COMP1022Q
Introduction to Computing with Excel VBA

Introduction to VBA

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Outcomes

- After completing this presentation, you are expected to be able to:
  1. Explain what VBA is
  2. Select an appropriate file format when saving your Excel work

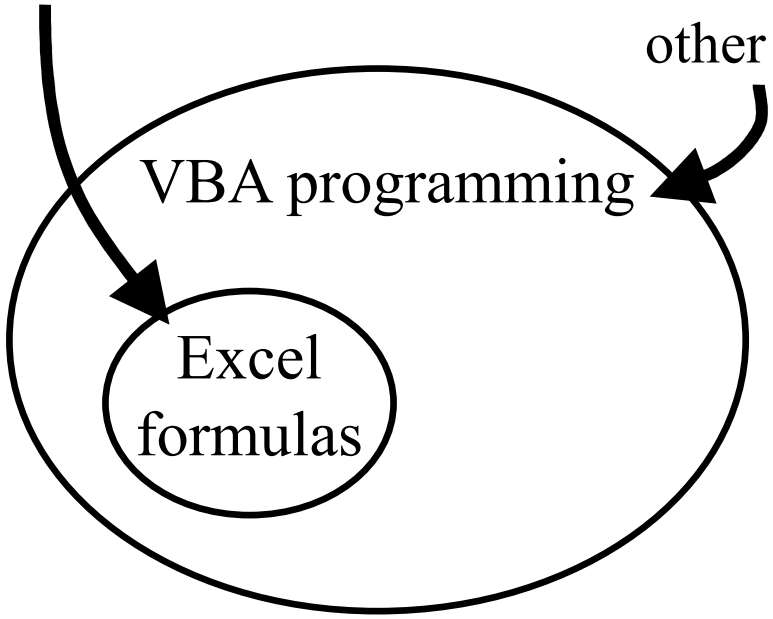
Looking at VBA

- 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 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

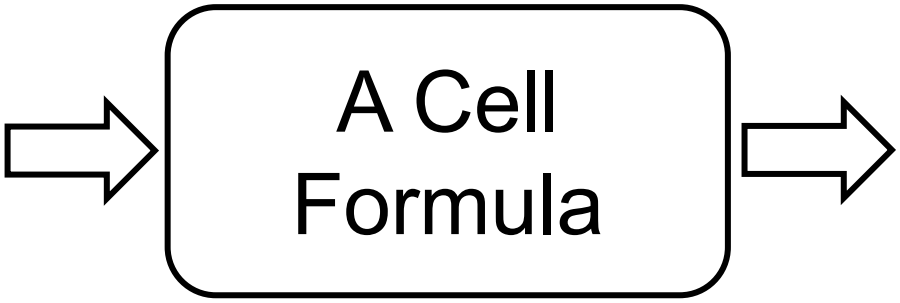


- However, writing Excel formulas is usually less trouble than writing VBA code
- So if you know something can be done using Excel formulas, you would usually do that, and not consider any VBA programming

What We Experienced With Cell Formulas

Inputs

The input(s) is(are) usually things stored in other cells



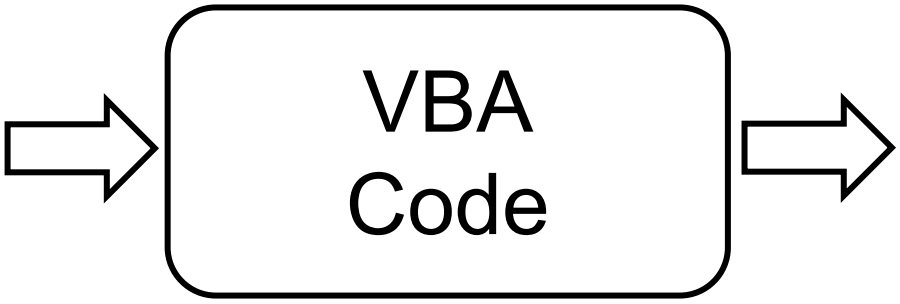
Outputs

The result of the formula is shown in the cell

VBA is Much More Powerful

Inputs

- *Inputs can come from cells*
- *Inputs can be entered in a small window (`InputBox`)*
- *Inputs can come from files*
- *Inputs can come from web pages*
- *Inputs can come from mouse movement*
- *. . . more . . .*



Outputs

- *Results can go in cells*
- *Results can be shown in a small window (`MsgBox`)*
- *Results can go in files*
- *Results can be sent to web pages*
- *We can generate shapes*
- *. . . more . . .*

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'

VB and VBA

Visual Basic } Visual Basic code is used to make stand-alone programs

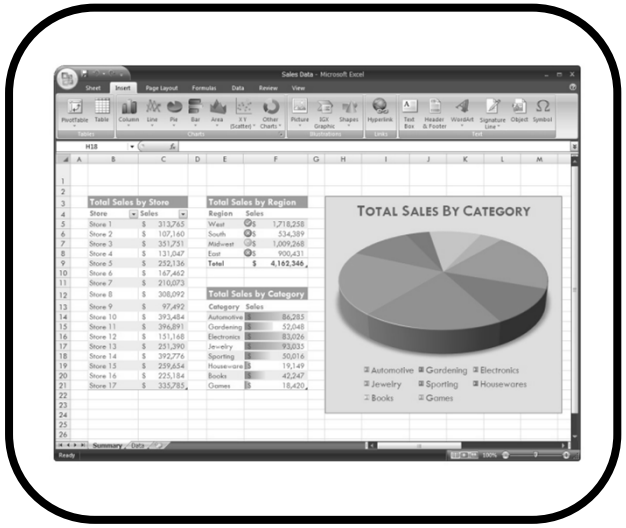
⇩

VBA, which means
'Visual Basic for Applications'

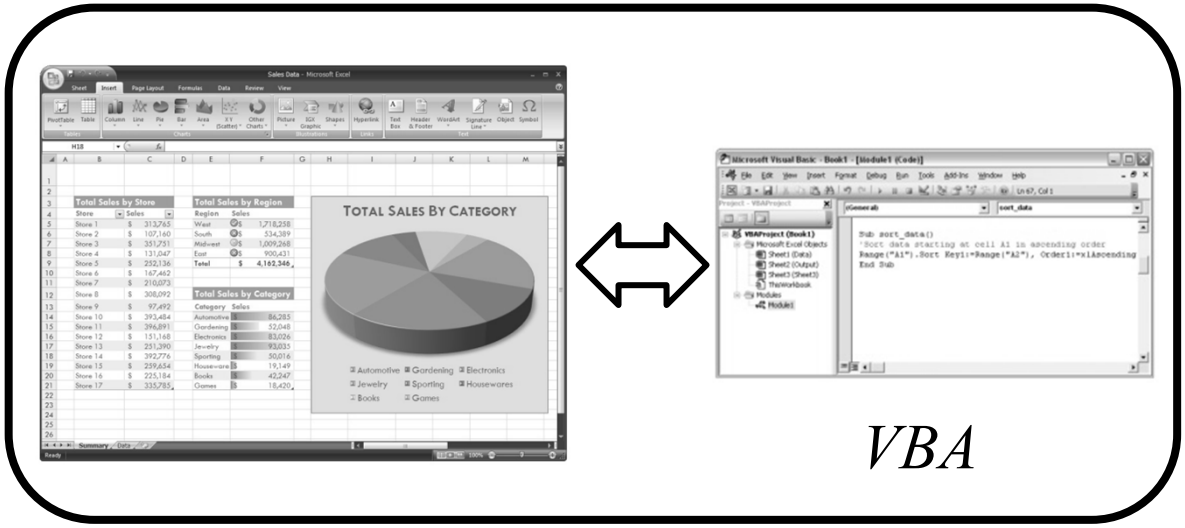
- VBA code is included within an Office document
- VBA can be used with many different types of Office document:

Excel Files Might Contain VBA

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



One Excel file

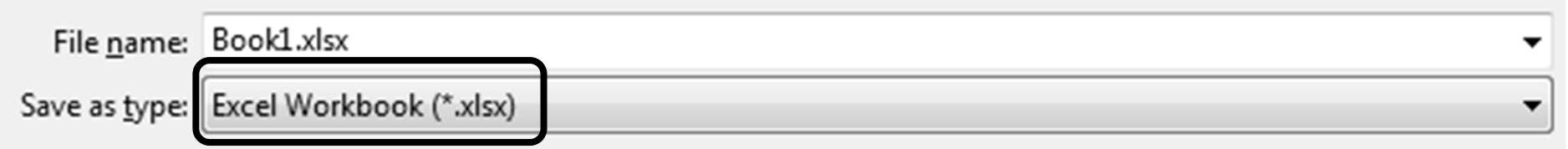


One Excel file

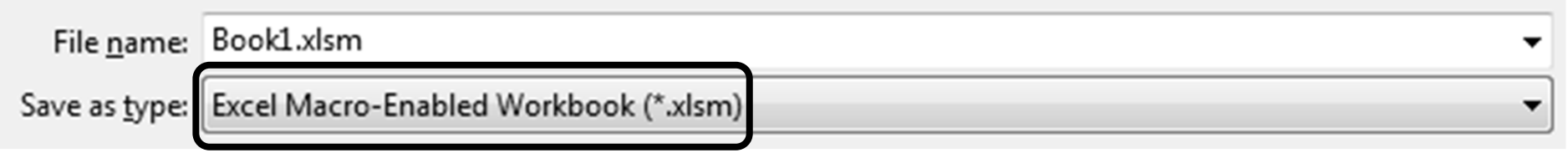
- An Excel file might contain one or more worksheets
- An Excel file might contain one or more worksheets, and some VBA code

The File Extension Is Important

- The *file extension* is the text at the end of the filename, which indicates what type of the file is
- A typical Excel file (without using VBA) uses a file extension of `.xlsx`



- An Excel file containing VBA code should use a file extension of `.xlsm`



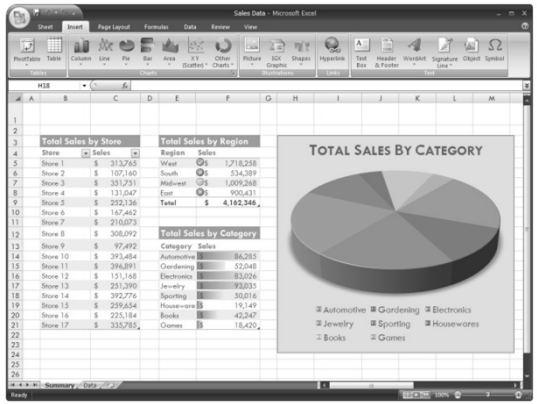
Different Devices

- From now on, we will work on Excel files which contain some VBA code
- Microsoft Office is available on many devices but not all of them support VBA
- Here are some devices and what they can do:

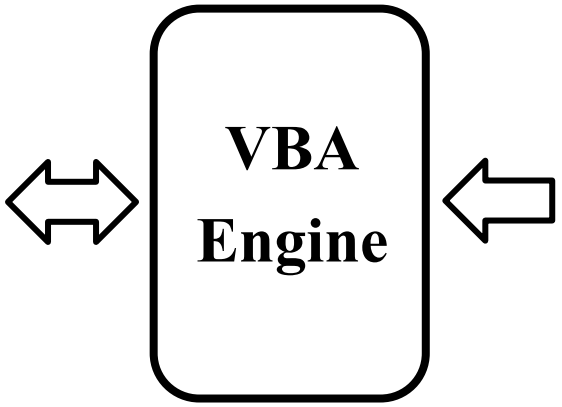
Windows –	can handle all Excel VBA
Mac –	can handle almost all Excel VBA
iPhone, iPad and Android –	cannot handle any VBA code

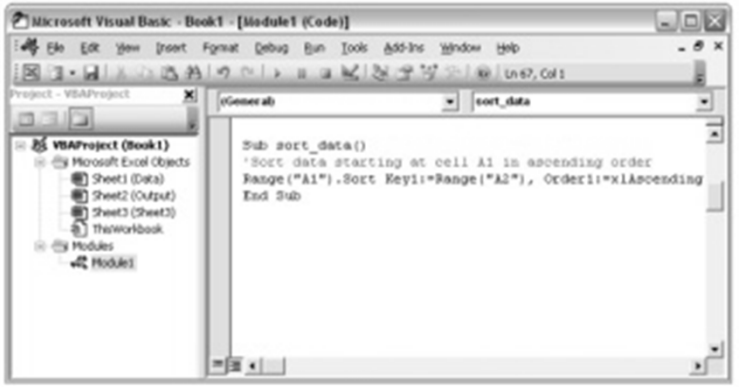
Running VBA Code

- The VBA code has to be *triggered* by something
- For example, simply by opening an Excel file you might trigger some VBA code in the file
- 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



Worksheets





VBA code