INSTALLING PYGAME
FOR PYTHON 3
ON MAC AND LINUX

In this supplement, you'll find instructions for installing Pygame for Python 3 on Mac (page 2) and Linux (page 10). These installations can be tricky, so if you need help, ask your IT professional or another knowledgeable person. Simpler instructions for using Pygame with Python 2 can be found in Appendix B of *Teach Your Kids to Code*.

PYGAME FOR PYTHON 3.4 ON MAC

The following steps can be very tricky. Do not try them alone. Instead, give these instructions to the Python programmer or IT professional who is helping you.

PREPARE FOR TERMINAL COMMANDS

1. Install Xcode. In Finder, go to **Applications ▸App Store**. Search for Xcode and click **Get** to install the Xcode developer tools, as shown in Figure 1. You'll need these tools to run some installation commands.

Figure 1: Install Xcode from the App Store.

2. Install XQuartz. Go to *http://xquartz.macosforge.org/* and download the current version of XQuartz (2.7.7 as of this writing), as shown in Figure 2. Open your *Downloads* folder, double-click the *XQuartz-2.7.7.dmg* file, and then double-click the *XQuartz.pkg* package file and follow the instructions to complete the installation.
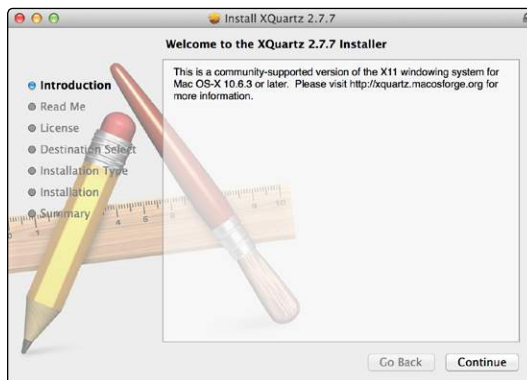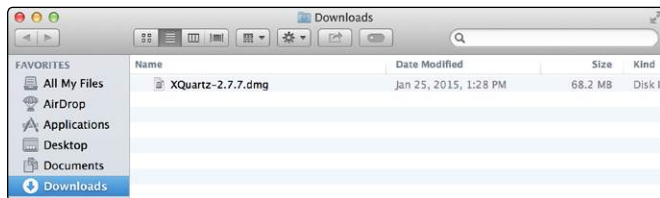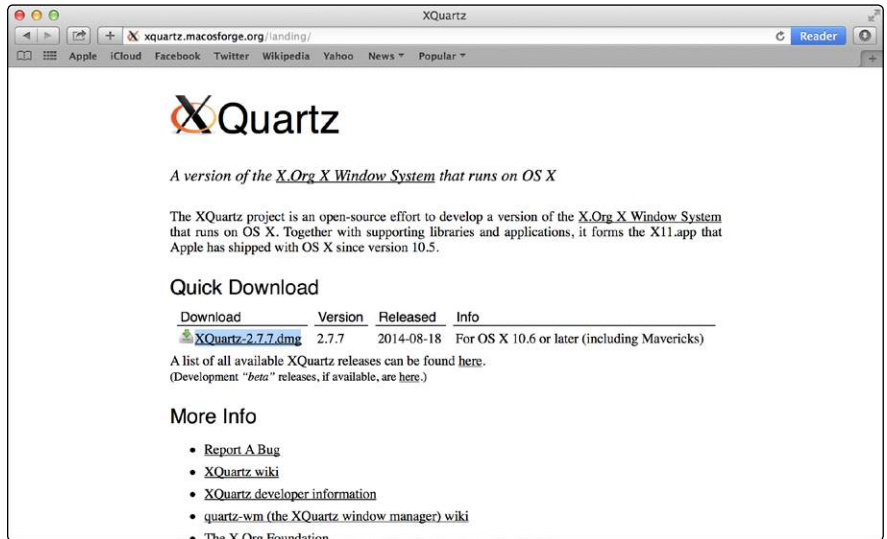

Figure 2: Install XQuartz.

3. Open a Terminal (command line) window. To do this, go to **Applications ▸ Utilities**, and double-click Terminal, as shown in Figure 3. Your Terminal window will open.
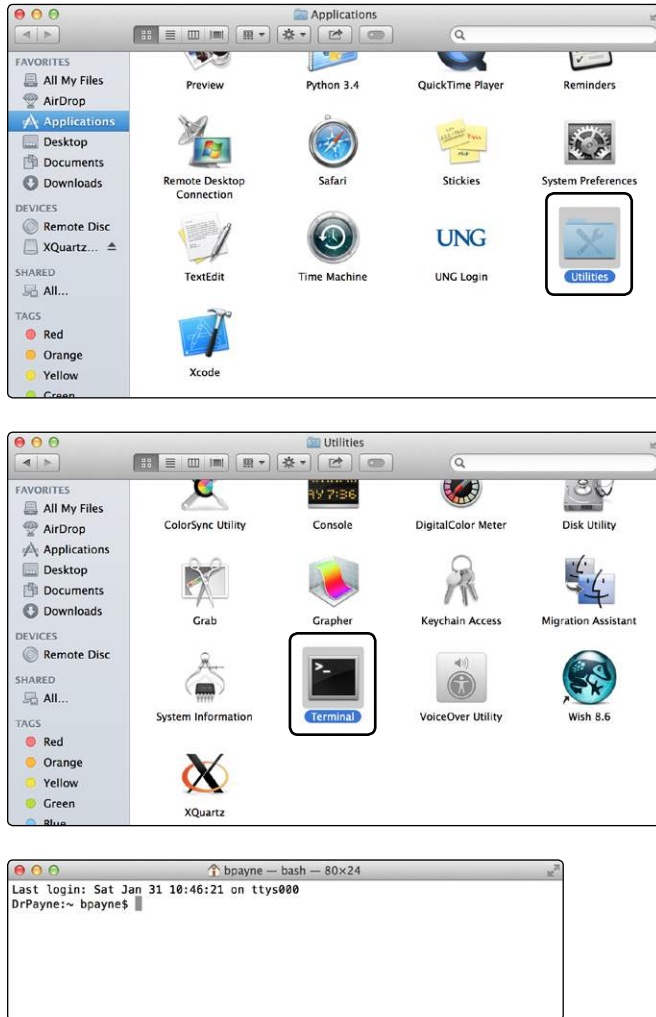

Figure 3: Open a Terminal window.

Next, you'll enter commands in the Terminal to install programs that help install Pygame.

ENTER TERMINAL COMMANDS

In the next few steps, you'll enter a total of 10 commands in the Terminal. Enter each command one at a time exactly as shown, and then press the RETURN key. Some commands may take a while and produce lots of output.

1. Install Homebrew. Homebrew is a free program that helps you install Python, Pygame, and other programs on a Mac. At the Terminal prompt, type the following as a single line and then press RETURN:

```
ruby -e "$(curl -fsSL https://raw.githubusercontent.com/Homebrew/
install/master/install)"
```

    (You may want to make your Terminal window wider to allow the line to fit, but it's okay if it wraps around.)

2. Prepare Homebrew for use. At the Terminal prompt, enter each of the following three commands exactly as shown. The second two may take a few moments to run and will show several screens of information.

```
echo export PATH='/usr/local/bin:$PATH' >> ~/.bash_profile
brew update
brew doctor
```

3. Install Python 3 for Pygame. At the Terminal prompt, enter:

```
brew install python3
```

    This will install a separate Python 3 specifically for Pygame use—this step is required for all of the following steps to work.

4. Install Mercurial. Mercurial is a free source control management system that this Pygame installation requires on a Mac. At the Terminal prompt, enter:

```
brew install mercurial
```

5. Install Pygame dependencies. Pygame requires several helper programs, called *dependencies*, so that it can display animations, play sounds, and create game graphics. Type the following three lines at the Terminal command prompt, pressing RETURN after each line:

```
brew install sdl sdl_image sdl_mixer sdl_ttf portmidi
brew tap homebrew/headonly
brew install --HEAD smpeg
```

Each command will take a few moments to run and display screens full of information. Keep going; you're almost done.

6. Install Pygame. Type the following line at the Terminal prompt and press RETURN:

```
sudo pip3 install hg+http://bitbucket.org/pygame/pygame
```

7. You may have to enter an administrator password (use your password, or ask an IT administrator), and the installation may take a few minutes.

CREATE A DESKTOP SHORTCUT

Pygame and the new Python 3 that you just installed create a separate IDLE editor that you'll use especially for Pygame-enabled apps. (You can use this new version of IDLE for any program in the book, but you *must* use it when writing and running Pygame apps.)

1. Go to **Finder ▸ Go ▸ Go to Folder . . .** , as shown in Figure 4.

*Figure 4: Choose **Go to Folder...** from the Go menu.*

2. In the *Go to the folder:* window prompt, type **/usr/local/Cellar/ python3** and click **Go**, as shown in Figure 5.

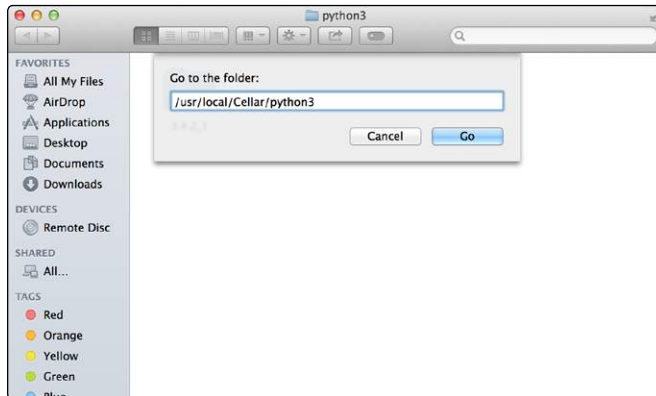*Figure 5: Type /usr/local/Cellar/python3 and click Go.*

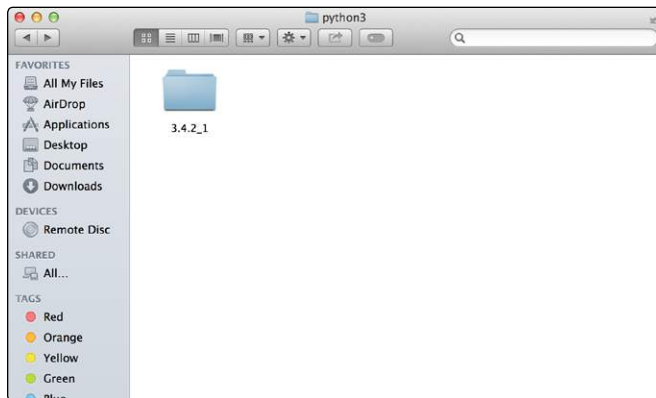3. Double-click the *python3* folder to open the folder inside, as shown in Figure 6.

Figure 6: Double-click python3 and then open the folder inside.

4. In this folder, you will find the IDLE 3 application. Hold down the CONTROL key and click the IDLE 3 icon. From the pop-up menu that opens, select **Make Alias**, as shown in Figure 7.

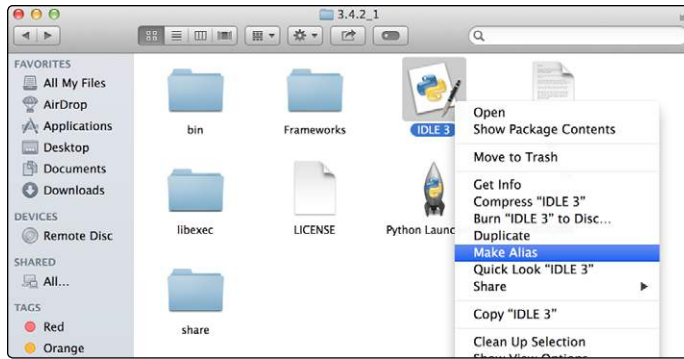*Figure 7: Select **Make Alias** from the pop-up menu.*

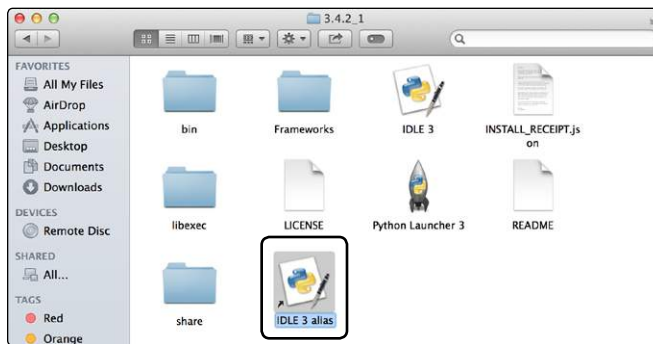5. A new *alias*, or shortcut icon, will appear, with a name like *IDLE 3 alias*, as shown in Figure 8.

Figure 8: A new alias appears.

6. Click the filename to edit it, and rename the new alias *pygame IDLE* or something similar, as shown in Figure 9, to help you remember that this IDLE has Pygame installed.
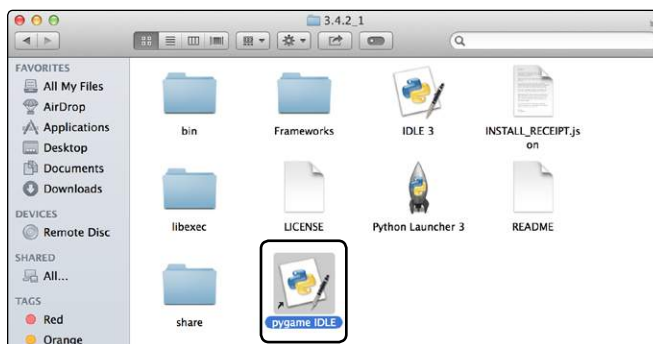

Figure 9: Rename the new alias pygame IDLE.

7. Drag the Pygame IDLE shortcut icon to your desktop, as shown in Figure 10. This will allow you to access the correct IDLE for Pygame programming right from your desktop.
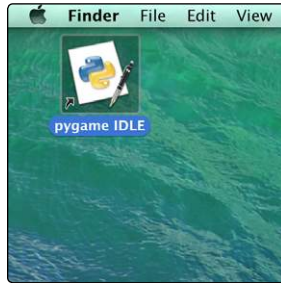

Figure 10: Drag the Pygame IDLE icon to your desktop.

8. Double-click the Pygame IDLE icon. The Pygame-enabled IDLE editor window will open. Type `import pygame` and press RETURN, as shown in Figure 11. IDLE should respond with a >>> prompt and no errors.

Figure 11: Import Pygame. IDLE should respond with a >>> prompt and no errors.

Now you're ready to program the Pygame apps from Chapters 8 through 10 on your Mac. Happy coding!

PYGAME FOR PYTHON 3 ON LINUX

The following steps can be a bit tricky. Give these instructions to the Python programmer or IT professional who is helping you.

First, follow the directions in the section "Python for Linux" (Appendix A, page 276) to install IDLE and Python 3.4 or later. Then, follow the instructions below to install Pygame for Python 3 on your Linux system.

1. Run **System Tools ▸ Terminal** (or **XTerm** or a similar application for your version of Linux).

2. Install Pygame's dependencies. In the Terminal window, type (or copy/paste) the following four lines exactly as shown and press ENTER, as shown in Figure 12.

```
sudo apt-get install mercurial python3-dev python3-numpy ffmpeg \
libsdl-image1.2-dev libsdl-mixer1.2-dev libsdl-ttf2.0-dev
libsmpeg-dev \
libsdl1.2-dev libportmidi-dev libswscale-dev libavformat-dev
libavcodec-dev \
python-numpy subversion
```
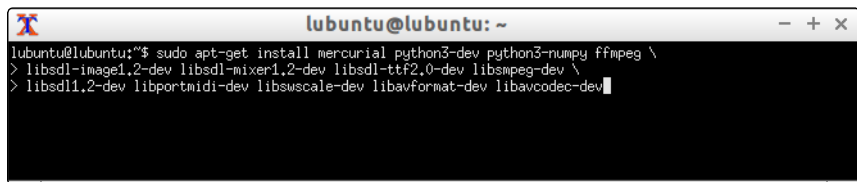

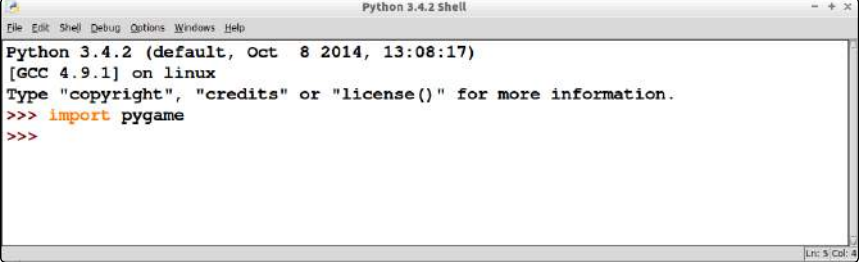Figure 12: Installing Pygame for Python 3 on Linux requires some command line terminal skills.

3. Download and install Pygame. When the dependencies finish installing, enter the following five lines one at a time at the Terminal prompt:

```
cd /usr/local/lib/python3.4/dist-packages/
sudo svn co svn://seul.org/svn/pygame/trunk pygame
cd pygame
sudo python3 setup.py build
sudo python3 setup.py install
```

4. When the Pygame installation completes, open a file window and go to **Applications ▸ Programming ▸ IDLE (using Python-3.4)** to open the IDLE Python shell.

5. Test your installation of Pygame for Python 3 on Linux by typing **import pygame** and pressing ENTER at the >>> prompt, as shown in Figure 13. Python should reply with >>> to let you know that Pygame was successfully imported.

Figure 13: Testing Pygame on Python 3 using IDLE—now you're ready to code Pygame apps on Linux!

You're ready to use the Pygame programs from Chapters 8 through 10 on your Linux machine. Happy coding!