a queue: 4
Server received: Message from a queue: 5
Server received: Message from a queue: 6
Server received: Message from a queue: 7
Server received: Message from a queue: 8
Server received: Message from a queue: 9
methodInAThread(): True
Python GUI
File Help
Tab 1 Tab 2
Monty Python
Enter a name:
Choose a number:
< default name >
Hello < default name >
1
Server received: Message from a queue: 0
Server received: Message from a queue: 1
Server received: Message from a queue: 2
Server received: Message from a queue: 3
Server received: Message from a queue: 4
Server received: Message from a queue: 5
Server received: Message from a queue: 6
Server received: Message from a queue: 7
Server received: Message from a queue: 8
Server received: Message from a queue: 9


Console
<terminated> GUI_URL.py [C:\Python37\python.exe]
hi from Queue <__main__.OOP object at 0x000002154CB06F98>
Server connected to: ('127.0.0.1', 53684)
Server received: Message from a queue: 0
<http.client.HTTPResponse object at 0x000002154F5C5E48>
b'<!doctype html>\n<!--[if lt IE 7]> <html class="no-js ie6 lt-ie7 lt-ie8 lt-ie9">
<!doctype html>
<!--[if lt IE 7]> <html class="no-js ie6 lt-ie7 lt-ie8 lt-ie9"> <![endif]-->
<!--[if IE 7]> <html class="no-js ie7 lt-ie8 lt-ie9"> <![endif]-->
<!--[if IE 8]> <html class="no-js ie8 lt-ie9"> <![endif]-->
<!--[if gt IE 8]><!--><html class="no-js" lang="en" dir="ltr"> <!--<![endif]-->
<head>
<meta charset="utf-8">
<meta http-equiv="X-UA-Compatible" content="IE=edge">


Welcome to Python.org
Python Software Foundation [US] | https://www.python.org
Python
PSF
Docs
PyPI
Jobs
Community
python
Menu
Search
AA
Socialize
Sign In
# Python 3: List comprehensions
>>> fruits = ['Banana', 'Apple', 'Lime']
>>> loud_fruits = [fruit.upper() for fruit in fruits]
>>> print(loud_fruits)
['BANANA', 'APPLE', 'LIME']
# List and the enumerate function
>>> list(enumerate(fruits))
[(0, 'Banana'), (1, 'Apple'), (2, 'Lime')]
Compound Data Types
Lists (known as arrays in other languages) are one of the compound data types that Python understands. Lists can be indexed, sliced and manipulated with other built-in functions.
More about lists in Python 3
1
2
3
4
5


Python GUI
File Help
Tab 1 Tab 2
Mighty Python
Enter a name:
Choose a number:
< default name >
Hello < default name >
1
<meta property="og:title"
content="Welcome to Python.org">
<meta property="og:description"
content="The official home of the Python
Programming Language">
<meta property="og:image"
content="https://www.python.org/static/ope
ngraph-icon-200x200.png">
<meta property="og:image:secure url"

Chapter 7: Storing Data in Our MySQL Database via Our GUI



Choosing the right file:

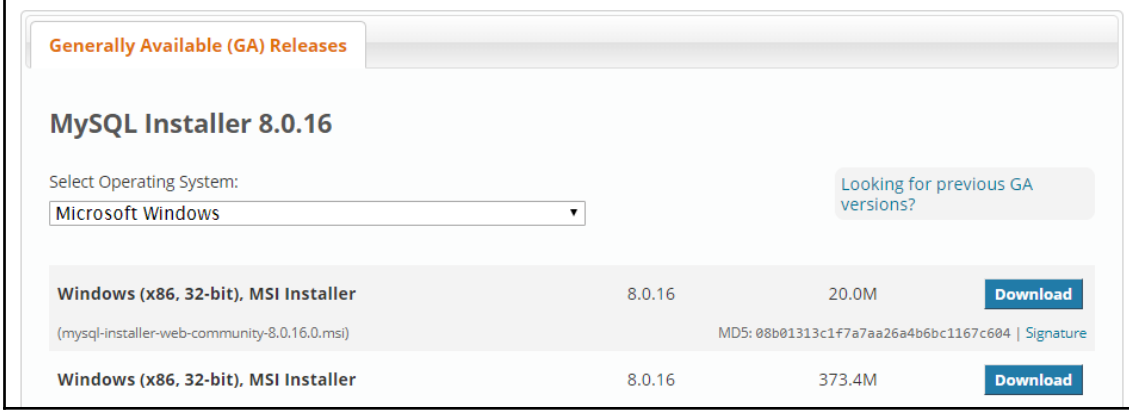
- If you have an online connection while running the MySQL Installer, choose the `mysql-installer-web-community` file.
- If you do NOT have an online connection while running the MySQL Installer, choose the `mysql-installer-community` file.

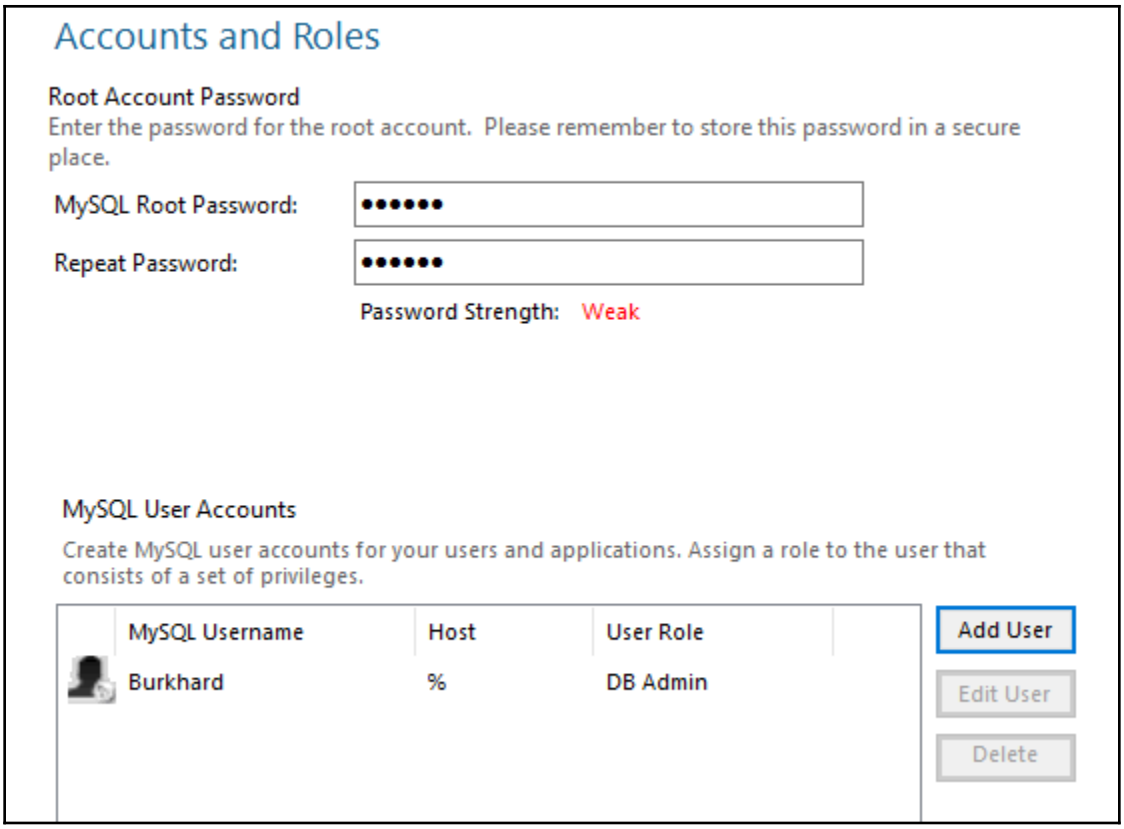
Note: MySQL Installer is 32 bit, but will install both 32 bit and 64 bit binaries.

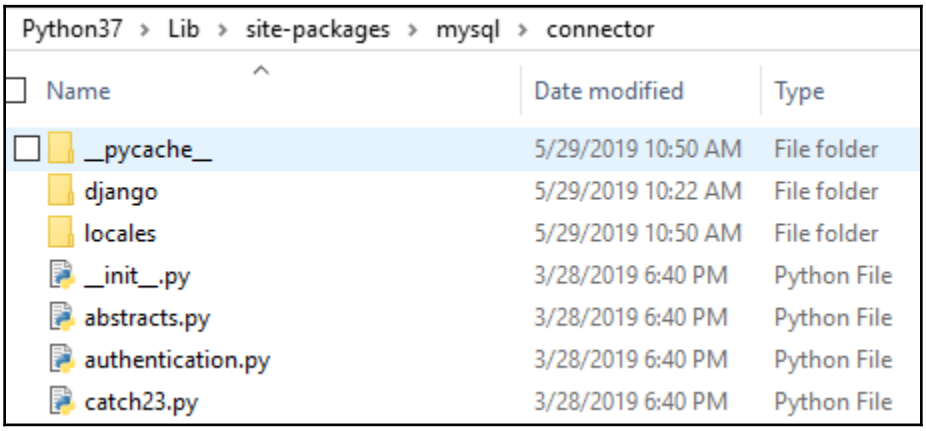
Online Documentation

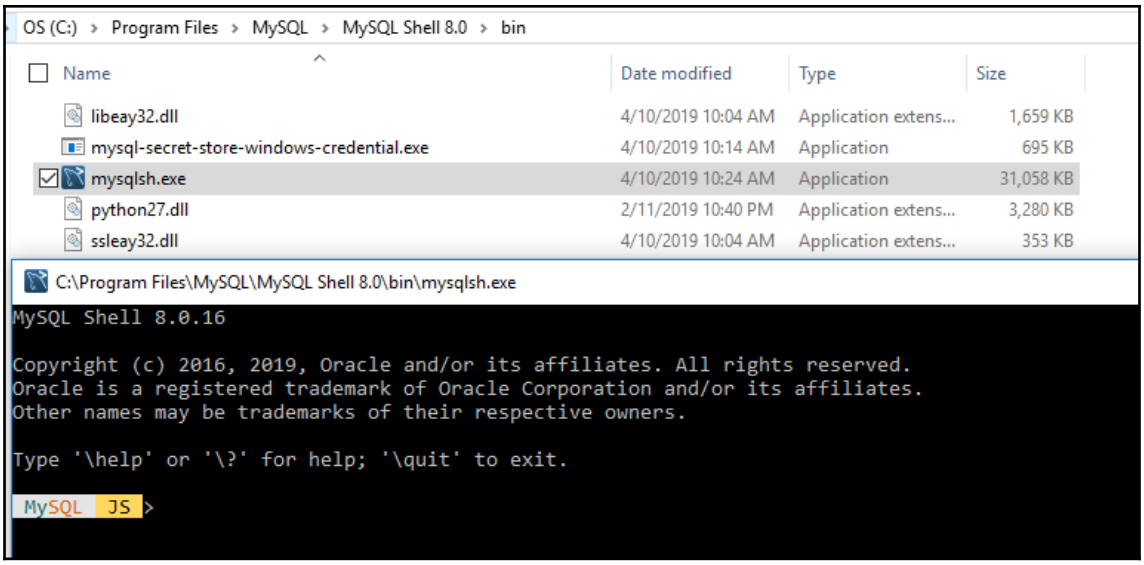
- MySQL Installer Documentation and Change History

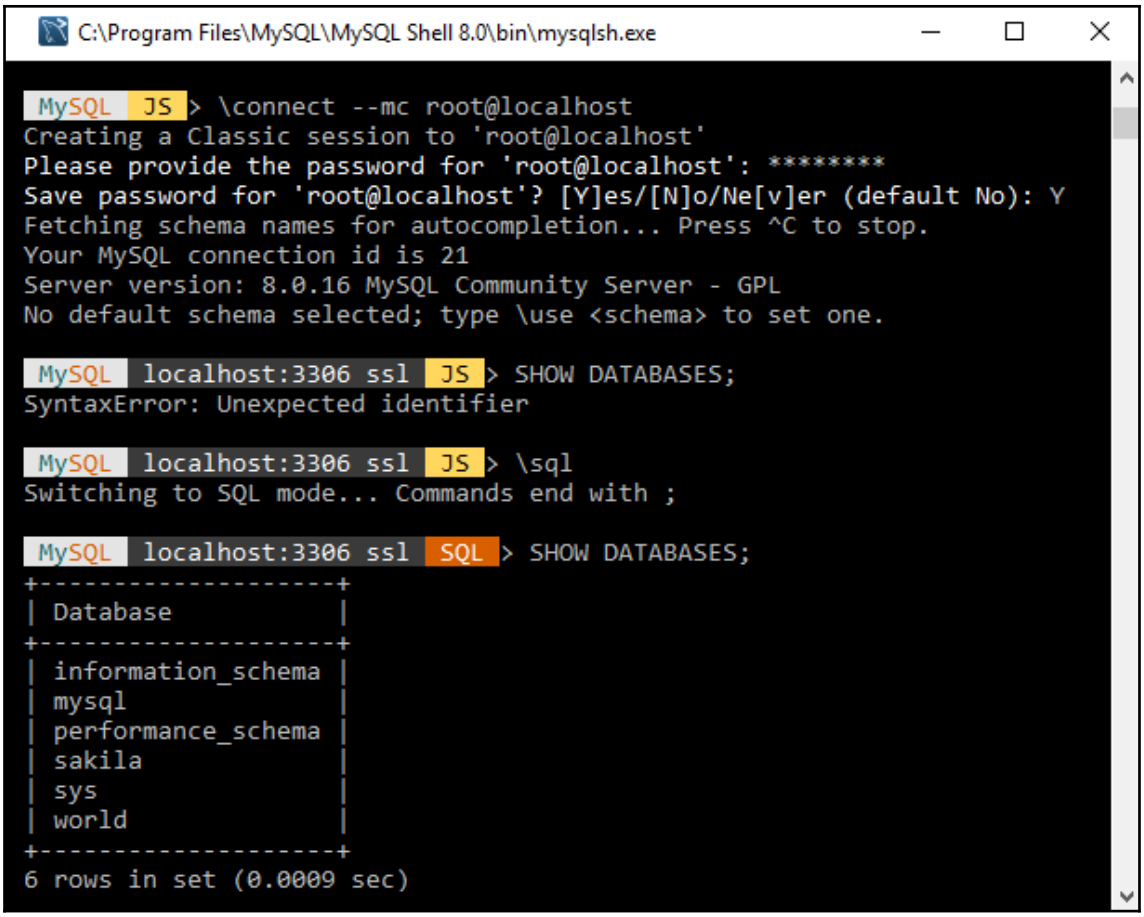
Please report any bugs or inconsistencies you observe to our Bugs Database.
Thank you for your support!

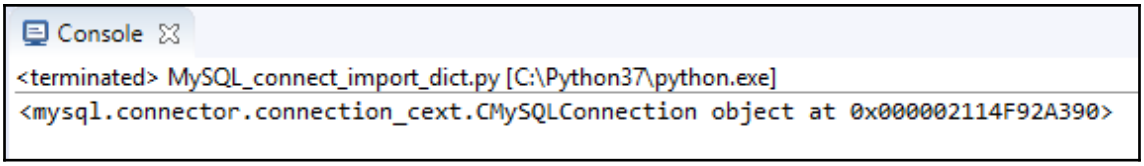


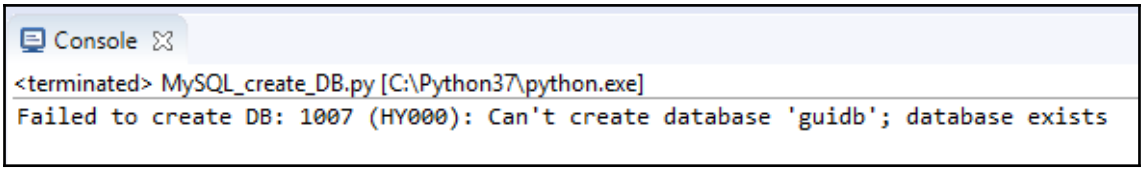

Accounts and Roles
Root Account Password
Enter the password for the root account. Please remember to store this password in a secure place.
MySQL Root Password:
Repeat Password:
Password Strength: Weak
MySQL User Accounts
Create MySQL user accounts for your users and applications. Assign a role to the user that consists of a set of privileges.
MySQL Username
Host
User Role
Burkhard
%
DB Admin
Add User
Edit User
Delete


Python37 › Lib › site-packages › mysql › connector
Name
Date modified
Type
__pycache__ 5/29/2019 10:50 AM File folder
django 5/29/2019 10:22 AM File folder
locales 5/29/2019 10:50 AM File folder
__init__.py 3/28/2019 6:40 PM Python File
abstracts.py 3/28/2019 6:40 PM Python File
authentication.py 3/28/2019 6:40 PM Python File
catch23.py 3/28/2019 6:40 PM Python File

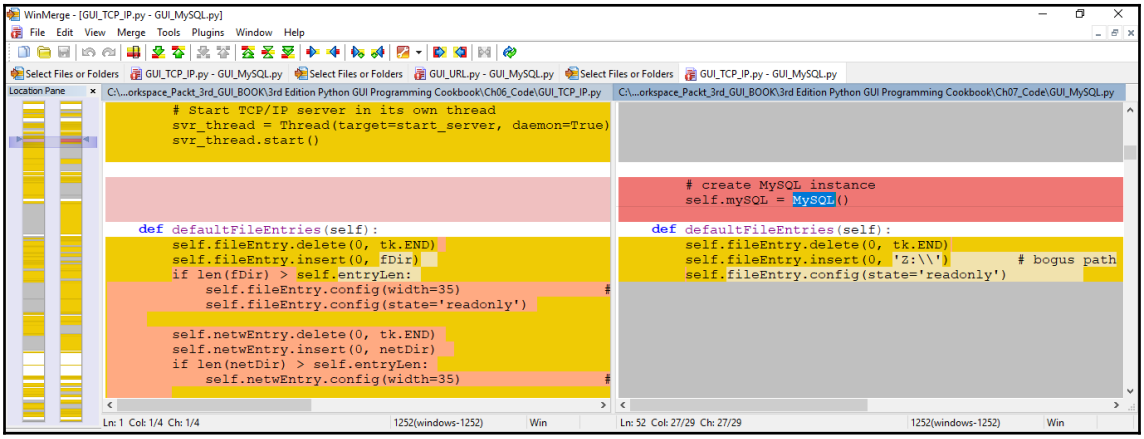

OS (C:) › Program Files › MySQL › MySQL Shell 8.0 › bin
Name
Date modified
Type
Size
libeay32.dll
4/10/2019 10:04 AM
Application extens...
1,659 KB
mysql-secret-store-windows-credential.exe
4/10/2019 10:14 AM
Application
695 KB
mysqlsh.exe
4/10/2019 10:24 AM
Application
31,058 KB
python27.dll
2/11/2019 10:40 PM
Application extens...
3,280 KB
ssleay32.dll
4/10/2019 10:04 AM
Application extens...
353 KB
C:\Program Files\MySQL\MySQL Shell 8.0\bin\mysqlsh.exe
MySQL Shell 8.0.16
Copyright (c) 2016, 2019, Oracle and/or its affiliates. All rights reserved.
Oracle is a registered trademark of Oracle Corporation and/or its affiliates.
Other names may be trademarks of their respective owners.
Type '\help' or '\?' for help; '\quit' to exit.
MySQL JS >

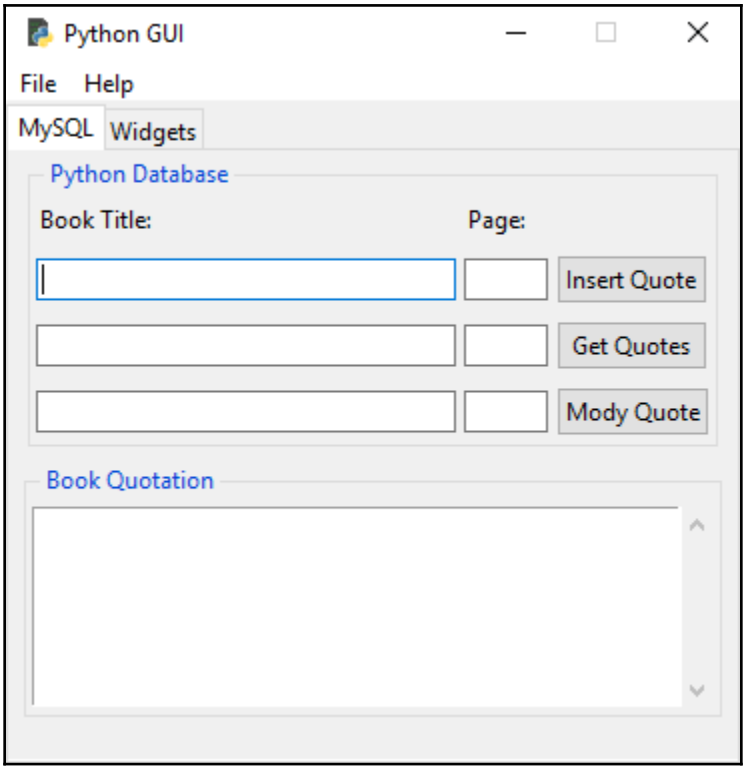

C:\Program Files\MySQL\MySQL Shell 8.0\bin\mysqlsh.exe
MySQL JS > \connect --mc root@localhost
Creating a Classic session to 'root@localhost'
Please provide the password for 'root@localhost': ********
Save password for 'root@localhost'? [Y]es/[N]o/Ne[v]er (default No): Y
Fetching schema names for autocompletion... Press ^C to stop.
Your MySQL connection id is 21
Server version: 8.0.16 MySQL Community Server - GPL
No default schema selected; type \use <schema> to set one.
MySQL localhost:3306 ssl JS > SHOW DATABASES;
SyntaxError: Unexpected identifier
MySQL localhost:3306 ssl JS > \sql
Switching to SQL mode... Commands end with ;
MySQL localhost:3306 ssl SQL > SHOW DATABASES;
+--------------------+
| Database |
+--------------------+
| information_schema |
| mysql |
| performance_schema |
| sakila |
| sys |
| world |
+--------------------+
6 rows in set (0.0009 sec)


Console
<terminated> MySQL_connect_import_dict.py [C:\Python37\python.exe]
<mysql.connector.connection_cext.CMySQLConnection object at 0x000002114F92A390>


Console
<terminated> MySQL_create_DB.py [C:\Python37\python.exe]
Failed to create DB: 1007 (HY000): Can't create database 'guidb'; database exists

```
Console
<terminated> MySQL_show_DBs.py [C:\Python37\python.exe]
[('guidb',), ('information_schema',), ('mysql',), ('performance_schema',), ('sakila',), ('sys',), ('world',)]
```





```
        # show Tables from guidb DB
        cursor.execute("SHOW TABLES FROM guidb")
        print(cursor.fetchall())
```

Console Bookmarks

```
<terminated> C:\Eclipse_NEON_workspace\2nd Edition Python GUI Programming
()
```

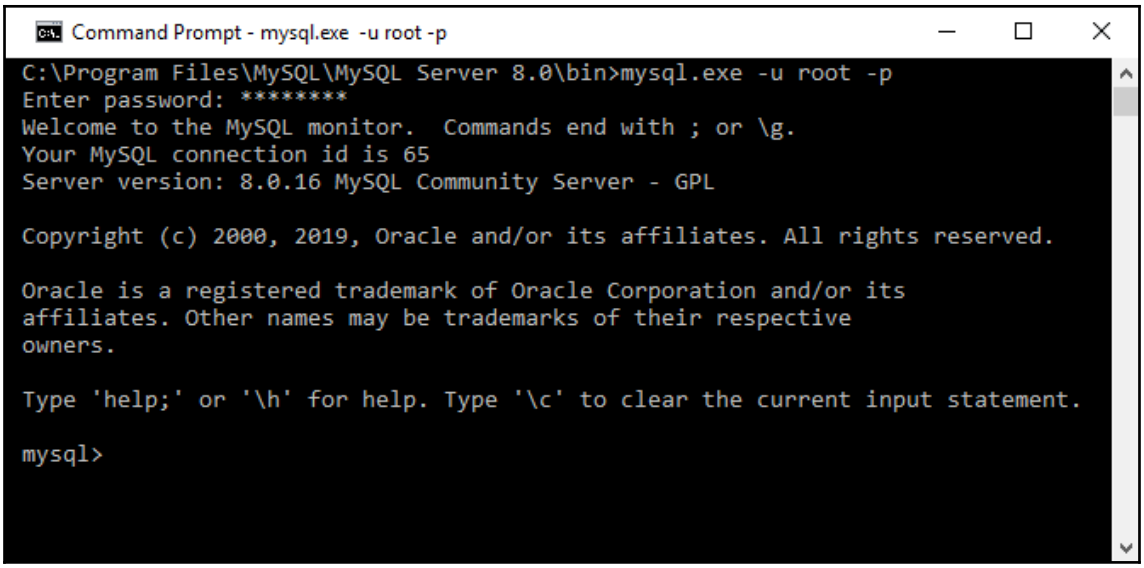
```
        # show Tables from guidb DB
        cursor.execute("SHOW TABLES FROM guidb")
        print(cursor.fetchall())
```

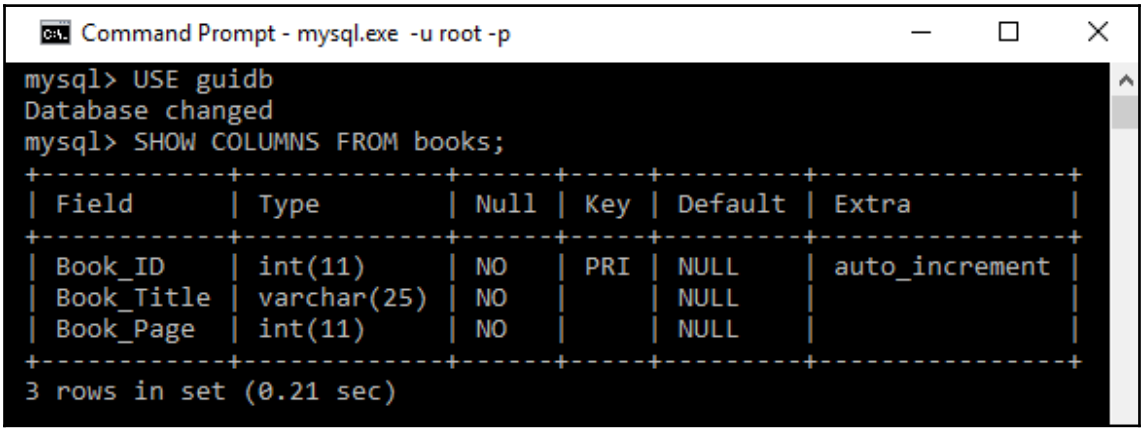
Console Bookmarks

```
<terminated> C:\Eclipse_NEON_workspace\2nd Edition Python GUI Programming
(('books',),)
```

Command Prompt

```
C:\Users\Burkh>cd C:\Program Files\MySQL\MySQL Server 8.0\bin

C:\Program Files\MySQL\MySQL Server 8.0\bin>mysql.exe
ERROR 1045 (28000): Access denied for user 'ODBC'@'localhost' (using password: NO)

C:\Program Files\MySQL\MySQL Server 8.0\bin>
```


Command Prompt - mysql.exe -u root -p
C:\Program Files\MySQL\MySQL Server 8.0\bin>mysql.exe -u root -p
Enter password: ********
Welcome to the MySQL monitor. Commands end with ; or \g.
Your MySQL connection id is 65
Server version: 8.0.16 MySQL Community Server - GPL
Copyright (c) 2000, 2019, Oracle and/or its affiliates. All rights reserved.
Oracle is a registered trademark of Oracle Corporation and/or its
affiliates. Other names may be trademarks of their respective
owners.
Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.
mysql>


Command Prompt - mysql.exe -u root -p
mysql> USE guidb
Database changed
mysql> SHOW COLUMNS FROM books;
Field	Type	Null	Key	Default	Extra
Book_ID	int(11)	NO	PRI	NULL	auto_increment
Book_Title	varchar(25)	NO		NULL	
Book_Page	int(11)	NO		NULL	
3 rows in set (0.21 sec)

```
        # show Tables from guidb DB
        cursor.execute("SHOW TABLES FROM guidb")
        print(cursor.fetchall())
```

Console Bookmarks

```
<terminated> C:\Eclipse_NEON_workspace\2nd Edition Python GUI Programming
(('books',), ('quotations',))
```

```
    # execute command
    cursor.execute("SHOW COLUMNS FROM quotations")
    print(cursor.fetchall())
```

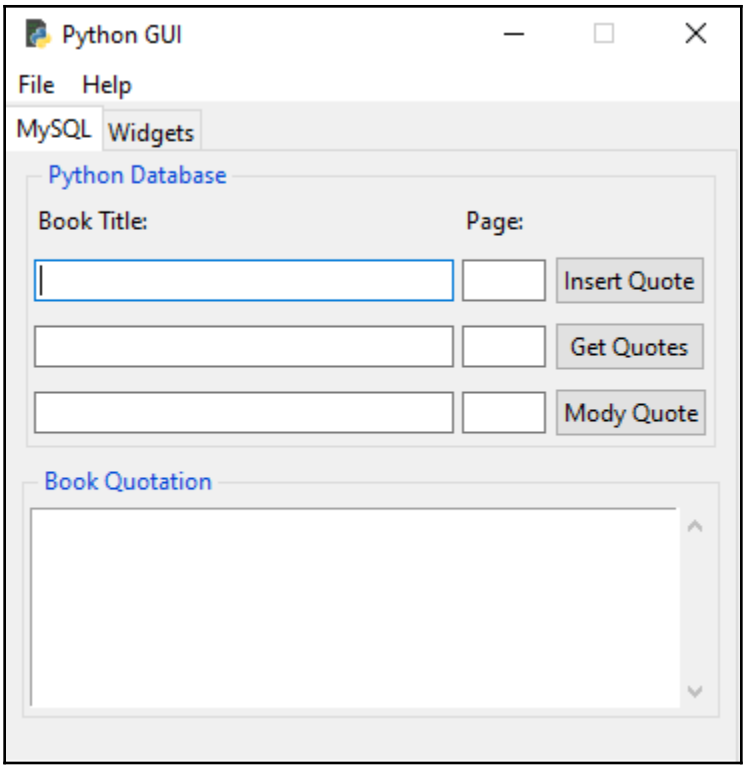
Console Bookmarks

```
<terminated> C:\Eclipse_NEON_workspace\2nd Edition Python GUI Programming Cookbook\Ch07_Code\GUI_MySQL_class.py
(('Quote_ID', 'int(11)', 'NO', 'PRI', None, 'auto_increment'), ('Quotation', 'varchar(250)', 'YES',
```

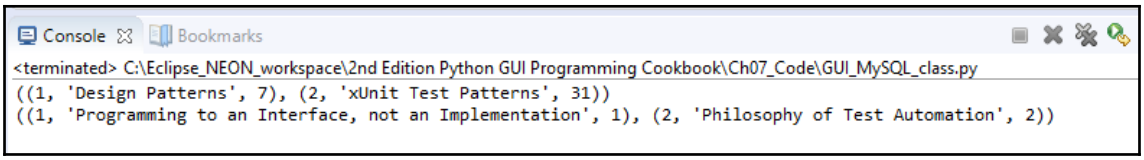
```
    from pprint import pprint
    # execute command
    cursor.execute("SHOW COLUMNS FROM quotations")
    pprint(cursor.fetchall())
```

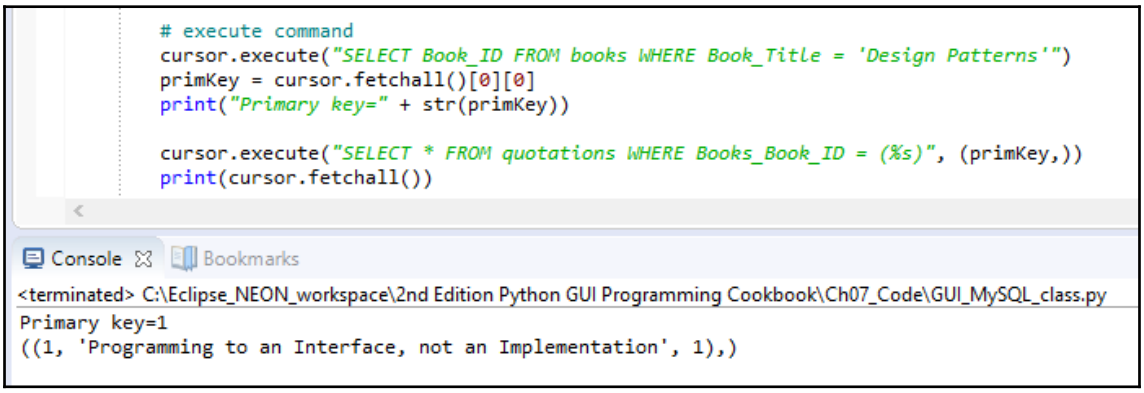
Console Bookmarks

```
<terminated> C:\Eclipse_NEON_workspace\2nd Edition Python GUI Programming Cookbook
(('Quote_ID', 'int(11)', 'NO', 'PRI', None, 'auto_increment'),
 ('Quotation', 'varchar(250)', 'YES', '', None, ''),
 ('Books_Book_ID', 'int(11)', 'YES', 'MUL', None, ''))
```




```
mysql> USE guidb
Database changed
mysql> SELECT * FROM books;
+---------+--------------------+-----------+
| Book_ID | Book_Title         | Book_Page |
+---------+--------------------+-----------+
|       1 | Design Patterns    |         7 |
|       2 | xUnit Test Patterns |        31 |
+---------+--------------------+-----------+
2 rows in set (0.10 sec)

mysql> SELECT * FROM quotations;
+----------+-----------------------------------------------------+---------------+
| Quote_ID | Quotation                                           | Books_Book_ID |
+----------+-----------------------------------------------------+---------------+
|        1 | Programming to an Interface, not an Implementation |             1 |
|        2 | Philosophy of Test Automation                       |             2 |
+----------+-----------------------------------------------------+---------------+
2 rows in set (0.00 sec)

mysql>
```


Console
Bookmarks
<terminated> C:\Eclipse_NEON_workspace\2nd Edition Python GUI Programming Cookbook\Ch07_Code\GUI_MySQL_class.py
((1, 'Design Patterns', 7), (2, 'xUnit Test Patterns', 31))
((1, 'Programming to an Interface, not an Implementation', 1), (2, 'Philosophy of Test Automation', 2))


# execute command
cursor.execute("SELECT Book_ID FROM books WHERE Book_Title = 'Design Patterns'")
primKey = cursor.fetchall()[0][0]
print("Primary key=" + str(primKey))
cursor.execute("SELECT * FROM quotations WHERE Books_Book_ID = (%s)", (primKey,))
print(cursor.fetchall())
Console
Bookmarks
<terminated> C:\Eclipse_NEON_workspace\2nd Edition Python GUI Programming Cookbook\Ch07_Code\GUI_MySQL_class.py
Primary key=1
((1, 'Programming to an Interface, not an Implementation', 1),)

```
mysql> USE guidb
Database changed
mysql> SELECT * FROM books;
+---------+--------------------+-----------+
| Book_ID | Book_Title         | Book_Page |
+---------+--------------------+-----------+
|       1 | Design Patterns    |         7 |
|       2 | xUnit Test Patterns |        31 |
+---------+--------------------+-----------+
2 rows in set (0.10 sec)

mysql> SELECT * FROM quotations;
+----------+-----------------------------------------------------+---------------+
| Quote_ID | Quotation                                           | Books_Book_ID |
+----------+-----------------------------------------------------+---------------+
|        1 | Programming to an Interface, not an Implementation |             1 |
|        2 | Philosophy of Test Automation                       |             2 |
+----------+-----------------------------------------------------+---------------+
```

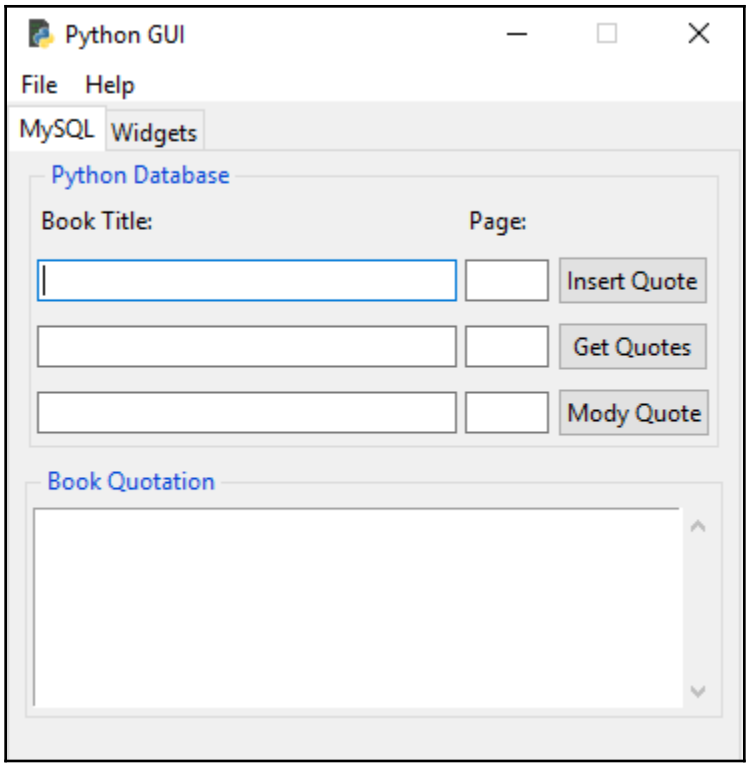
```
mysql> SELECT * FROM books;
+---------+--------------------+-----------+
| Book_ID | Book_Title         | Book_Page |
+---------+--------------------+-----------+
|       1 | Design Patterns    |         7 |
|       2 | xUnit Test Patterns |        31 |
+---------+--------------------+-----------+
2 rows in set (0.00 sec)

mysql> SELECT * FROM quotations;
+----------+-----------------------------------------------------------------------------------------------+-
--+
| Quote_ID | Quotation                                                                                     | B
D |
+----------+-----------------------------------------------------------------------------------------------+-
--+
|        1 | Pythonic Duck Typing: If it walks like a duck and talks like a duck it probably is a duck... |
1 |
|        2 | Philosophy of Test Automation                                                                 |
2 |
+----------+-----------------------------------------------------------------------------------------------+-
--+
```

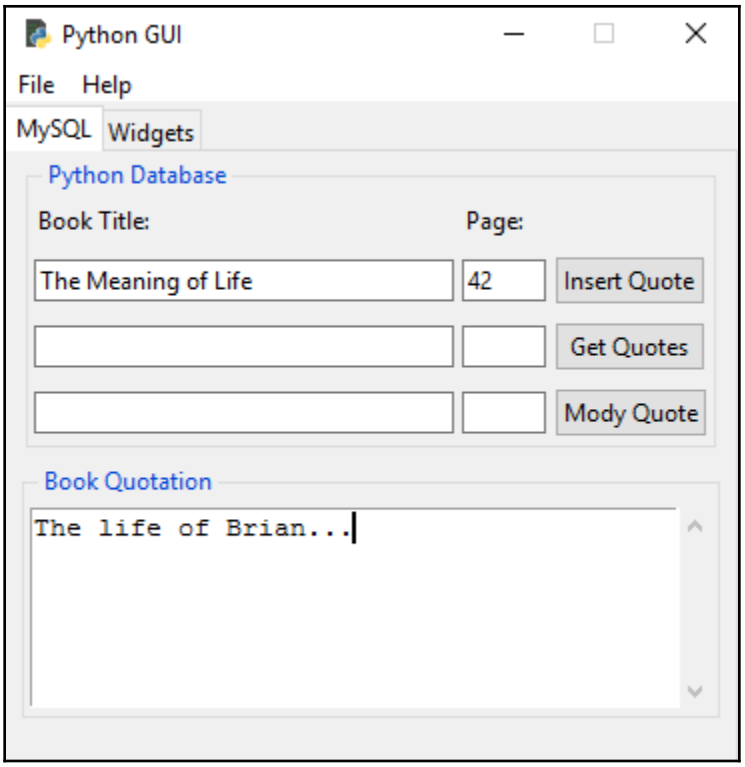
```
mysql> SELECT * FROM books;
+---------+--------------------+-----------+
| Book_ID | Book_Title         | Book_Page |
+---------+--------------------+-----------+
|       2 | xUnit Test Patterns |        31 |
+---------+--------------------+-----------+
1 row in set (0.00 sec)

mysql> SELECT * FROM quotations;
+----------+-----------------------------------------------------+---------------+
| Quote_ID | Quotation                                           | Books_Book_ID |
+----------+-----------------------------------------------------+---------------+
|        1 | Programming to an Interface, not an Implementation |             1 |
|        2 | Philosophy of Test Automation                       |             2 |
+----------+-----------------------------------------------------+---------------+
2 rows in set (0.00 sec)

mysql>
```

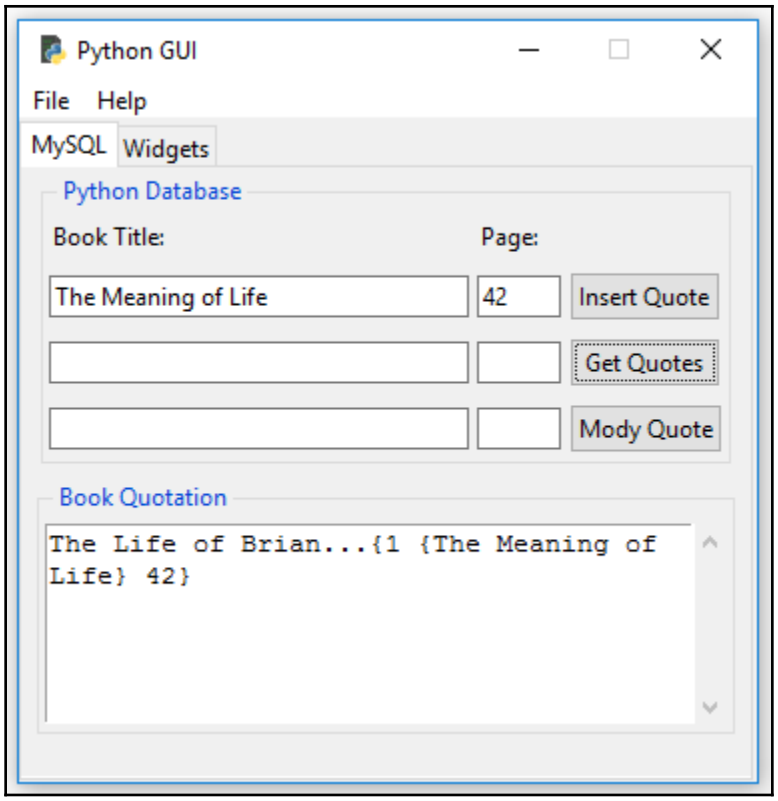
```
Console  Bookmarks
<terminated> C:\Eclipse_NEON_workspace\2nd Edition Python GUI Programming Cookbook\Ch07_Code\GUI_MySQL_class.py
((1, 'Design Patterns', 7), (2, 'xUnit Test Patterns', 31))
((1, 'Programming to an Interface, not an Implementation', 1), (2, 'Philosophy of Test Automation', 2))
```

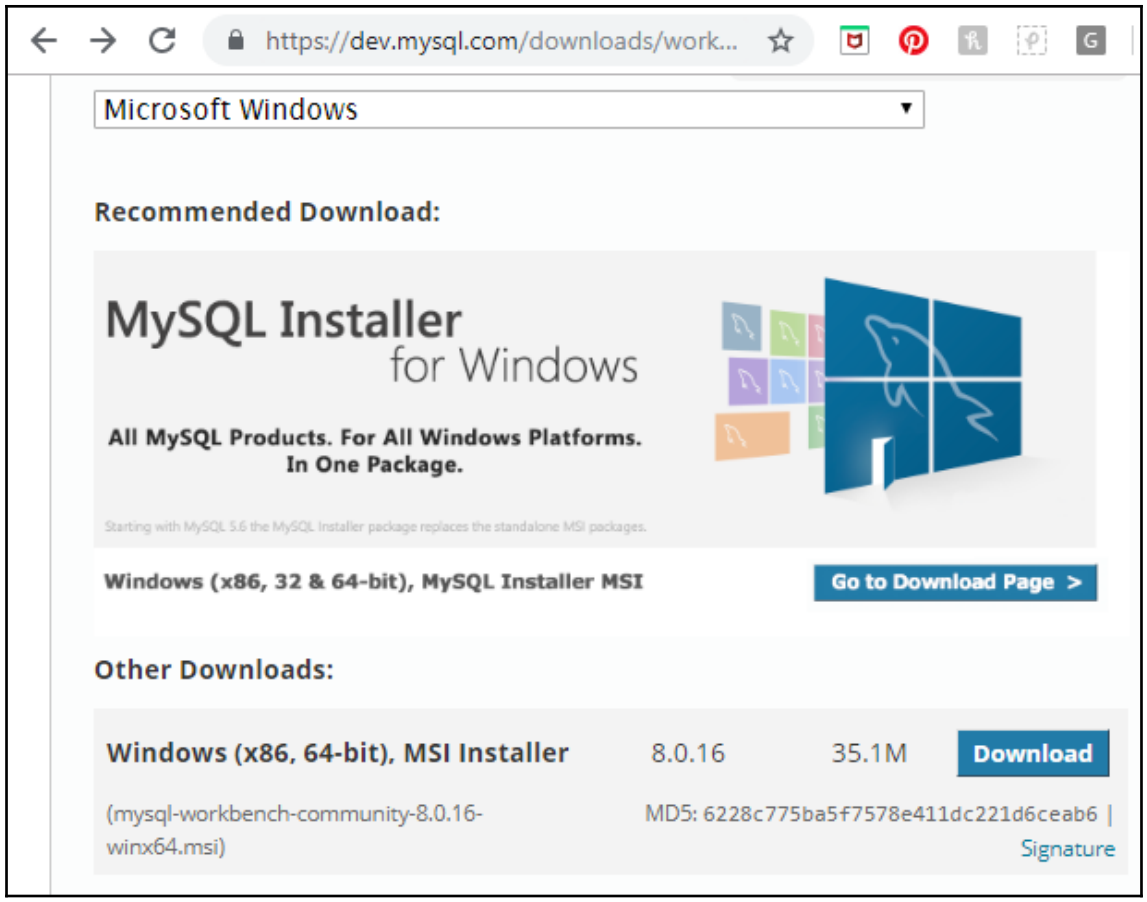
```
#------------------------
mySQL.deleteRecord()
mySQL.showData()
```

```
Console  Bookmarks
<terminated> C:\Eclipse_NEON_workspace\2nd Edition Python GUI Programming Cookbook\Ch07_Code\GUI_MySQL_class.py
((2, 'xUnit Test Patterns', 31),)
((2, 'Philosophy of Test Automation', 2),)
```


Python GUI
File
Help
MySQL
Widgets
Python Database
Book Title:
Page:
Insert Quote
Get Quotes
Mody Quote
Book Quotation


Python GUI
File
Help
MySQL
Widgets
Python Database
Book Title:
Page:
The Meaning of Life
42
Insert Quote
Get Quotes
Mody Quote
Book Quotation
The life of Brian...


Python GUI
File Help
MySQL Widgets
Python Database
Book Title:
Page:
The Meaning of Life
42
Insert Quote
Get Quotes
Mody Quote
Book Quotation
The Life of Brian...{1 {The Meaning of Life} 42}


https://dev.mysql.com/downloads/work...
Microsoft Windows
Recommended Download:
MySQL Installer
for Windows
All MySQL Products. For All Windows Platforms.
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Go to Download Page >
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8.0.16
35.1M
Download
(mysql-workbench-community-8.0.16-winx64.msi)
MD5: 6228c775ba5f7578e411dc221d6ceab6 |
Signature


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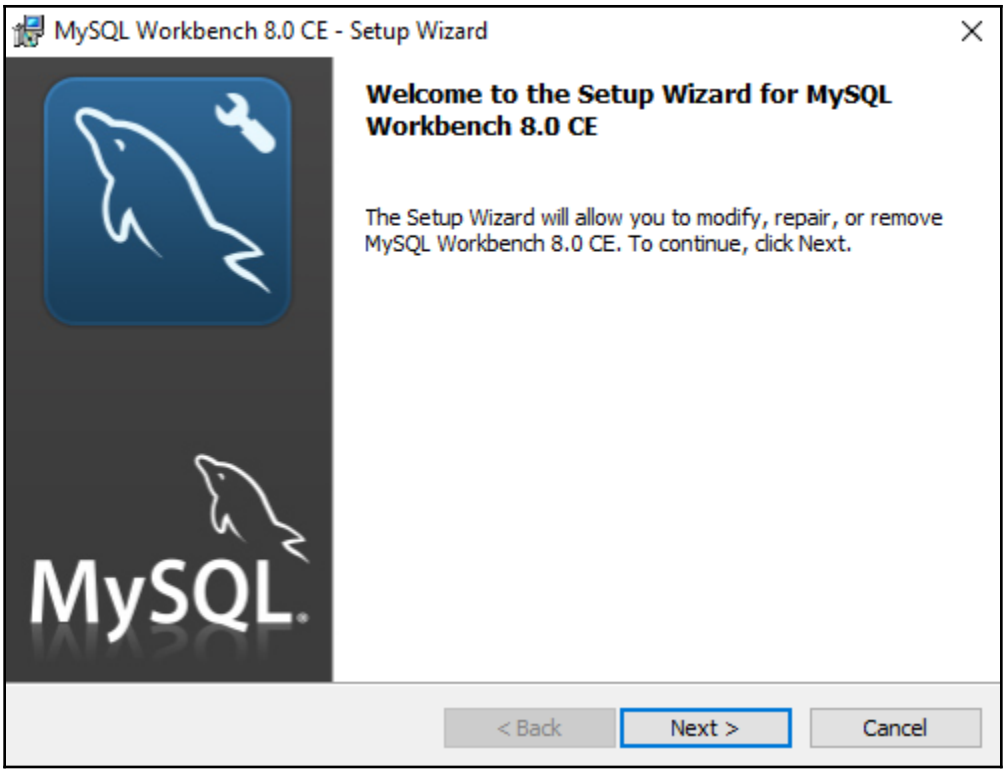
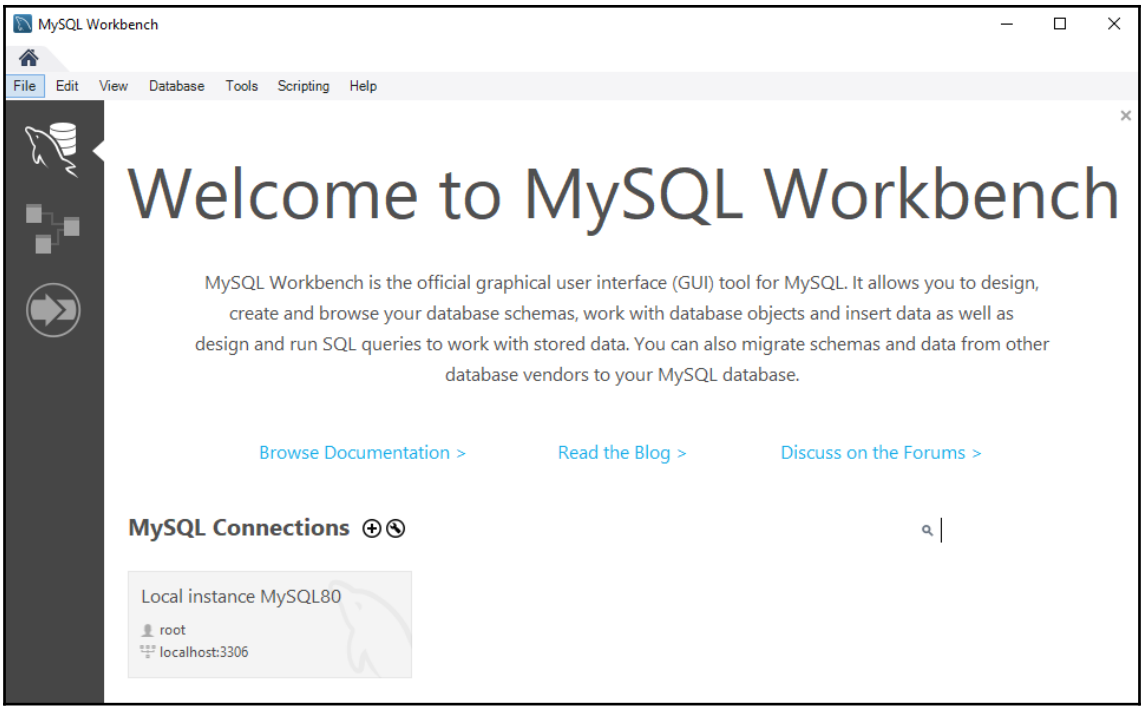
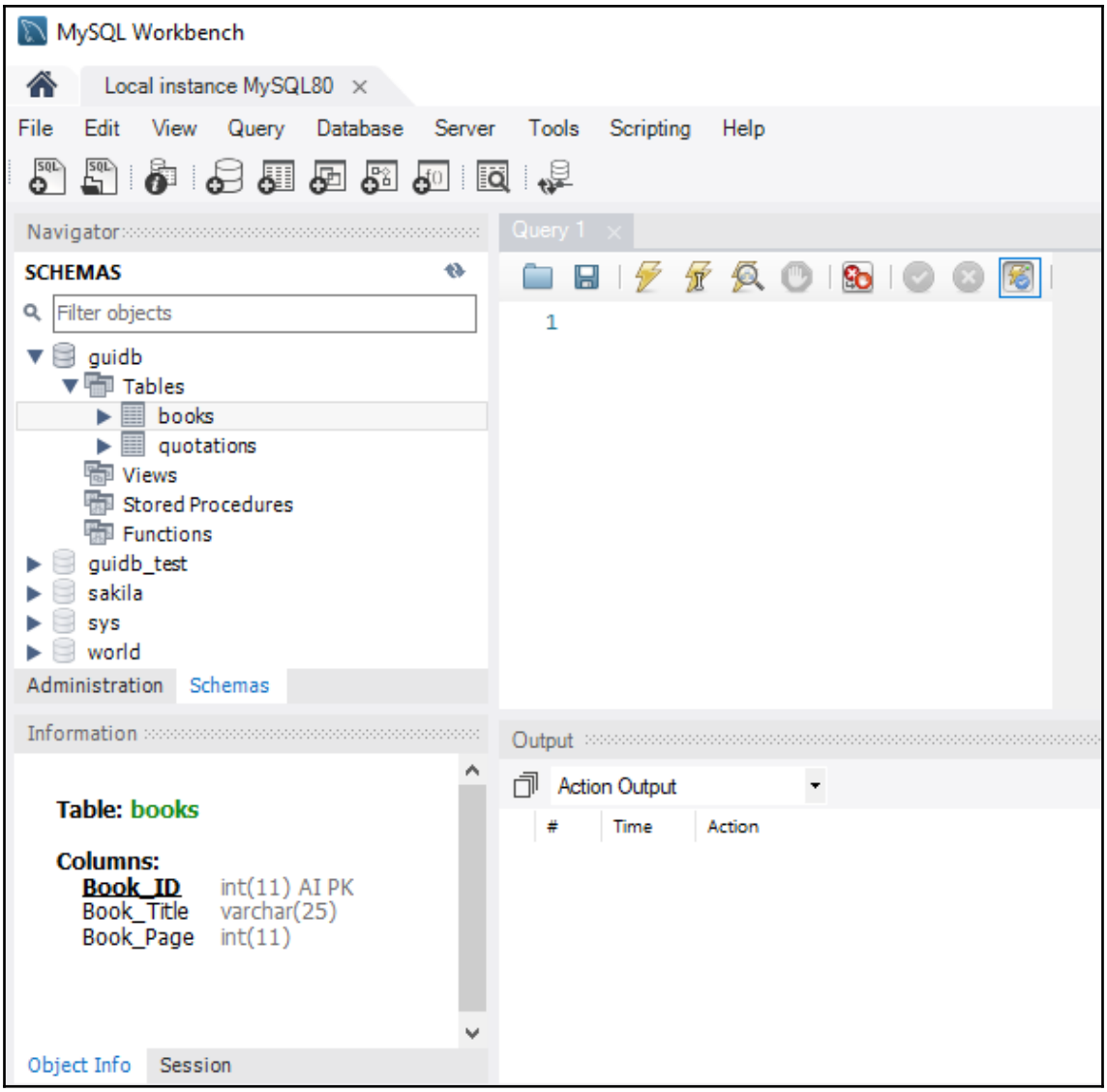
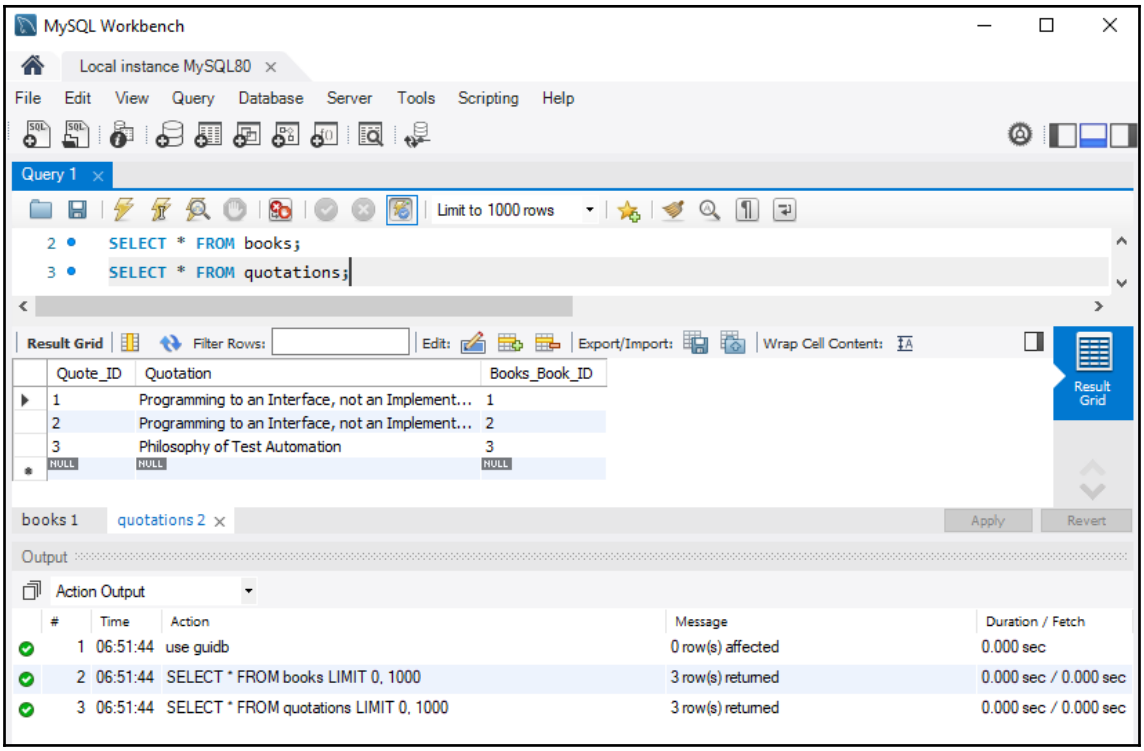
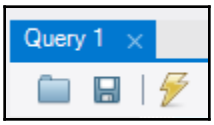
MD5: 6228c775ba5f7578e411dc221d6ceab6
Size: 35.1M
Signature


MySQL Workbench 8.0 CE - Setup Wizard
Welcome to the Setup Wizard for MySQL Workbench 8.0 CE
The Setup Wizard will allow you to modify, repair, or remove MySQL Workbench 8.0 CE. To continue, click Next.
MySQL
< Back
Next >
Cancel

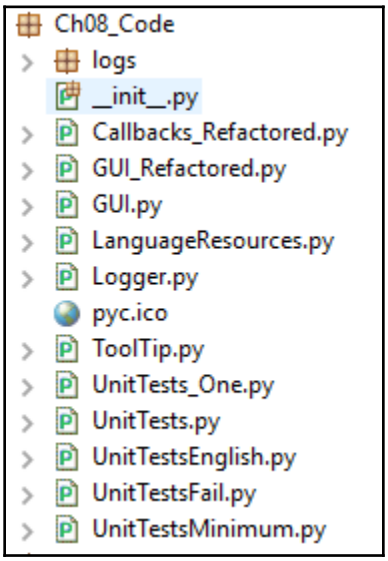

MySQL Workbench
File
Edit
View
Database
Tools
Scripting
Help
Welcome to MySQL Workbench
MySQL Workbench is the official graphical user interface (GUI) tool for MySQL. It allows you to design, create and browse your database schemas, work with database objects and insert data as well as design and run SQL queries to work with stored data. You can also migrate schemas and data from other database vendors to your MySQL database.
Browse Documentation >
Read the Blog >
Discuss on the Forums >
MySQL Connections
Local instance MySQL80
root
localhost:3306

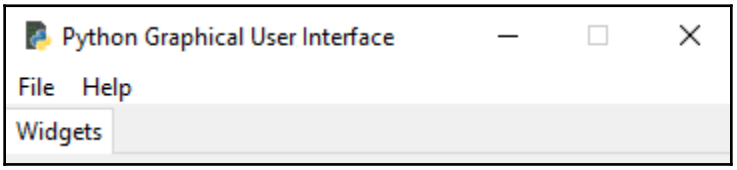

MySQL Workbench
Local instance MySQL80
File Edit View Query Database Server Tools Scripting Help
Navigator
SCHEMAS
Filter objects
guidb
Tables
books
quotations
Views
Stored Procedures
Functions
guidb_test
sakila
sys
world
Administration Schemas
Information
Table: books
Columns:
Book_ID int(11) AI PK
Book_Title varchar(25)
Book_Page int(11)
Object Info Session
Query 1
1
Output
Action Output
Time Action

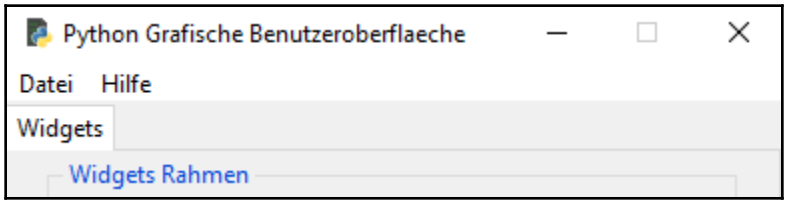

MySQL Workbench
Local instance MySQL80
File Edit View Query Database Server Tools Scripting Help
Query 1
Limit to 1000 rows
2 SELECT * FROM books;
3 SELECT * FROM quotations;
Result Grid
Filter Rows:
Edit:
Export/Import:
Wrap Cell Content:
Quote_ID Quotation Books_Book_ID
1 Programming to an Interface, not an Implement... 1
2 Programming to an Interface, not an Implement... 2
3 Philosophy of Test Automation 3
books 1
quotations 2
Apply
Revert
Output
Action Output
Time Action Message Duration / Fetch
1 06:51:44 use guidb 0 row(s) affected 0.000 sec
2 06:51:44 SELECT * FROM books LIMIT 0, 1000 3 row(s) returned 0.000 sec / 0.000 sec
3 06:51:44 SELECT * FROM quotations LIMIT 0, 1000 3 row(s) returned 0.000 sec / 0.000 sec

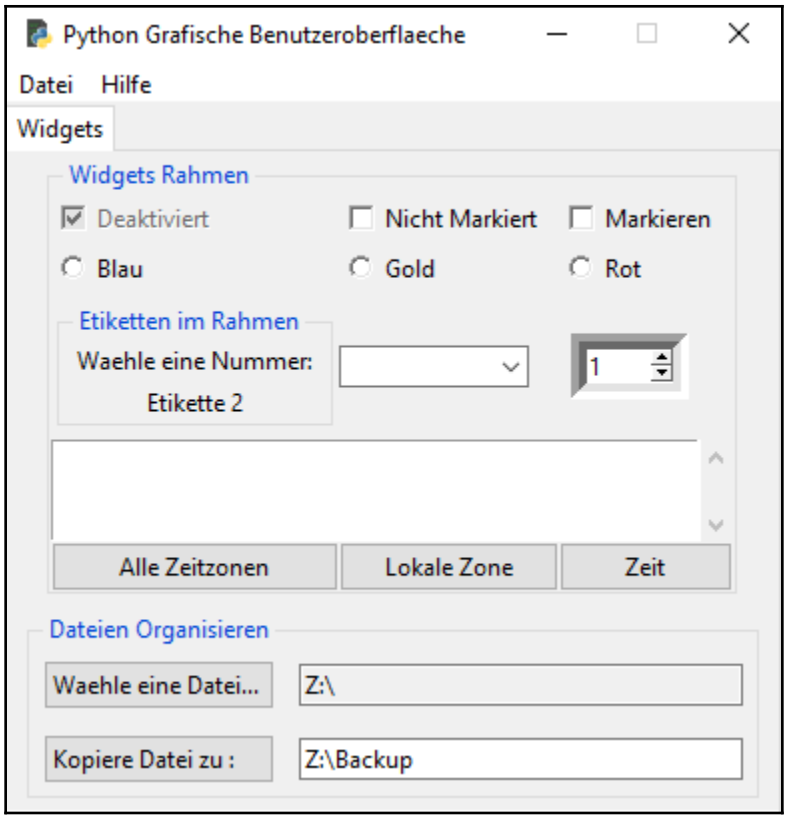

Query 1

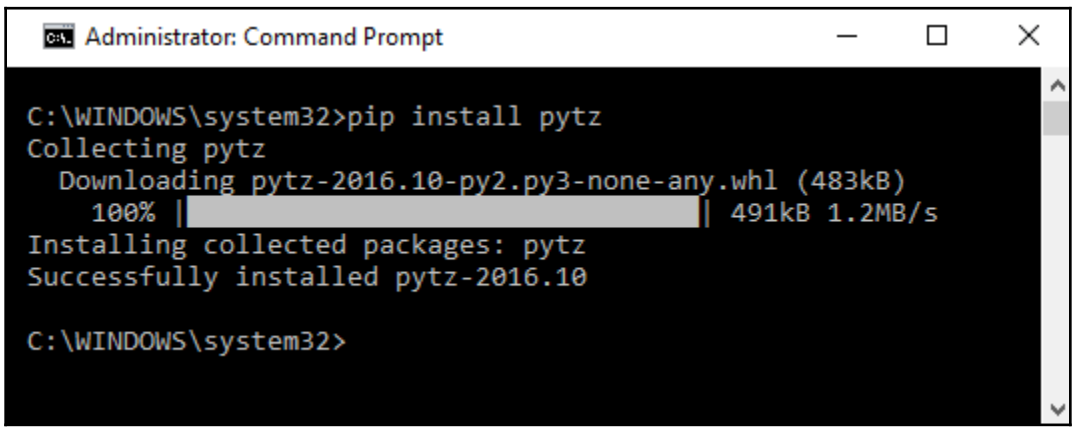
Chapter 8: Internationalization and Testing

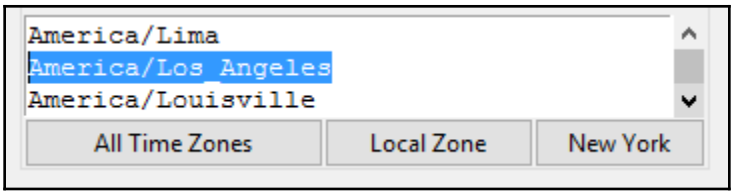




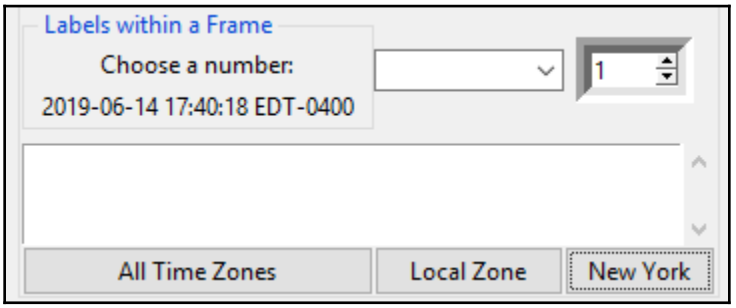


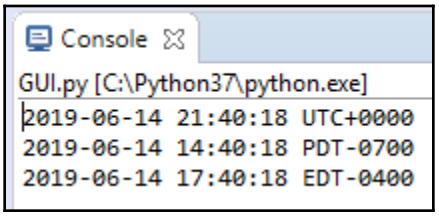

Python Grafische Benutzeroberflaeche
Datei
Hilfe
Widgets
Widgets Rahmen
Deaktiviert
Nicht Markiert
Markieren
Blau
Gold
Rot
Etiketten im Rahmen
Waehle eine Nummer:
Etikette 2
1
Alle Zeitzonen
Lokale Zone
Zeit
Dateien Organisieren
Waehle eine Datei...
Z:\
Kopiere Datei zu :
Z:\Backup

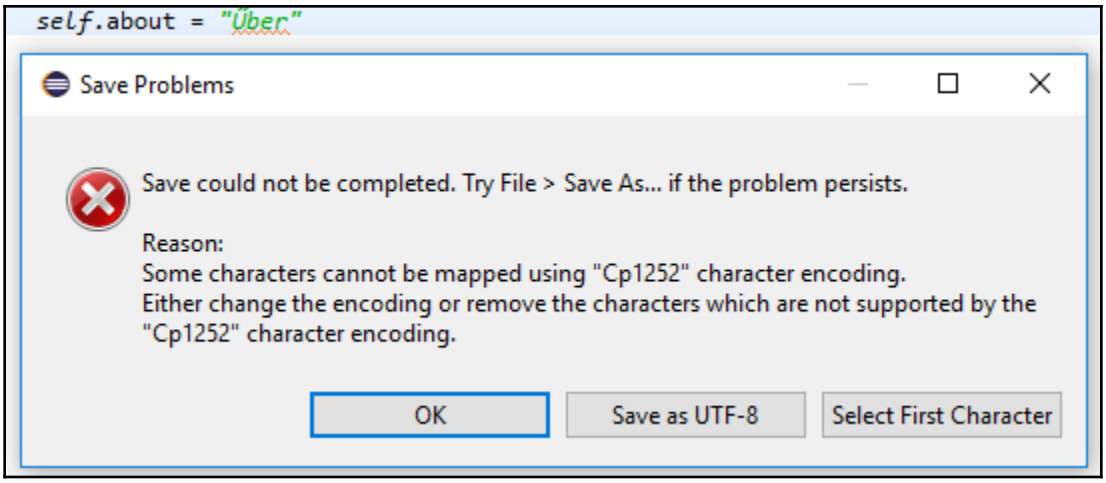

Administrator: Command Prompt
C:\WINDOWS\system32>pip install pytz
Collecting pytz
Downloading pytz-2016.10-py2.py3-none-any.whl (483kB)
100% | | 491kB 1.2MB/s
Installing collected packages: pytz
Successfully installed pytz-2016.10
C:\WINDOWS\system32>

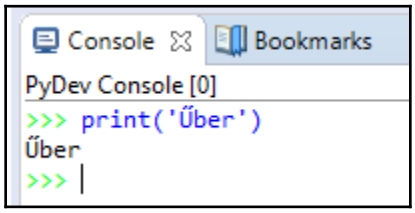

America/Lima
America/Los_Angeles
America/Louisville
All Time Zones
Local Zone
New York

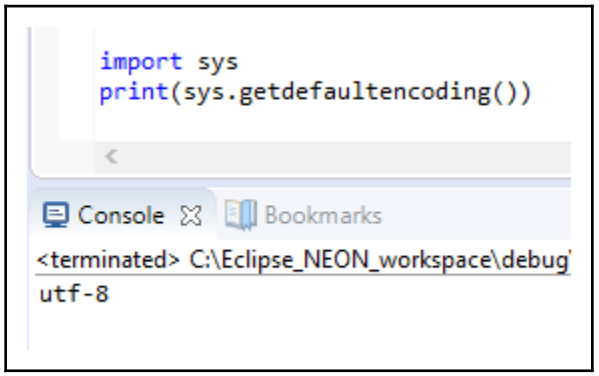

America/Los_Angeles
All Time Zones
Local Zone
New York

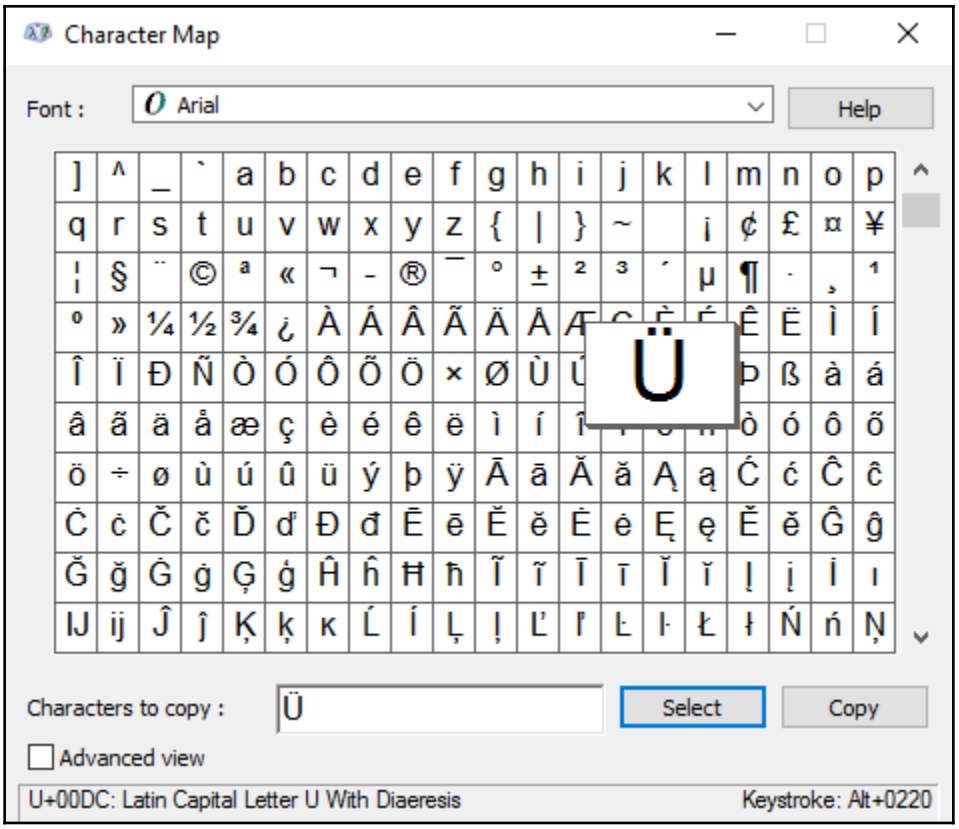

Labels within a Frame
Choose a number:
2019-06-14 17:40:18 EDT-0400
1
All Time Zones
Local Zone
New York

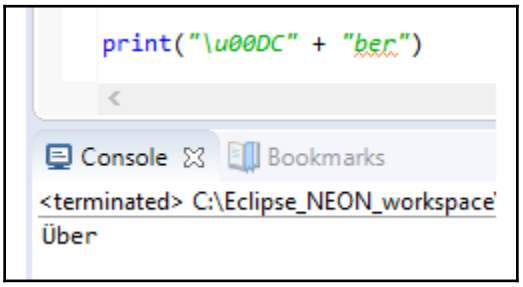

Console
GUI.py [C:\Python37\python.exe]
2019-06-14 21:40:18 UTC+0000
2019-06-14 14:40:18 PDT-0700
2019-06-14 17:40:18 EDT-0400

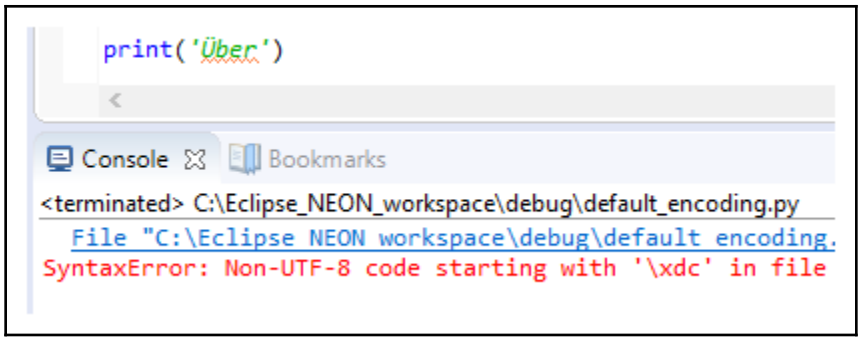

self.about = "Über"
Save Problems
Save could not be completed. Try File > Save As... if the problem persists.
Reason:
Some characters cannot be mapped using "Cp1252" character encoding.
Either change the encoding or remove the characters which are not supported by the "Cp1252" character encoding.
OK
Save as UTF-8
Select First Character

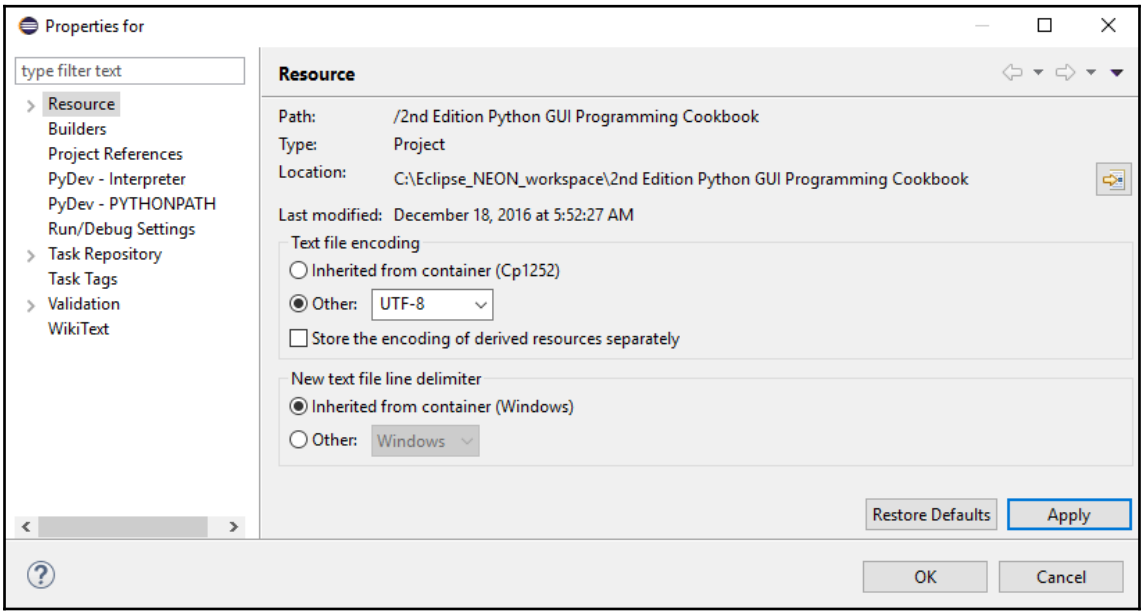

Console
Bookmarks
PyDev Console [0]
>>> print('Űber')
Űber
>>>


import sys
print(sys.getdefaultencoding())
Console
Bookmarks
<terminated> C:\Eclipse_NEON_workspace\debug
utf-8


Character Map
Font :
Arial
Help
Ü
Characters to copy :
Ü
Select
Copy
Advanced view
U+00DC: Latin Capital Letter U With Diaeresis
Keystroke: Alt+0220


print("\u00DC" + "ber")
Console
Bookmarks
<terminated> C:\Eclipse_NEON_workspace
Über


print('Über')
Console
Bookmarks
<terminated> C:\Eclipse_NEON_workspace\debug\default_encoding.py
File "C:\Eclipse_NEON_workspace\debug\default_encoding.
SyntaxError: Non-UTF-8 code starting with '\xdc' in file

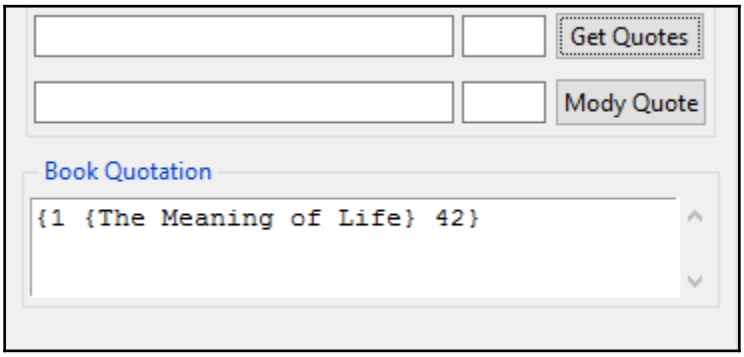

Properties for
type filter text
Resource
Builders
Project References
PyDev - Interpreter
PyDev - PYTHONPATH
Run/Debug Settings
Task Repository
Task Tags
Validation
WikiText
Resource
Path: /2nd Edition Python GUI Programming Cookbook
Type: Project
Location: C:\Eclipse_NEON_workspace\2nd Edition Python GUI Programming Cookbook
Last modified: December 18, 2016 at 5:52:27 AM
Text file encoding
Inherited from container (Cp1252)
Other: UTF-8
Store the encoding of derived resources separately
New text file line delimiter
Inherited from container (Windows)
Other: Windows
Restore Defaults
Apply
OK
Cancel


Python Grafische Benutzeroberfläche
Datei
Hilfe
Über
Widgets Rahmen
Deaktiviert
Nicht Markiert
Markieren
Blau
Gold
Rot

```
#============================================
class OOP():
    def __init__(self, language='en'):
        # Create instance
        self.win = tk.Tk()
```

Console Bookmarks

```
<terminated> C:\Eclipse_NEON_workspace\2nd Edition Python
Traceback (most recent call last):
  File "C:\Eclipse NEON workspace\2nd Edition
    oop = OOP()
  File "C:\Eclipse NEON workspace\2nd Edition
    self.win = tk.Tk()
NameError: name 'tk' is not defined
```



Console Bookmarks

```
C:\Eclipse_NEON_workspace\2nd Edition Python GUI Programming Cookbook\Ch07_Code\GUI_MySQL.py
  File "C:\Eclipse NEON workspace\2nd Edition Python GUI Programming Cookbook\Ch07 Code\GUI MySQL.py"
    raise NotImplementedError("This still needs to be implemented for the SQL command.")
NotImplementedError: This still needs to be implemented for the SQL command.
```

```
def multipy(num):
    print(num * num)

multipy(3)
```

Console Bookmarks

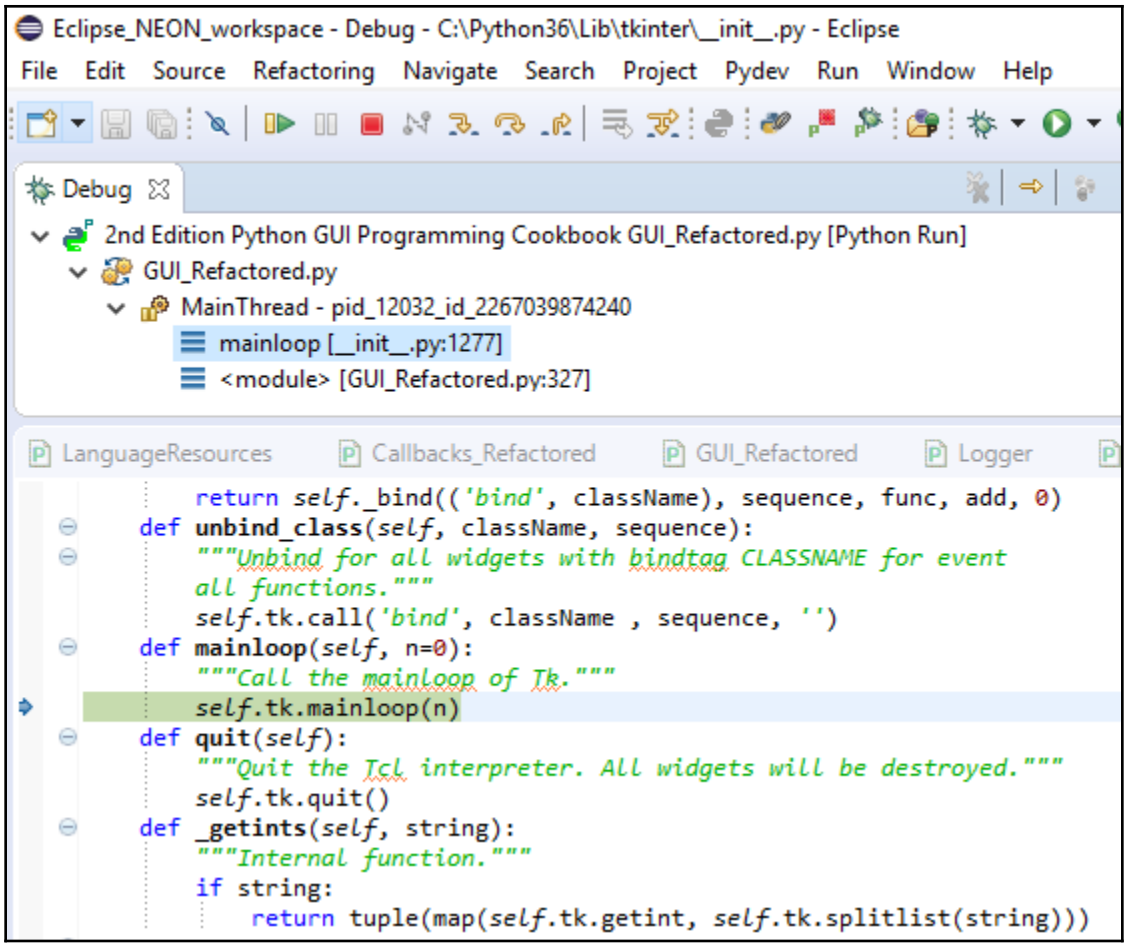
```
<terminated> C:\Eclipse_NEON_workspace\
9
```

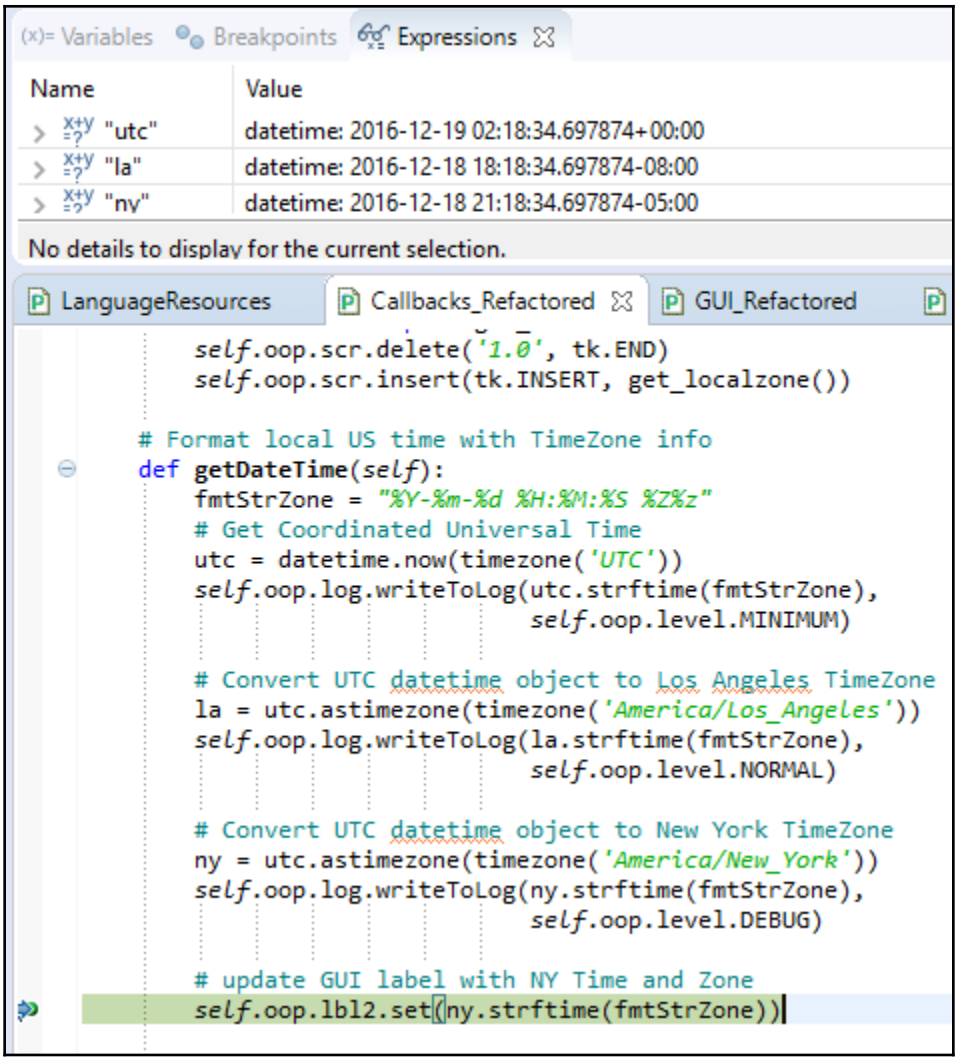
```
def multipy(num):
    print(num ** num)

multipy(3)
```

Console Bookmarks

```
<terminated> C:\Eclipse_NEON_workspace\
27
```

```
#======================
# Start GUI
#======================
oop = OOP()
oop.win.mainloop()
```

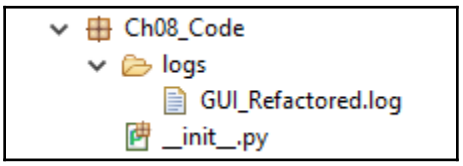

Eclipse_NEON_workspace - Debug - C:\Python36\Lib\tkinter__init__.py - Eclipse
File Edit Source Refactoring Navigate Search Project Pydev Run Window Help
Debug
2nd Edition Python GUI Programming Cookbook GUI_Refactored.py [Python Run]
GUI_Refactored.py
MainThread - pid_12032_id_2267039874240
mainloop [__init__.py:1277]
<module> [GUI_Refactored.py:327]
LanguageResources
Callbacks_Refactored
GUI_Refactored
Logger
return self._bind(('bind', className), sequence, func, add, 0)
def unbind_class(self, className, sequence):
"""Unbind for all widgets with bindtag CLASSNAME for event
all functions."""
self.tk.call('bind', className , sequence, '')
def mainloop(self, n=0):
"""Call the mainLoop of Tk."""
self.tk.mainloop(n)
def quit(self):
"""Quit the Tcl interpreter. All widgets will be destroyed."""
self.tk.quit()
def _getints(self, string):
"""Internal function."""
if string:
return tuple(map(self.tk.getint, self.tk.splitlist(string)))


(x)= Variables
Breakpoints
Expressions
Name
Value
"utc"
datetime: 2016-12-19 02:18:34.697874+00:00
"la"
datetime: 2016-12-18 18:18:34.697874-08:00
"ny"
datetime: 2016-12-18 21:18:34.697874-05:00
No details to display for the current selection.
LanguageResources
Callbacks_Refactored
GUI_Refactored
self.oop.scr.delete('1.0', tk.END)
self.oop.scr.insert(tk.INSERT, get_localzone())
# Format local US time with TimeZone info
def getDateTime(self):
fmtStrZone = "%Y-%m-%d %H:%M:%S %Z%z"
# Get Coordinated Universal Time
utc = datetime.now(timezone('UTC'))
self.oop.log.writeToLog(utc.strftime(fmtStrZone),
self.oop.level.MINIMUM)
# Convert UTC datetime object to Los Angeles TimeZone
la = utc.astimezone(timezone('America/Los_Angeles'))
self.oop.log.writeToLog(la.strftime(fmtStrZone),
self.oop.level.NORMAL)
# Convert UTC datetime object to New York TimeZone
ny = utc.astimezone(timezone('America/New_York'))
self.oop.log.writeToLog(ny.strftime(fmtStrZone),
self.oop.level.DEBUG)
# update GUI label with NY Time and Zone
self.oop.lbl2.set(ny.strftime(fmtStrZone))

```
        # create Logger instance
        fullPath = path.realpath(__file__)
        self.log = Logger(fullPath)
        print(self.log)
```

Console Bookmarks

```
<terminated> C:\Eclipse_NEON_workspace\2nd Edition Python GUI Programming
<Ch08_Code.Logger.Logger object at 0x000001FFAD0C5CF8>
```



GUI_Refactored.log

```
2019-06-14 21:19:30     *** Starting Test ***
```

```
#======================================================
if __name__ == '__main__':
    language = 'en'
    inst = I18N(language)
    print(inst.title)

    language = 'de'
    inst = I18N(language)
    print(inst.title)
```

Console Bookmarks

```
<terminated> C:\Eclipse_NEON_workspace\2nd Edition Python GUI Programming
Python Graphical User Interface
Python Grafische Benutzeroberfläche
```

```
#==================================
if __name__ == '__main__':
    #======================
    # Start GUI
    #======================
    oop = OOP()
    print(oop.log)
    oop.win.mainloop()
```

Console Bookmarks

```
<terminated> C:\Eclipse_NEON_workspace\2nd Edition Python GUI
<Ch08_Code.Logger.Logger object at 0x0000020CE0386CF8>
```

GUI_Refactored.log

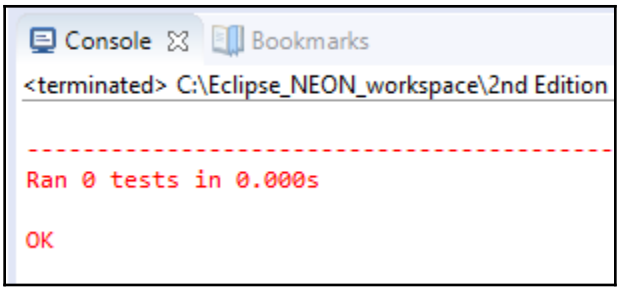
```
2016-12-19 18:26:35     *** Starting Test ***
2016-12-19 18:26:35     Test message
```

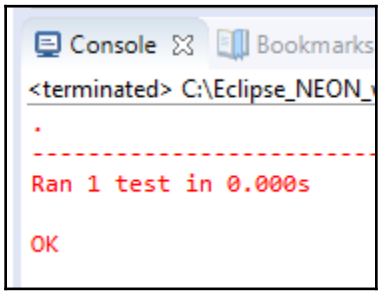
GUI_Refactored.log

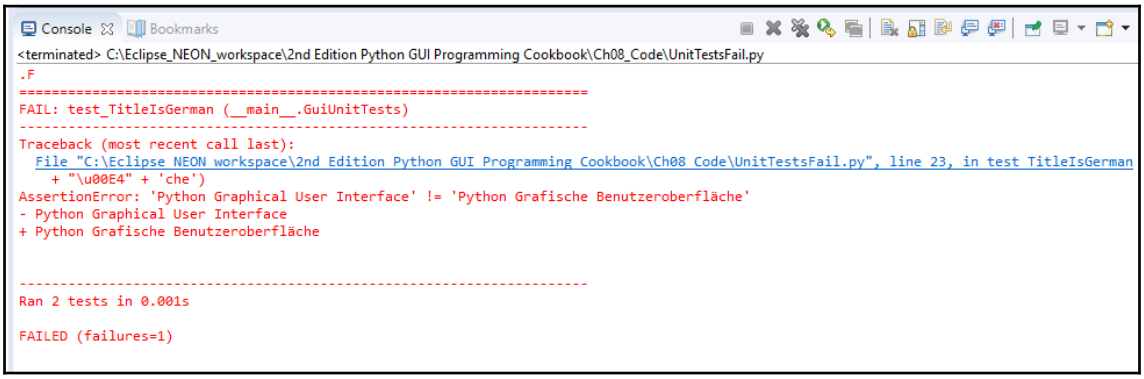
```
2016-12-19 18:30:40     *** Starting Test ***
2016-12-19 18:30:40     Test message
2016-12-19 18:30:42     2016-12-20 02:30:42 UTC+0000
2016-12-19 18:30:42     2016-12-19 18:30:42 PST-0800
2016-12-19 18:30:42     2016-12-19 21:30:42 EST-0500
```

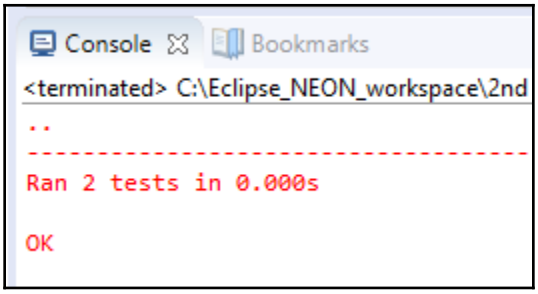
GUI_Refactored.log

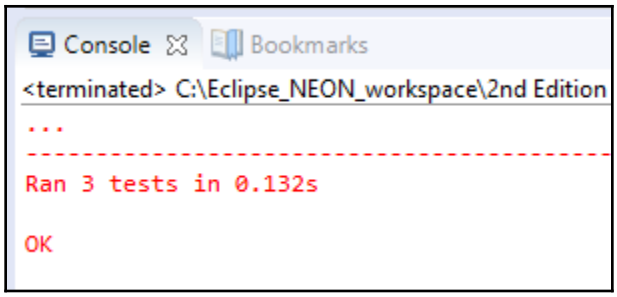
```
2016-12-19 18:34:42     *** Starting Test ***
2016-12-19 18:34:43     2016-12-20 02:34:43 UTC+0000
```

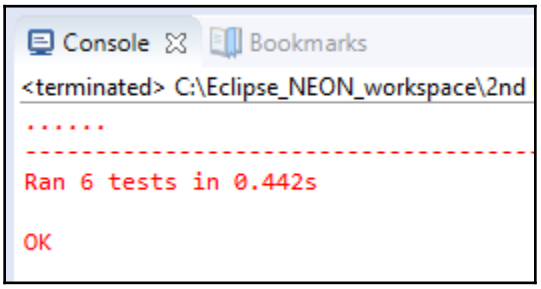

Console
Bookmarks
<terminated> C:\Eclipse_NEON_workspace\2nd Edition
Ran 0 tests in 0.000s
OK


Console
Bookmarks
<terminated> C:\Eclipse_NEON_
.
Ran 1 test in 0.000s
OK

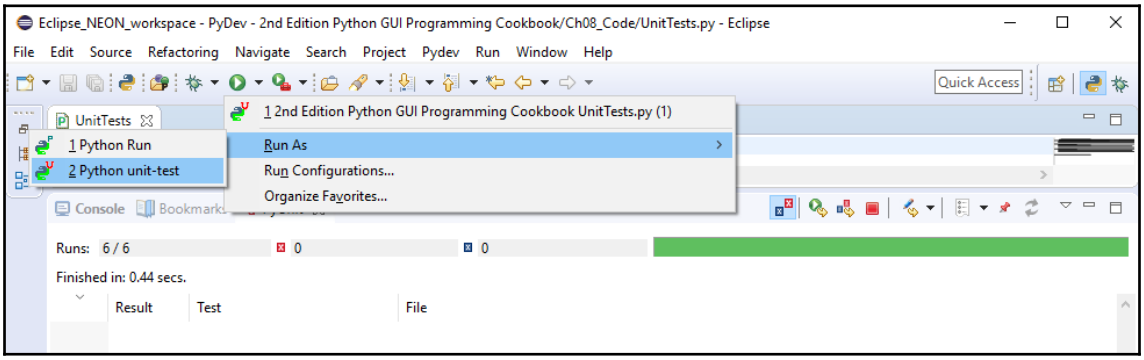

Console
Bookmarks
<terminated> C:\Eclipse_NEON_workspace\2nd Edition Python GUI Programming Cookbook\Ch08_Code\UnitTestsFail.py
.F
FAIL: test_TitleIsGerman (__main__.GuiUnitTests)
Traceback (most recent call last):
File "C:\Eclipse_NEON_workspace\2nd Edition Python GUI Programming Cookbook\Ch08_Code\UnitTestsFail.py", line 23, in test_TitleIsGerman
+ "\u00E4" + 'che')
AssertionError: 'Python Graphical User Interface' != 'Python Grafische Benutzeroberfläche'
- Python Graphical User Interface
+ Python Grafische Benutzeroberfläche
Ran 2 tests in 0.001s
FAILED (failures=1)

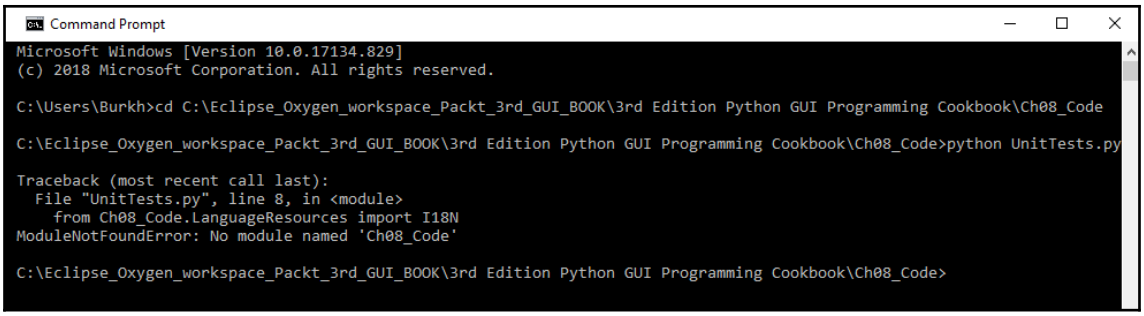

Console
Bookmarks
<terminated> C:\Eclipse_NEON_workspace\2nd
..
Ran 2 tests in 0.000s
OK

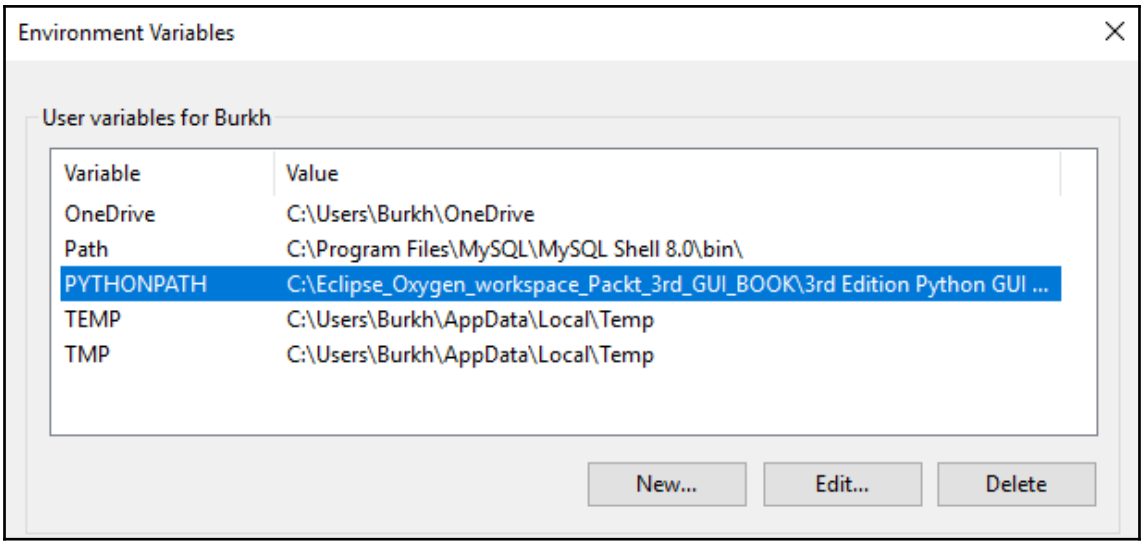


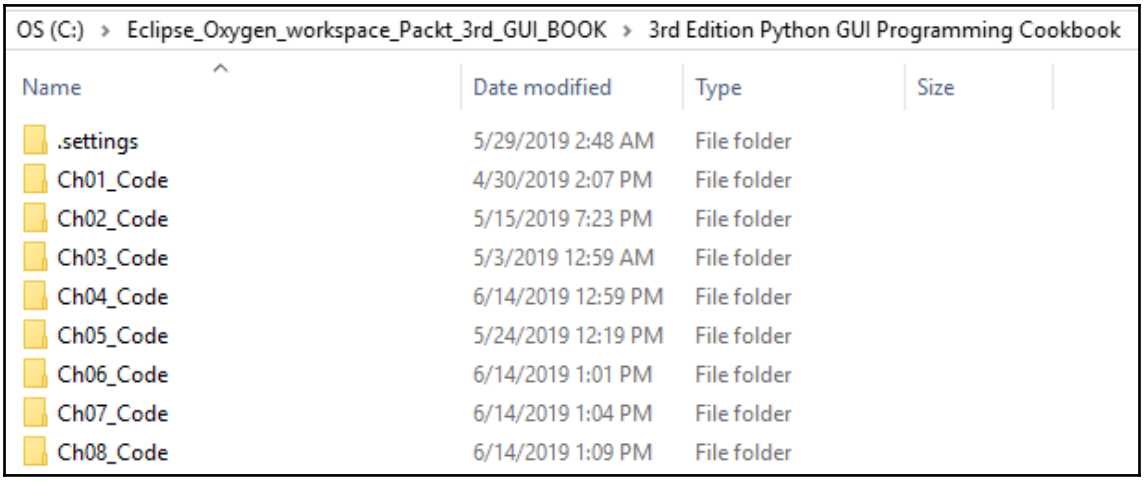



```
C:\Eclipse_Oxygen_workspace_Packt_3rd_GUI_BOOK\3rd Edition Python GUI Programming Cookbook\Ch08_Code>python UnitTests.py
......
----------------------------------------------------------------------
Ran 6 tests in 0.562s

OK
```

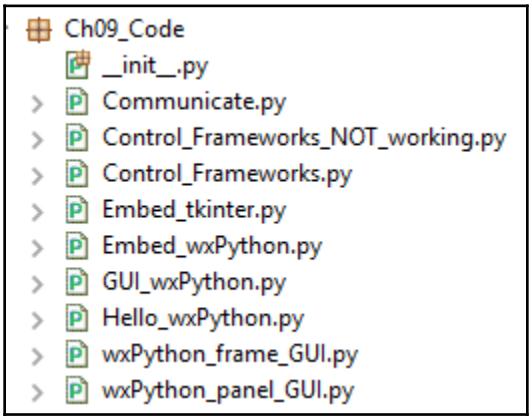


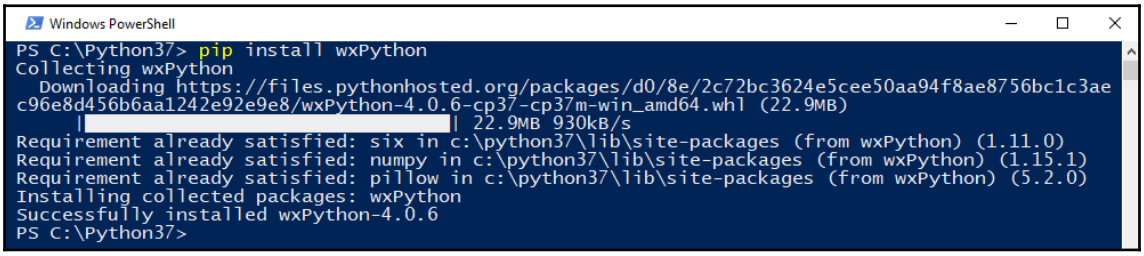

Command Prompt
Microsoft Windows [Version 10.0.17134.829]
(c) 2018 Microsoft Corporation. All rights reserved.
C:\Users\Burkh>cd C:\Eclipse_Oxygen_workspace_Packt_3rd_GUI_BOOK\3rd Edition Python GUI Programming Cookbook\Ch08_Code
C:\Eclipse_Oxygen_workspace_Packt_3rd_GUI_BOOK\3rd Edition Python GUI Programming Cookbook\Ch08_Code>python UnitTests.py
Traceback (most recent call last):
File "UnitTests.py", line 8, in <module>
from Ch08_Code.LanguageResources import I18N
ModuleNotFoundError: No module named 'Ch08_Code'
C:\Eclipse_Oxygen_workspace_Packt_3rd_GUI_BOOK\3rd Edition Python GUI Programming Cookbook\Ch08_Code>

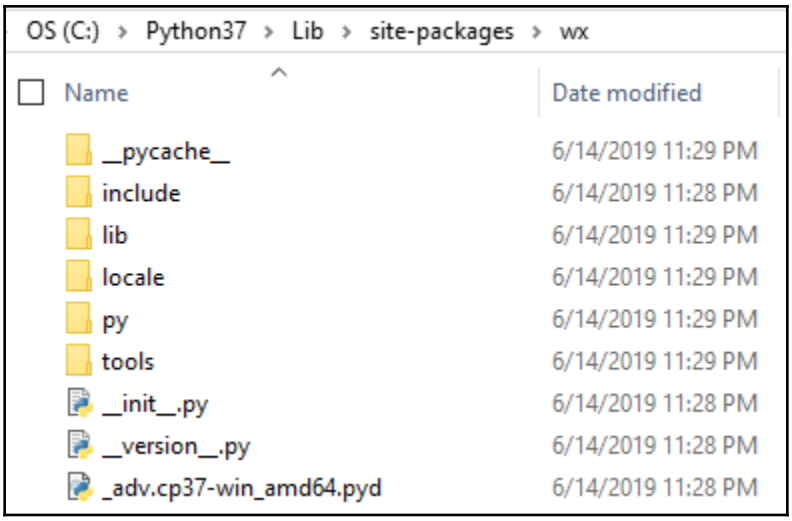

Environment Variables
User variables for Burkh
Variable
Value
OneDrive
C:\Users\Burkh\OneDrive
Path
C:\Program Files\MySQL\MySQL Shell 8.0\bin\
PYTHONPATH
C:\Eclipse_Oxygen_workspace_Packt_3rd_GUI_BOOK\3rd Edition Python GUI ...
TEMP
C:\Users\Burkh\AppData\Local\Temp
TMP
C:\Users\Burkh\AppData\Local\Temp
New...
Edit...
Delete


OS (C:) › Eclipse_Oxygen_workspace_Packt_3rd_GUI_BOOK › 3rd Edition Python GUI Programming Cookbook
Name
Date modified
Type
Size
.settings 5/29/2019 2:48 AM File folder
Ch01_Code 4/30/2019 2:07 PM File folder
Ch02_Code 5/15/2019 7:23 PM File folder
Ch03_Code 5/3/2019 12:59 AM File folder
Ch04_Code 6/14/2019 12:59 PM File folder
Ch05_Code 5/24/2019 12:19 PM File folder
Ch06_Code 6/14/2019 1:01 PM File folder
Ch07_Code 6/14/2019 1:04 PM File folder
Ch08_Code 6/14/2019 1:09 PM File folder

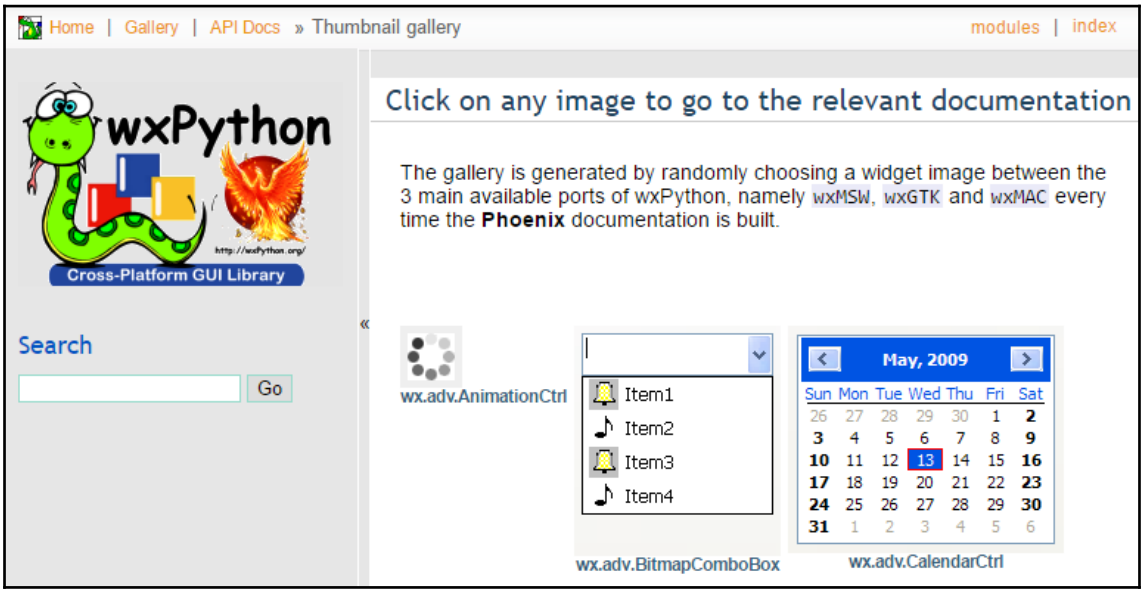
Chapter 9: Extending Our GUI with the wxPython Library

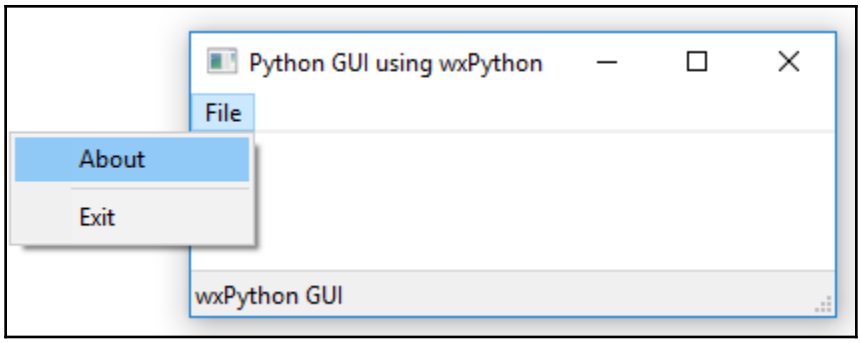


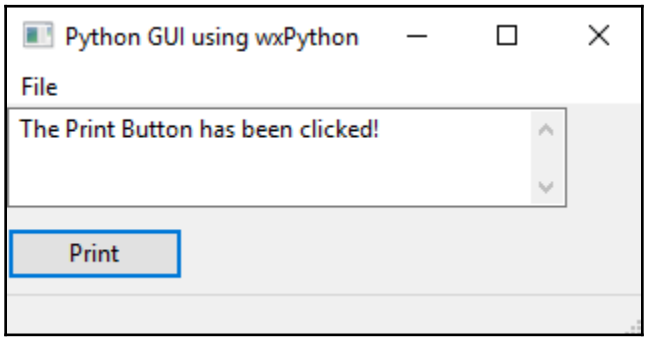


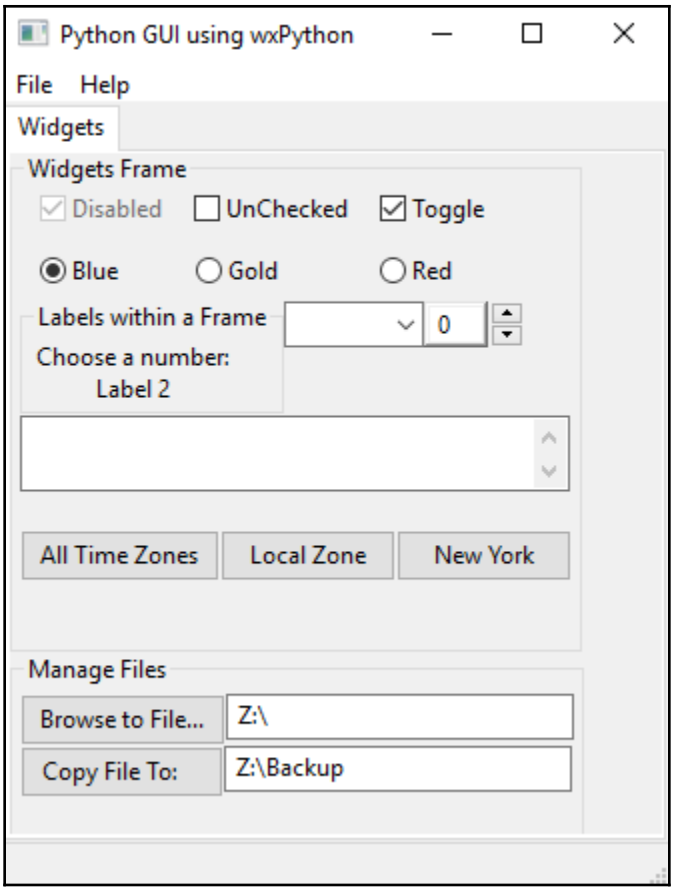

OS (C:) › Python37 › Lib › site-packages › wx
Name
Date modified
__pycache__ 6/14/2019 11:29 PM
include 6/14/2019 11:28 PM
lib 6/14/2019 11:29 PM
locale 6/14/2019 11:29 PM
py 6/14/2019 11:29 PM
tools 6/14/2019 11:29 PM
__init__.py 6/14/2019 11:28 PM
__version__.py 6/14/2019 11:28 PM
_adv.cp37-win_amd64.pyd 6/14/2019 11:28 PM

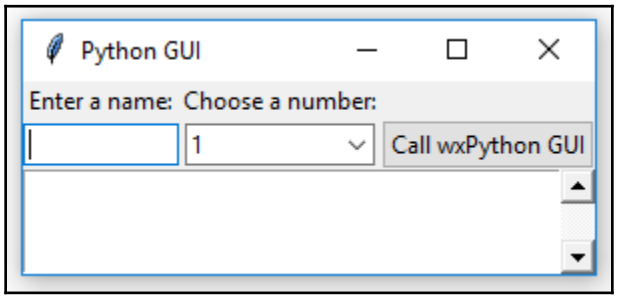

Hello World

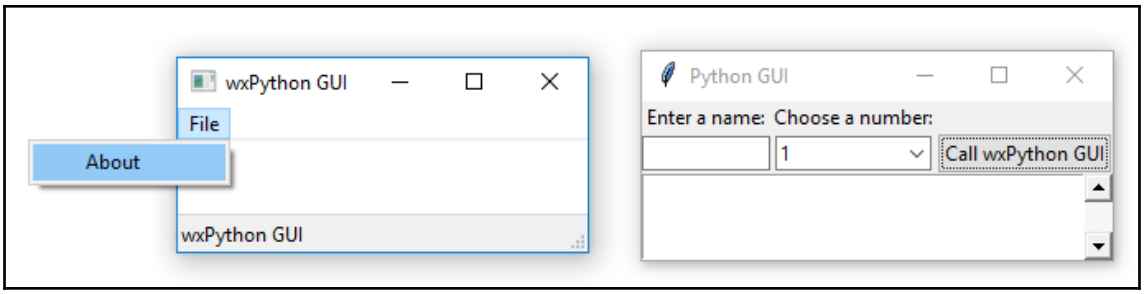

Home | Gallery | API Docs » Thumbnail gallery
modules | index
wxPython
Cross-Platform GUI Library
Search
Go
Click on any image to go to the relevant documentation
The gallery is generated by randomly choosing a widget image between the 3 main available ports of wxPython, namely wxMSW, wxGTK and wxMAC every time the Phoenix documentation is built.
wx.adv.AnimationCtrl
Item1
Item2
Item3
Item4
wx.adv.BitmapComboBox
May, 2009
Sun Mon Tue Wed Thu Fri Sat
wx.adv.CalendarCtrl

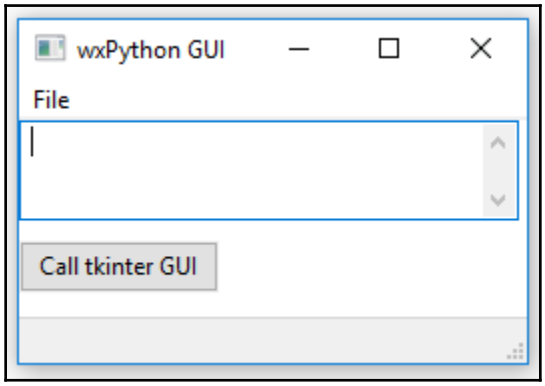

Python GUI using wxPython
File
About
Exit
wxPython GUI

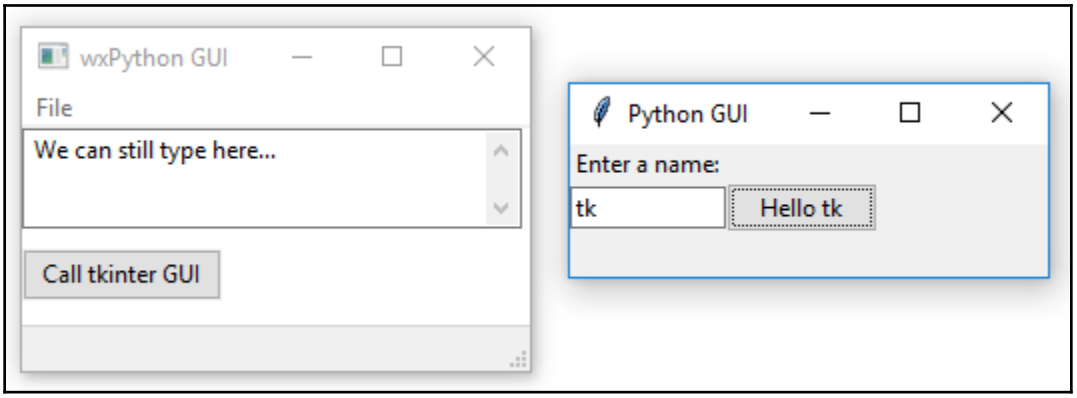

Python GUI using wxPython
File
The Print Button has been clicked!
Print

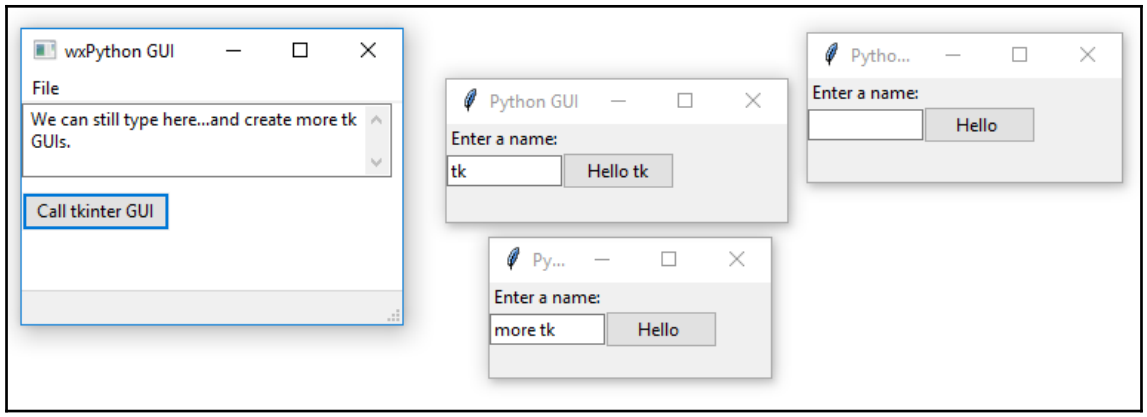

Python GUI using wxPython
File
Help
Widgets
Widgets Frame
Disabled
UnChecked
Toggle
Blue
Gold
Red
Labels within a Frame
0
Choose a number:
Label 2
All Time Zones
Local Zone
New York
Manage Files
Browse to File...
Z:\
Copy File To:
Z:\Backup

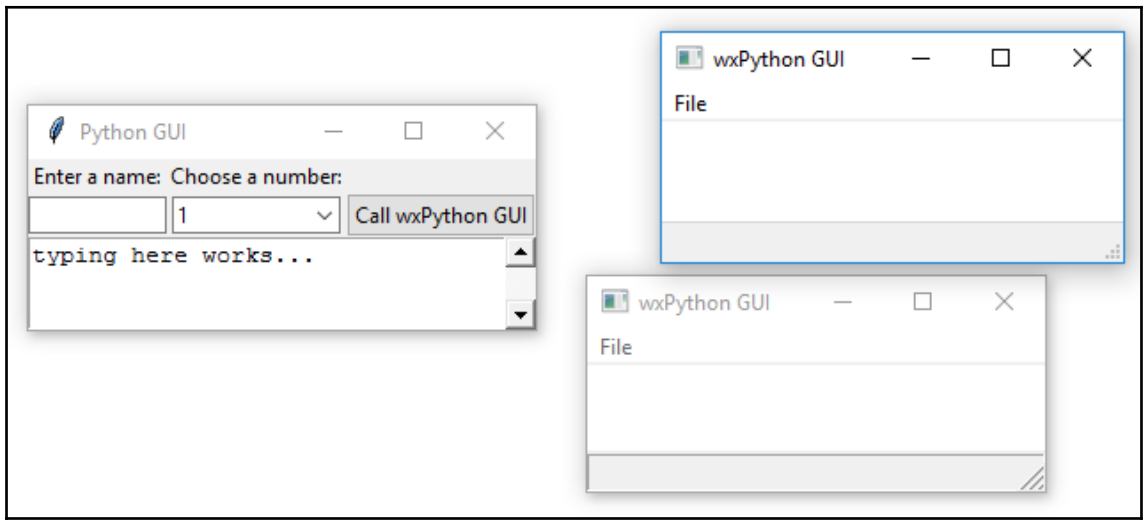

Python GUI
Enter a name:
Choose a number:
1
Call wxPython GUI

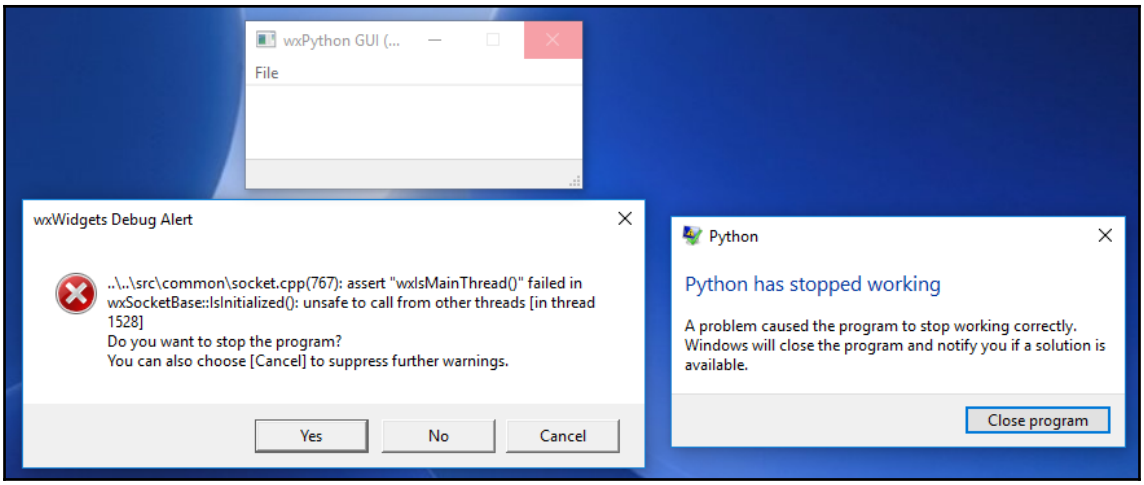

wxPython GUI
File
About
wxPython GUI
Python GUI
Enter a name: Choose a number:
1
Call wxPython GUI

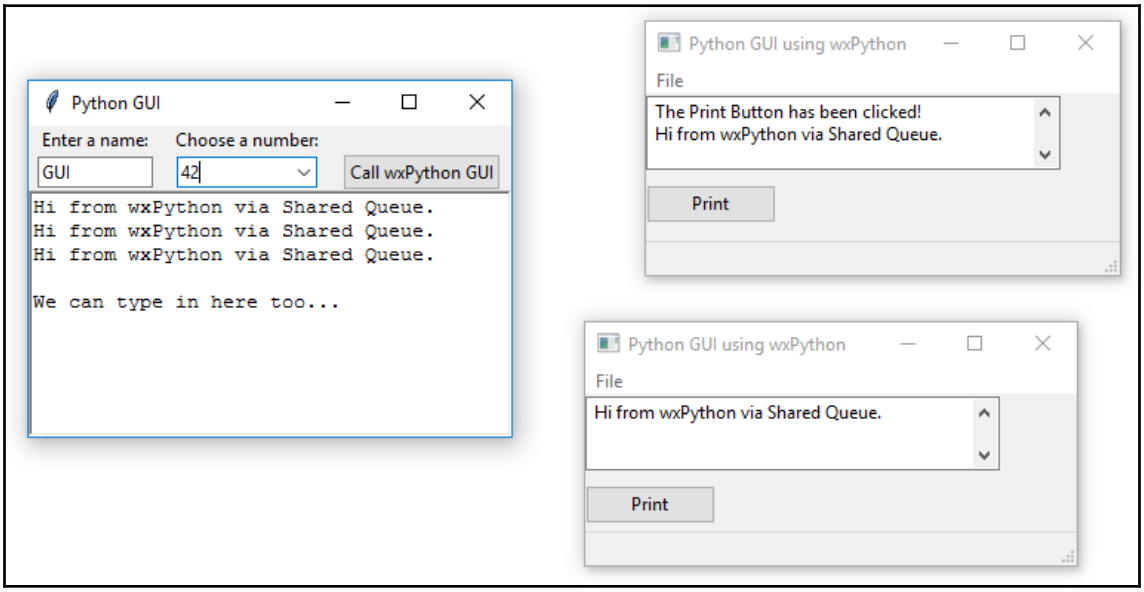

wxPython GUI
File
Call tkinter GUI


wxPython GUI
File
We can still type here...
Call tkinter GUI
Python GUI
Enter a name:
tk
Hello tk

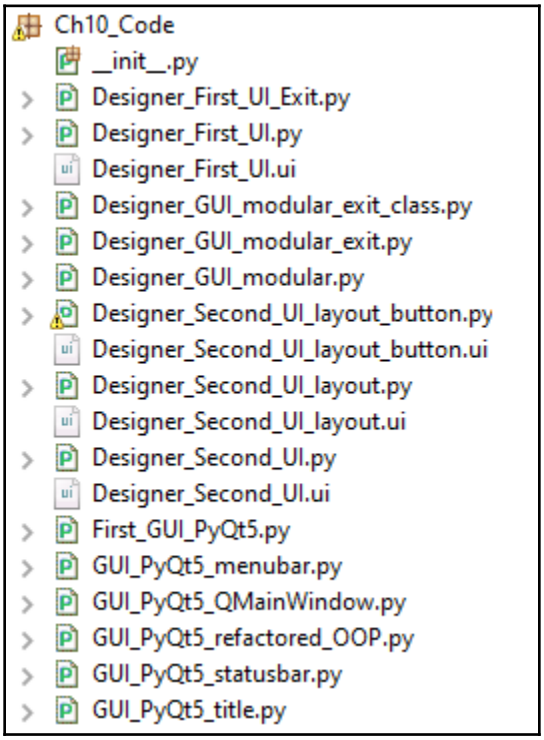

wxPython GUI
File
We can still type here...and create more tk GUIs.
Call tkinter GUI
Python GUI
Enter a name:
tk
Hello tk
Pytho...
Enter a name:
Hello
Py...
Enter a name:
more tk
Hello

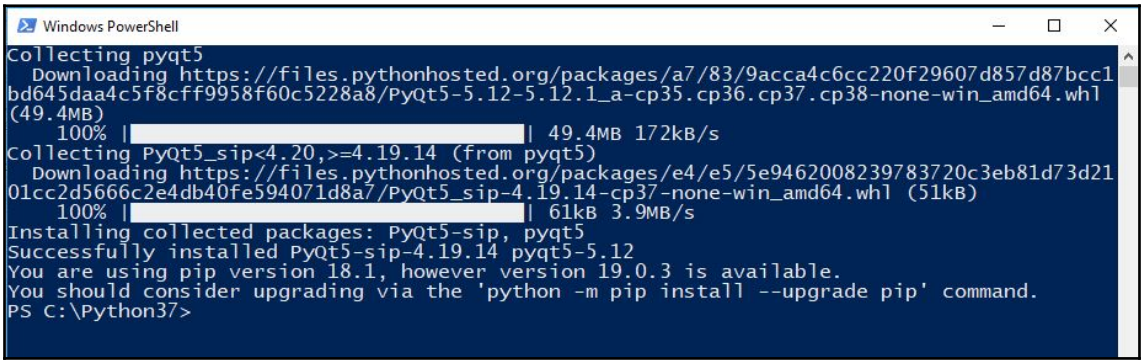

Python GUI
Enter a name: Choose a number:
1
Call wxPython GUI
typing here works...
wxPython GUI
File
wxPython GUI
File

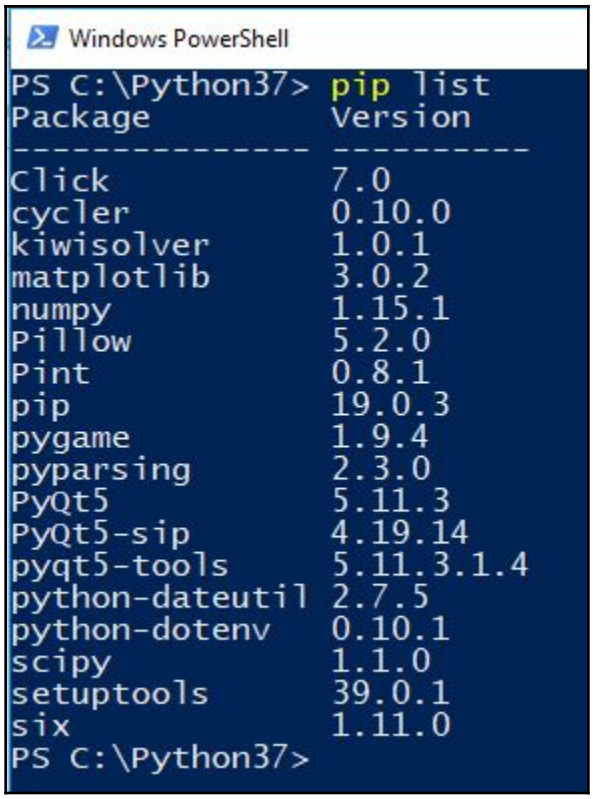

wxPython GUI (...
File
wxWidgets Debug Alert
..\..\src\common\socket.cpp(767): assert "wxIsMainThread()" failed in wxSocketBase::IsInitialized(): unsafe to call from other threads [in thread 1528]
Do you want to stop the program?
You can also choose [Cancel] to suppress further warnings.
Yes
No
Cancel
Python
Python has stopped working
A problem caused the program to stop working correctly. Windows will close the program and notify you if a solution is available.
Close program


Python GUI
Enter a name:
Choose a number:
GUI
42
Call wxPython GUI
Hi from wxPython via Shared Queue.
Hi from wxPython via Shared Queue.
Hi from wxPython via Shared Queue.
We can type in here too...
Python GUI using wxPython
File
The Print Button has been clicked!
Hi from wxPython via Shared Queue.
Print
Python GUI using wxPython
File
Hi from wxPython via Shared Queue.
Print

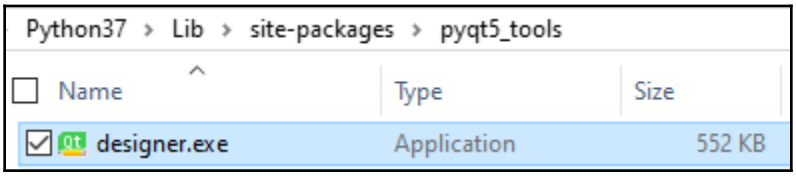
Chapter 10: Building GUIs with PyQt5

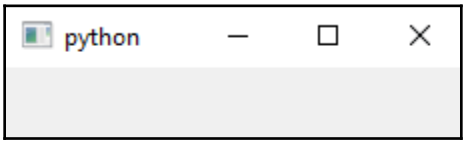


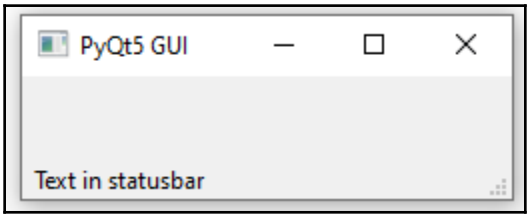


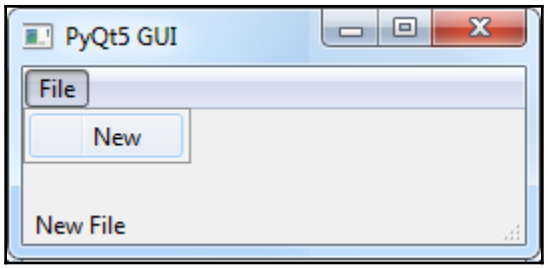

Windows PowerShell
PS C:\Python37> pip list
Package Version
Click 7.0
cycler 0.10.0
kiwisolver 1.0.1
matplotlib 3.0.2
numpy 1.15.1
Pillow 5.2.0
Pint 0.8.1
pip 19.0.3
pygame 1.9.4
pyparsing 2.3.0
PyQt5 5.11.3
PyQt5-sip 4.19.14
pyqt5-tools 5.11.3.1.4
python-dateutil 2.7.5
python-dotenv 0.10.1
scipy 1.1.0
setuptools 39.0.1
six 1.11.0
PS C:\Python37>

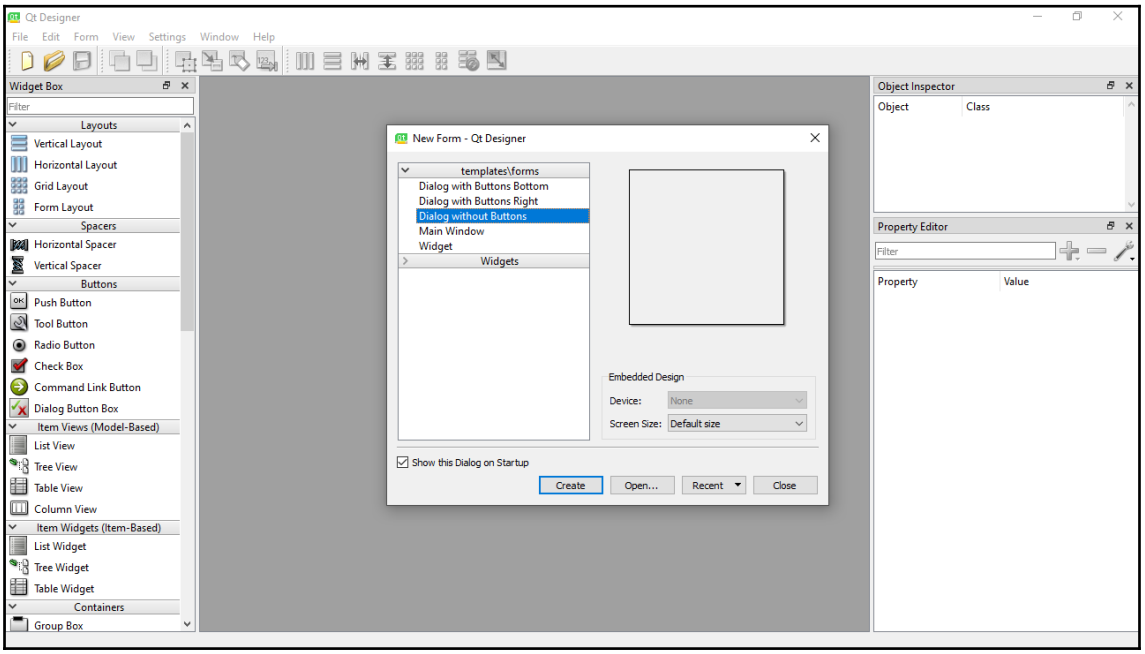
```
  Downloading https://files.pythonhosted.org/packages/6a/35/98279ba706e9c3731f0f53813e9a8152ed662f2230e8af18a20d490167be
/pyqt5_tools-5.11.3.1.4-cp37-none-win_amd64.whl (59.4MB)
     100% |████████████████████████████████| 59.4MB 133kB/s
Collecting pyqt5==5.11.3 (from pyqt5-tools)
  Downloading https://files.pythonhosted.org/packages/a7/2d/d2c989006c86ae98ed230c28c3e0dd7fa0374e723afc107d12268159ceb7
/PyQt5-5.11.3-5.11.2-cp35.cp36.cp37.cp38-none-win_amd64.whl (93.4MB)
     100% |████████████████████████████████| 93.4MB 78kB/s
Collecting click (from pyqt5-tools)
  Downloading https://files.pythonhosted.org/packages/fa/37/45185cb5abbc30d7257104c434fe0b07e5a195a6847506c074527aa599ec
/Click-7.0-py2.py3-none-any.whl (81kB)
     100% |████████████████████████████████| 81kB 5.3MB/s
Collecting python-dotenv (from pyqt5-tools)
  Downloading https://files.pythonhosted.org/packages/8c/14/501508b016e7b1ad0eb91bba581e66ad9bfc7c66fcacbb580eaf9bc38458
/python_dotenv-0.10.1-py2.py3-none-any.whl
Requirement already satisfied: PyQt5_sip<4.20,>=4.19.11 in c:\python37\lib\site-packages (from pyqt5==5.11.3->pyqt5-tool
s) (4.19.14)
Installing collected packages: pyqt5, click, python-dotenv, pyqt5-tools
  Found existing installation: PyQt5 5.12
    Uninstalling PyQt5-5.12:
      Successfully uninstalled PyQt5-5.12



PS C:\Python37> pip install pyqt5-tools
Collecting pyqt5-tools
  Using cached https://files.pythonhosted.org/packages/6a/35/98279ba706e9c3731f0f53813e9a8152ed662f2230e8af18a20d490167b
e/pyqt5_tools-5.11.3.1.4-cp37-none-win_amd64.whl
Requirement already satisfied: pyqt5==5.11.3 in c:\python37\lib\site-packages (from pyqt5-tools) (5.11.3)
Collecting click (from pyqt5-tools)
  Using cached https://files.pythonhosted.org/packages/fa/37/45185cb5abbc30d7257104c434fe0b07e5a195a6847506c074527aa599e
c/Click-7.0-py2.py3-none-any.whl
Collecting python-dotenv (from pyqt5-tools)
  Using cached https://files.pythonhosted.org/packages/8c/14/501508b016e7b1ad0eb91bba581e66ad9bfc7c66fcacbb580eaf9bc3845
8/python_dotenv-0.10.1-py2.py3-none-any.whl
Requirement already satisfied: PyQt5_sip<4.20,>=4.19.11 in c:\python37\lib\site-packages (from pyqt5==5.11.3->pyqt5-tool
s) (4.19.14)
Installing collected packages: click, python-dotenv, pyqt5-tools
Successfully installed click-7.0 pyqt5-tools-5.11.3.1.4 python-dotenv-0.10.1
PS C:\Python37>
```

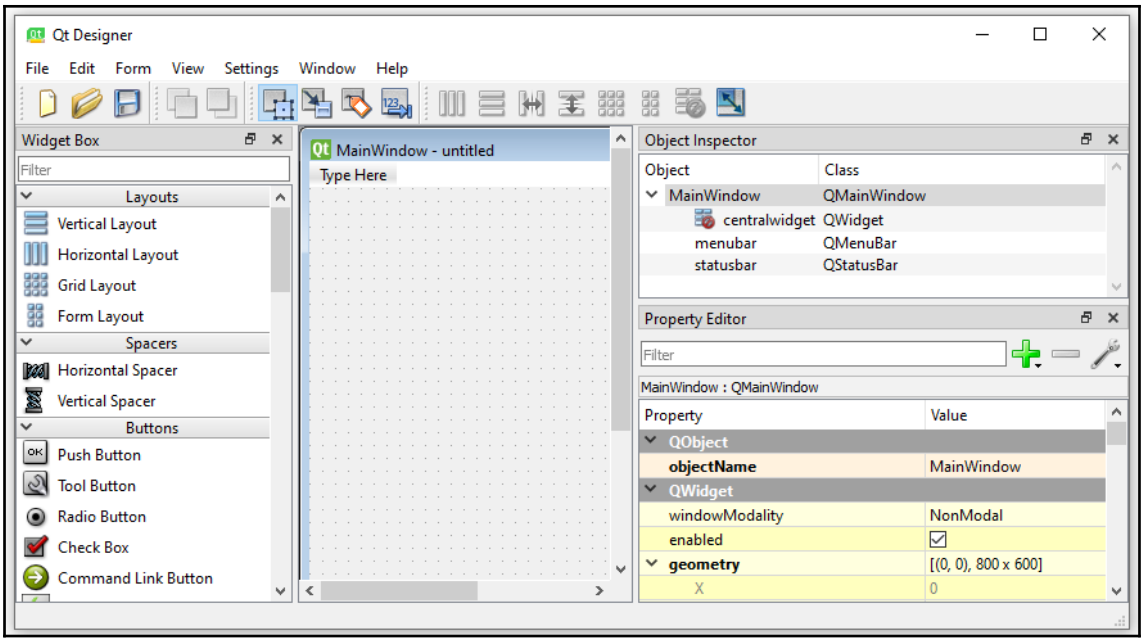


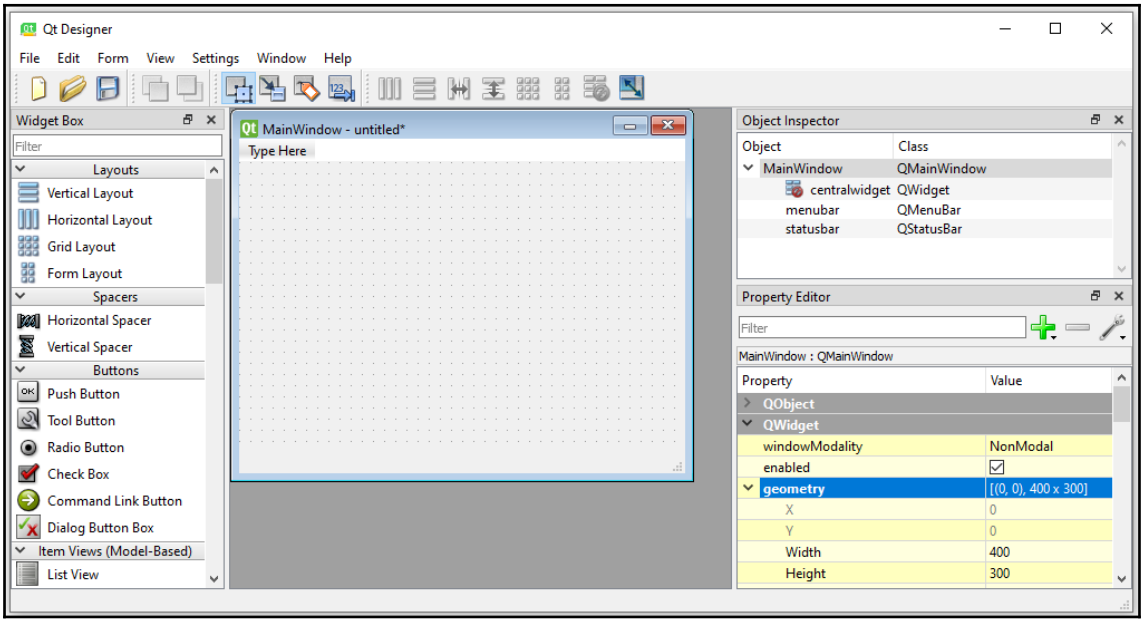


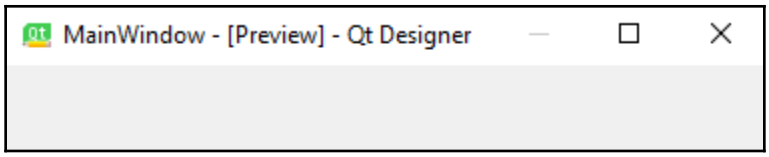


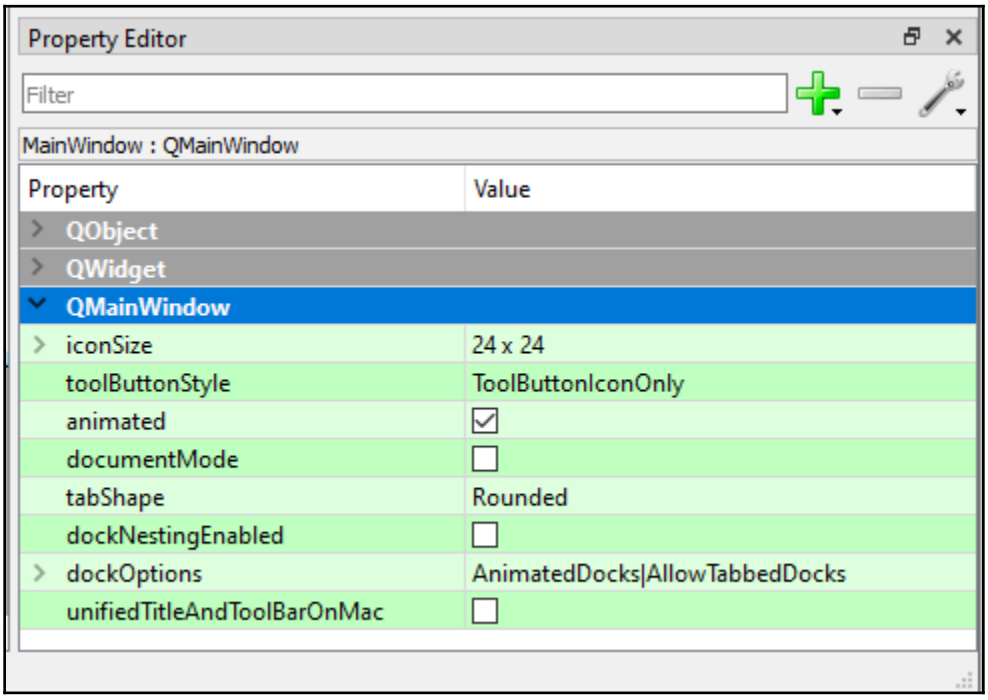

PyQt5 GUI
File
New
New File

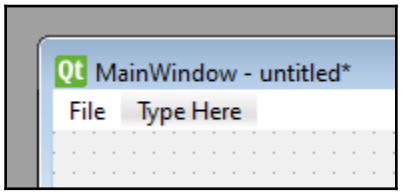

Qt Designer
File Edit Form View Settings Window Help
Widget Box
Filter
Layouts
Vertical Layout
Horizontal Layout
Grid Layout
Form Layout
Spacers
Horizontal Spacer
Vertical Spacer
Buttons
Push Button
Tool Button
Radio Button
Check Box
Command Link Button
Dialog Button Box
Item Views (Model-Based)
List View
Tree View
Table View
Column View
Item Widgets (Item-Based)
List Widget
Tree Widget
Table Widget
Containers
Group Box
New Form - Qt Designer
templates\forms
Dialog with Buttons Bottom
Dialog with Buttons Right
Dialog without Buttons
Main Window
Widget
Widgets
Embedded Design
Device:
None
Screen Size:
Default size
Show this Dialog on Startup
Create
Open...
Recent
Close
Object Inspector
Object
Class
Property Editor
Filter
Property
Value

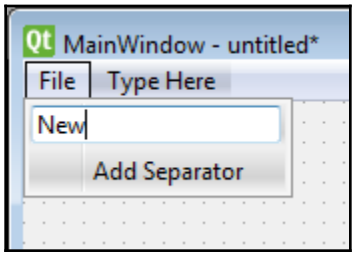

Qt Designer
File Edit Form View Settings Window Help
Widget Box
Filter
Layouts
Vertical Layout
Horizontal Layout
Grid Layout
Form Layout
Spacers
Horizontal Spacer
Vertical Spacer
Buttons
Push Button
Tool Button
Radio Button
Check Box
Command Link Button
MainWindow - untitled
Type Here
Object Inspector
Object
Class
MainWindow
QMainWindow
centralwidget
QWidget
menubar
QMenuBar
statusbar
QStatusBar
Property Editor
Filter
MainWindow : QMainWindow
Property
Value
QObject
objectName
MainWindow
QWidget
windowModality
NonModal
enabled
geometry
[(0, 0), 800 x 600]
X
0

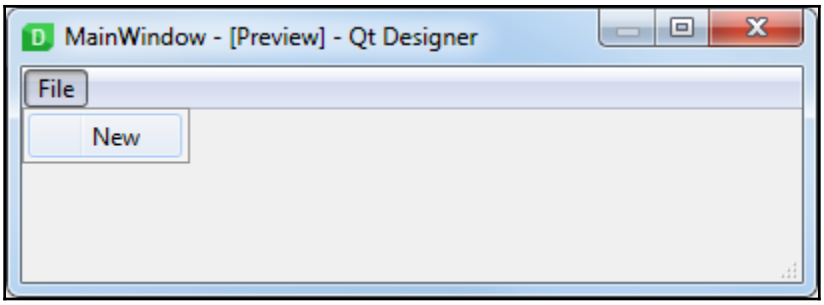

Qt Designer
File Edit Form View Settings Window Help
Widget Box
Filter
Layouts
Vertical Layout
Horizontal Layout
Grid Layout
Form Layout
Spacers
Horizontal Spacer
Vertical Spacer
Buttons
Push Button
Tool Button
Radio Button
Check Box
Command Link Button
Dialog Button Box
Item Views (Model-Based)
List View
MainWindow - untitled*
Type Here
Object Inspector
Object
Class
MainWindow
QMainWindow
centralwidget
QWidget
menubar
QMenuBar
statusbar
QStatusBar
Property Editor
Filter
MainWindow : QMainWindow
Property
Value
QObject
QWidget
windowModality
NonModal
enabled
geometry
[(0, 0), 400 x 300]
X
0
Y
0
Width
400
Height
300

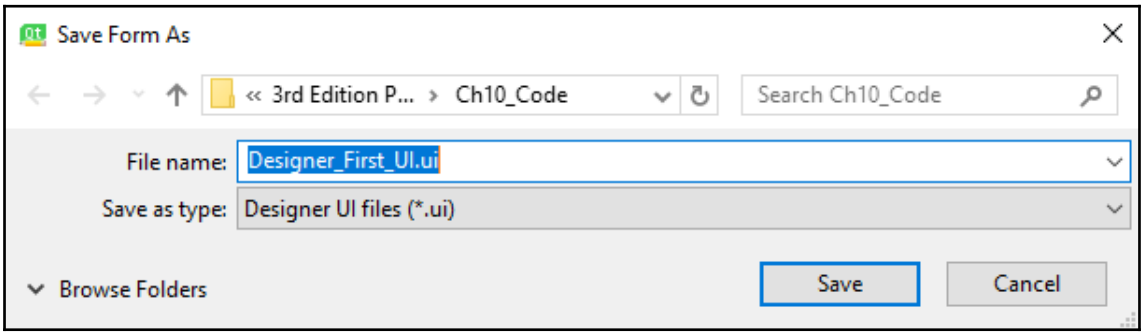

MainWindow - [Preview] - Qt Designer

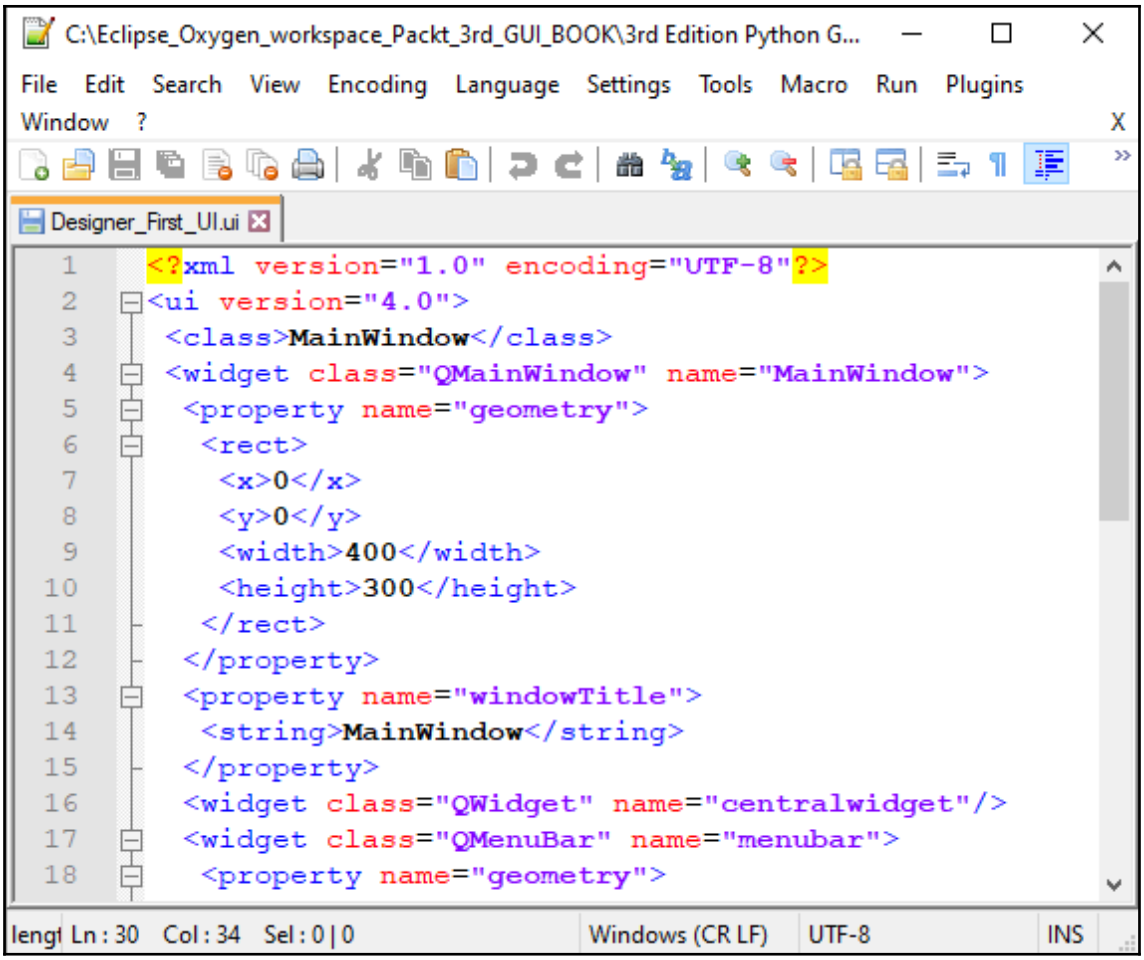

Property Editor
Filter
MainWindow : QMainWindow
Property
Value
QObject
QWidget
QMainWindow
iconSize
24 x 24
toolButtonStyle
ToolButtonIconOnly
animated
documentMode
tabShape
Rounded
dockNestingEnabled
dockOptions
AnimatedDocks|AllowTabbedDocks
unifiedTitleAndToolBarOnMac

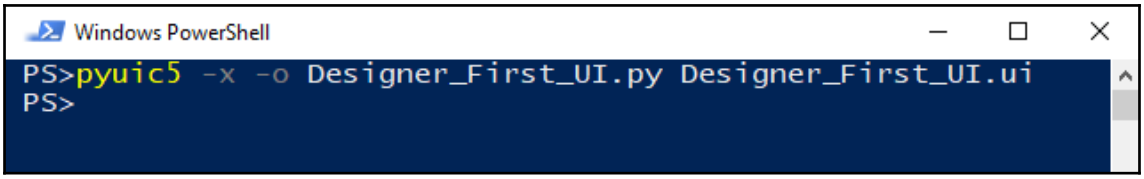

MainWindow - untitled*
File
Type Here

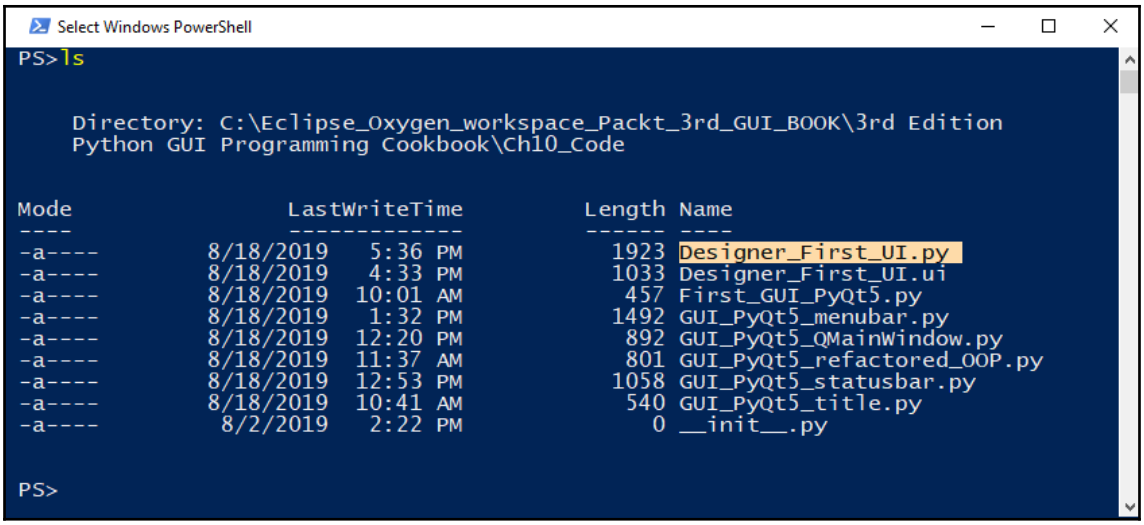

MainWindow - untitled*
File
Type Here
New
Add Separator

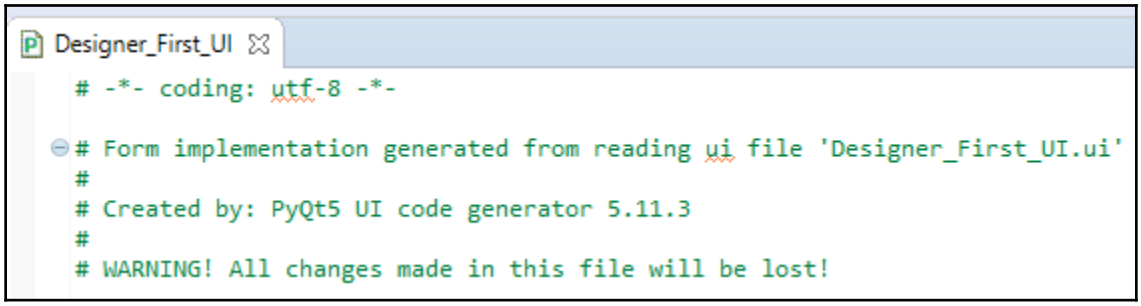

MainWindow - [Preview] - Qt Designer
File
New

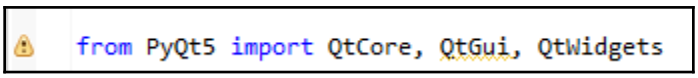

Save Form As
« 3rd Edition P... › Ch10_Code
Search Ch10_Code
File name:
Designer_First_UI.ui
Save as type:
Designer UI files (*.ui)
Browse Folders
Save
Cancel


C:\Eclipse_Oxygen_workspace_Packt_3rd_GUI_BOOK\3rd Edition Python G...
File Edit Search View Encoding Language Settings Tools Macro Run Plugins
Window ?
Designer_First_UI.ui
1 <?xml version="1.0" encoding="UTF-8"?>
2 <ui version="4.0">
3 <class>MainWindow</class>
4 <widget class="QMainWindow" name="MainWindow">
5 <property name="geometry">
6 <rect>
7 <x>0</x>
8 <y>0</y>
9 <width>400</width>
10 <height>300</height>
11 </rect>
12 </property>
13 <property name="windowTitle">
14 <string>MainWindow</string>
15 </property>
16 <widget class="QWidget" name="centralwidget"/>
17 <widget class="QMenuBar" name="menubar">
18 <property name="geometry">
lengt Ln : 30 Col : 34 Sel : 0 | 0
Windows (CR LF)
UTF-8
INS


Windows PowerShell
PS>pyuic5 -x -o Designer_First_UI.py Designer_First_UI.ui
PS>


Select Windows PowerShell
PS>ls
Directory: C:\Eclipse_Oxygen_workspace_Packt_3rd_GUI_BOOK\3rd Edition Python GUI Programming Cookbook\Ch10_Code
Mode LastWriteTime Length Name
-a---- 8/18/2019 5:36 PM 1923 Designer_First_UI.py
-a---- 8/18/2019 4:33 PM 1033 Designer_First_UI.ui
-a---- 8/18/2019 10:01 AM 457 First_GUI_PyQt5.py
-a---- 8/18/2019 1:32 PM 1492 GUI_PyQt5_menubar.py
-a---- 8/18/2019 12:20 PM 892 GUI_PyQt5_QMainWindow.py
-a---- 8/18/2019 11:37 AM 801 GUI_PyQt5_refactored_OOP.py
-a---- 8/18/2019 12:53 PM 1058 GUI_PyQt5_statusbar.py
-a---- 8/18/2019 10:41 AM 540 GUI_PyQt5_title.py
-a---- 8/2/2019 2:22 PM 0 __init__.py
PS>

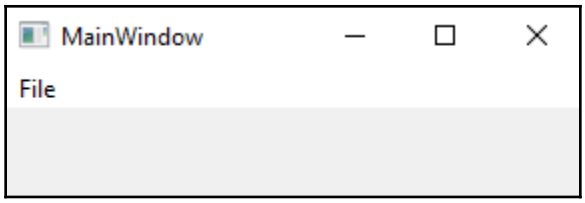

Designer_First_UI
-*- coding: utf-8 -*-
Form implementation generated from reading ui file 'Designer_First_UI.ui'
#
Created by: PyQt5 UI code generator 5.11.3
#
WARNING! All changes made in this file will be lost!

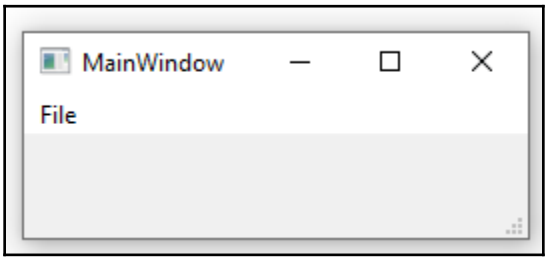

from PyQt5 import QtCore, QtGui, QtWidgets

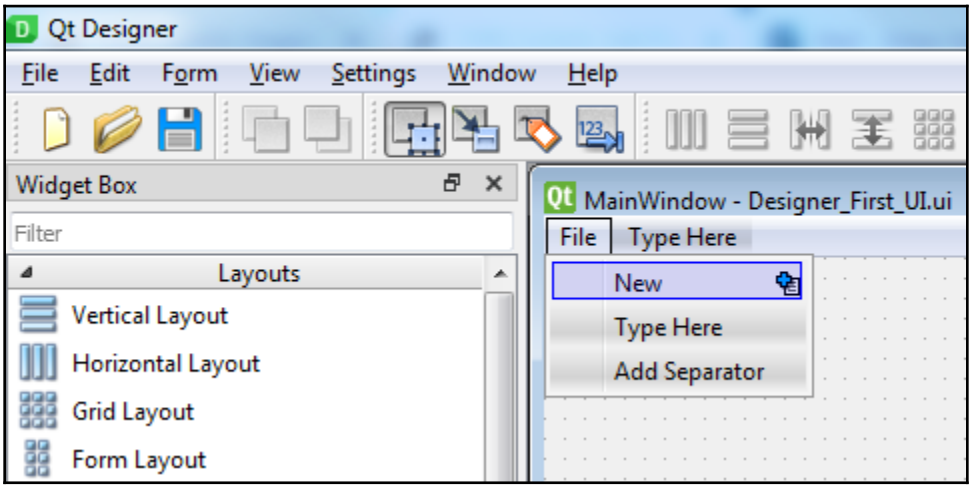
```
class Ui_MainWindow(object):
    def setupUi(self, MainWindow):
        MainWindow.setObjectName("MainWindow")
        MainWindow.resize(400, 300)
        self.centralwidget = QtWidgets.QWidget(MainWindow)
        self.centralwidget.setObjectName("centralwidget")
        MainWindow.setCentralWidget(self.centralwidget)
        self.menubar = QtWidgets.QMenuBar(MainWindow)
        self.menubar.setGeometry(QtCore.QRect(0, 0, 400, 21))
        self.menubar.setObjectName("menubar")
        self.menuFile = QtWidgets.QMenu(self.menubar)
        self.menuFile.setObjectName("menuFile")
        MainWindow.setMenuBar(self.menubar)
        self.statusbar = QtWidgets.QStatusBar(MainWindow)
        self.statusbar.setObjectName("statusbar")
        MainWindow.setStatusBar(self.statusbar)
        self.actionNew = QtWidgets.QAction(MainWindow)
        self.actionNew.setObjectName("actionNew")
        self.menuFile.addAction(self.actionNew)
        self.menubar.addAction(self.menuFile.menuAction())

        self.retranslateUi(MainWindow)
        QtCore.QMetaObject.connectSlotsByName(MainWindow)
```

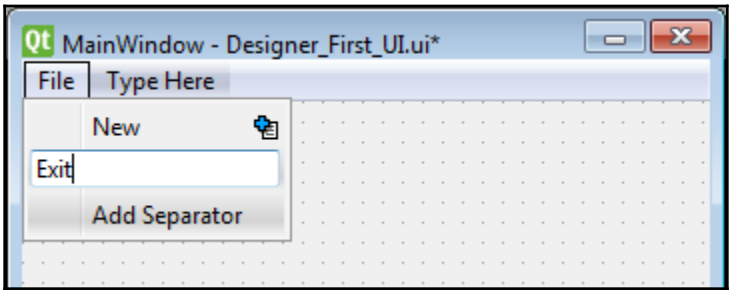
```
def retranslateUi(self, MainWindow):
    _translate = QtCore.QCoreApplication.translate
    MainWindow.setWindowTitle(_translate("MainWindow", "MainWindow"))
    self.menuFile.setTitle(_translate("MainWindow", "File"))
    self.actionNew.setText(_translate("MainWindow", "New"))
```

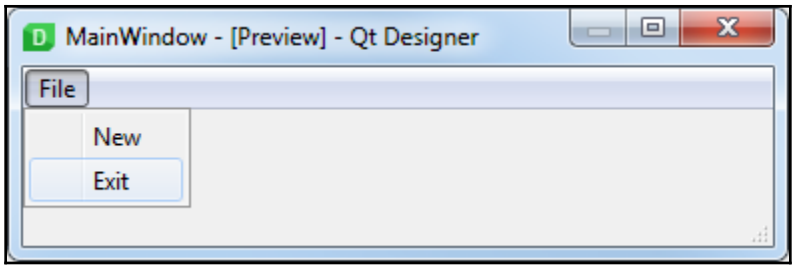
```
if __name__ == "__main__":
    import sys
    app = QtWidgets.QApplication(sys.argv)
    MainWindow = QtWidgets.QMainWindow()
    ui = Ui_MainWindow()
    ui.setupUi(MainWindow)
    MainWindow.show()
    sys.exit(app.exec_())
```


MainWindow
File

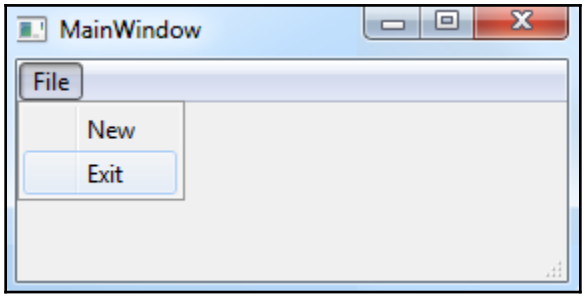

MainWindow
File


Qt Designer
File Edit Form View Settings Window Help
Widget Box
Filter
Layouts
Vertical Layout
Horizontal Layout
Grid Layout
Form Layout
MainWindow - Designer_First_UI.ui
File
Type Here
New
Type Here
Add Separator


MainWindow - Designer_First_UI.ui*
File
Type Here
New
Exit
Add Separator




```
PS>pyuic5.exe -x -o Designer_First_UI_Exit.py Designer_First_UI.ui
PS>
```

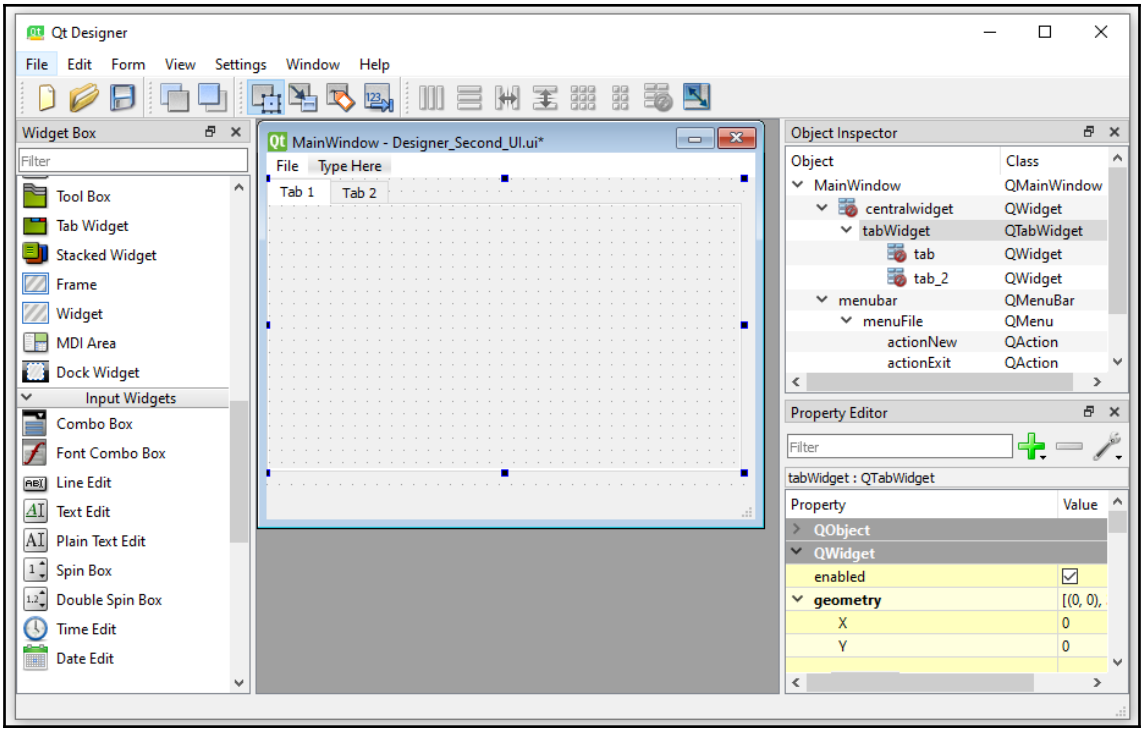


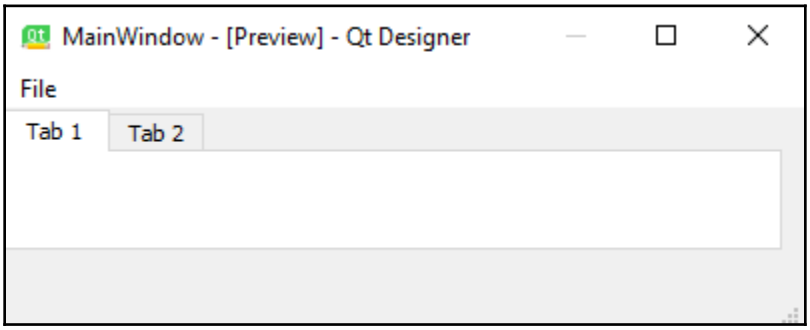
Designer_First_UI_Exit

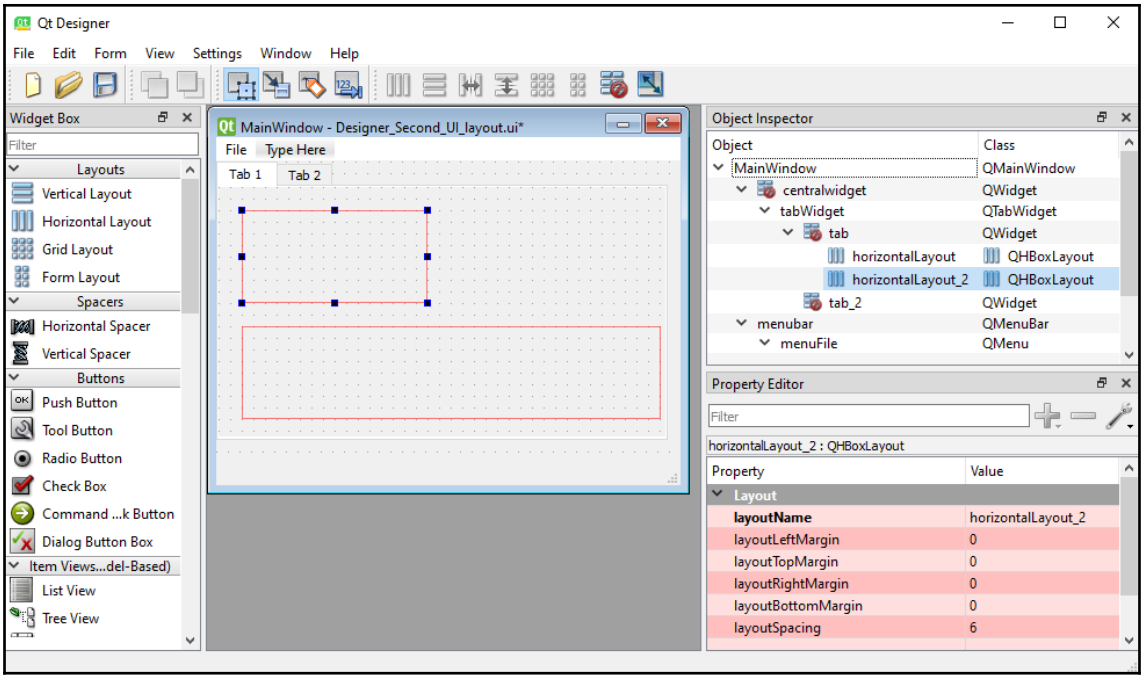
```
        self.menuFile.setObjectName("menuFile")
        MainWindow.setMenuBar(self.menubar)
        self.statusbar = QtWidgets.QStatusBar(MainWindow)
        self.statusbar.setObjectName("statusbar")
        MainWindow.setStatusBar(self.statusbar)
        self.actionNew = QtWidgets.QAction(MainWindow)
        self.actionNew.setObjectName("actionNew")
        self.actionExit = QtWidgets.QAction(MainWindow)
        self.actionExit.setObjectName("actionExit")
        self.menuFile.addAction(self.actionNew)
        self.menuFile.addAction(self.actionExit)
        self.menubar.addAction(self.menuFile.menuAction())

        self.retranslateUi(MainWindow)
        QtCore.QMetaObject.connectSlotsByName(MainWindow)

    def retranslateUi(self, MainWindow):
        _translate = QtCore.QCoreApplication.translate
        MainWindow.setWindowTitle(_translate("MainWindow", "MainWindow"))
        self.menuFile.setTitle(_translate("MainWindow", "File"))
        self.actionNew.setText(_translate("MainWindow", "New"))
        self.actionExit.setText(_translate("MainWindow", "Exit"))
```

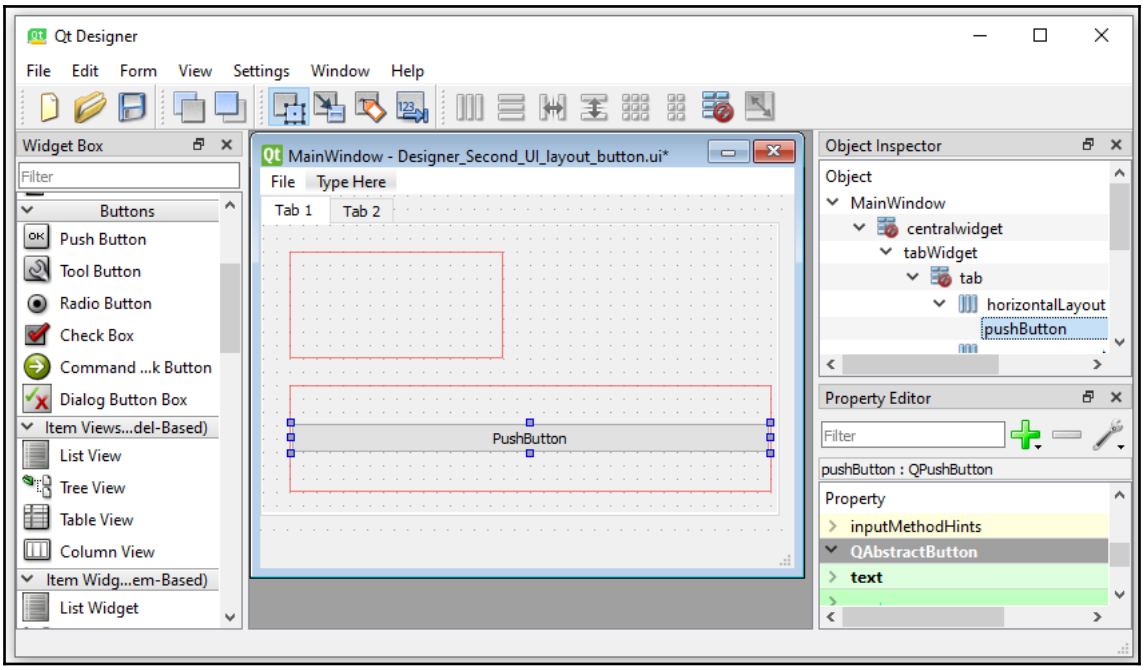
Object Inspector

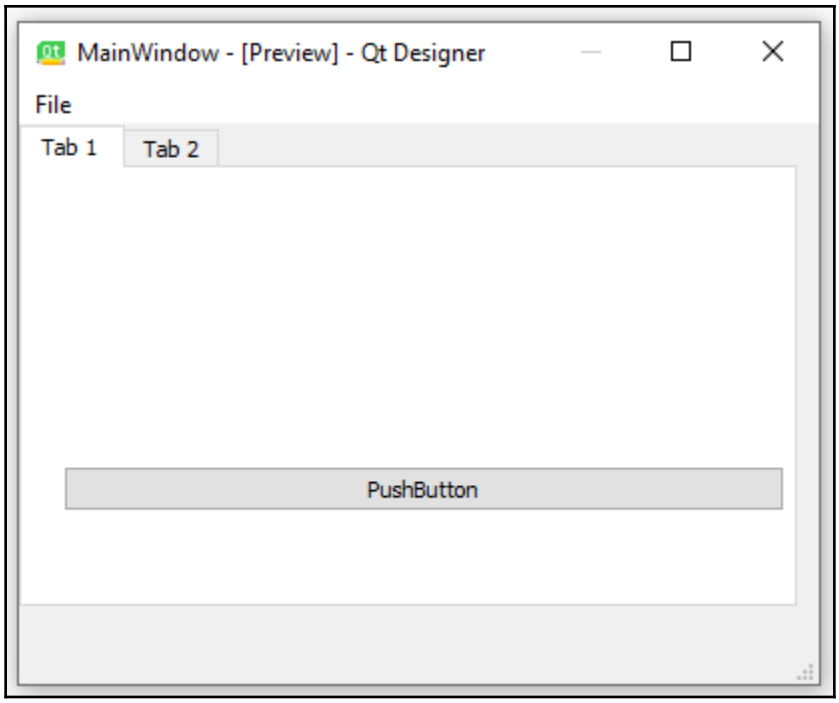
Object	Class
MainWindow	QMainWindow
centralwidget	QWidget
menubar	QMenuBar
menuFile	QMenu
actionNew	QAction
actionExit	QAction
statusbar	QStatusBar

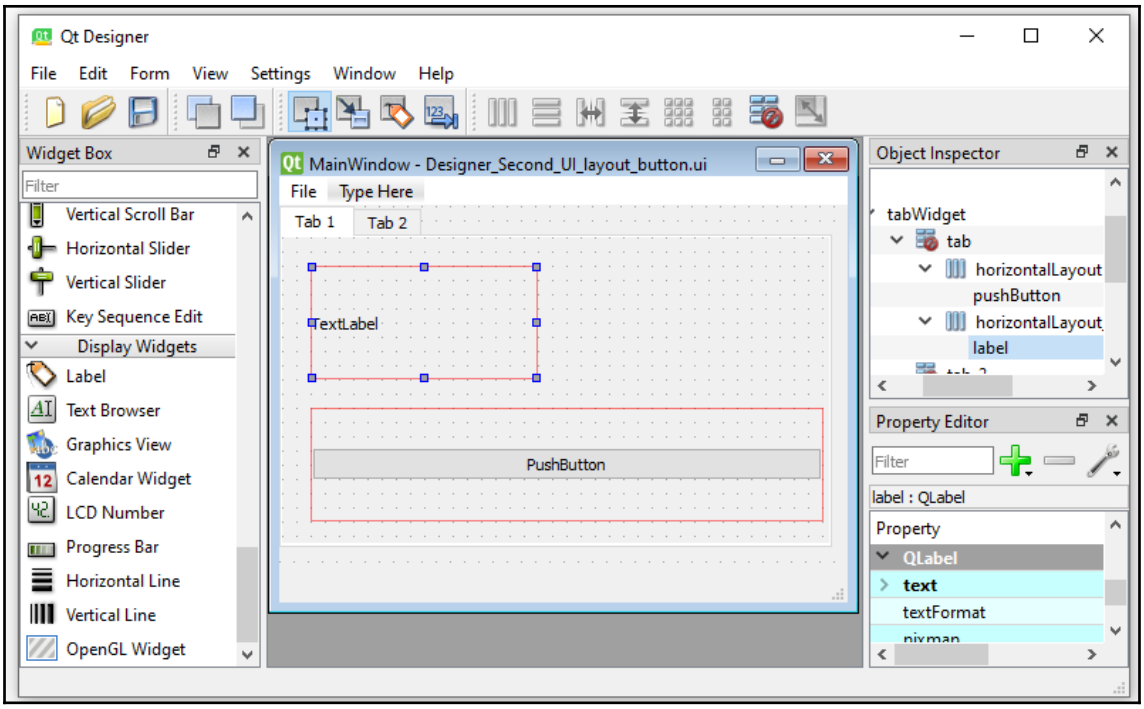

Qt Designer
File Edit Form View Settings Window Help
Widget Box
Filter
Tool Box
Tab Widget
Stacked Widget
Frame
Widget
MDI Area
Dock Widget
Input Widgets
Combo Box
Font Combo Box
Line Edit
Text Edit
Plain Text Edit
Spin Box
Double Spin Box
Time Edit
Date Edit
MainWindow - Designer_Second_UI.ui*
File Type Here
Tab 1 Tab 2
Object Inspector
Object Class
MainWindow QMainWindow
centralwidget QWidget
tabWidget QTabWidget
tab QWidget
tab_2 QWidget
menubar QMenuBar
menuFile QMenu
actionNew QAction
actionExit QAction
Property Editor
Filter
tabWidget : QTabWidget
Property Value
QObject
QWidget
enabled
geometry [(0, 0),
X 0
Y 0

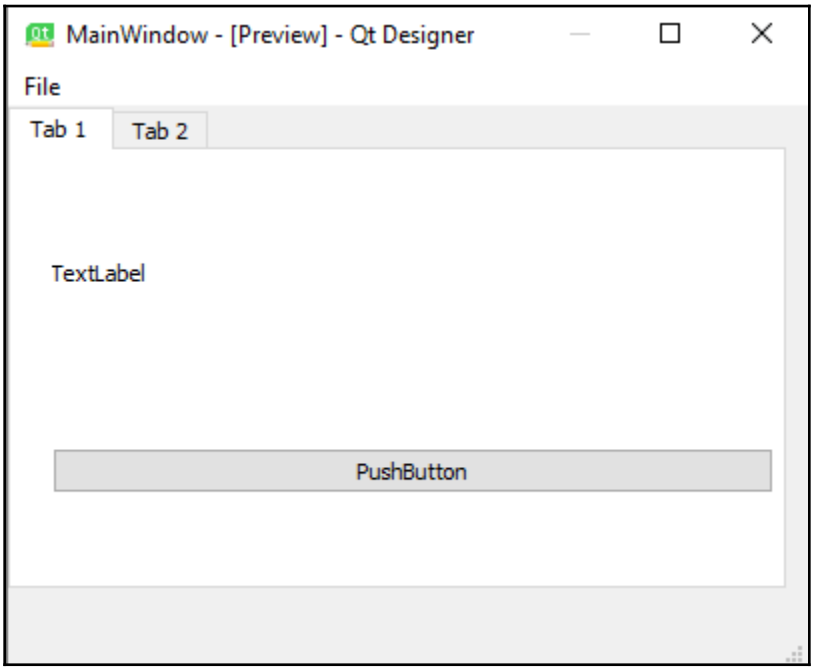

MainWindow - [Preview] - Qt Designer
File
Tab 1
Tab 2

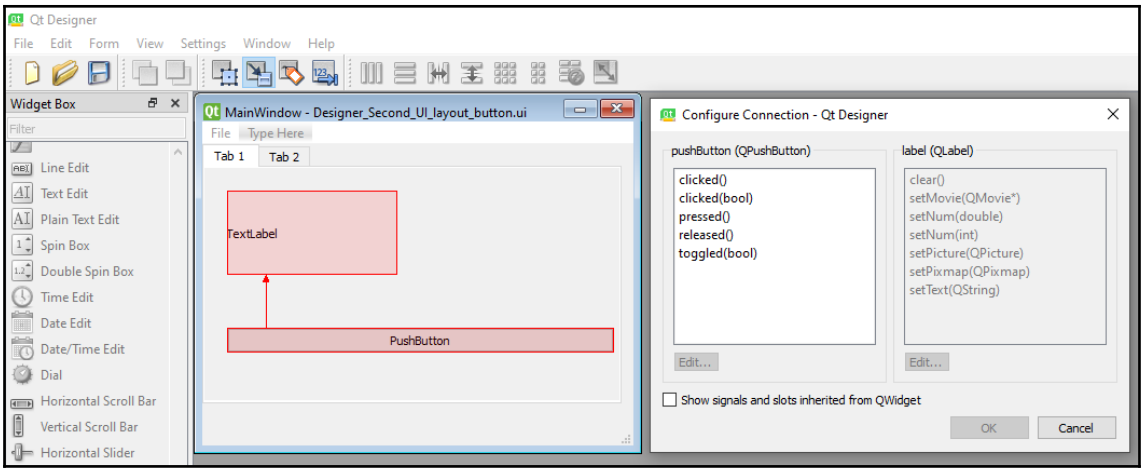

Qt Designer
File Edit Form View Settings Window Help
Widget Box
Filter
Layouts
Vertical Layout
Horizontal Layout
Grid Layout
Form Layout
Spacers
Horizontal Spacer
Vertical Spacer
Buttons
Push Button
Tool Button
Radio Button
Check Box
Command ...k Button
Dialog Button Box
Item Views...del-Based)
List View
Tree View
MainWindow - Designer_Second_UI_layout.ui*
File Type Here
Tab 1 Tab 2
Object Inspector
Object Class
MainWindow QMainWindow
centralwidget QWidget
tabWidget QTabWidget
tab QWidget
horizontalLayout QHBoxLayout
horizontalLayout_2 QHBoxLayout
tab_2 QWidget
menubar QMenuBar
menuFile QMenu
Property Editor
Filter
horizontalLayout_2 : QHBoxLayout
Property Value
Layout
layoutName horizontalLayout_2
layoutLeftMargin 0
layoutTopMargin 0
layoutRightMargin 0
layoutBottomMargin 0
layoutSpacing 6

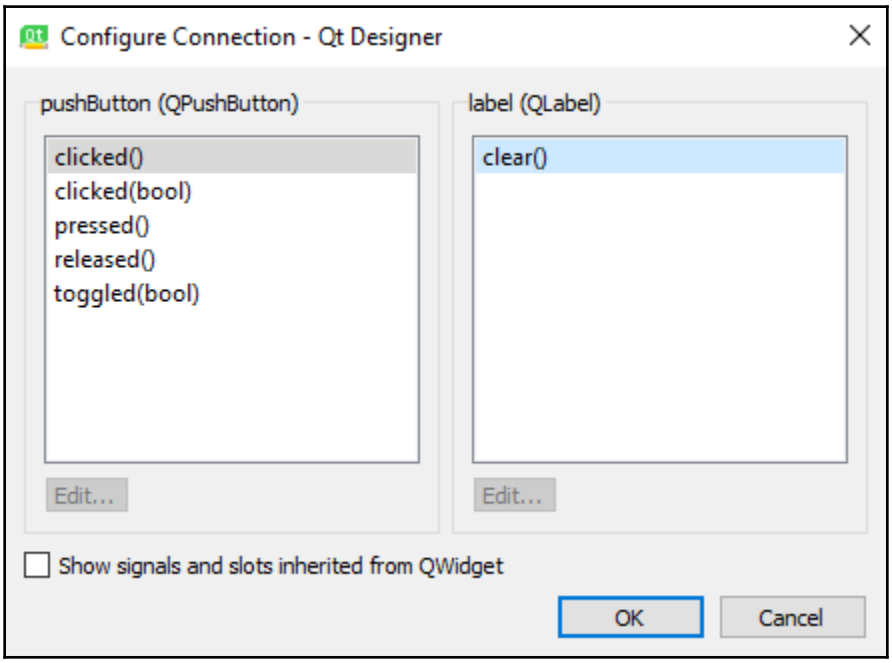

Qt Designer
File Edit Form View Settings Window Help
Widget Box
Filter
Buttons
Push Button
Tool Button
Radio Button
Check Box
Command ...k Button
Dialog Button Box
Item Views...del-Based)
List View
Tree View
Table View
Column View
Item Widg...em-Based)
List Widget
MainWindow - Designer_Second_UI_layout_button.ui*
File Type Here
Tab 1 Tab 2
PushButton
Object Inspector
Object
MainWindow
centralwidget
tabWidget
tab
horizontalLayout
pushButton
Property Editor
Filter
pushButton : QPushButton
Property
inputMethodHints
QAbstractButton
text

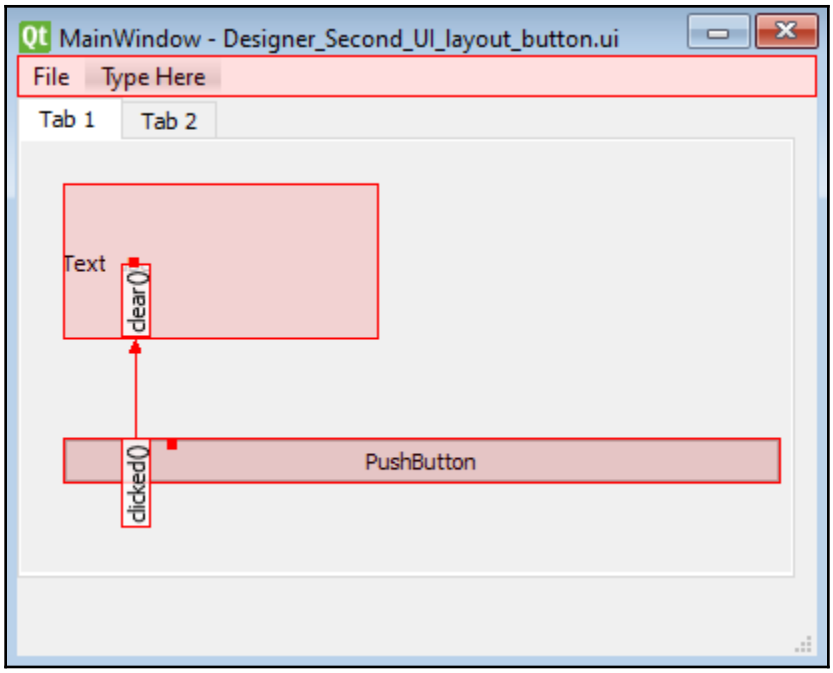

MainWindow - [Preview] - Qt Designer
File
Tab 1
Tab 2
PushButton

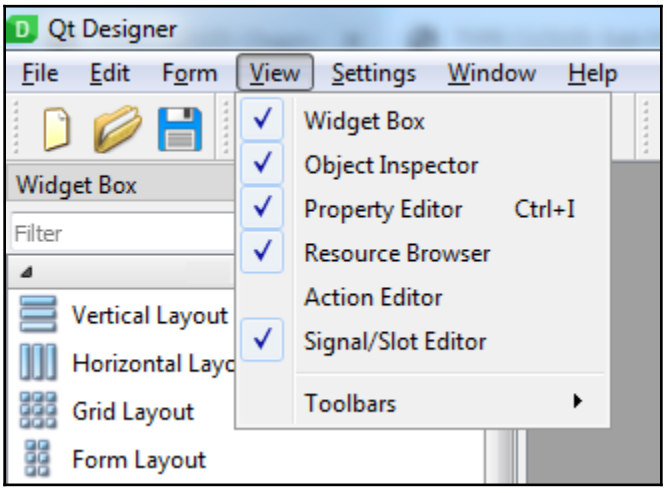

Qt Designer
File Edit Form View Settings Window Help
Widget Box
Filter
Vertical Scroll Bar
Horizontal Slider
Vertical Slider
Key Sequence Edit
Display Widgets
Label
Text Browser
Graphics View
Calendar Widget
LCD Number
Progress Bar
Horizontal Line
Vertical Line
OpenGL Widget
MainWindow - Designer_Second_Ui_layout_button.ui
File Type Here
Tab 1 Tab 2
TextLabel
PushButton
Object Inspector
tabWidget
tab
horizontalLayout
pushButton
horizontalLayout
label
Property Editor
Filter
label : QLabel
Property
QLabel
text
textFormat

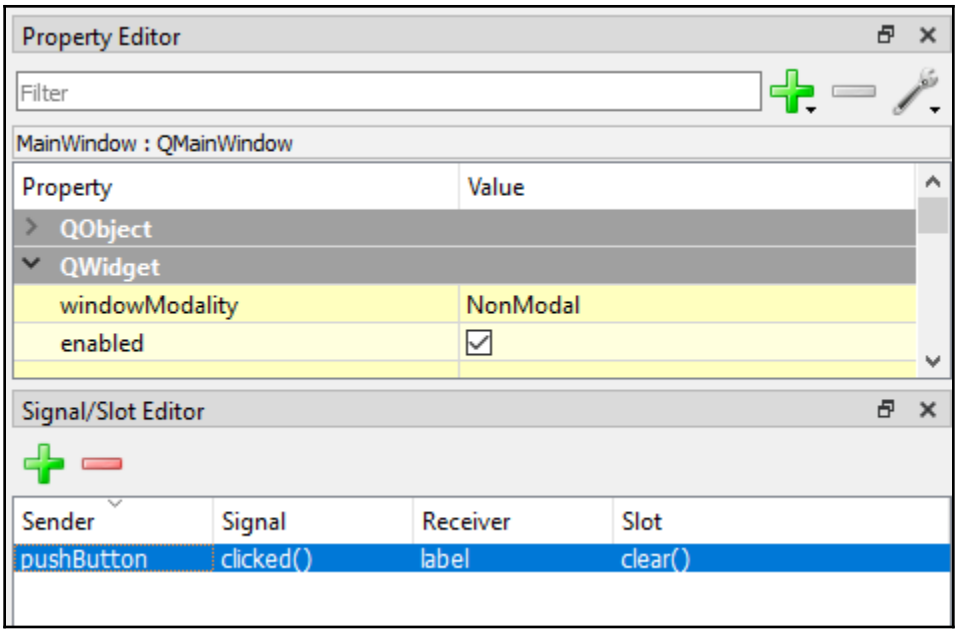

MainWindow - [Preview] - Qt Designer
File
Tab 1 Tab 2
TextLabel
PushButton


Qt Designer
File Edit Form View Settings Window Help
Widget Box
Filter
Line Edit
Text Edit
Plain Text Edit
Spin Box
Double Spin Box
Time Edit
Date Edit
Date/Time Edit
Dial
Horizontal Scroll Bar
Vertical Scroll Bar
Horizontal Slider
MainWindow - Designer_Second_UI_layout_button.ui
File Type Here
Tab 1 Tab 2
TextLabel
PushButton
Configure Connection - Qt Designer
pushButton (QPushButton)
clicked()
clicked(bool)
pressed()
released()
toggled(bool)
Edit...
label (QLabel)
clear()
setMovie(QMovie*)
setNum(double)
setNum(int)
setPicture(QPicture)
setPixmap(QPixmap)
setText(QString)
Edit...
Show signals and slots inherited from QWidget
OK
Cancel


Configure Connection - Qt Designer
pushButton (QPushButton)
clicked()
clicked(bool)
pressed()
released()
toggled(bool)
Edit...
label (QLabel)
clear()
Edit...
Show signals and slots inherited from QWidget
OK
Cancel


MainWindow - Designer_Second_UI_layout_button.ui
File
Type Here
Tab 1
Tab 2
Text
clear()
clicked()
PushButton


Qt Designer
File
Edit
Form
View
Settings
Window
Help
Widget Box
Filter
Vertical Layout
Horizontal Layo
Grid Layout
Form Layout
Widget Box
Object Inspector
Property Editor
Ctrl+I
Resource Browser
Action Editor
Signal/Slot Editor
Toolbars



Designer_Second_UI_layout_button

```
        self.retranslateUi(MainWindow)
        self.pushButton.clicked.connect(self.label.clear)
        QtCore.QMetaObject.connectSlotsByName(MainWindow)

    def retranslateUi(self, MainWindow):
        _translate = QtCore.QCoreApplication.translate
        MainWindow.setWindowTitle(_translate("MainWindow", "MainWindow"))
        self.pushButton.setText(_translate("MainWindow", "PushButton"))
        self.label.setText(_translate("MainWindow", "TextLabel"))
        self.tabWidget.setTabText(self.tabWidget.indexOf(self.tab), _translate("MainWindow", "Tab 1"))
        self.tabWidget.setTabText(self.tabWidget.indexOf(self.tab_2), _translate("MainWindow", "Tab 2"))
        self.menuFile.setTitle(_translate("MainWindow", "File"))
        self.actionNew.setText(_translate("MainWindow", "New"))
        self.actionExit.setText(_translate("MainWindow", "Exit"))
```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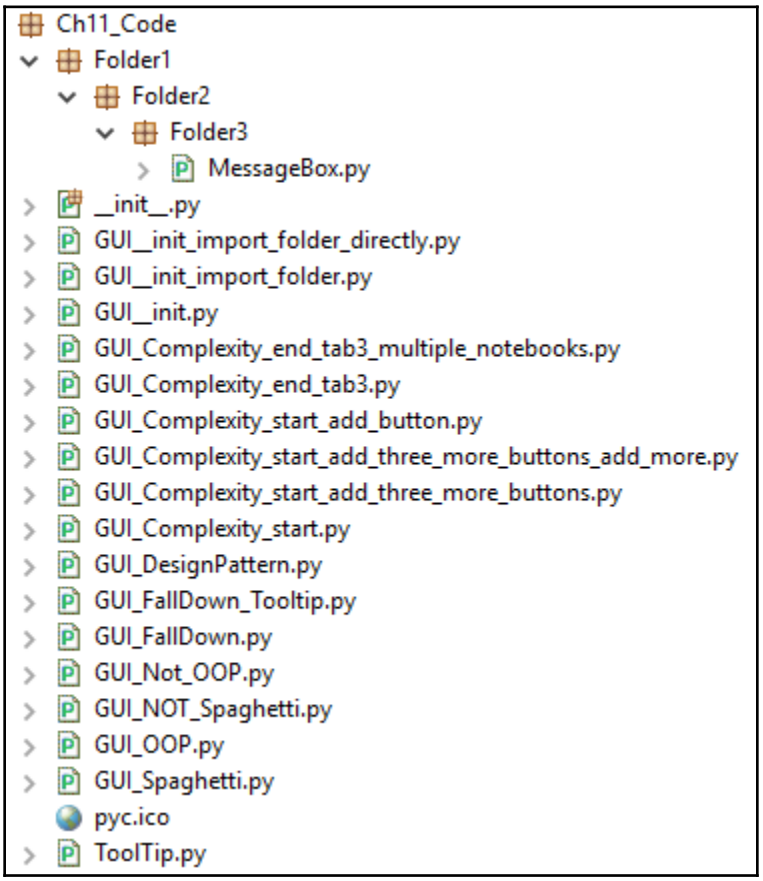
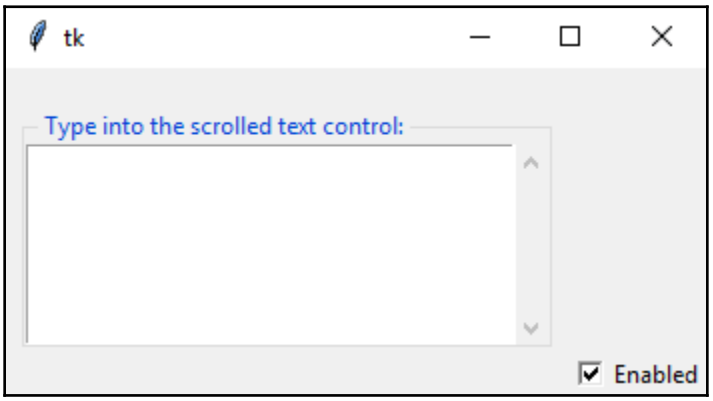
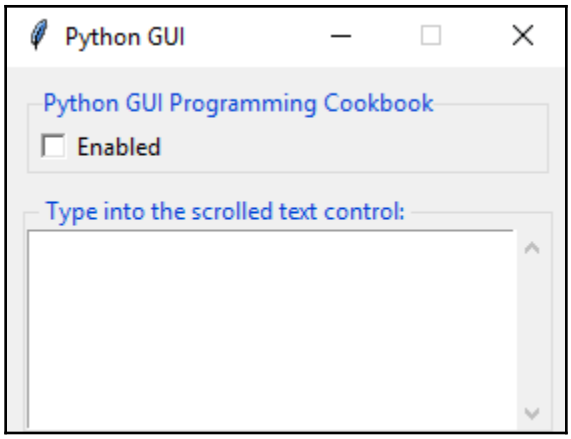
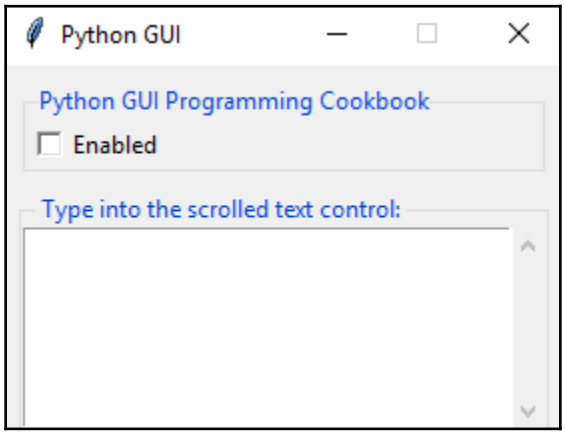
Create complete fluid, interactive and powerful applications with Tkinter & PyQt5

Chapter 11: Best Practices






Python GUI
Python GUI Programming Cookbook
Enabled
Type into the scrolled text control:


Python GUI
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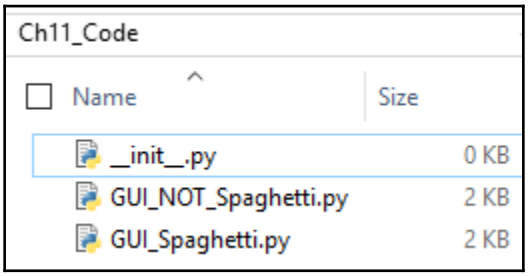
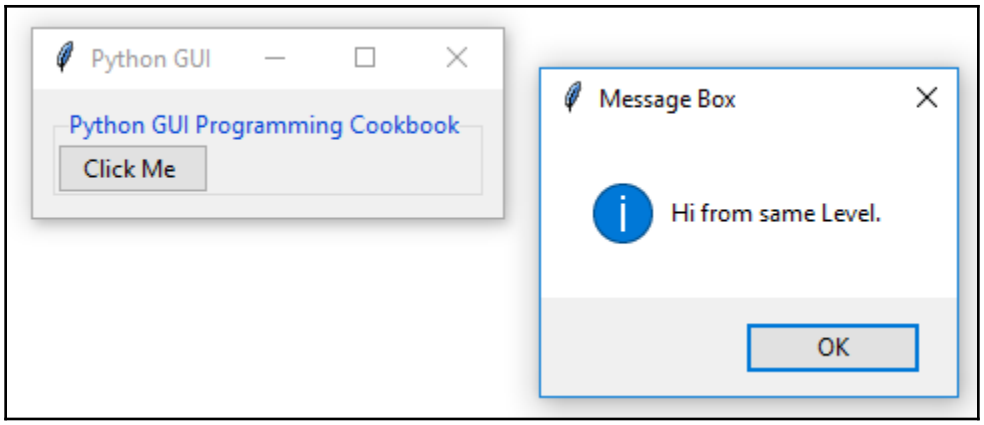
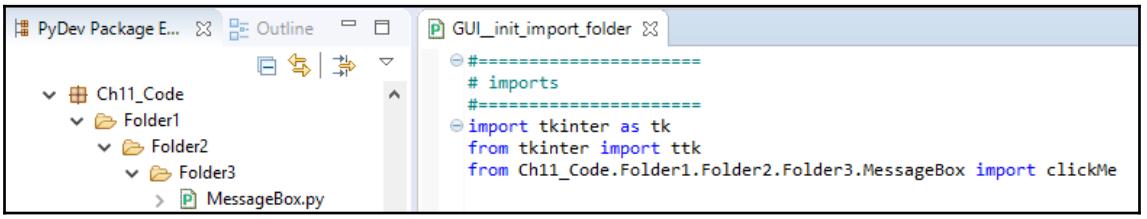
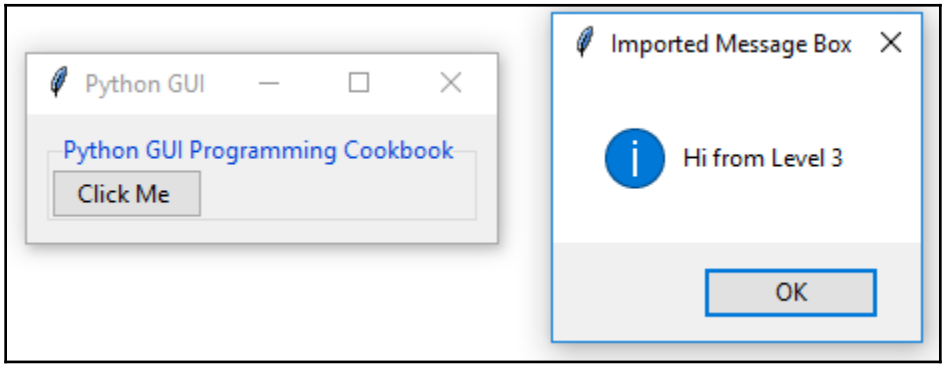
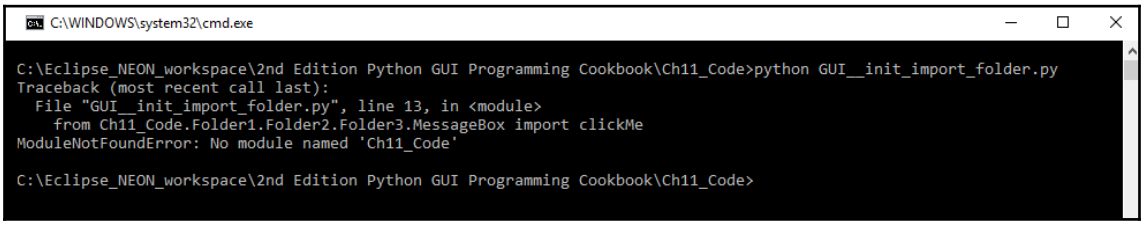
Enabled
Type into the scrolled text control:

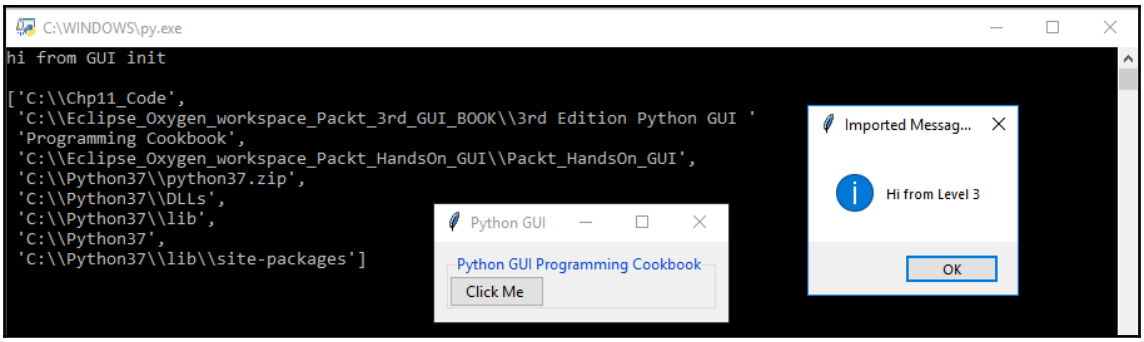

Ch11_Code
Name
Size
__init__.py
0 KB
GUI_NOT_Spaghetti.py
2 KB
GUI_Spaghetti.py
2 KB

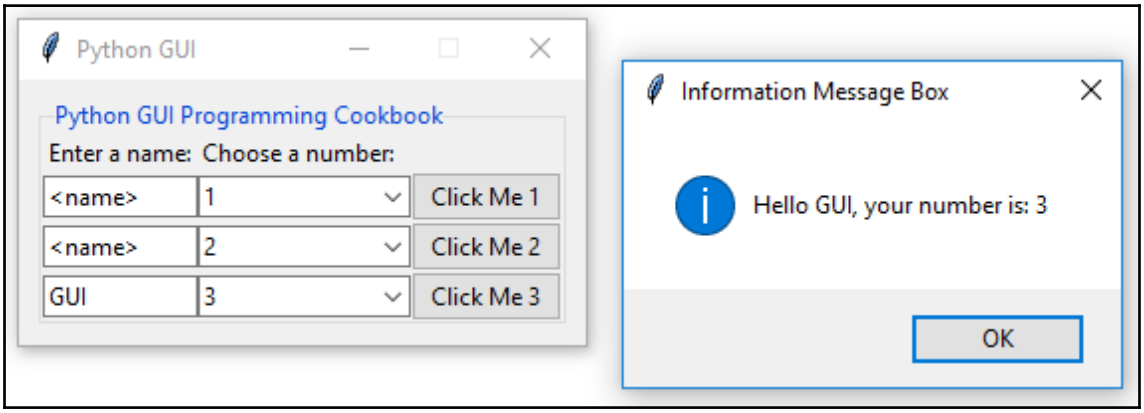

Python GUI
Python GUI Programming Cookbook
Click Me
Message Box
Hi from same Level.
OK

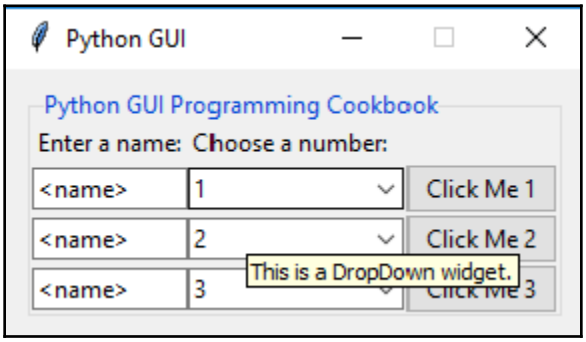

PyDev Package E...
Outline
Ch11_Code
Folder1
Folder2
Folder3
MessageBox.py
GUI__init_import_folder
#======================
imports
#======================
import tkinter as tk
from tkinter import ttk
from Ch11_Code.Folder1.Folder2.Folder3.MessageBox import clickMe

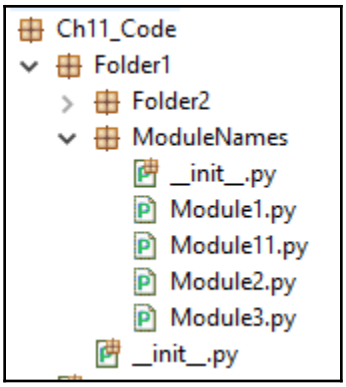

Python GUI
Python GUI Programming Cookbook
Click Me
Imported Message Box
Hi from Level 3
OK

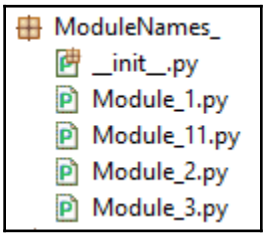

C:\WINDOWS\system32\cmd.exe
C:\Eclipse_NEON_workspace\2nd Edition Python GUI Programming Cookbook\Ch11_Code>python GUI__init_import_folder.py
Traceback (most recent call last):
File "GUI__init_import_folder.py", line 13, in <module>
from Ch11_Code.Folder1.Folder2.Folder3.MessageBox import clickMe
ModuleNotFoundError: No module named 'Ch11_Code'
C:\Eclipse_NEON_workspace\2nd Edition Python GUI Programming Cookbook\Ch11_Code>

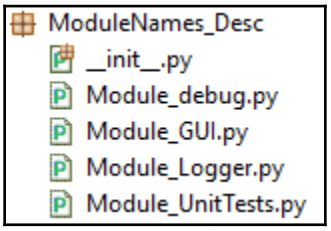

C:\WINDOWS\py.exe
hi from GUI init
['C:\\Chp11_Code',
'C:\\Eclipse_Oxygen_workspace_Packt_3rd_GUI_BOOK\\3rd Edition Python GUI '
'Programming Cookbook',
'C:\\Eclipse_Oxygen_workspace_Packt_HandsOn_GUI\\Packt_HandsOn_GUI',
'C:\\Python37\\python37.zip',
'C:\\Python37\\DLLs',
'C:\\Python37\\lib',
'C:\\Python37',
'C:\\Python37\\lib\\site-packages']
Python GUI
Python GUI Programming Cookbook
Click Me
Imported Messag...
Hi from Level 3
OK

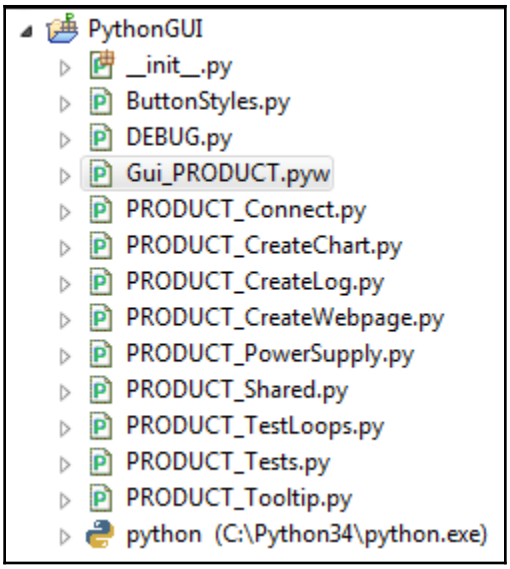

Python GUI
Python GUI Programming Cookbook
Enter a name: Choose a number:
<name>
1
Click Me 1
<name>
2
Click Me 2
GUI
3
Click Me 3
Information Message Box
Hello GUI, your number is: 3
OK

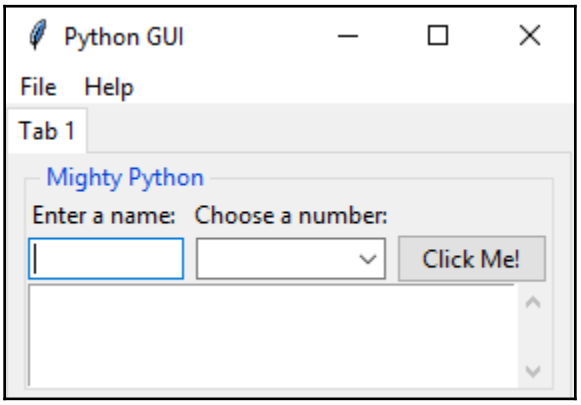

Python GUI
Python GUI Programming Cookbook
Enter a name: Choose a number:
<name>
1
Click Me 1
<name>
2
Click Me 2
This is a DropDown widget.
<name>
3

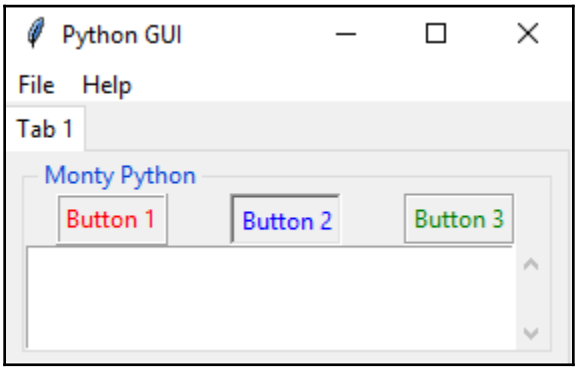

Ch11_Code
Folder1
Folder2
ModuleNames
__init__.py
Module1.py
Module11.py
Module2.py
Module3.py
__init__.py

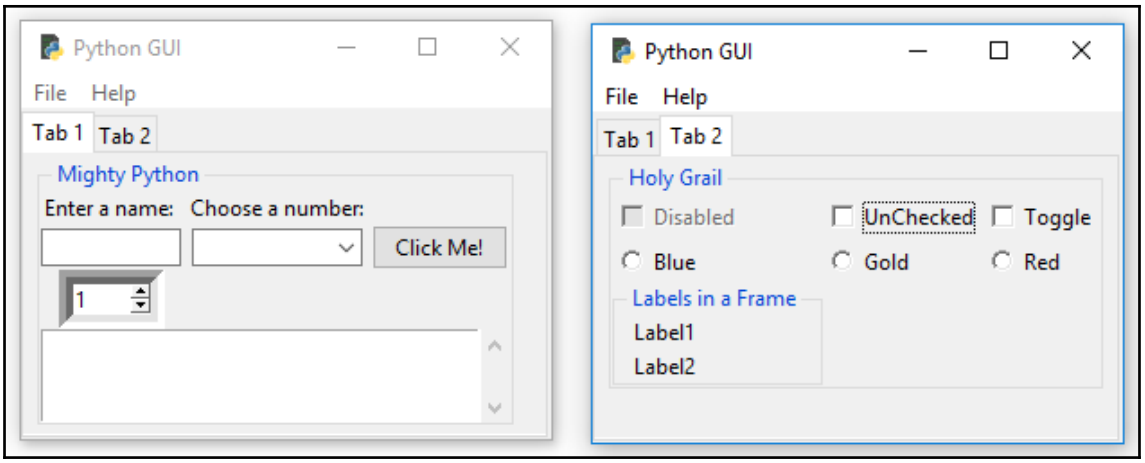

ModuleNames_
__init__.py
Module_1.py
Module_11.py
Module_2.py
Module_3.py

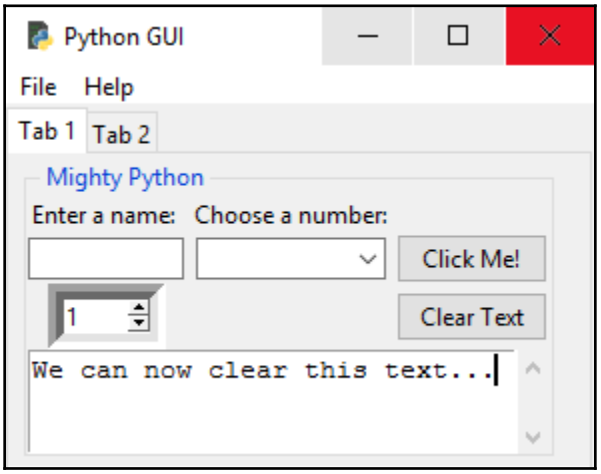

ModuleNames_Desc
__init__.py
Module_debug.py
Module_GUI.py
Module_Logger.py
Module_UnitTests.py

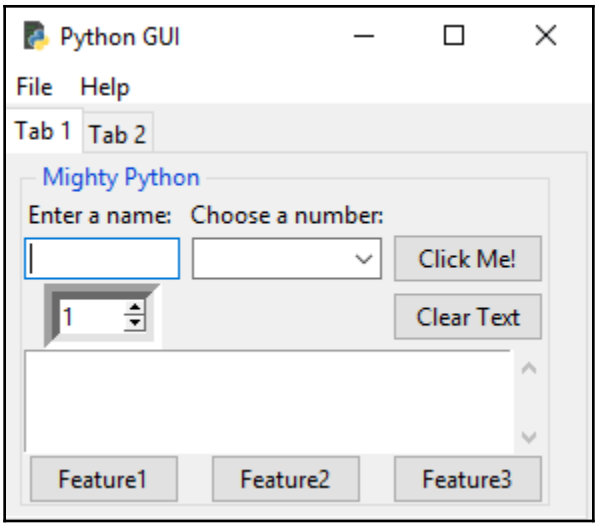

PythonGUI
__init__.py
ButtonStyles.py
DEBUG.py
Gui_PRODUCT.pyw
PRODUCT_Connect.py
PRODUCT_CreateChart.py
PRODUCT_CreateLog.py
PRODUCT_CreateWebpage.py
PRODUCT_PowerSupply.py
PRODUCT_Shared.py
PRODUCT_TestLoops.py
PRODUCT_Tests.py
PRODUCT_Tooltip.py
python (C:\Python34\python.exe)

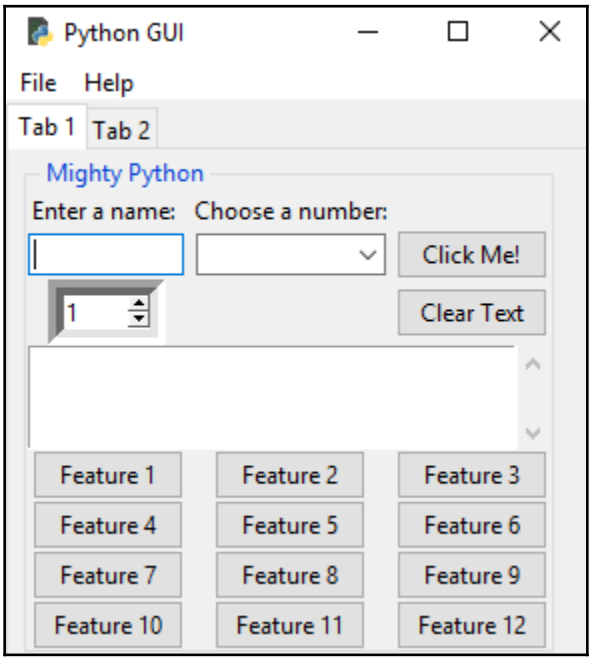

Python GUI
File Help
Tab 1
Mighty Python
Enter a name: Choose a number:
Click Me!

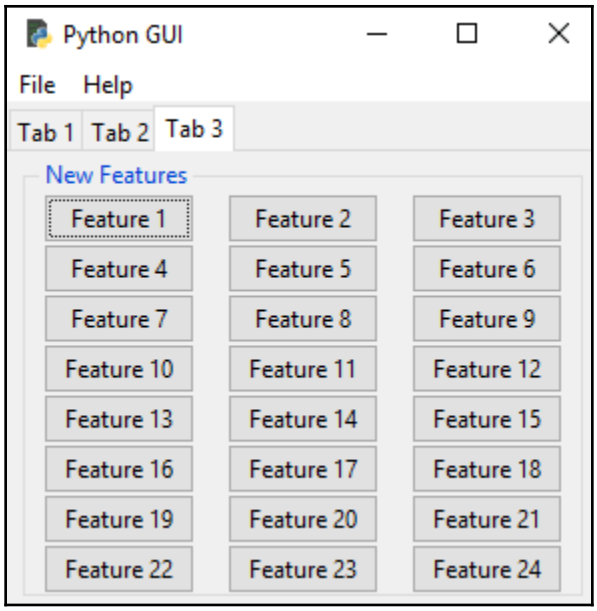

Python GUI
File Help
Tab 1
Monty Python
Button 1
Button 2
Button 3

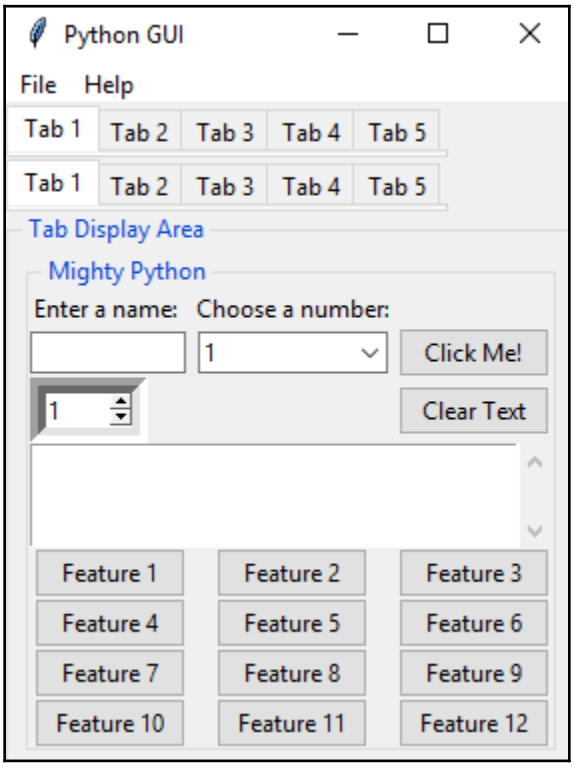

Python GUI
File Help
Tab 1 Tab 2
Mighty Python
Enter a name: Choose a number:
Click Me!
1
Python GUI
File Help
Tab 1 Tab 2
Holy Grail
Disabled
UnChecked
Toggle
Blue
Gold
Red
Labels in a Frame
Label1
Label2

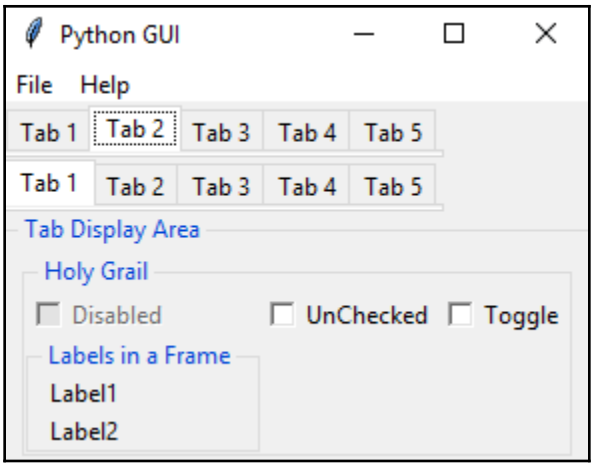

Python GUI
File Help
Tab 1 Tab 2
Mighty Python
Enter a name: Choose a number:
Click Me!
1
Clear Text
We can now clear this text...

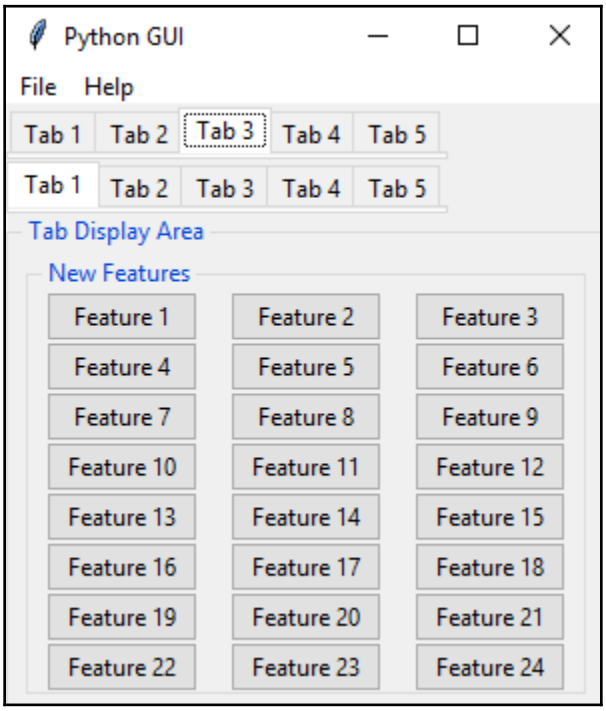

Python GUI
File
Help
Tab 1
Tab 2
Mighty Python
Enter a name:
Choose a number:
Click Me!
Clear Text
1
Feature1
Feature2
Feature3


Python GUI
File
Help
Tab 1
Tab 2
Mighty Python
Enter a name:
Choose a number:
Click Me!
Clear Text
1
Feature 1
Feature 2
Feature 3
Feature 4
Feature 5
Feature 6
Feature 7
Feature 8
Feature 9
Feature 10
Feature 11
Feature 12


Python GUI
File Help
Tab 1 Tab 2 Tab 3
New Features
Feature 1 Feature 2 Feature 3
Feature 4 Feature 5 Feature 6
Feature 7 Feature 8 Feature 9
Feature 10 Feature 11 Feature 12
Feature 13 Feature 14 Feature 15
Feature 16 Feature 17 Feature 18
Feature 19 Feature 20 Feature 21
Feature 22 Feature 23 Feature 24


Python GUI
File Help
Tab 1 Tab 2 Tab 3 Tab 4 Tab 5
Tab 1 Tab 2 Tab 3 Tab 4 Tab 5
Tab Display Area
Mighty Python
Enter a name: Choose a number:
1
Click Me!
1
Clear Text
Feature 1 Feature 2 Feature 3
Feature 4 Feature 5 Feature 6
Feature 7 Feature 8 Feature 9
Feature 10 Feature 11 Feature 12


Python GUI
File Help
Tab 1 Tab 2 Tab 3 Tab 4 Tab 5
Tab 1 Tab 2 Tab 3 Tab 4 Tab 5
Tab Display Area
Holy Grail
Disabled
UnChecked
Toggle
Labels in a Frame
Label1
Label2


Python GUI
File Help
Tab 1 Tab 2 Tab 3 Tab 4 Tab 5
Tab 1 Tab 2 Tab 3 Tab 4 Tab 5
Tab Display Area
New Features
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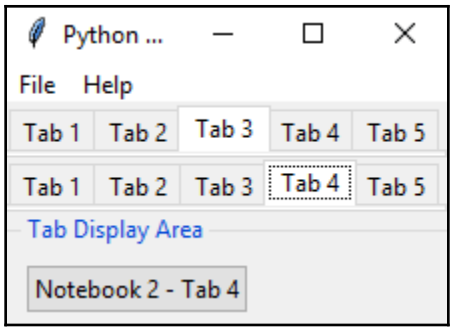
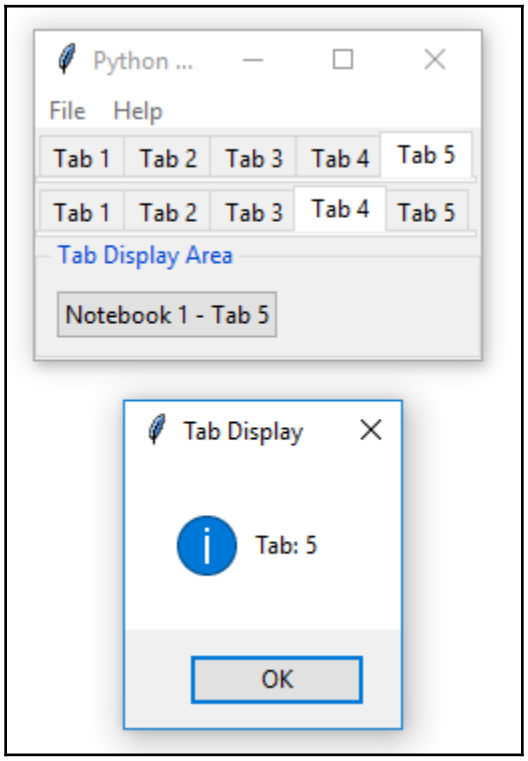
Feature 4 Feature 5 Feature 6
Feature 7 Feature 8 Feature 9
Feature 10 Feature 11 Feature 12
Feature 13 Feature 14 Feature 15
Feature 16 Feature 17 Feature 18
Feature 19 Feature 20 Feature 21
Feature 22 Feature 23 Feature 24


Python ...
File Help
Tab 1 Tab 2 Tab 3 Tab 4 Tab 5
Tab 1 Tab 2 Tab 3 Tab 4 Tab 5
Tab Display Area
Notebook 2 - Tab 4


Python ...
File Help
Tab 1 Tab 2 Tab 3 Tab 4 Tab 5
Tab 1 Tab 2 Tab 3 Tab 4 Tab 5
Tab Display Area
Notebook 1 - Tab 5
Tab Display
Tab: 5
OK

```
#---------------------------------------------------------
#  Create GUI
#---------------------------------------------------------
win = tk.Tk()             # Create instance
win.title("Python GUI")   # Add title
#-----------------------------------------

win_frame_multi_row_tabs = ttk.Frame(win)
win_frame_multi_row_tabs.grid(column=0, row=0, sticky='W')

display_area = ttk.Labelframe(win, text=' Tab Display Area ')
display_area.grid(column=0, row=1, sticky='WE')

note1 = ttk.Notebook(win_frame_multi_row_tabs)
note1.grid(column=0, row=0)

note2 = ttk.Notebook(win_frame_multi_row_tabs)
note2.grid(column=0, row=1)
```

```
# create and add tabs to Notebooks
for tab_no in range(5):
    tab1 = ttk.Frame(note1, width=0, height=0)              # Create a tab for notebook 1
    tab2 = ttk.Frame(note2, width=0, height=0)              # Create a tab for notebook 2
    note1.add(tab1, text=' Tab {} '.format(tab_no + 1))     # Add tab notebook 1
    note2.add(tab2, text=' Tab {} '.format(tab_no + 1))     # Add tab notebook 2
```

```
# bind click-events to Notebooks
note1.bind("<ButtonRelease-1>", notebook_callback)
note2.bind("<ButtonRelease-1>", notebook_callback)
```

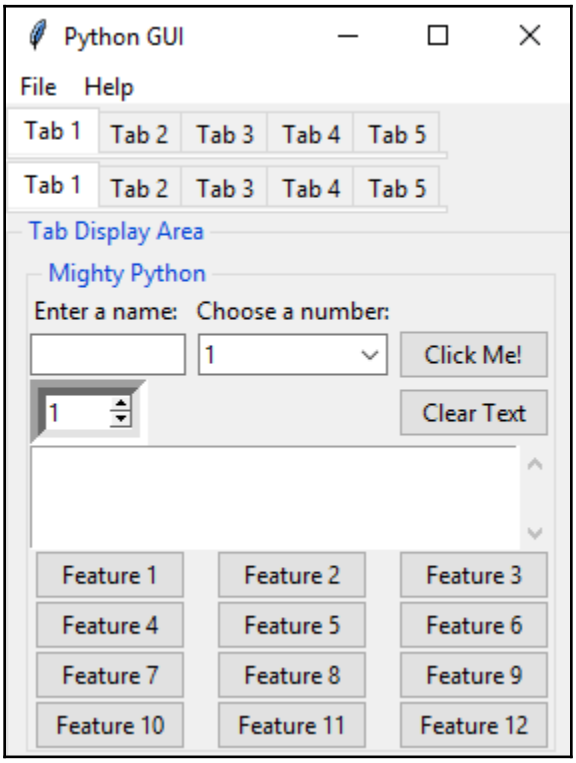
```
#-----------------------------------------
def notebook_callback(event):
    clear_display_area()

    current_notebook = str(event.widget)
    tab_no = str(event.widget.index("current") + 1)

    if current_notebook.endswith('notebook'):
        active_notebook = 'Notebook 1'
    elif current_notebook.endswith('notebook2'):
        active_notebook = 'Notebook 2'
    else:
        active_notebook = ''

    if active_notebook is 'Notebook 1':
        if   tab_no == '1': display_tab1()
        elif tab_no == '2': display_tab2()
        elif tab_no == '3': display_tab3()
        else: display_button(active_notebook, tab_no)
    else:
        display_button(active_notebook, tab_no)
```

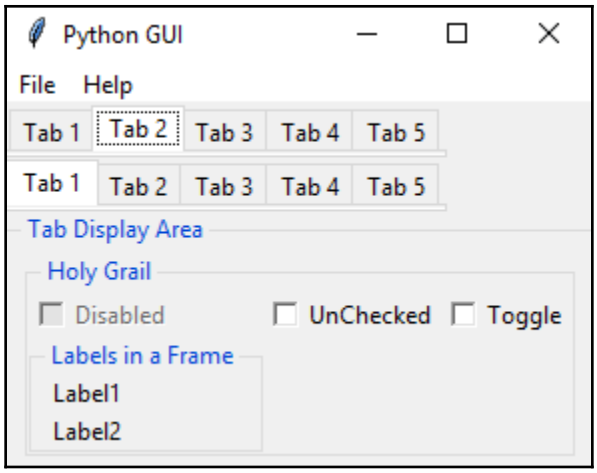
```
#-----------------------------------------
def create_display_area():
    # add empty label for spacing
    display_area_label = tk.Label(display_area, text="", height=2)
    display_area_label.grid(column=0, row=0)

#-----------------------------------------
def clear_display_area():
    # remove previous widget(s) from display_area:
    for widget in display_area.grid_slaves():
        if int(widget.grid_info()["row"]) == 0:
            widget.grid_forget()
```

```
#---------------------------------------
def display_tab3():
    monty3 = ttk.LabelFrame(display_area, text=' New Features ')
    monty3.grid(column=0, row=0, padx=8, pady=4)

    # Adding more Feature Buttons
    startRow = 4
    for idx in range(24):
        if idx < 2:
            colIdx = idx
            col = colIdx
        else:
            col += 1
        if not idx % 3:
            startRow += 1
            col = 0

        b = ttk.Button(monty3, text="Feature " + str(idx + 1))
        b.grid(column=col, row=startRow)

    # Add some space around each label
    for child in monty3.winfo_children():
        child.grid_configure(padx=8)
```

```
#---------------------------------------
def display_button(active_notebook, tab_no):
    btn = ttk.Button(display_area, text=active_notebook +' - Tab '+ tab_no, \
                     command= lambda: showinfo("Tab Display", "Tab: " + tab_no) )
    btn.grid(column=0, row=0, padx=8, pady=8)
```

```
# bind click-events to Notebooks
note1.bind("<ButtonRelease-1>", notebook_callback)
note2.bind("<ButtonRelease-1>", notebook_callback)

create_display_area()

create_menu()

display_tab1()

#-------------
win.mainloop()
#-------------
```




Python GUI
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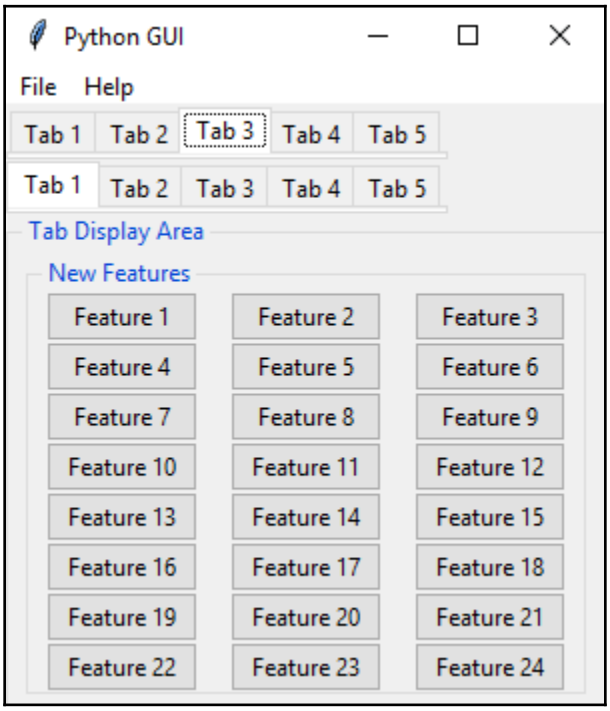
Tab Display Area
Holy Grail
Disabled
UnChecked
Toggle
Labels in a Frame
Label1
Label2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Feature 7 Feature 8 Feature 9
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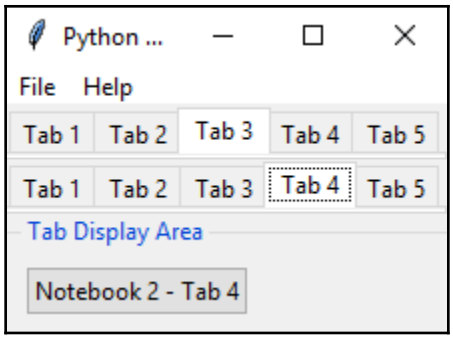
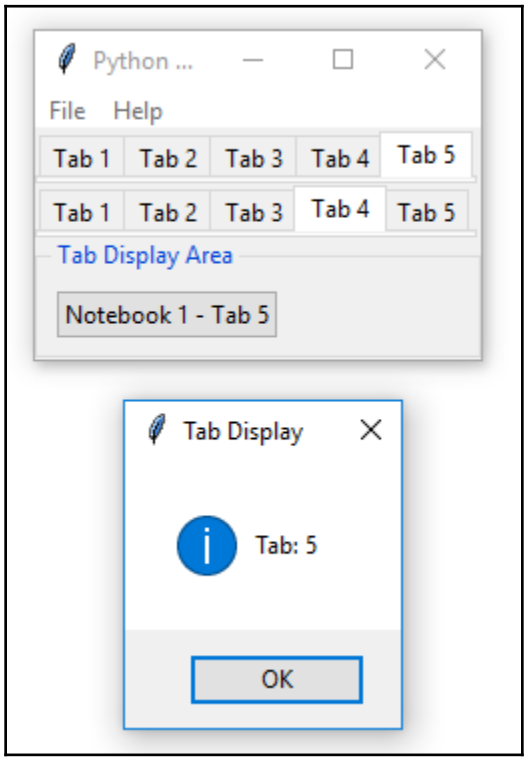
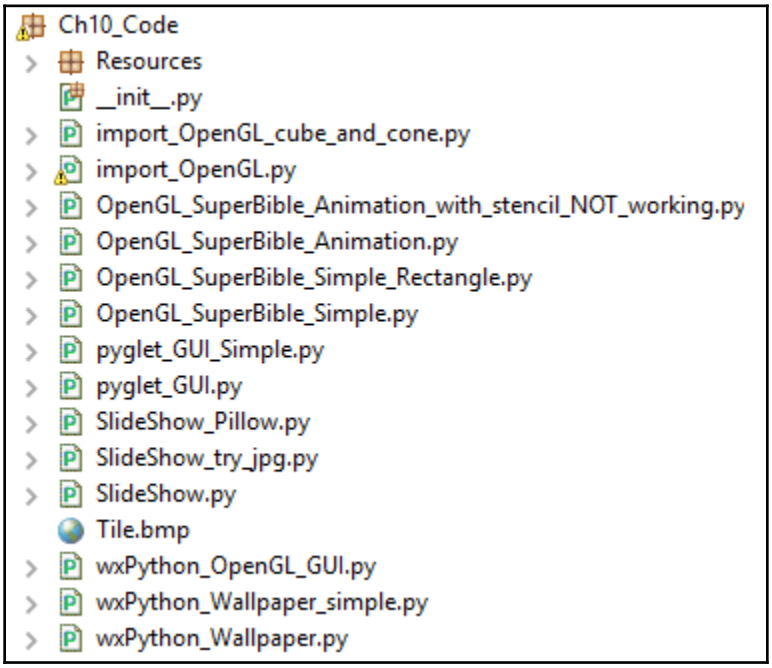
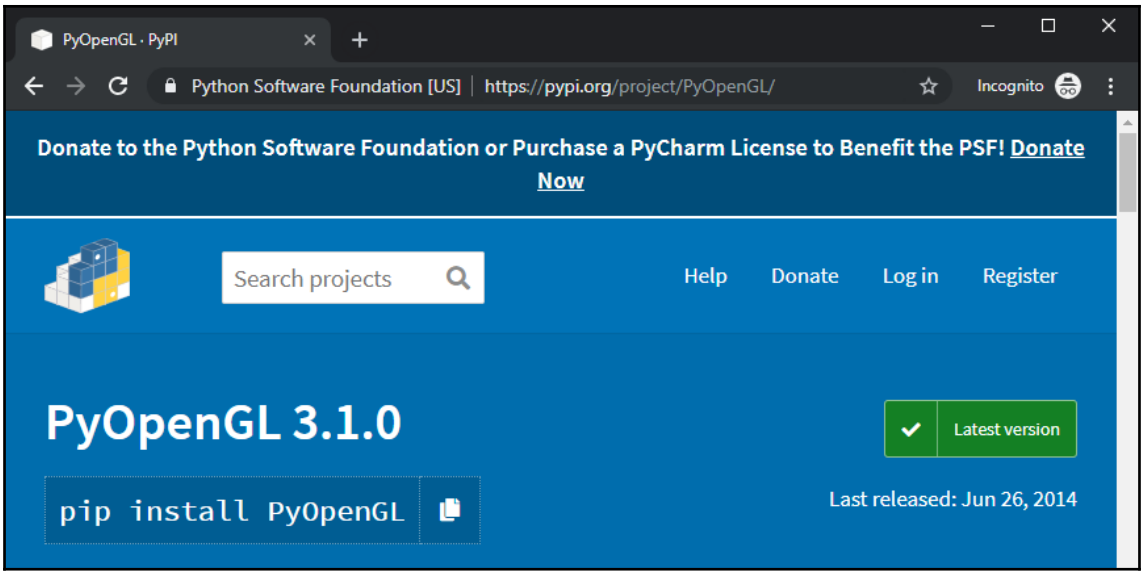
Feature 13 Feature 14 Feature 15
Feature 16 Feature 17 Feature 18
Feature 19 Feature 20 Feature 21
Feature 22 Feature 23 Feature 24


Python ...
File Help
Tab 1 Tab 2 Tab 3 Tab 4 Tab 5
Tab 1 Tab 2 Tab 3 Tab 4 Tab 5
Tab Display Area
Notebook 2 - Tab 4

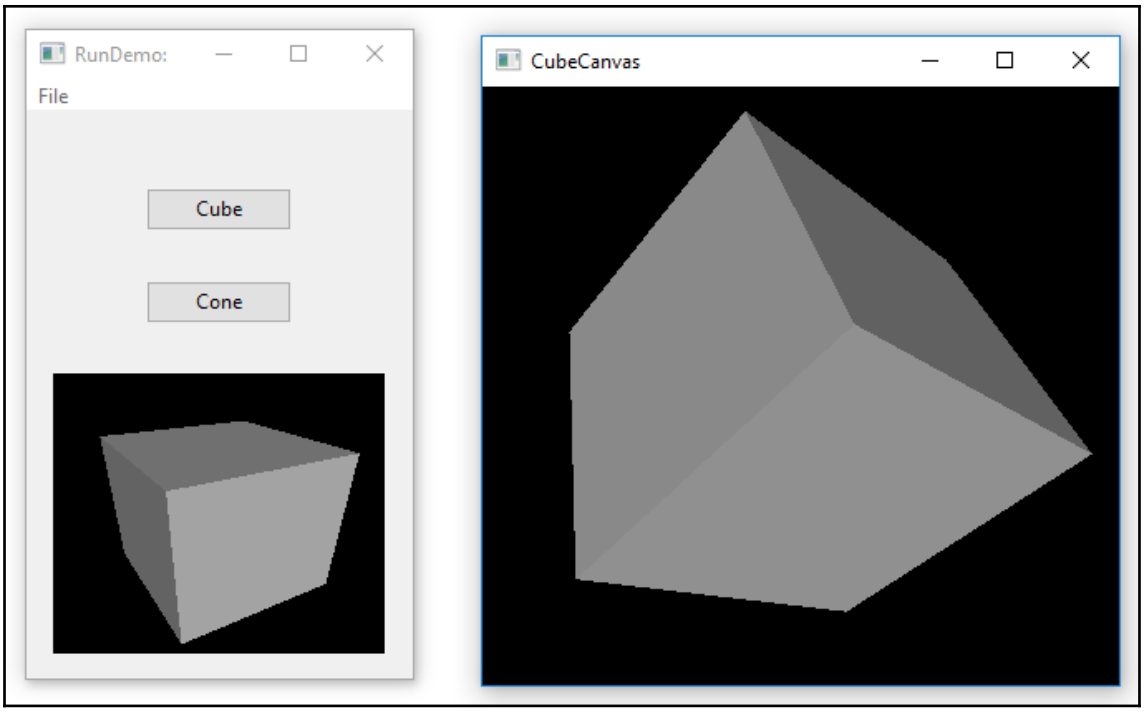

Python ...
File Help
Tab 1 Tab 2 Tab 3 Tab 4 Tab 5
Tab 1 Tab 2 Tab 3 Tab 4 Tab 5
Tab Display Area
Notebook 1 - Tab 5
Tab Display
Tab: 5
OK

Chapter 12: XXX TO BE REPLACED by the new PyQt5 chapter XXX Creating Amazing 3D GUIs with PyOpenGL and PyGLet XXX




PyOpenGL · PyPI
Python Software Foundation [US] | https://pypi.org/project/PyOpenGL/
Incognito
Donate to the Python Software Foundation or Purchase a PyCharm License to Benefit the PSF! Donate Now
Search projects
Help
Donate
Log in
Register
PyOpenGL 3.1.0
Latest version
pip install PyOpenGL
Last released: Jun 26, 2014


https://www.lfd.uci.edu/~gohlke/pythonlibs/#pyopengl
PyOpenGL-3.1.3b2-cp36-cp36m-win_amd64.whl
PyOpenGL-3.1.3b2-cp37-cp37m-win32.whl
PyOpenGL-3.1.3b2-cp37-cp37m-win_amd64.whl


RunDemo:
File
Cube
Cone
CubeCanvas


Secure | https://wxpython.org/Phoenix/docs/html/wx.glcanvas.GLCanvas.html#wx.glcanvas.GLCanvas.SetCurrent
Home | Gallery | API Docs » wx.glcanvas » wx.glcanvas.GLCanvas
wxPython
Cross-Platform GUI Library
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wx.glcanvas.GLCanvas
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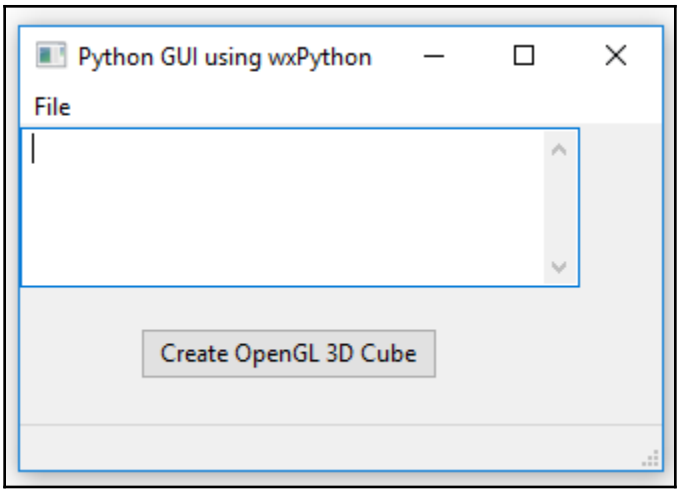
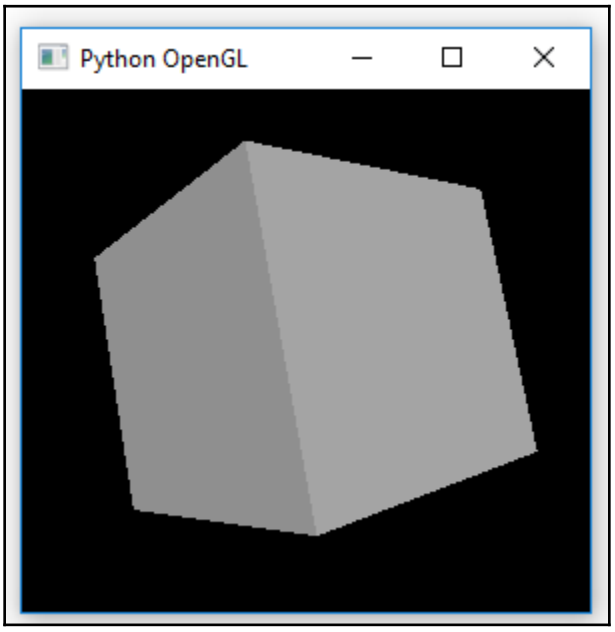
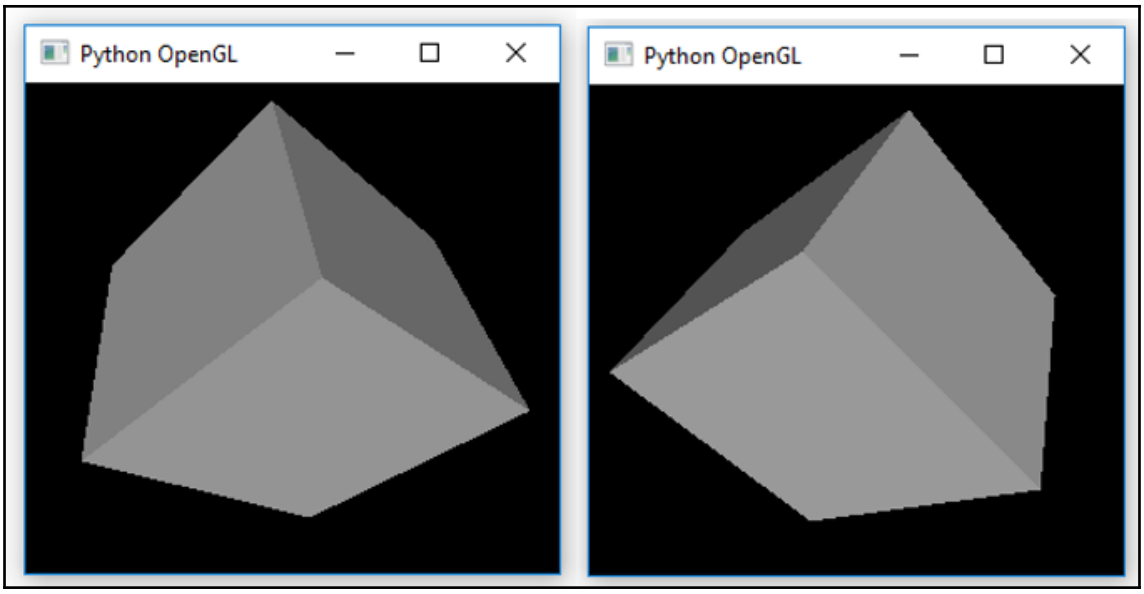
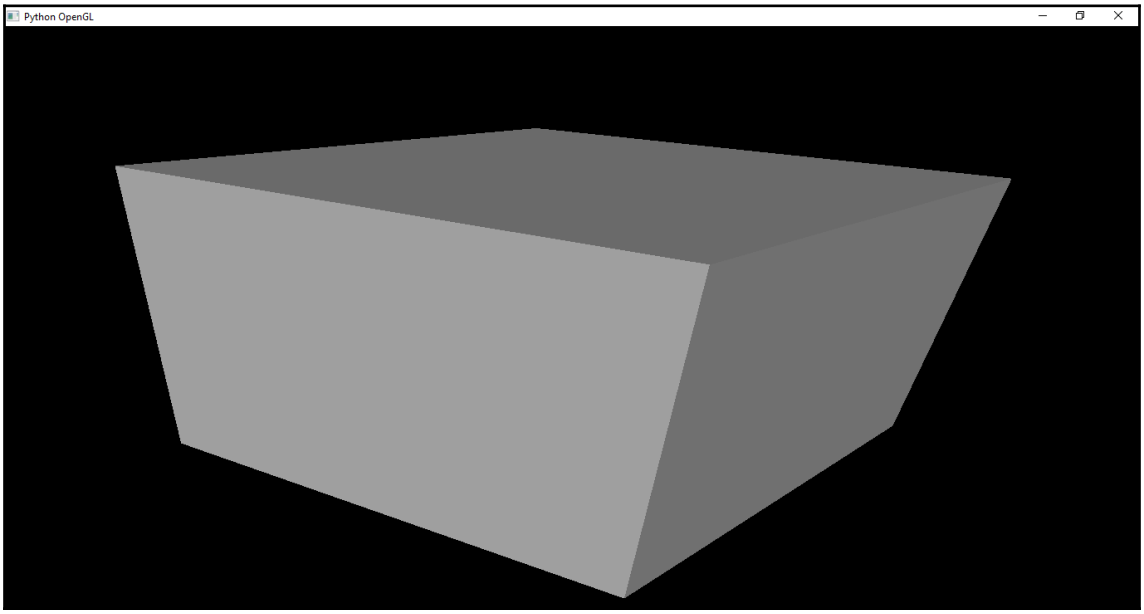
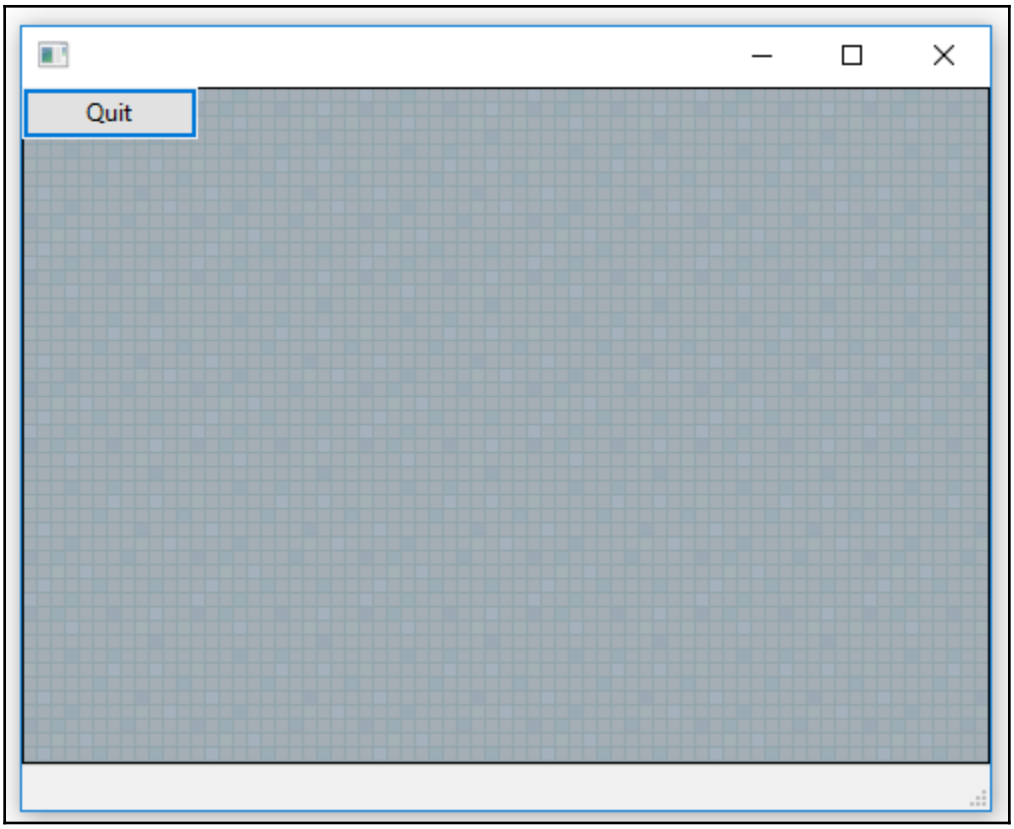
Methods Summary
Class API
SetCurrent(self, context)
Makes the OpenGL state that is represented by the OpenGL rendering context context current, i.e.
it will be used by all subsequent OpenGL calls.
This is equivalent to wx.glcanvas.GLContext.SetCurrent called with this window as parameter.
Parameters: context (wx.glcanvas.GLContext) –
Return type: bool
Returns: False if an error occurred.

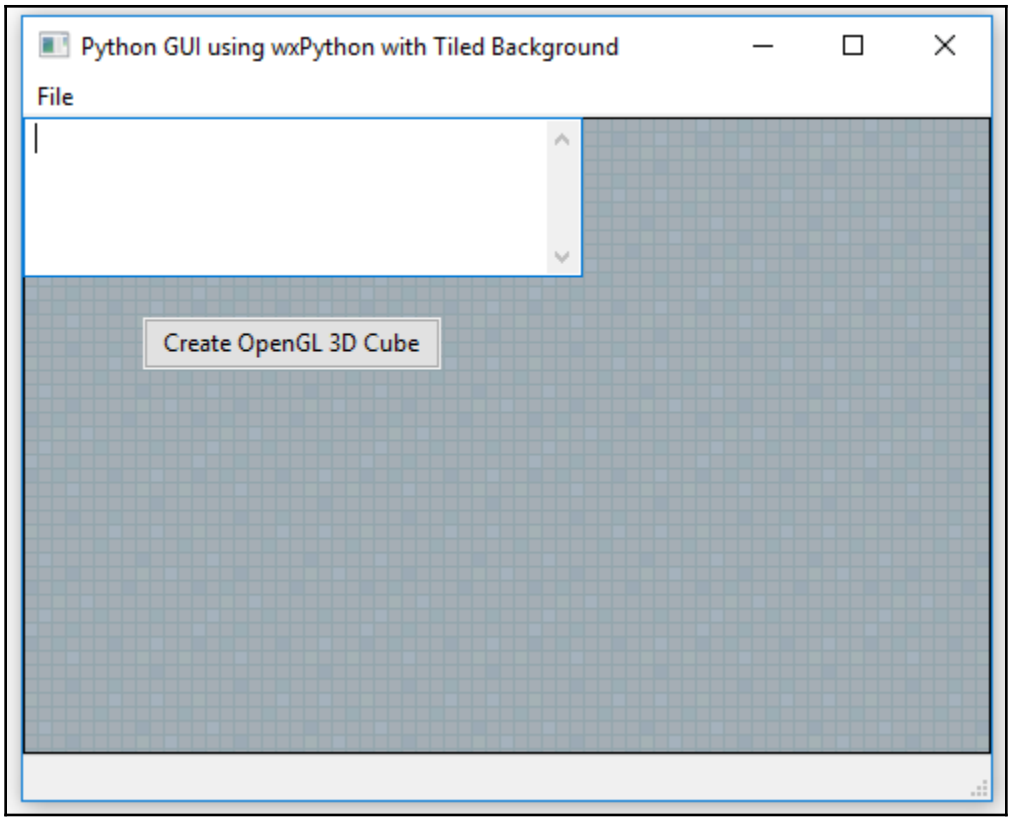

Python GUI using wxPython
File
Create OpenGL 3D Cube

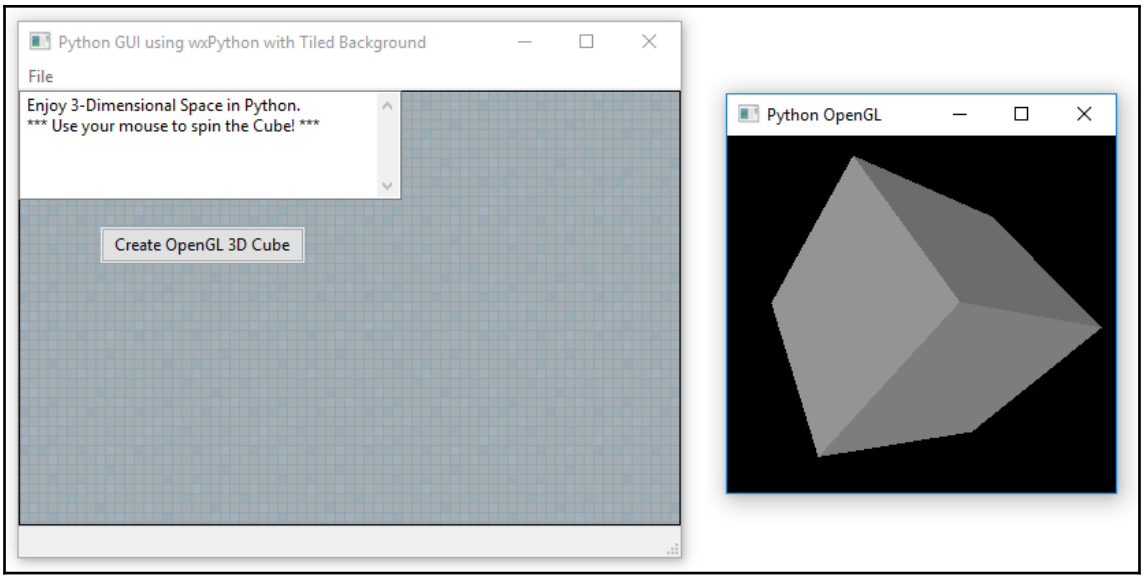

Python OpenGL


Python OpenGL
Python OpenGL

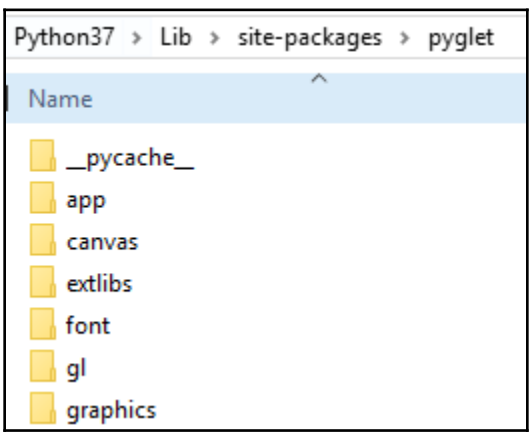

Python OpenGL

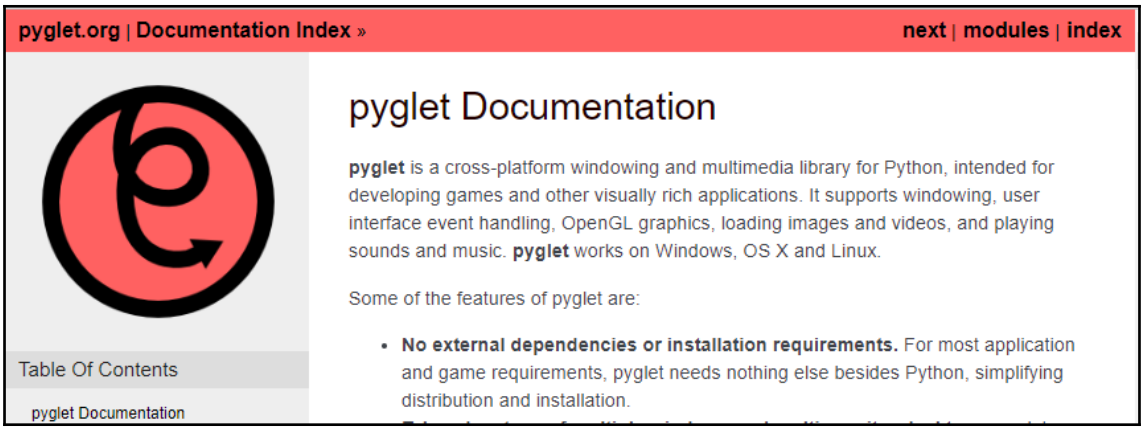

Quit


Python GUI using wxPython with Tiled Background
File
Create OpenGL 3D Cube




```
Windows PowerShell
PS C:\Python37> pip install pyglet
Collecting pyglet
  Downloading https://files.pythonhosted.org/packages/1c/fc/dad5eaaab68f0c21e2f906a94ddb98175662cc5a654eee404d59554ce0fa/pyglet-1.3.2-py2.py3-none-any.whl (1.0MB)
     |████████████████████████████████| 1.0MB 504kB/s
Requirement already satisfied: future in c:\python37\lib\site-packages (from pyglet) (0.17.1)
Installing collected packages: pyglet
Successfully installed pyglet-1.3.2
PS C:\Python37>
```




pyglet.org | Documentation Index »
next | modules | index
pyglet Documentation
pyglet is a cross-platform windowing and multimedia library for Python, intended for developing games and other visually rich applications. It supports windowing, user interface event handling, OpenGL graphics, loading images and videos, and playing sounds and music. pyglet works on Windows, OS X and Linux.
Some of the features of pyglet are:
No external dependencies or installation requirements. For most application and game requirements, pyglet needs nothing else besides Python, simplifying distribution and installation.
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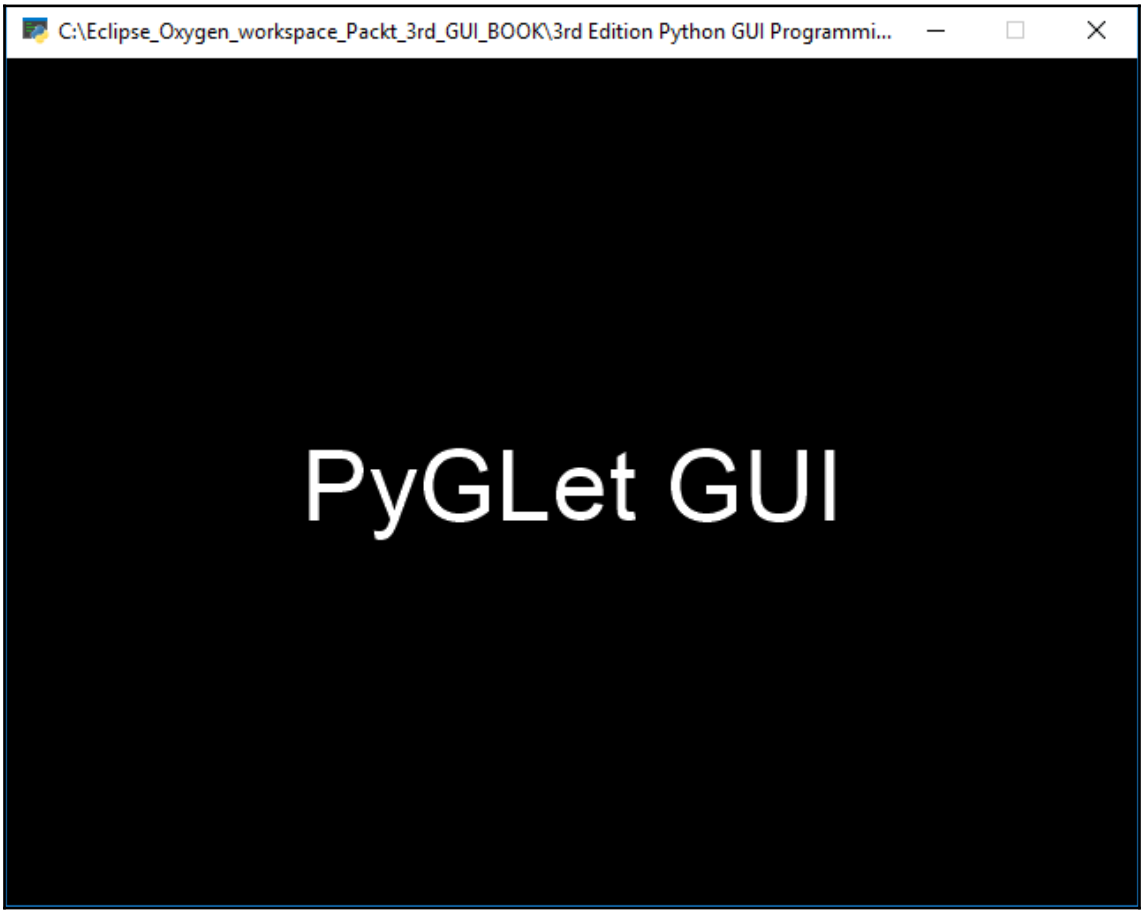
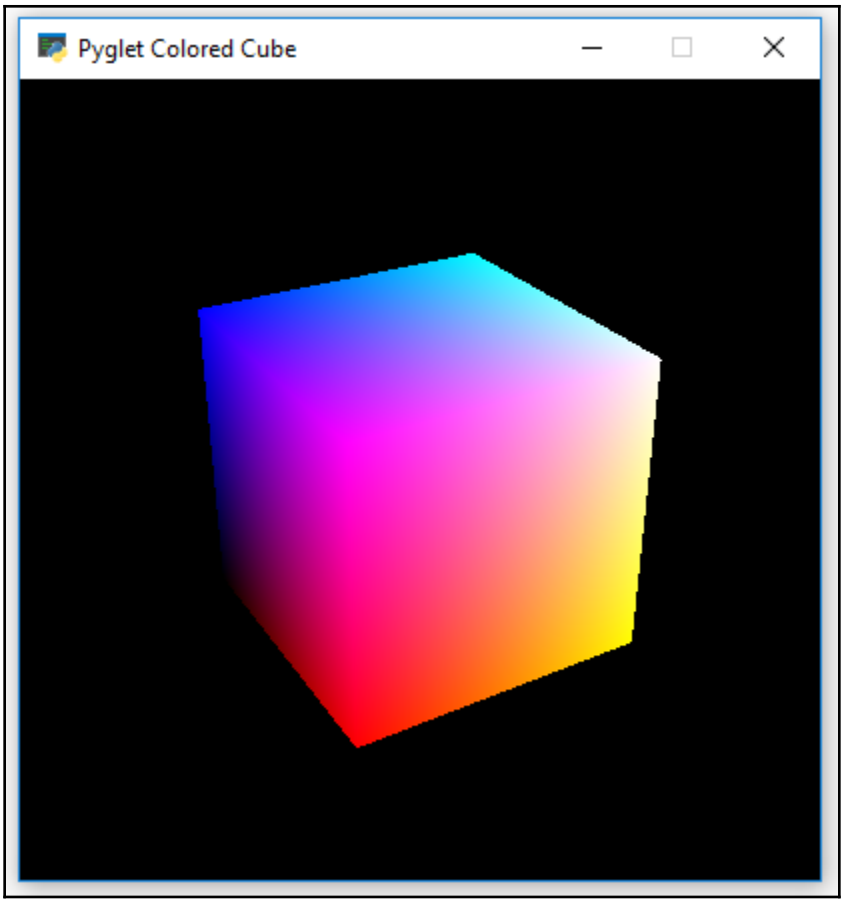
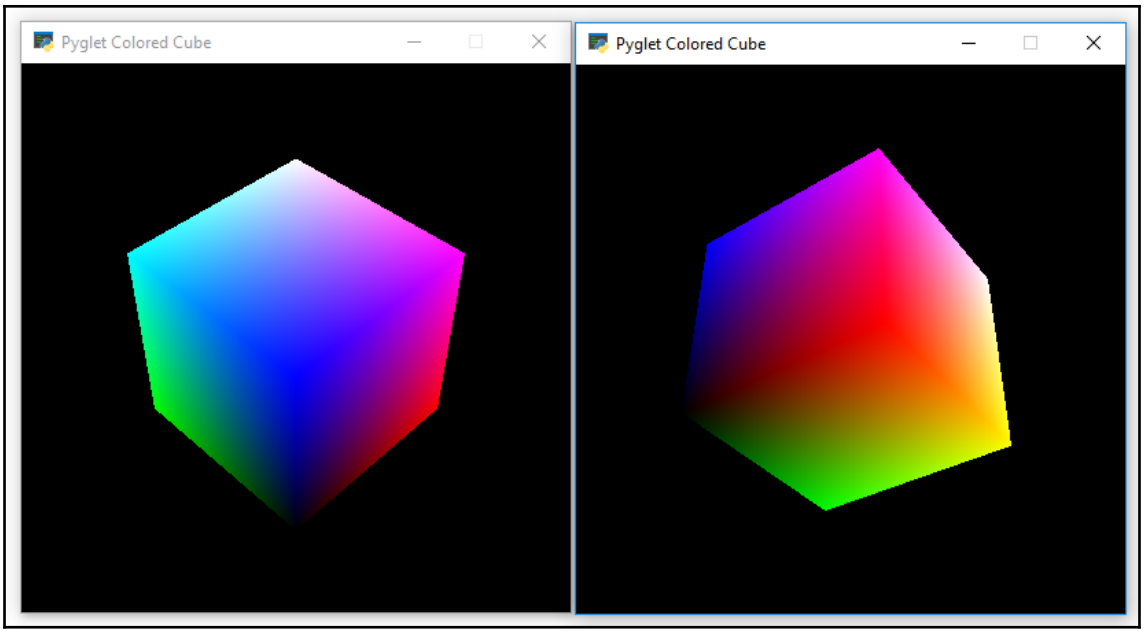
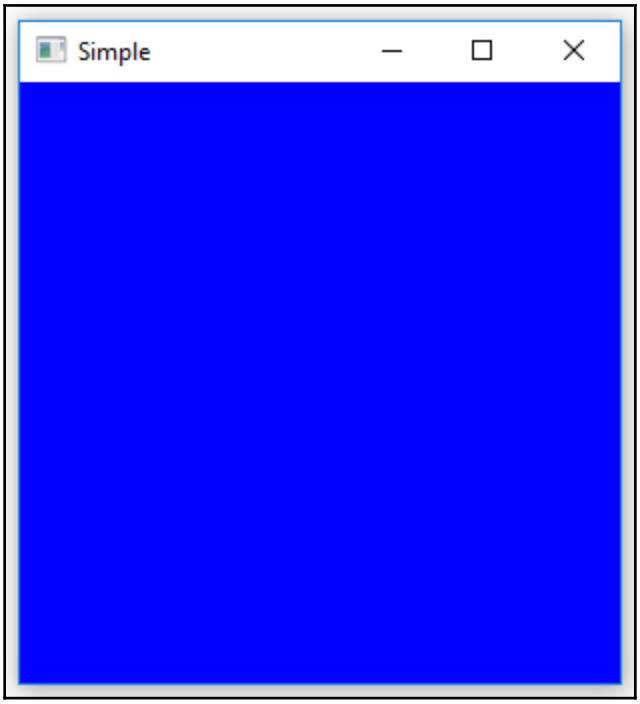
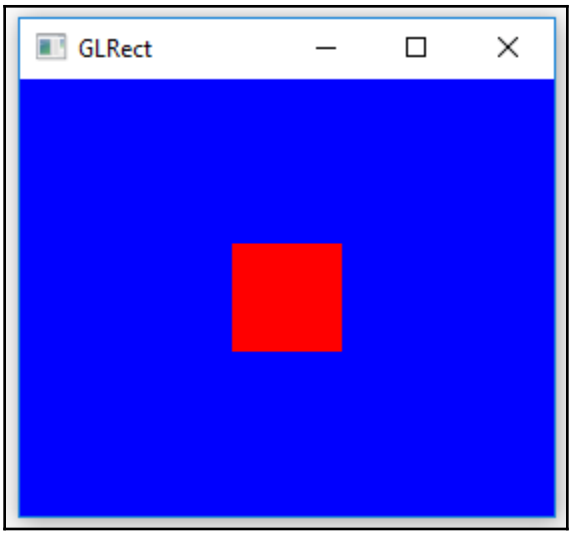
pyglet Documentation

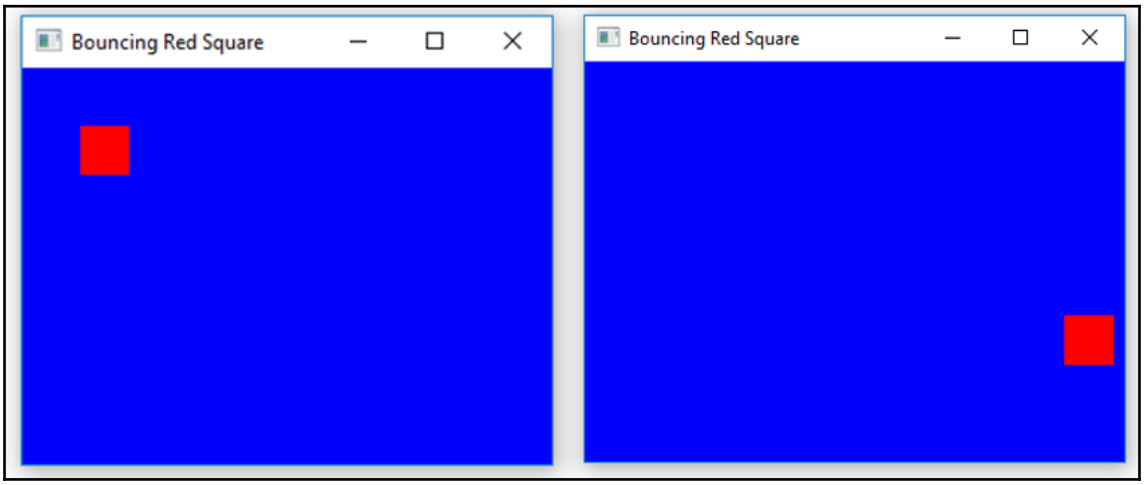

C:\Eclipse_Oxygen_workspace_Packt_3rd_GUI_BOOK\3rd Edition Python GUI Programmi...
PyGLet GUI

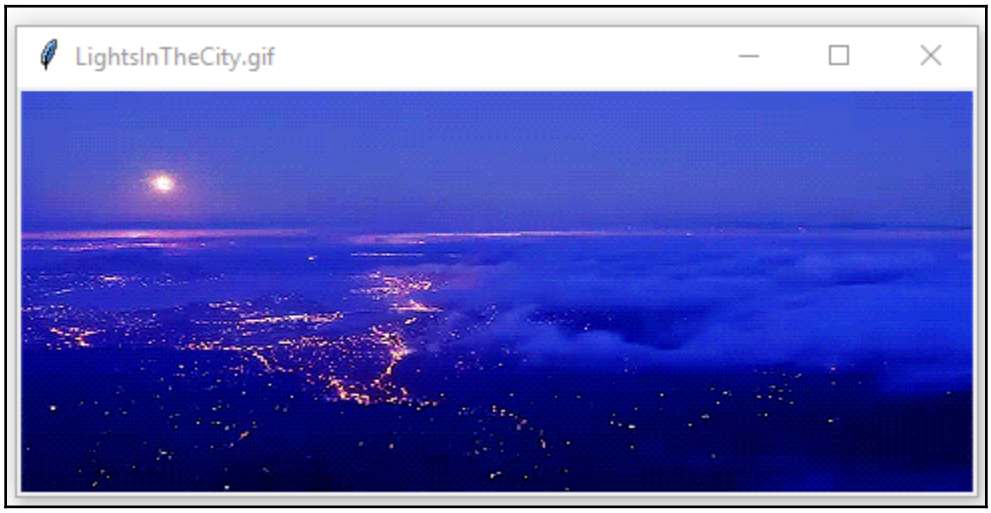

Pyglet Colored Cube


Pyglet Colored Cube
Pyglet Colored Cube


Simple


GLRect


Bouncing Red Square
Bouncing Red Square




```
Windows PowerShell
PS C:\Python37> pip install pillow
Requirement already satisfied: pillow in c:\python37\lib\site-packages (5.2.0)
PS C:\Python37>
```

```
Console
<terminated> SlideShow_try_jpg.py [C:\Python37\python.exe]
    Image.__init__(self, 'photo', name, cnf, master, **kw)
  File "C:\Python37\lib\tkinter\__init__.py", line 3498, in __init__
    self.tk.call(('image', 'create', imgtype, name,) + options)
_tkinter.TclError: couldn't recognize data in image file "rivers expedition day.jpg"
```