

COMP1022Q  
Introduction to Computing with Excel VBA

# Introduction to VBA

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# Looking at VBA

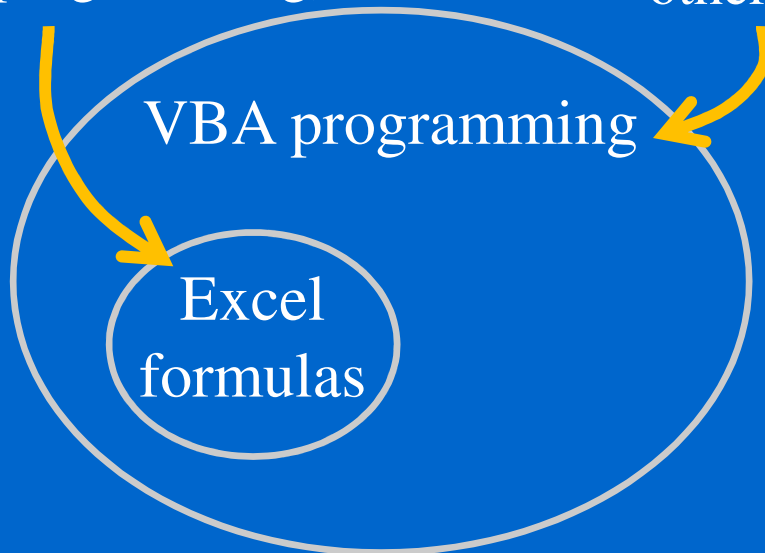


- At this stage we have learned a lot of things about using Excel (without thinking about VBA)
- Now we will start looking at VBA and how it can be used with Excel

# Doing Things in Excel

This is a reminder –  
you have already  
seen this slide

- Many things can be done using Excel formulas (no need to do any VBA programming)
- Some things can't be done using Excel formulas, you have to program them using VBA
- Everything you can do with Excel formulas can be done with VBA programming, and a lot of other things as well



- However, writing Excel formulas is usually less trouble than writing VBA code
- So if you know something can be done using Excel formulas, you would usually do that, and not consider any VBA programming

# The Story of VBA



- First, Microsoft made a programming language called ‘Visual Basic’ (VB) for writing ‘stand-alone’ programs
- That language has nothing to do with Office
- After it made VB, Microsoft realised it would be useful to make a programming language which could go *inside* Office documents, to do clever things
- So they took Visual Basic, changed it a bit, and made VBA=Visual Basic for Applications ← ‘Applications’ means ‘programs’
- You can use VBA code in Microsoft Office programs

# VB, VBA, and VBScript

## Visual Basic



Visual Basic code is used to make stand-alone programs



**VBA, which means  
‘Visual Basic for Applications’**



- VBA code is included within an Office document
- VBA can be used with many different types of Office document:



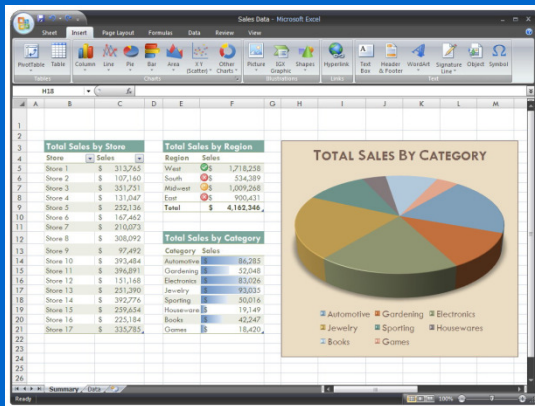
**VBScript, which means  
‘Visual Basic Scripting Edition’**



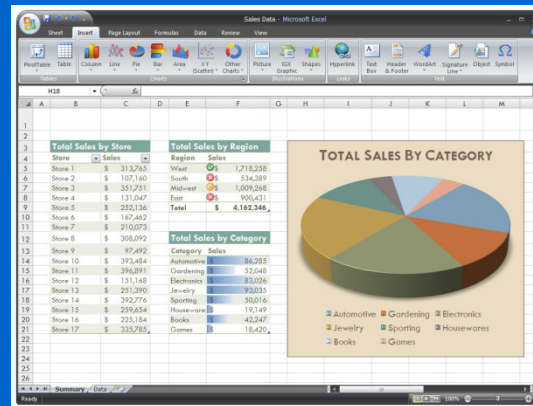
- VBScript is a scripting language for Windows
- It gets used in lots of different ways
- You might find it used inside some web pages (however, most people do web page programming in JavaScript instead of VBScript, because VBScript only works in IE)

# Excel Files

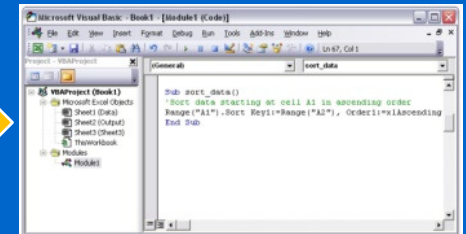
- An Excel file may or may not contain some VBA code



One Excel file



One Excel file



VBA

- An Excel file might contain one or more worksheets
- An Excel file might contain one or more worksheets with some VBA code

# Reading an Excel File

- An Excel file which contains some VBA can be opened on lots of devices:

Windows – can handle all Excel VBA

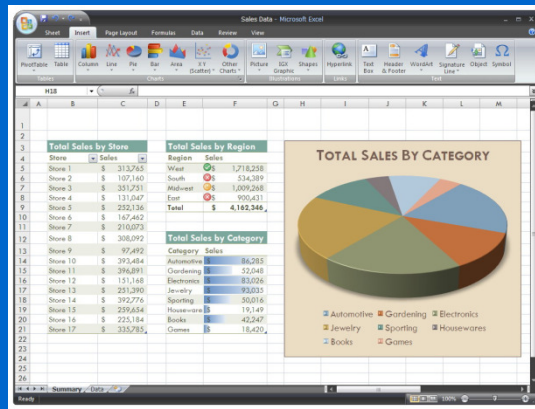
Mac – can handle almost all Excel VBA

iPhone & Android phones – can open a file which contains VBA, but will ignore the VBA

iPad – has a Microsoft Office app but this cannot handle VBA

# Running VBA Code

- The VBA code has to be triggered by something
- For example, simply by opening the Excel file you might trigger some VBA code
- Something called the *VBA Engine* (which is part of Excel) takes the VBA code and executes it
- Usually, VBA code reads/writes to/from the worksheets, but it can do lots of other things as well



VBA  
Engine



A screenshot of the Microsoft Visual Basic editor window, titled 'Microsoft Visual Basic - Book1 - [Module1 (Code)]'. The editor shows a VBA module named 'sort\_data' with a sub procedure 'sort\_data()' that sorts data starting at cell A1 in ascending order. The code is as follows:

```
Sub sort_data()  
    'Sort data starting at cell A1 in ascending order  
    Range("A1").Sort Key1:=Range("A2"), Order1:=xlAscending  
End Sub
```

*VBA code*