

COMP1022Q
Introduction to Computing with Excel VBA

A First Look at Excel VBA

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The VBA ‘Trigger’

- There has to be some kind of ‘trigger’ for VBA code to begin
- This signal is called an *event*
- There are lots of different possible events
 - An example of a keyboard event:
 - Pressing Ctrl-z on the keyboard
 - An example of a mouse event:
 - Clicking on something



Basic Idea of Excel VBA

The User



1. The user does something

Excel File

	A	B	C	D
1	Time	Pitch	Type	
2	1	60	On	
3	2	60	Off	
4	2	62	On	
5	2.5	62	Off	
6	2.5	64	On	
7	3	64	Off	
8	3.5	60	On	
9	4	60	Off	
10	4	64	On	
11	4.5	64	Off	
12	4.5	60	On	
13	5	60	Off	
14	5	64	On	
15	5.5	64	Off	
16				
17				

2. An event is triggered

VBA

```
' The function is executed when the ActiveX Button is clicked
Private Sub SubmitButton_Click()

    Dim emptyRow As Long
    Dim seenColumn As Integer, ageRangeColumn As Integer, genderColumn As Integer

    ' Select Worksheets("Survey_Result")
    Worksheets("survey_results").Activate

    ' Find the next unused row
    emptyRow = WorksheetFunction.CountA(Range("A:A")) + 1

    ' Assign the column number
    seenColumn = 1: ageRangeColumn = 2: genderColumn = 3

    ' Export Data to worksheet
    Cells(emptyRow, seenColumn).Value = seen
    Cells(emptyRow, ageRangeColumn).Value = ageRange
    Cells(emptyRow, genderColumn).Value = gender

    MsgBox "You have successfully submitted!"

    ' Select Worksheets("Add_a_survey")
    Worksheets("Add_a_survey").Activate

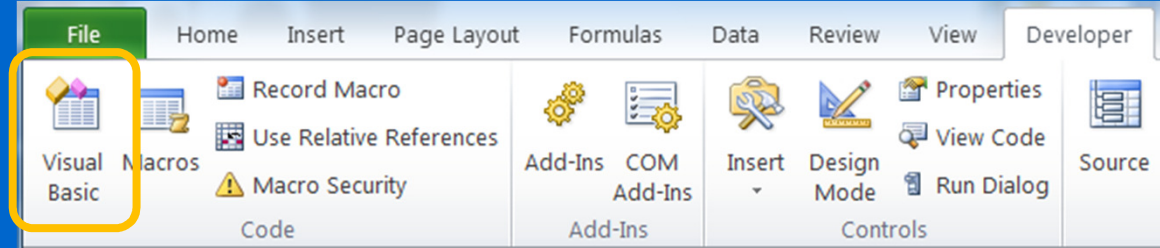
    ' Close the Form
    Unload Me

End Sub
```

3. The relevant VBA *subroutine* is executed

- A *subroutine* is a group of VBA code
- A subroutine which handles an event is called an *event handler*

The VBA Editor

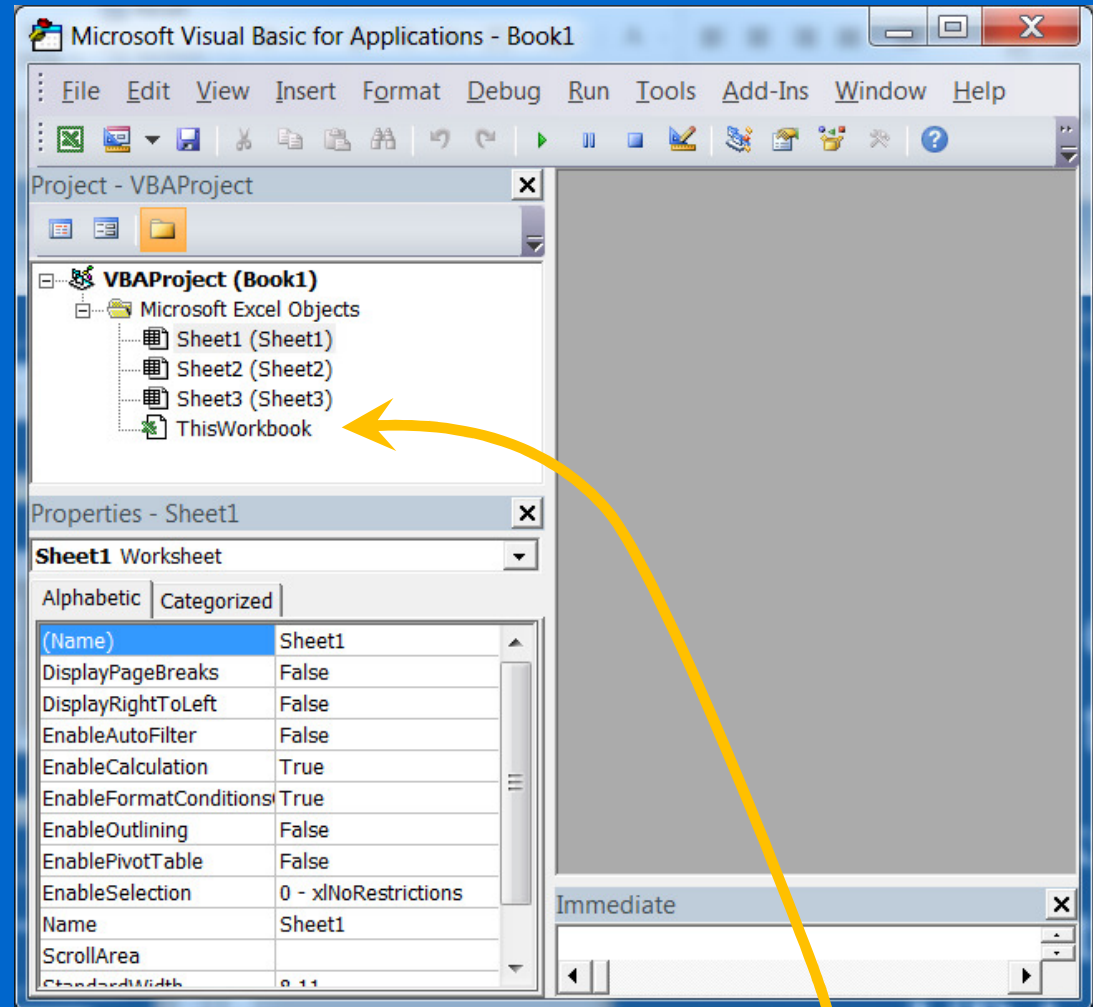


- The VBA editor is where you see the VBA code included in the Excel file
- To see it, select Developer > Visual Basic
- Alternatively, do *Alt-F11*
- However, the Developer tab is not shown by default; to show it, select File > Options > Customize Ribbon, and ensure 'Developer' is selected in the list on the right hand side



The VBA Editor

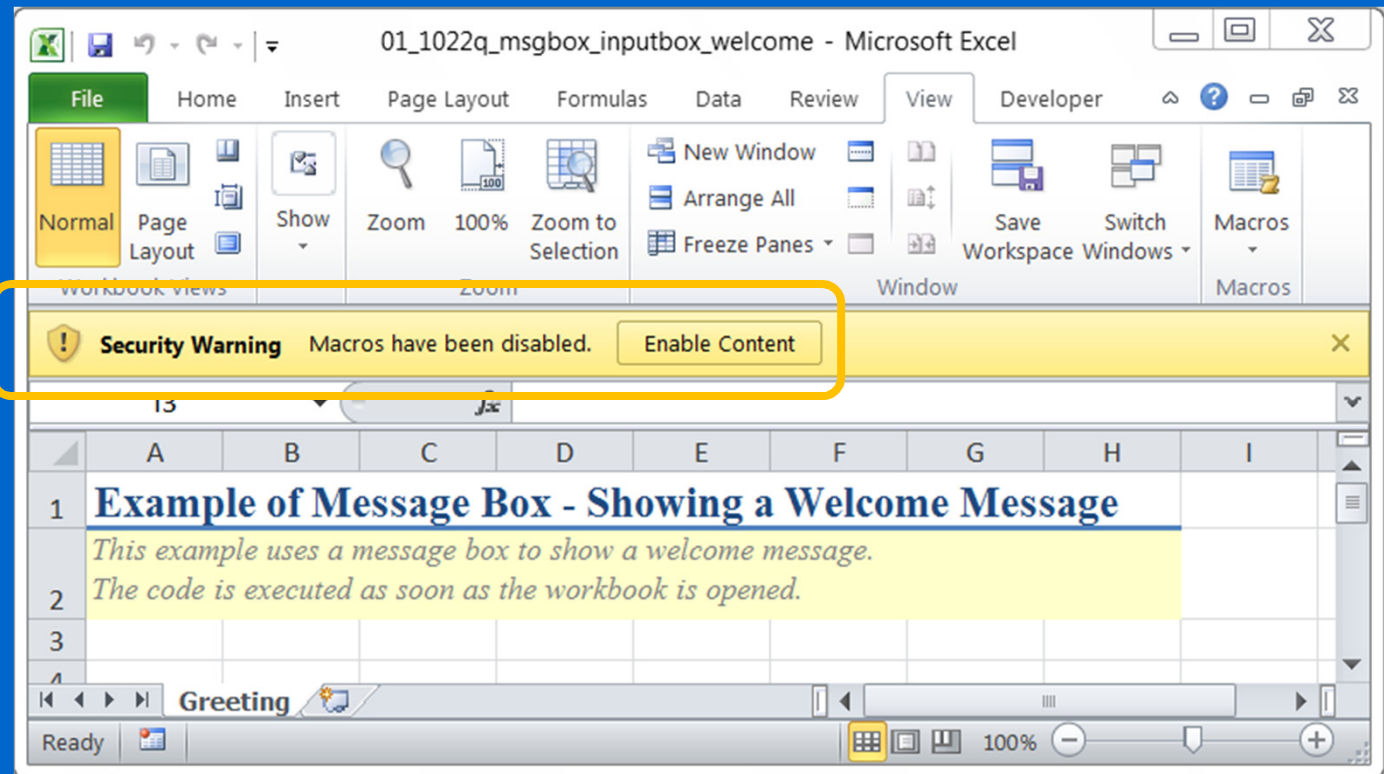
- The name of each worksheet is shown
- Each worksheet can have its own VBA code
- If you double click the name of the worksheet, the VBA code for that worksheet will be shown (if there is any)
- 'ThisWorkbook' (in other words, the Excel file) is also shown, this is for code which applies to the whole file (instead of just one worksheet)



Our First VBA Code

- Lets look at our first VBA code
- When we run it, we see this:

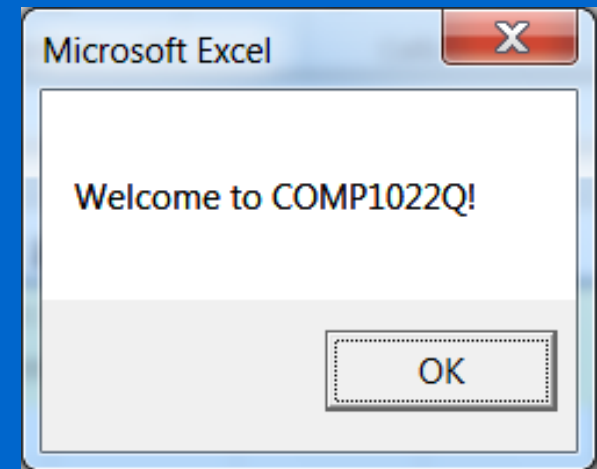
- Excel will show this warning whenever it loads a file which has some VBA code



- This gives you a chance to refuse to run the VBA code - you have to click 'Enable Content' before it can work

Running the VBA Code

- As soon as you give permission for the VBA code to be executed, the VBA can be executed
- In our first example, a message immediately appears:
- This is because an event took place, and the appropriate VBA event handler was executed
- The event was ‘the workbook was opened’ (in other words, the Excel file was opened)



Our First VBA Code

