



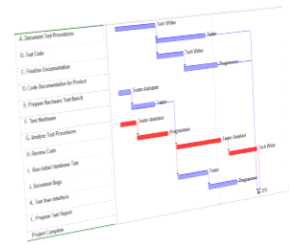
Make your life easier with Project Macros

August 31, 2016 @ 12pm-1pm EST

Jeff Fenbert

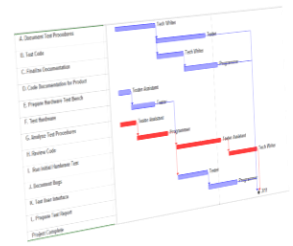
Agenda

WOW!

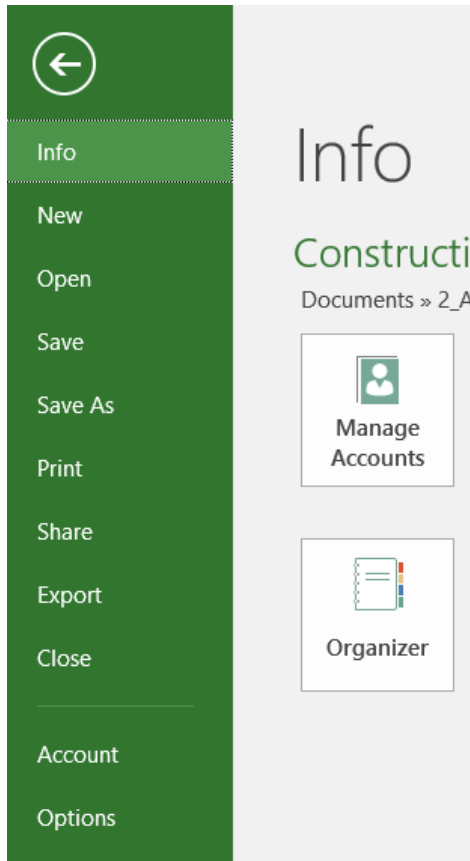
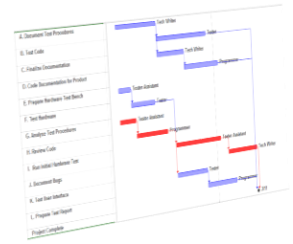
A screenshot of a web form window titled "My First Form". It contains three input fields: "First Name", "Last Name", and "Telephone Number".

Introduction

- Background
 - Process Engineer and Project Enthusiast
 - Not A Programmer
 - Macros Translated from 2007 to 2016
- When to Use A Marco
 - Automate Repeated Actions
 - Share Processes Across a Group
 - When A Micro Just Won't Do
- Advantages
 - VBA used in most Office Products
 - Easy to record
 - Fun to write



Add Developer's Menu



- General
- Display
- Schedule
- Proofing
- Save
- Language
- Advanced
- Customize Ribbon
- Quick Access Toolbar
- Add-ins
- Trust Center

Customize the Ribbon.

Choose commands from: ①

Popular Commands

- 100% Complete
- Add Existing Tasks to Timeline
- Assign Resources...
- Auto Schedule
- Background Color
- Copy
- Copy Picture
- Custom Fields
- Cut
- Email
- Entire Project
- Font
- Font Color
- Font Size
- Format Painter
- Indent
- Information...
- Insert Column
- Level All
- Link Tasks
- Manually Schedule

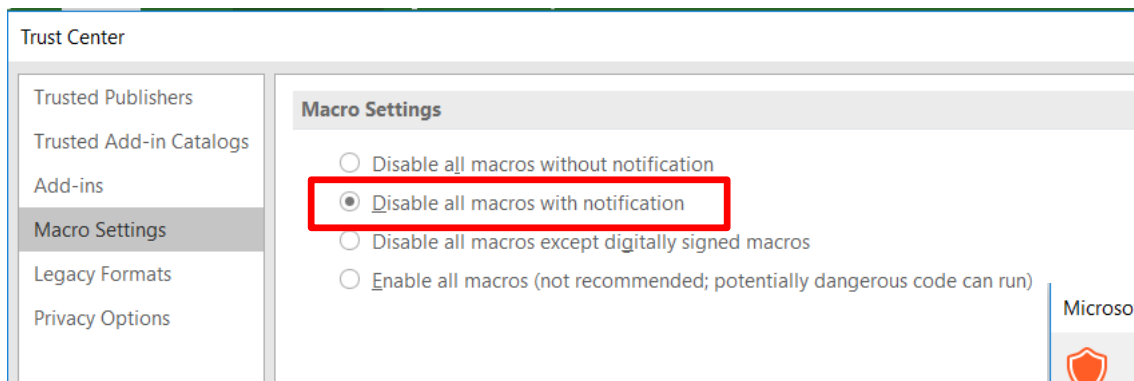
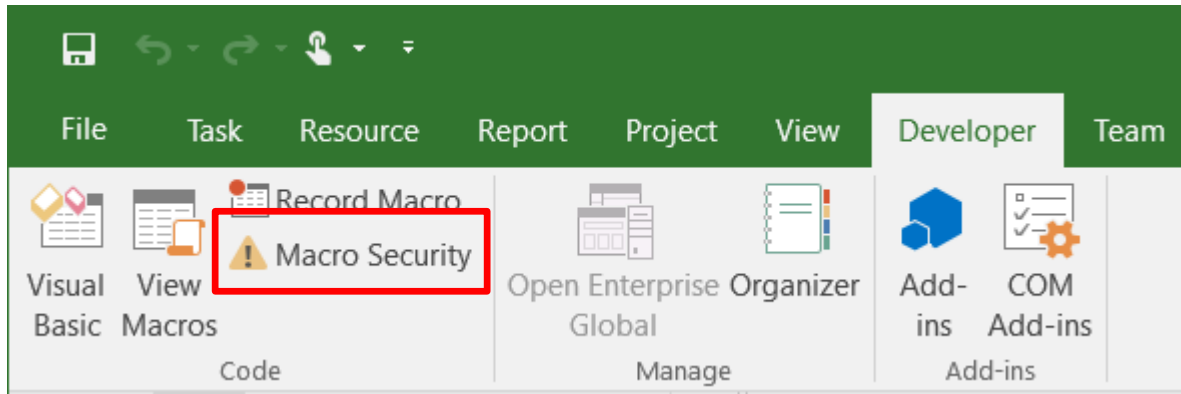
Customize the Ribbon: ①

Main Tabs

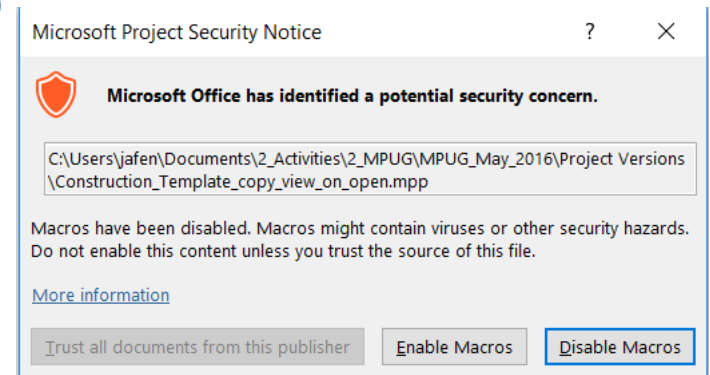
- ### Main Tabs
- Compare Projects
 - Task
 - View
 - Clipboard
 - Font
 - Schedule (Task)
 - Tasks
 - Insert
 - Properties
 - Editing
 - Resource
 - Report
 - Project
 - View
 - Add-ins
 - Developer**
 - Team



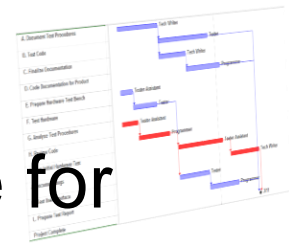
Set Macro Security



Option gives popup warning for any files that contain macros

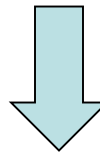
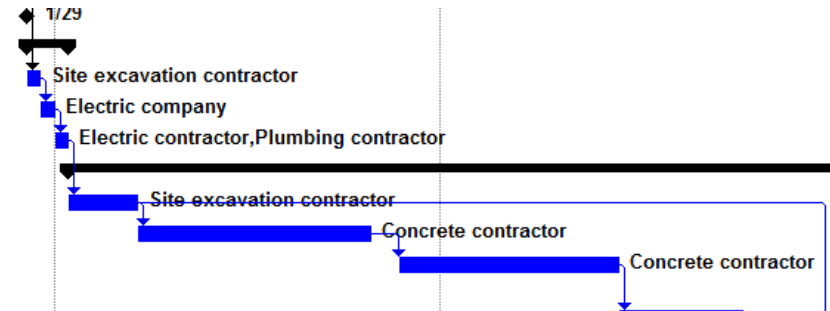


Demo Number 1: Scrub Macro

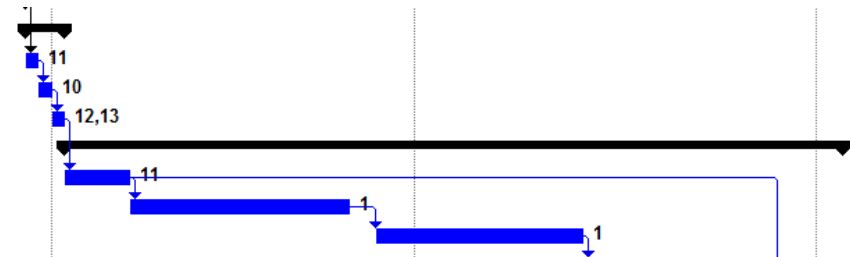


- Situation – Want to send a file to someone for help, but need to protect information

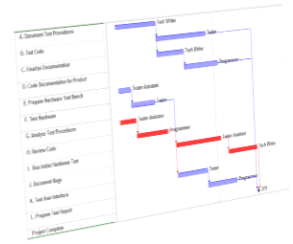
Secure miscellaneous permits	0 days	Mon 1/29/07
▸ Site Work	3 days	Tue 1/30/07
Clear and grub lot	1 day	Tue 1/30/07
Install temporary power service	1 day	Wed 1/31/07
Install underground utilities	1 day	Thu 2/1/07
▸ Foundation	42 days	Fri 2/2/07
Excavate for foundations	3 days	Fri 2/2/07
Form basement walls	13 days	Wed 2/7/07
Place concrete for foundations & basement walls	12 days	Mon 2/26/07



▸ 12	3 days	Tue 1/30/07
13	1 day	Tue 1/30/07
14	1 day	Wed 1/31/07
15	1 day	Thu 2/1/07
▸ 16	42 days	Fri 2/2/07
17	3 days	Fri 2/2/07
18	13 days	Wed 2/7/07
19	12 days	Mon 2/26/07



Quick Look at the Code



```
Sub scrub()  
'This macro clears the task name, resource name and text fields.  
'It also resets the project name and title  
'Copyright Jack Dahlgren Feb. 2002
```

Title,
Comments

```
Dim t As Task  
Dim ts As Tasks  
Dim r As Resource  
Dim rs As Resources  
Dim myok As Integer
```

Declare
Variables

```
myok = MsgBox("This will permanently remove tasknames, resource names and notes from your project. Are you sure you want to continue?", 257, "ERASE  
DATA?")
```

Message Box

```
If myok = 1 Then  
Set ts = ActiveProject.Tasks  
Set rs = ActiveProject.Resources  
For Each r In ActiveProject.Resources  
r.Name = r.UniqueID  
r.Group = ""  
r.Initials = r.UniqueID  
Next r
```

Define All
Tasks and
Resources

```
For Each t In ts  
If Not t Is Nothing Then  
t.Name = t.UniqueID  
t.Notes = ""  
End If  
Next t
```

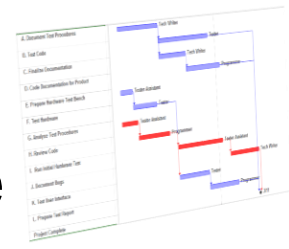
Cycle Through
Resources

```
End If  
End Sub
```

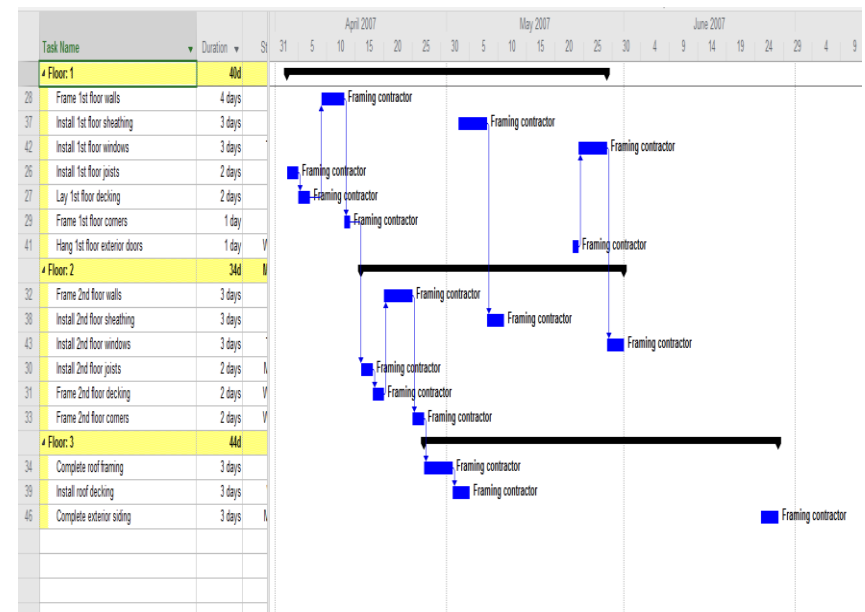
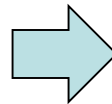
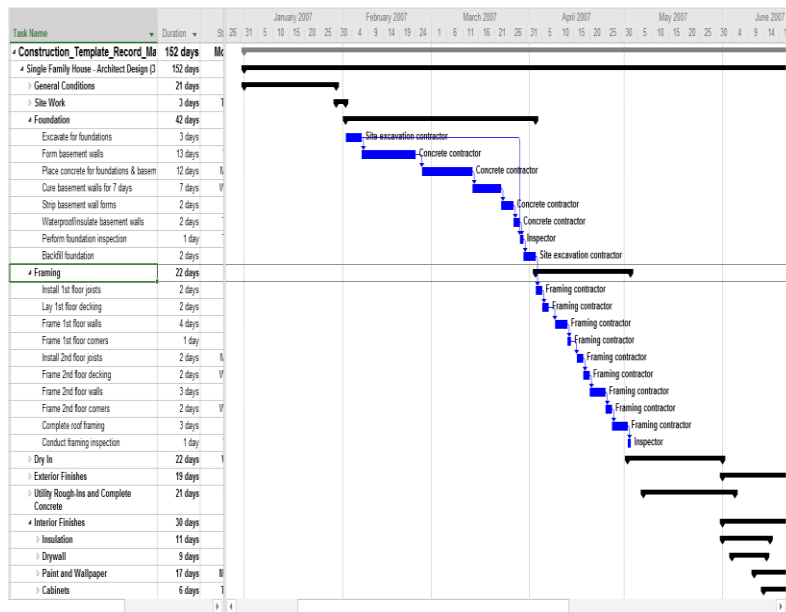
Cycle Through
Tasks



How Do I Build A Macro?



- Situation: I want to analyze the work of the framers in my construction project
- Solution: Record a macro that filters for framers, groups by floor and sorts by duration

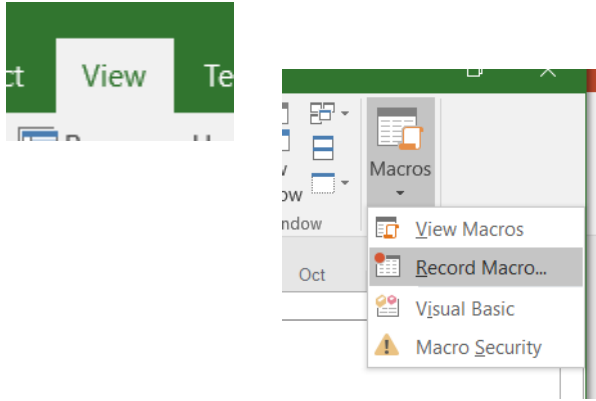


Demo

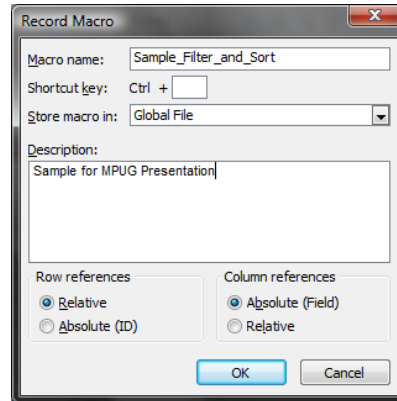


Record A Macro

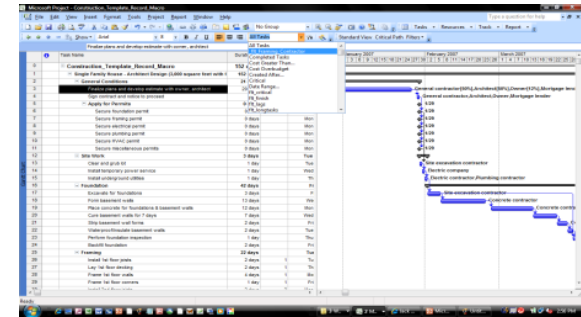
View Tab
Macros, Record Macro



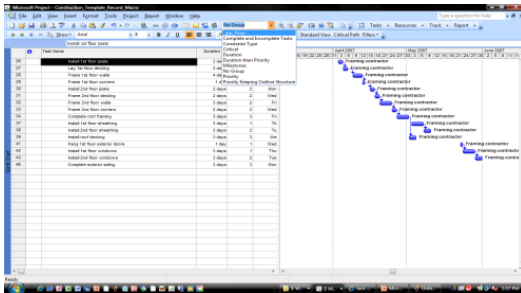
Name It
(No Spaces)



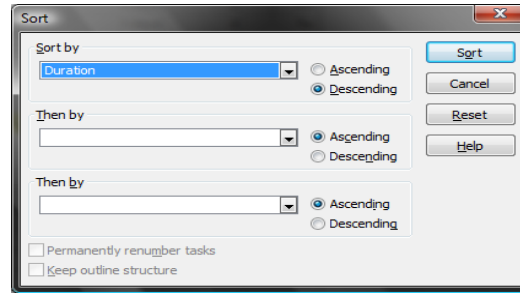
Filter



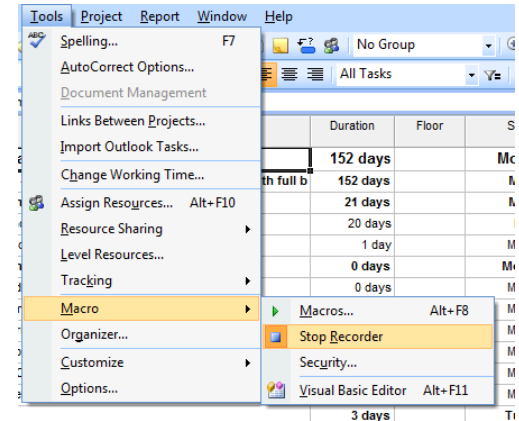
Group



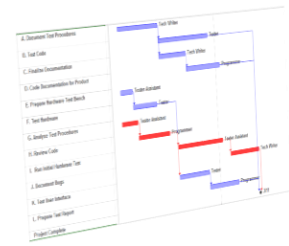
Sort



Stop Recording



Let's Review The Code



```
Sub Sample_Filter_and_Sort()
```

```
' Sample for MPUG Presentation
```

```
FilterApply Name:="_flt_Framing_Contractor"
```

```
Sort Key1:="Duration", Ascending1:=False
```

```
GroupApply Name:="_grp_Floor"
```

```
SelectTaskField Row:=1, Column:="Name"
```

```
End Sub
```

Filter

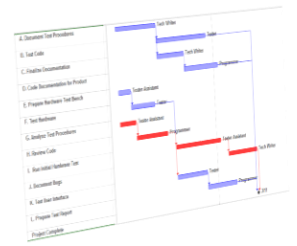
Group

Sort

Select a task

Recording is fastest way to understand basic building blocks

A few hints

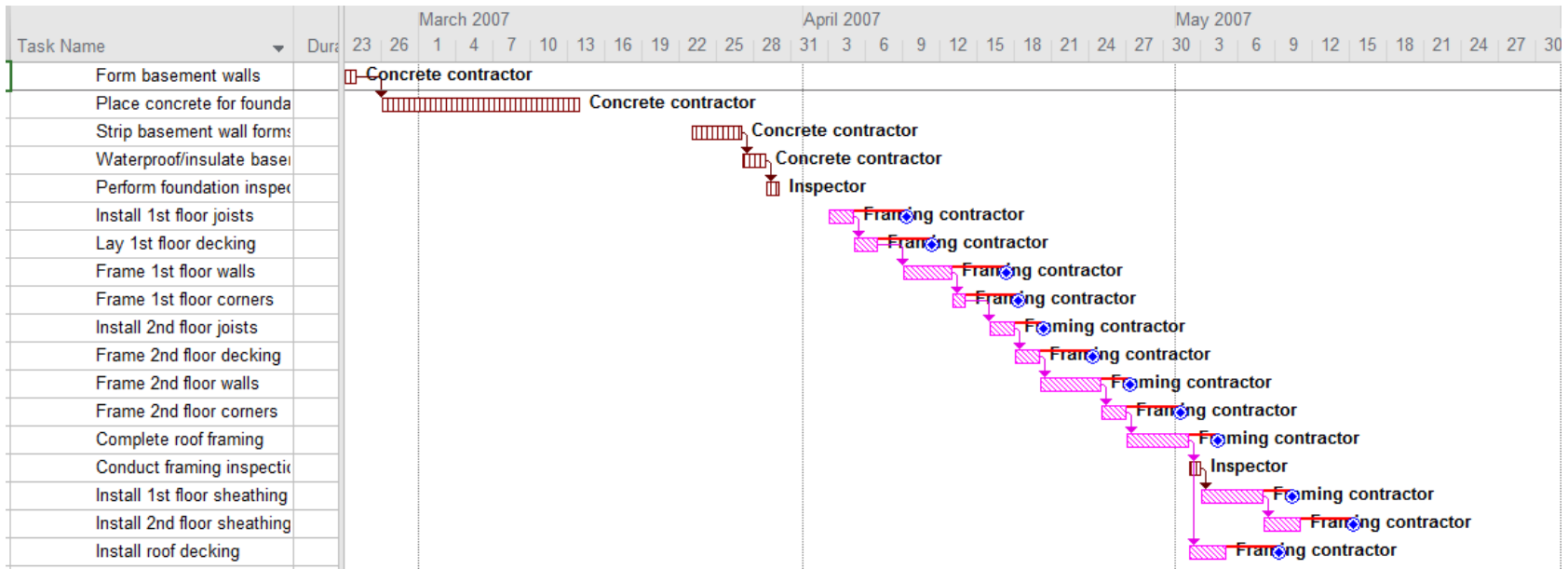
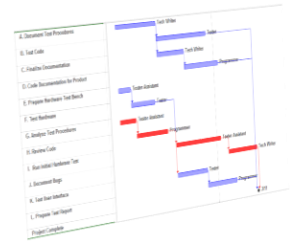


- Modules vs Macros
 - Multiple Macros in a Module
 - Project names as Module1, Module 2 etc.
- Naming
 - No Spaces Allowed for Module and Variable names
 - Easiest to Read Options
 - Use_Underscores_Between_Words
 - CapitalizeEachWord
- Comments
 - Lines starting with an ' are comments
 - Use comments to remind yourself (and others) what the code is doing



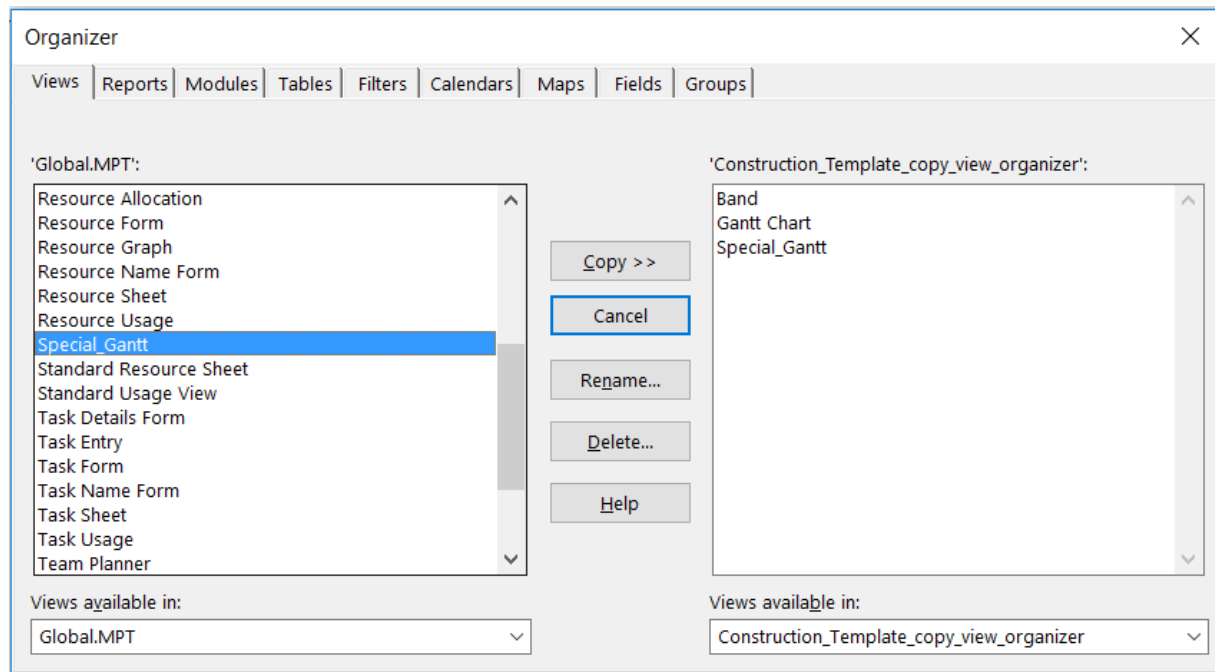
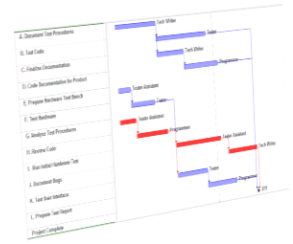
Share a View

- The Perfect View
- How Do I Share with my Group?



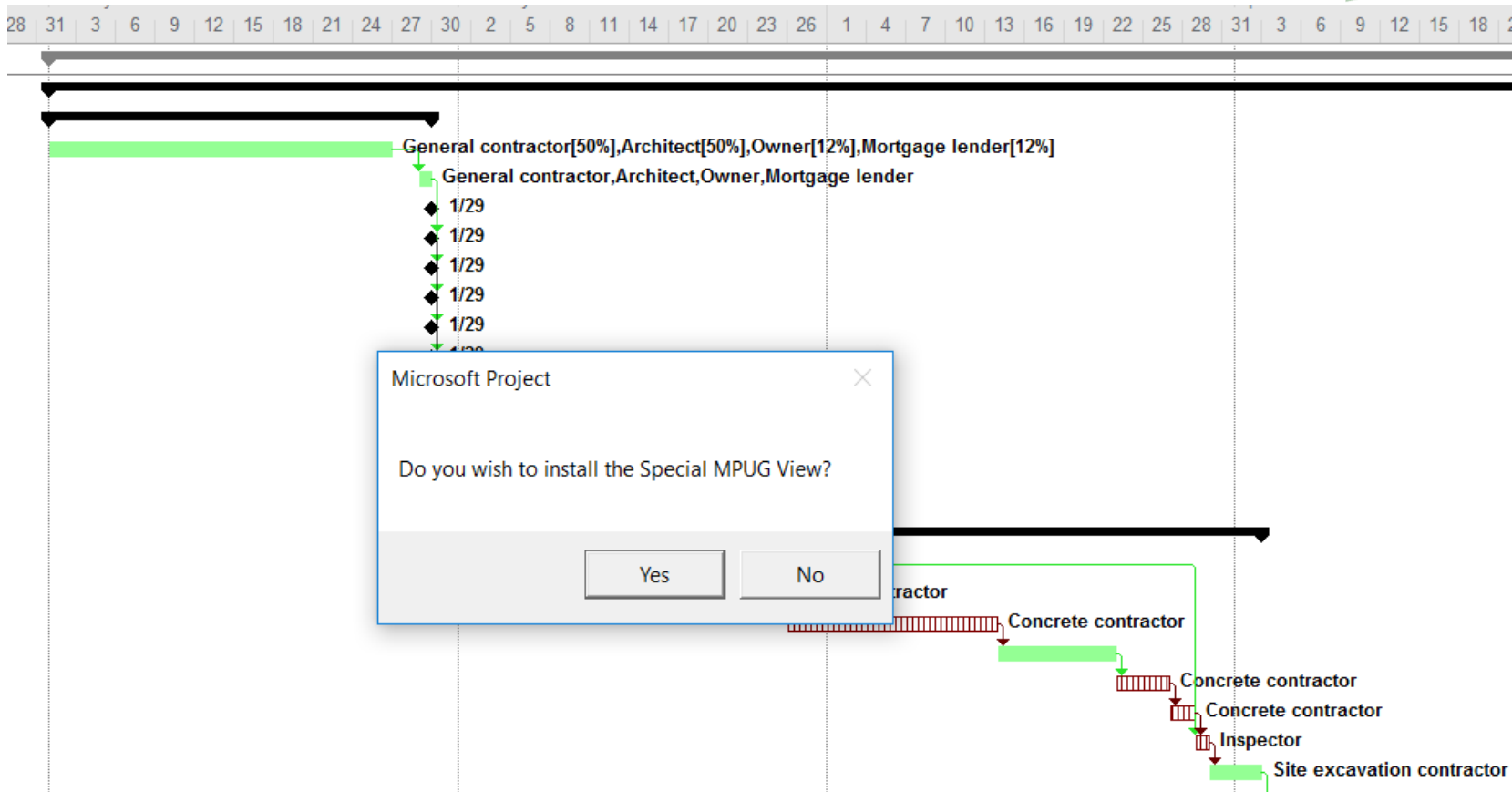
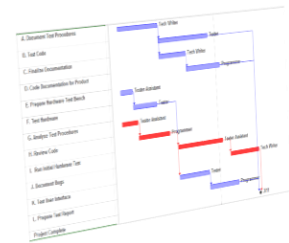
Option 1

- Send an Email with the File
- Each person must copy all the elements:
 - View, Table, Filters



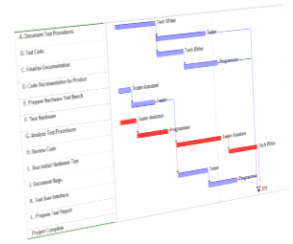
An Easier Method

- Send a File with an Embedded macro



Demo

Code for Copying Elements



Message Box

```
Private Sub Project_Open(ByVal pj As Project)
```

```
If MsgBox("Do you wish to install the Special MPUG View?", vbYesNo) <> vbYes Then Exit Sub
```

```
Alerts False
```

Eliminates Pop Ups
from Project

```
OrganizerMoveItem Type:=2, FileName:="Construction_Template_copy_view_on_open.mpp", ToFileName:="GLOBAL.MPT", Name:="flag1to3"  
OrganizerMoveItem Type:=2, FileName:="Construction_Template_copy_view_on_open.mpp", ToFileName:="GLOBAL.MPT", Name:="flt_Inspector"  
OrganizerMoveItem Type:=2, FileName:="Construction_Template_copy_view_on_open.mpp", ToFileName:="GLOBAL.MPT", Name:="flt_general"  
OrganizerMoveItem Type:=2, FileName:="Construction_Template_copy_view_on_open.mpp", ToFileName:="GLOBAL.MPT", Name:="flt Frame_Contractor"  
OrganizerMoveItem Type:=0, FileName:="Construction_Template_copy_view_on_open.mpp", ToFileName:="GLOBAL.MPT", Name:="special_gantt"  
OrganizerMoveItem Type:=9, FileName:="Construction_Template_copy_view_on_open.mpp", ToFileName:="Global.MPT", Name:="Start1"
```

Copy Elements

```
FileClose pjDoNotSave, True
```

Close File
elements
copied from

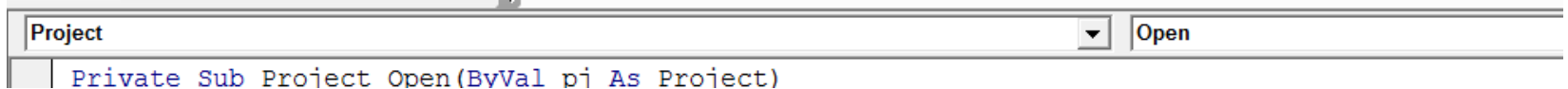
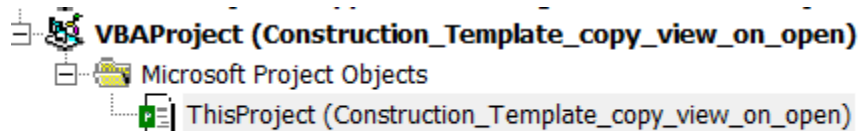
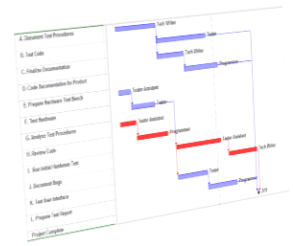
```
Alerts True  
End Sub
```

Cycle Through
Resources

Organizer Types
2 - Filters
0 - View
9 - Custom Field

How to Build

- Select vb screen
- Right click on this project
- Select code
- Then select objects

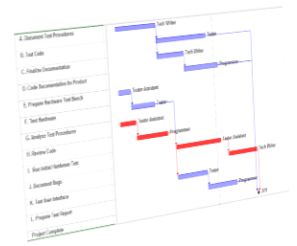


Demo



Create a Network Checker

- No Predecessor
- No Successor
- Constraints
- FF or SS Links
- Linked Summary Tasks



The Results From Construction Template



Standard Template

Project Analysis

Project Name Construction_Template_Sample2

Total Tasks

tasks with no predecessors	<input type="text" value="1"/>	<input type="button" value="View"/>
tasks with no successors	<input type="text" value="3"/>	<input type="button" value="View"/>
Tasks with Finish Constraints	<input type="text" value="0"/>	<input type="button" value="View"/>
Tasks with Start Constraints	<input type="text" value="0"/>	<input type="button" value="View"/>
Tasks longer than 4 months	<input type="text" value="0"/>	<input type="button" value="View"/>
Incorrect Summary Tasks	<input type="text" value="0"/>	<input type="button" value="View"/>
Non Standard Links	<input type="text" value="0"/>	<input type="button" value="View"/>

Total Project Length

A few Elements Added

Project Analysis

Project Name Construction_Template_Check_Errors

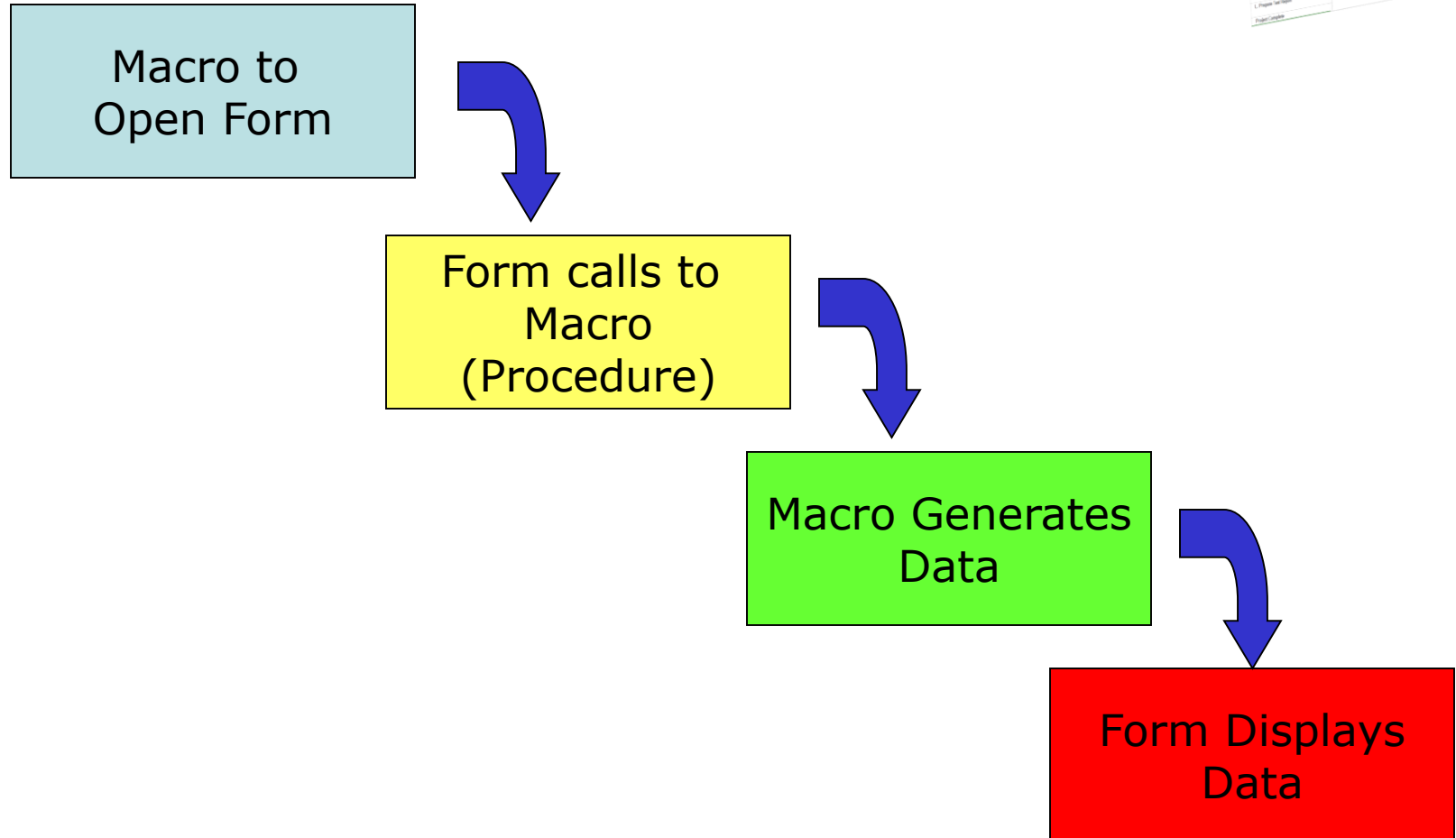
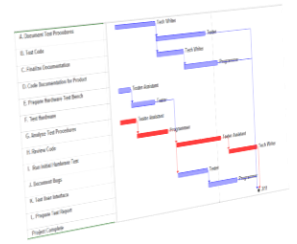
Total Tasks

tasks with no predecessors	<input type="text" value="3"/>	<input type="button" value="View"/>
tasks with no successors	<input type="text" value="5"/>	<input type="button" value="View"/>
Tasks with Finish Constraints	<input type="text" value="0"/>	<input type="button" value="View"/>
Tasks with Start Constraints	<input type="text" value="1"/>	<input type="button" value="View"/>
Tasks longer than 4 months	<input type="text" value="0"/>	<input type="button" value="View"/>
Incorrect Summary Tasks	<input type="text" value="4"/>	<input type="button" value="View"/>
Non Standard Links	<input type="text" value="2"/>	<input type="button" value="View"/>

Total Project Length

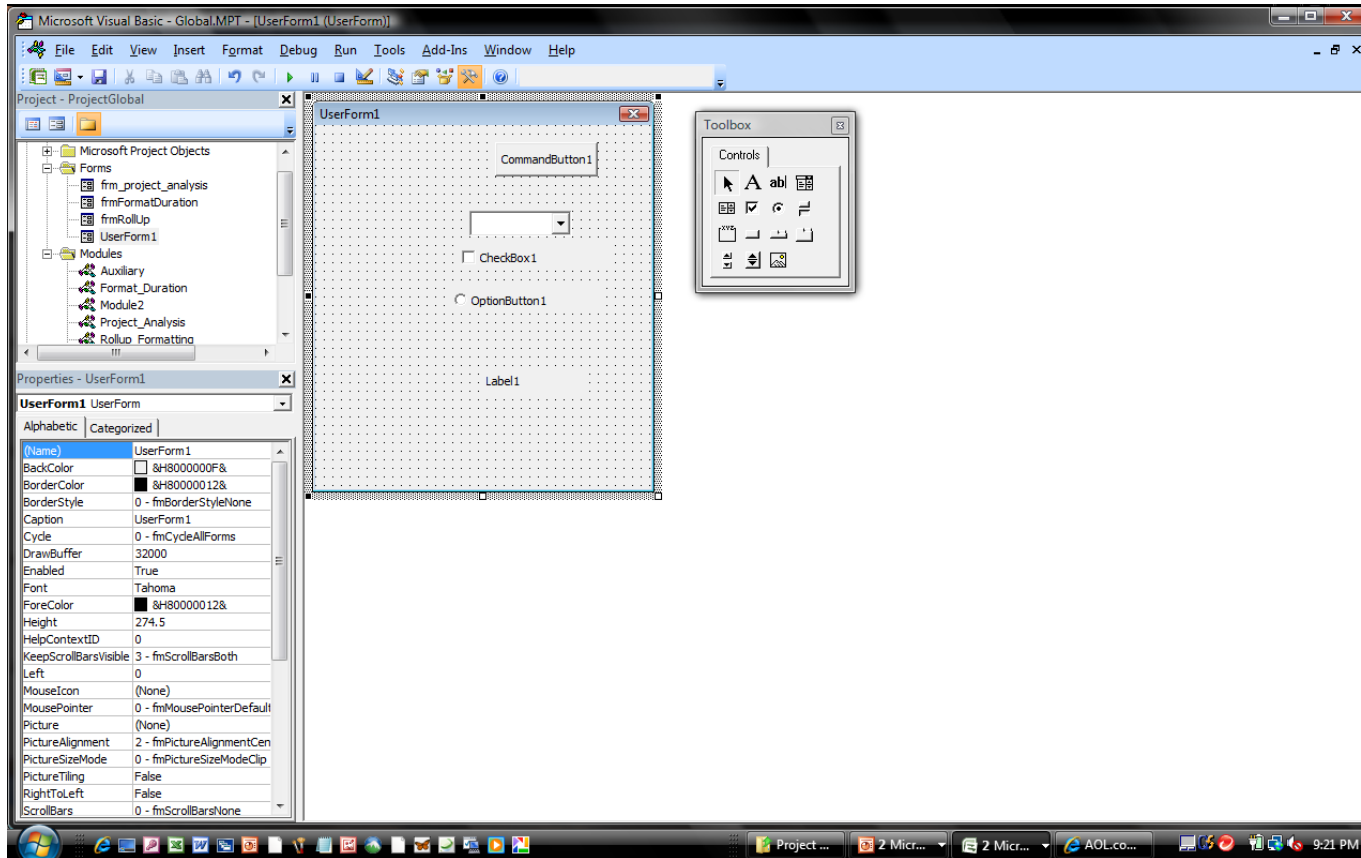
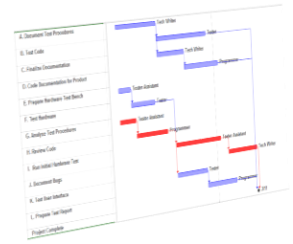
Demo

Relationship Between Elements



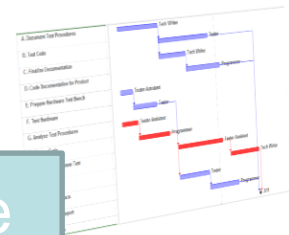
Create a Form

- Select Insert Form
- Add Elements from Tool Bar



Demo

Call to Procedure



- Macro to Call Form

```
Sub analysis_frm()  
FilterApply "All Tasks"  
OutlineShowAllTasks  
frm_project_analysis.Show  
End Sub
```

Prep File

Open the form

- Call the Procedure

```
Private Sub UserForm_Initialize()  
Call project_data
```

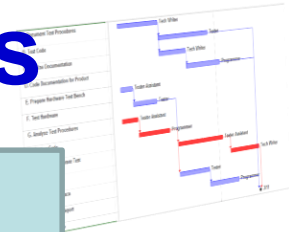
Action when form opened -
- Initialized

Follow One Variable

- Tasks with No Successor
- Two Options to Generate Data
 - Counter
 - Filter and Count
- Assign value to Text Box in form



Count Tasks with No Successors



- Option 1 – Counter

```
For Each tsk In ActiveProject.Tasks
  If Not (tsk Is Nothing) Then
    If tsk.Summary = False Then
      If tsk.Successors = "" Then
        succ = succ + 1
      End If
    End If
  End If
Next tsk
```

Scroll through Tasks

Check for Blank

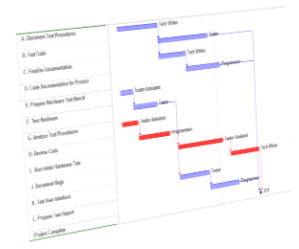
Add 1 to Counter

- Option 2 – Filter

```
FilterApply "flt_succs"
SelectAll
succ = ActiveSelection.Tasks.Count
```

Apply Filter

Select All and Use Count Function

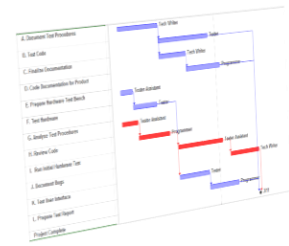


- Private Sub UserForm_Initialize()
- Call project_data
- TextBox1.Value = pred
- TextBox2.Value = succ
- TextBox3.Value = fnlt
- TextBox4.Value = snlt

Assign Values



Form and Elements



```
Private Sub UserForm_Initialize()
```

```
Call project_data
```

```
TextBox1.Value = pred
```

```
TextBox2.Value = succ
```

```
TextBox3.Value = fnlt
```

```
TextBox4.Value = snlt
```

```
TextBox5.Value = ActiveProject.Tasks.Count - sumtasks
```

```
TextBox6.Value = ActiveProject.ProjectSummaryTask.Duration / 480 & " days"
```

```
TextBox9.Value = longtasks
```

```
TextBox10.Value = sumlink
```

```
TextBox11.Value = lags
```

```
Label12 = ActiveProject.Name
```

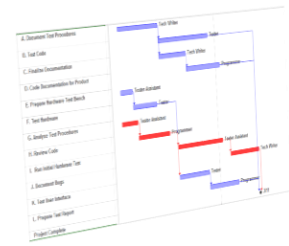
```
End Sub
```

Text
Box

Labels

Command
Buttons

Working With Excel



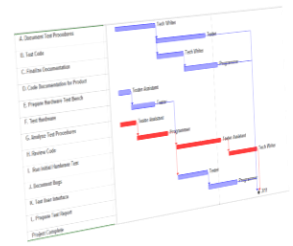
- Typical Situation:
 - Data Gathered in Excel File
 - Want to create Projects Based on the Data

	A	B	C	D	E	F
1	Model	Feature	Start	Phase	Complexity	
2	Sedan	CD Player	6/7/2016	Design	Easy	
3	Van	Shag Carpet	9/1/2016	Manufacture	Easy	
4	Sports Car	Sun Roof	10/5/2016	Concept	Standard	
5	Sports Car	Alloy Wheels	1/8/2017	Integration	Hard	
6	Van	Video Monitor	12/8/2016	Design	Hard	
7	Sedan	Seat Warmer	8/1/2016	Offer in Catalog	Easy	
8	Hot Rod	Exhaust System	3/2/2017	Concept	Standard	
9						

G	H	I	J
Phase	Length	Complexity	Complexity Factor
Concept	10	Easy	0.5
Design	6	Standard	1
Manufacture	20	Hard	3
Integration	8		
Offer in Catalog	4		



Project Template

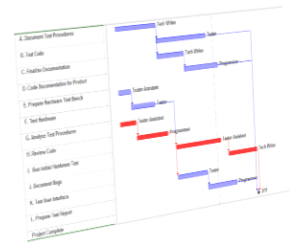


Task Name	Duration	Start	Finish	Pred	Aug '16				Sep '16			Oct '16				
					31	7	14	21	28	4	11	18	25	2	9	16
Product Feature	48 days	Tue 8/2/16	Thu 10/6/16		[Gantt Chart Bar]											
<name> Concept	10 days	Tue 8/2/16	Mon 8/15/16		[Gantt Chart Bar]											
<name> Design	6 days	Tue 8/16/16	Tue 8/23/16	1	[Gantt Chart Bar]											
<name> Manufacture	20 days	Wed 8/24/16	Tue 9/20/16	2	[Gantt Chart Bar]											
<name> Integrate	8 days	Wed 9/21/16	Fri 9/30/16	3	[Gantt Chart Bar]											
<name> Offer in Catalog	4 days	Mon 10/3/16	Thu 10/6/16	4	[Gantt Chart Bar]											
Project Complete	0 days	Thu 10/6/16	Thu 10/6/16	5	[Gantt Chart Bar]											



Elements of Macro

- Open Excel File
- Open Project Template
- Read First line
- Update Tasks for Specific Project
 - Name
 - Length
- Save Project File
- Repeat



Demo



Open an Excel File



```
Dim xcel As Object  
Set xcel = CreateObject("Excel.Application")
```

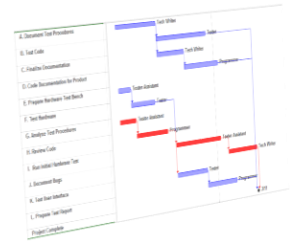
Create and
Name Excel
Object

```
xcel.Workbooks.Open FileName:= _  
"C:\Users\jafen\Documents\2_Activities\2_MPUG\MPUG_webinar\16-08-02_Excel_Sample.xlsx", _  
ReadOnly:=True
```

```
xcel.Visible = True
```

Open a File

Open Project, Assign Values



Cycle Through Rows

```
For i = 2 To 8
```

```
FileOpenEx Name:="C:\Users\jafen\Documents\2_Activities\2_MPUG\MPUG_webinar\Template\MPUG_Aug_2016_Demo.mpp", _  
ReadOnly:=False, FormatID:"MSPProject.MPP"
```

Open Project
template

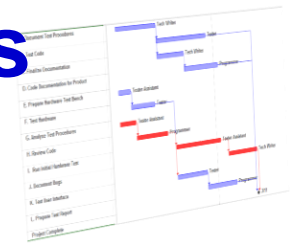
```
TempFileName = ""  
TempFileName = xcel.cells(i, 1).Value & " " & xcel.cells(i, 2).Value  
ProjectSummaryInfo Title:=TempFileName
```

Assign File
Name

```
newstart = xcel.cells(i, 3).Value  
ProjectSummaryInfo Start:=newstart  
|
```

Assign Start
Date

Set Durations to 0 for complete tasks



Define Phase

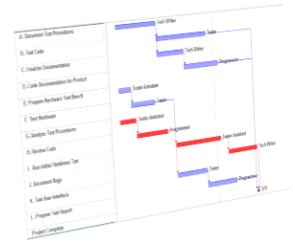
```
TaskStart = 0
If xcel.cells(i, 4) = "Concept" Then GoTo Line1
If xcel.cells(i, 4) = "Design" Then TaskStart = 2
If xcel.cells(i, 4) = "Manufacture" Then TaskStart = 3
If xcel.cells(i, 4) = "Integration" Then TaskStart = 4
If xcel.cells(i, 4) = "Offer in Catalog" Then TaskStart = 5
```

```
'set durations = to 0 if phase complete|
For j = 1 To TaskStart - 1
ActiveProject.Tasks(j).Duration = 0
Next j
```

Line1:

Set Tasks to
that Phase to 0

Save Project Files, Close Excel



Replace Placeholder with Specific Name

```
Change task names  
ReplaceEx Field="Name", Test="contains", Value="<name>", Replacement:=TempFileName, ReplaceAll:=True, Next:=True, MatchCase:=Fal  
SaveLocation = "C:\Users\jafen\Documents\2_Activities\2_MPUG\MPUG_webinar\Template\Demo_Files\  
FileSaveAs Name:=SaveLocation & TempFileName, FormatID="MSProject.MPP"  
FileClose  
Next i  
xcel.Quit ' When you finish, use the quit command to close  
Set xcel = Nothing ' the application, then release the reference
```

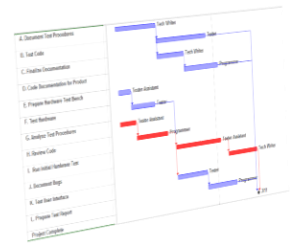
Save File

Go to Next Line

Quit and Close Excel



Build A Master File

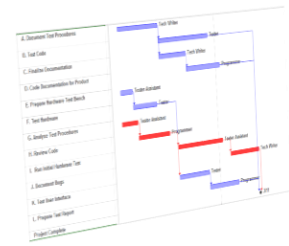


Insert
Subprojects

```
FileNew Template:=""  
ConsolidateProjects Filenames:="C:\Users\jafen\Documents\2_Activities\2_MPUG\MPUG_webinar\Template\Demo_Files\Van Video Monitor.mpp",  
ConsolidateProjects Filenames:="C:\Users\jafen\Documents\2_Activities\2_MPUG\MPUG_webinar\Template\Demo_Files\Sedan CD Player.mpp",  
  
TimescaleEdit MajorUnits:=1, MinorUnits:=2, MajorLabel:=2, MinorLabel:=10, MinorTicks:=True, Separator:=True, TierCount:=2  
FileSaveAs Name:="C:\Users\jafen\Documents\2_Activities\2_MPUG\MPUG_webinar\Template\Demo_Files\Sample_Master_File.mpp", FormatI
```

Edit TimeScale

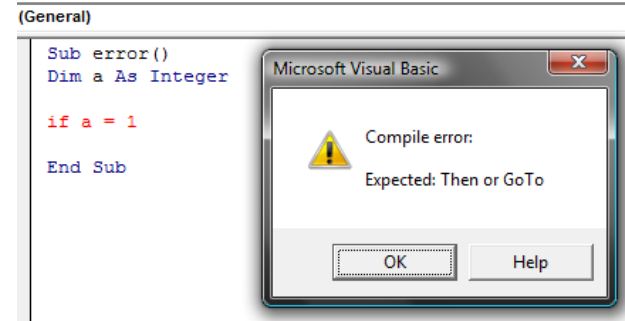
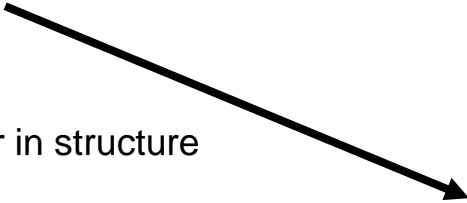
A few more hints



- Variable Names
 - Use Caps for variable Names
 - Type all lower case -- VB will add caps if correct (error check)
 - Example

```
Sub variabletest()  
    Dim NewVariable As String  
    newvariable  
    NewVariable  
End Sub
```

- Compile Errors
 - If line not typed correctly.
 - Run file – will define error in structure



```
(General)  
Sub error()  
Dim a As Integer  
  
if a = 1  
  
End Sub
```

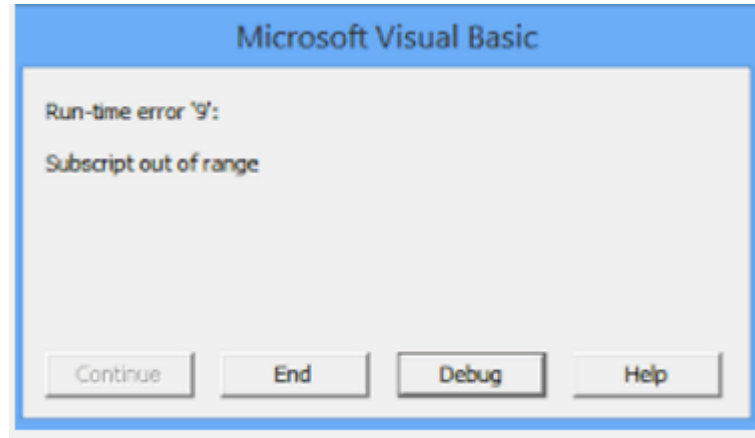
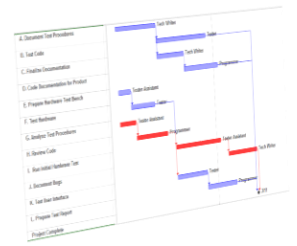
Microsoft Visual Basic

Compile error:
Expected: Then or GoTo

OK Help



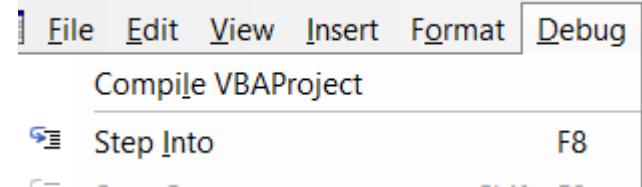
What to do Now?



Debugging Your Code

- Step Into– F8
- Select Location
- Add Stop (then Run)
- Add Variable Watch
- Add MsgBoxes
- Build Small Bits of Code
- Phone a Friend

```
Sub filternumber()  
Dim succ As Integer  
FilterApply "flt_succs"  
SelectAll  
succ = ActiveSelection.Tasks.Count  
MsgBox ("Message Box = " & succ)
```



```
sumlink = 0  
➔ For Each tsk In ActiveProject.Tasks  
    If Not (tsk Is Nothing) Then  
        If tsk.Summary = False Then
```

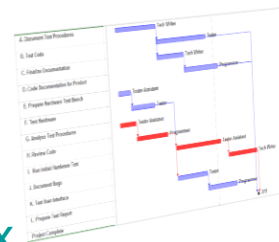
```
            End If  
        Else  
            sumtasks = sumtasks + 1  
        End If  
    End If  
Next tsk  
Stop
```

Expression	Value
00 succ	0



Resources

- Microsoft Macro Library Reference
 - <https://msdn.microsoft.com/en-us/library/office/ee861523.aspx>
- Rod Gill's Book
 - VBA Programming for Microsoft Project '98 through 2010 with an Introduction to VSTO
- MPUG Discussion Group
 - <http://www.mpug.com/forums/type/discussion/>
- Type specific request in Search Engine
 - Example: open Excel from Project



VBA Code in Project to Wake Up/Open Excel - Microsoft Office...
www.msofficeforums.com > Microsoft Excel > Excel Programming ▾
May 23, 2011 - 3 posts - 2 authors
OTPM Windows 7 32bit Office 2010 32bit. ... I am struggling to find a piece of vba code that I can use in a MSP **Project** Module to **open MS Excel** together with a pre-defined spreadsheet. ... Sub foo() Dim xlApp As Object Dim xlWkb As Object Set xlApp = CreateObject("Excel.Application") Set ...

Import Excel data into Project - Project - Office Support
<https://support.office.com/.../Import-Excel-data-into-Project-cb3fb91a-a-...> ▾
In the **Open** box, click the arrow next to XML Format, and pick **Excel Workbook** or **Excel 97-2003 Workbook** (if your **project** data is in an earlier file format).

Open a task list in Project or Excel - Office Support
<https://support.office.com/.../Open-a-task-list-in-Project-or-Excel-db849f...> ▾
You can **open** a task list on a **project** site in Microsoft **Project** or Microsoft **Excel**. This may be helpful if you want to do more extensive **project** planning, build your ...

Macro: Open Workbook From Microsoft Project - Ozgrid
www.ozgrid.com > Forum > HELP FORUMS > Excel General ▾
Dec 14, 2006 - 7 posts
What I ultimately want to do it to, from a **Project** macro, **open** a particular workbook and then execute a macro in that workbook. ... Re: **Open A Spreadsheet From Msproject**



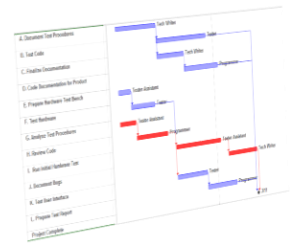
Items covered in demos

- Message Boxes

- <http://analysistabs.com/vba/msgbox-examples-macros/>

- Organizer Types

- <https://msdn.microsoft.com/en-us/library/office/ff867023.aspx>

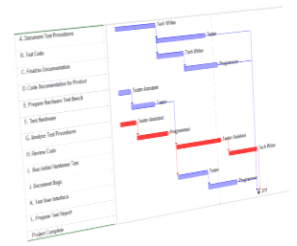


Name	Value	Description
pjCalendars	5	Calendars.
pjDrawings	11	Drawings
pjFields	9	Fields.
pjFilters	2	Filters.
pjForms	8	Forms.
pjGroups	10	Groups.
pjMaps	7	Maps.
pjModules	3	Modules.
pjReports	4	Reports.
pjTables	1	Tables.
pjToolbars	6	Toolbars.
pjViews	0	Views.



Thank You

- Questions





Thank You!

Presentation Title

Month Aug, 2016 @ 12pm-1pm EST

Jeff Fenbert

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