Getting started with VBA

22 NOVEMBER 2021

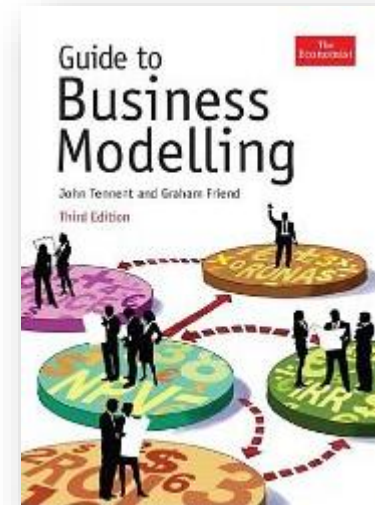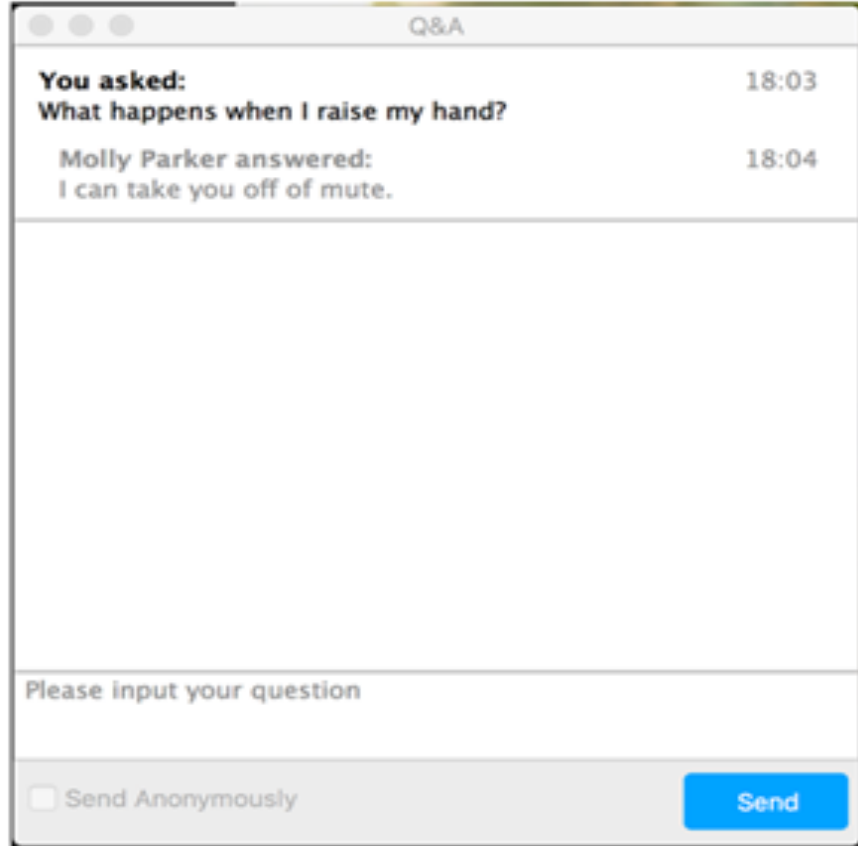**JOHN TENNENT, CORPORATE EDGE**

Today's presenter

John Tennent

Corporate Edge - Regional Director Europe, Middle East and Africa

Author of The Economist guide to Business Modelling

Ask a question

To ask a question

Click on the **Q&A** button in the bottom toolbar to open the submit question prompt.

Type in your question and click **send**.

Note. If you wish to ask your question anonymously check the **send anonymously** box shown on the illustration to the left.

Content

Getting started with VBA and seeing the possible...

- The advantages and disadvantages of using Macros and Visual Basic for Applications (VBA)
- Demonstrating how to create Macros to automate repetitive tasks for which a limited knowledge of Visual Basic is required.
- Writing new Functions to speed up coding when building Worksheets
- Showing how to use Active X controls to create additional functionality.
- Developing Loops to repeat actions such as testing multiple Goal Seek values
- Creating Userforms to build user interfaces and talking to other applications
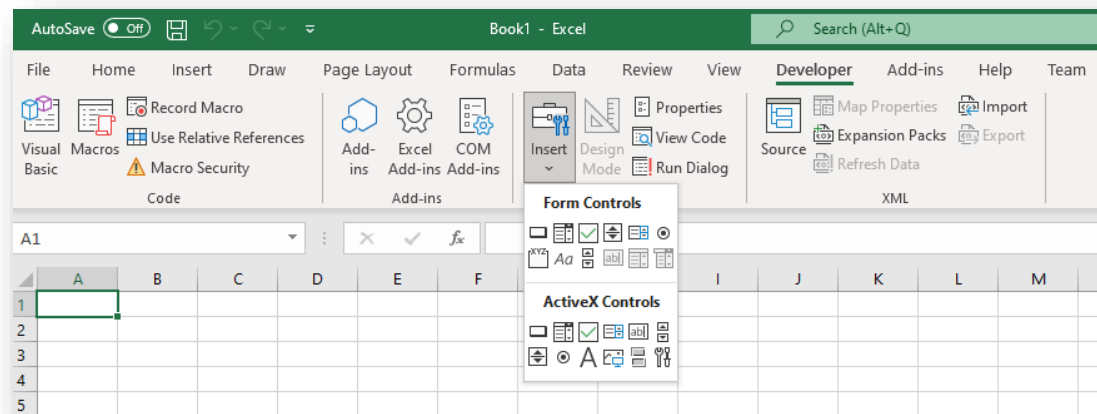
Advantages and Disadvantages of VBA

Advantages	Disadvantages
Ability to automate any repetitive process (month end report printing)	A whole new language
Can add efficiency and reliability (e.g. validate data ranges with scroll bars)	Less widely known
Create your own custom Functions	Often poorly documented, making it difficult to follow the work of others
Has a 'follow me' macro feature to help get started	Can have cell alignment difficulties when rows and columns are added (solved by Range Names)
Adds the forth dimension with loops (a set of goal seeks)	Errors in VBA code less easy to find than in Excel
Interact with other applications to pull/push data	
Create robust user interfaces (with UserForms)	
Build entire applications	

Example Model

A simple model to look at examples (not operating complexities)

Scenario: A 10 year plan for a new pub restaurant
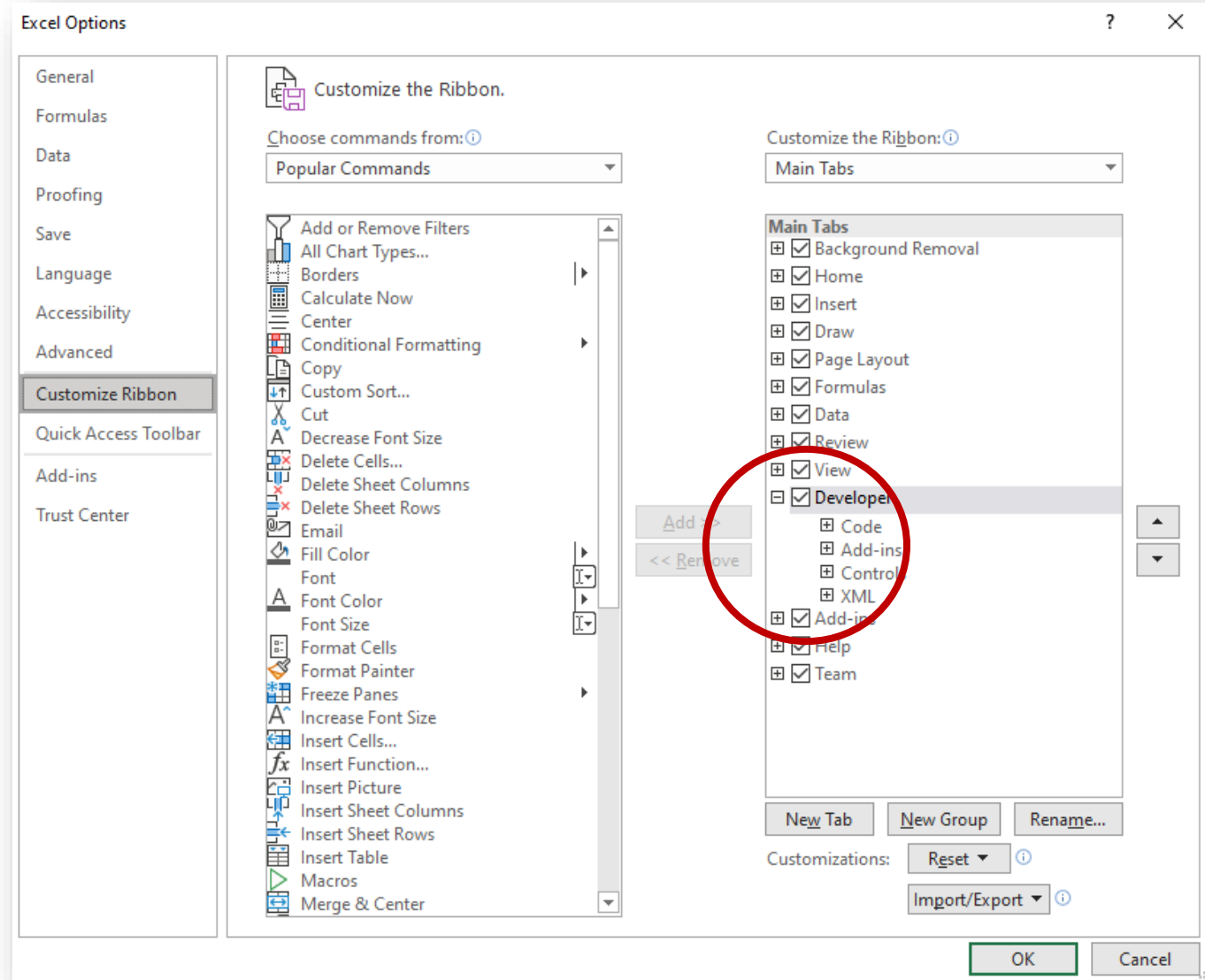
'The Pen & Quill'

This will show:

- Userform as a Splash screen

- Button to home all sheets

- Button to do a Monte Carlo analysis and capture 500 data items
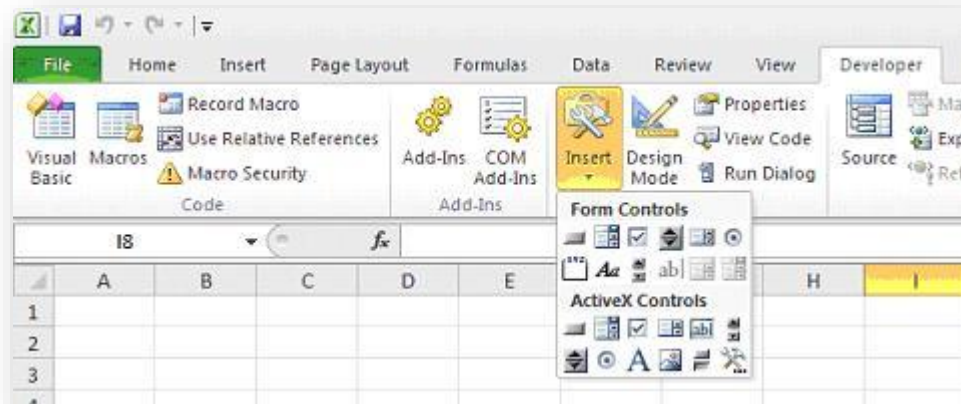
- Button to do a set of Goal Seeks

Getting Started

Add the Developer Ribbon

Controls

Automate tasks that are activated by events happening to controls

Form controls – Limited Excel control
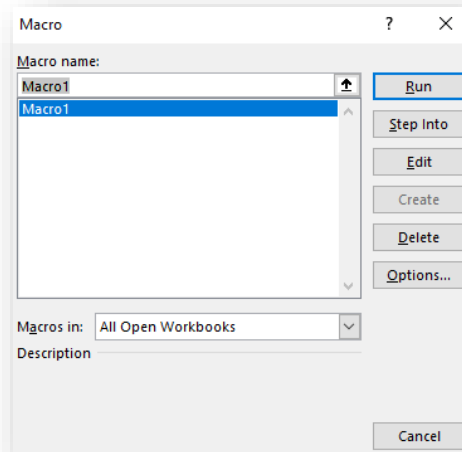
Active X controls – Extensive VB control

'Design Mode' switches the **Active X** controls on/off

Macros and 'Follow Me'

Use 'Follow Me' to create code and learn syntax

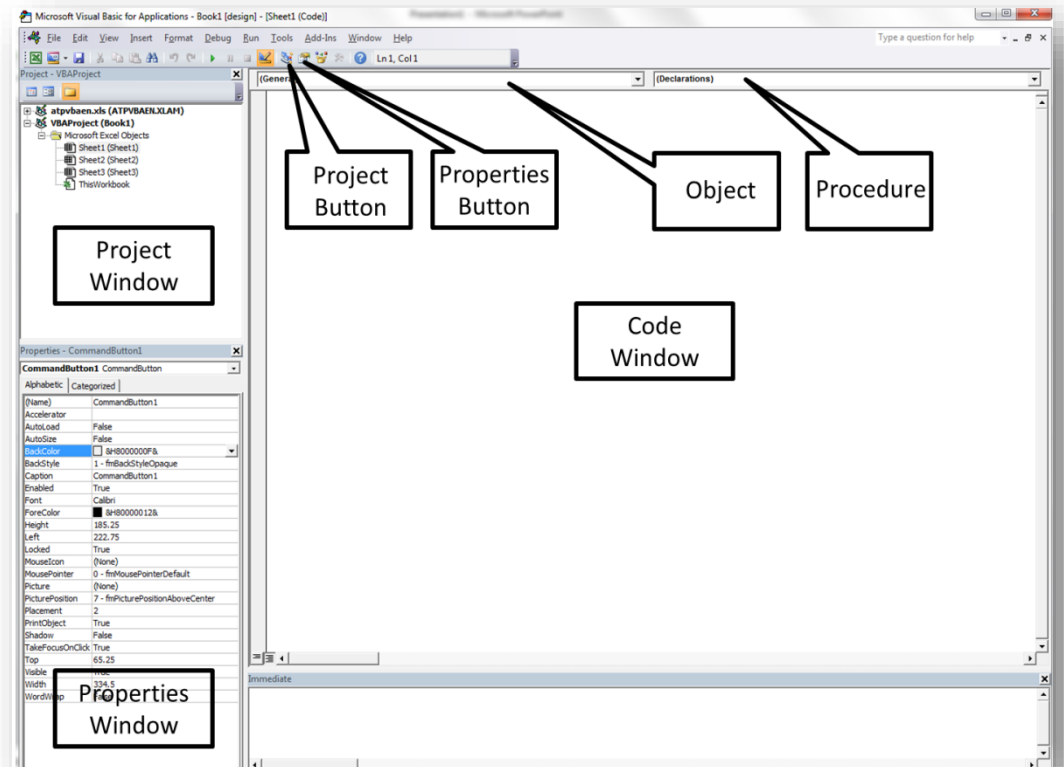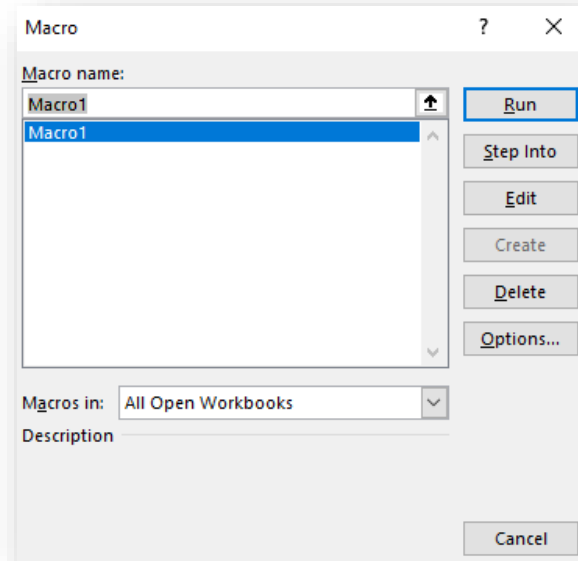Set up a Macro to write the word 'Total' in a cell and link it to Ctrl + A

- Press 'Record'

- Change Name and add shortcut key

- You are now in 'Follow Me' Mode - Type 'Total'

- Press 'Stop'

NB EVERY KEY YOU PRESS WILL BE RECORDED!

The Visual Basic Editor

Edit….

The attributes of the VB Editor screen

Writing Code – Object & Event Programming

- A Subroutine is used for each Object Event e.g. Click

```
Private Sub CommandButton1_Click()

End Sub
```

- VB Code   **Object.Attribute.Attribute = …….**

- In subroutine enter   Sheet1.Range("B4").Value = "Hello"

- **NB** Cell references are fixed in Visual Basic and do not change when you insert/delete columns or rows - Cell references should be **Range Names** so they stay in the right place in a sheet

```
Private Sub CommandButton1_Click()

Sheet1.Range("Range_name").Value = "Hello 2"

End Sub
```

Writing Code

- Read and write to cells and perform operations

```
CommandButton1                                    ⌄   Click

    Dim Counter As Single
    Dim Totaler As Single

    Private Sub CommandButton1_Click()

    Counter = 10

    Sheet1.Range("A5") = Counter

    Totaler = Sheet1.Range("A5") + 10

    Sheet1.Range("A8") = Totaler

    End Sub
    |
```
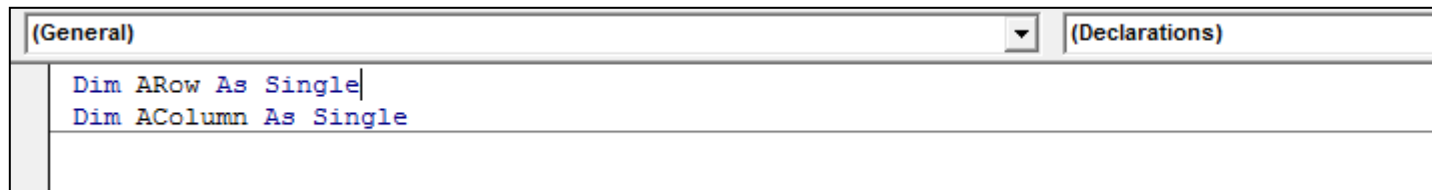
Writing Code

- Clearly you cannot reference every cell! Use OFFSET (Row, Column) from a fixed point

```
Private Sub CommandButton1_Click()

Sheet1.Range("Range_name").Offset(1, 2).Value = "Hello 3"

End Sub
```

- Reading a cell content is the same process as Writing to a cell but you need to store the information in a Variable

- Variables are like Range Names – words (or letters) and are of several types such as: Integers, Single (low precision), Double (high precision), Strings (Text).

- Just like Range Names the variables need to be defined. This is done using the DIM command (standing for Dimension). Completed at the start of the procedure or in the General Section for the whole sheet
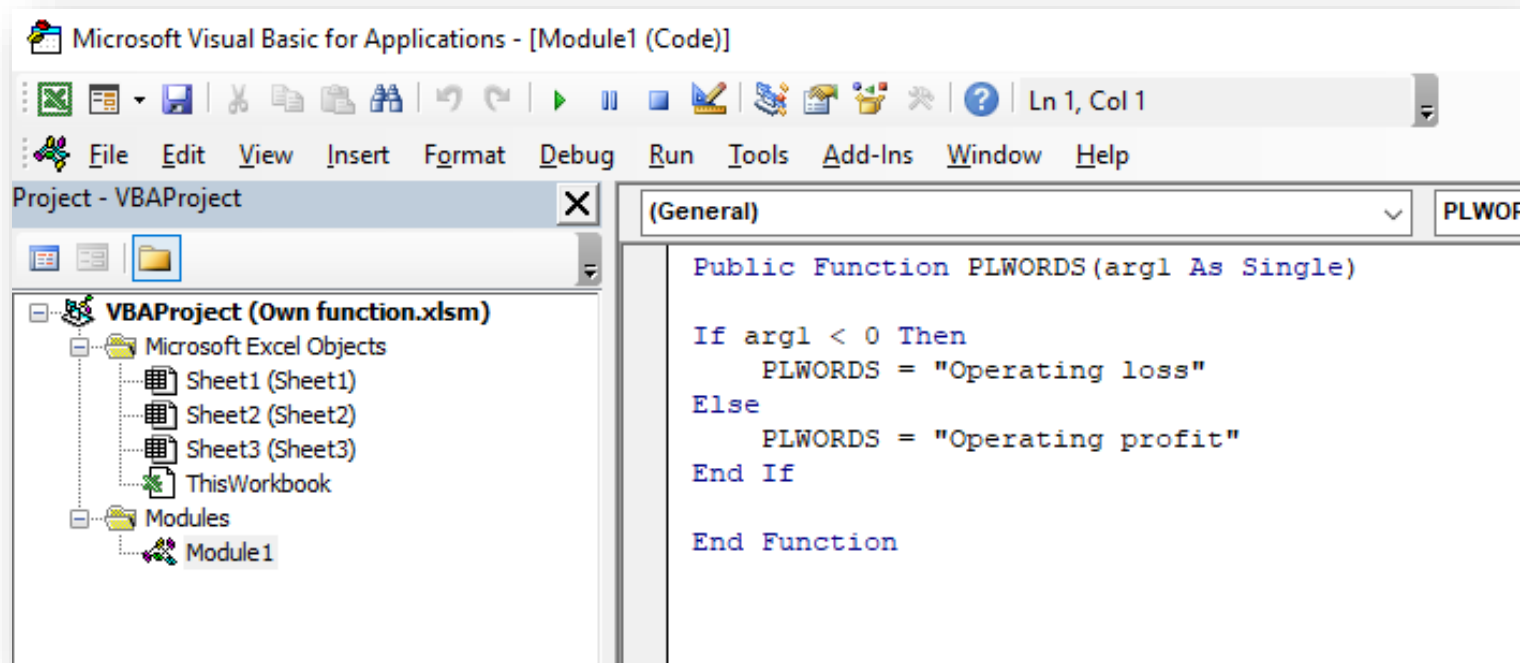
```
(General)                                              (Declarations)

    Dim ARow As Single
    Dim AColumn As Single
```
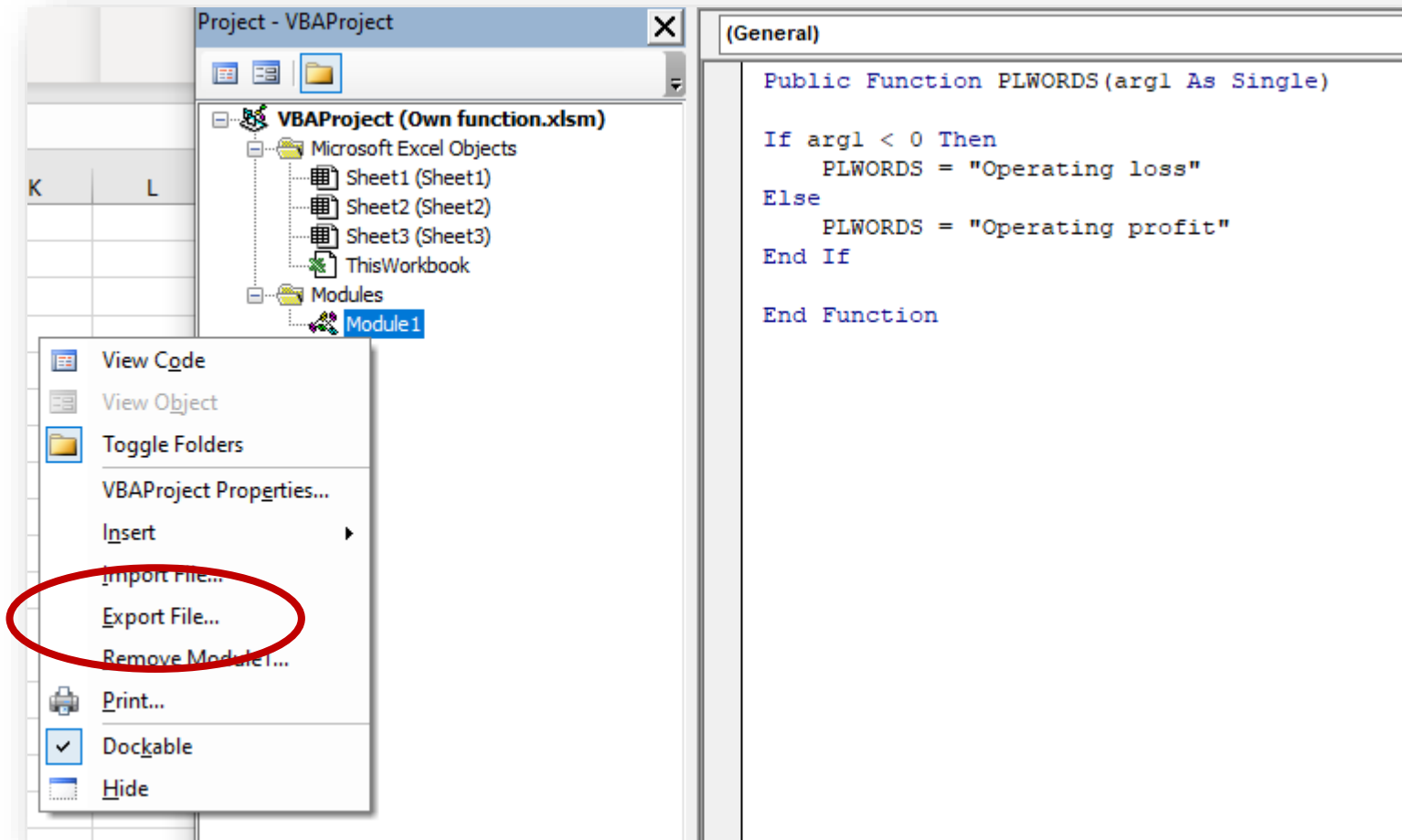
Writing your own functions

For cell formulae that you regularly use – make them into your own functions

```
If A > B Then ....          = > < <> >= <=
Else....
End If
```

Build up a library of your own functions

Build a library of your own functions and store them in a Module that you can export to other workbooks.

For and Next Loops

Syntax:

For *variable* = 1 to 100

      Activity

Next

A loop of GoalSeeks to test a range of assumptions through a model

```
For B = 9 To 40
   If Range("O" & B) <> "" Then
       Sheet3.Range("NPV").GoalSeek Goal:=0,ChangingCell:=Range("O" & B)
   End If
Next
```
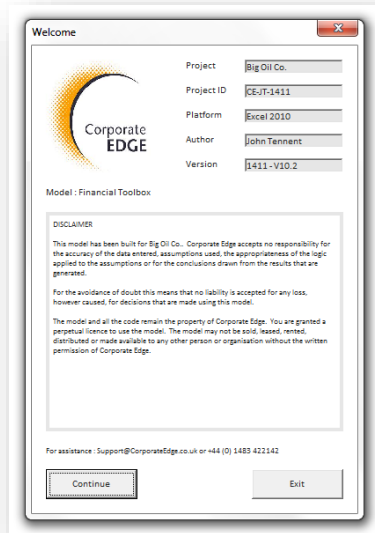
See the Pen & Quill Example

Creating UserForms
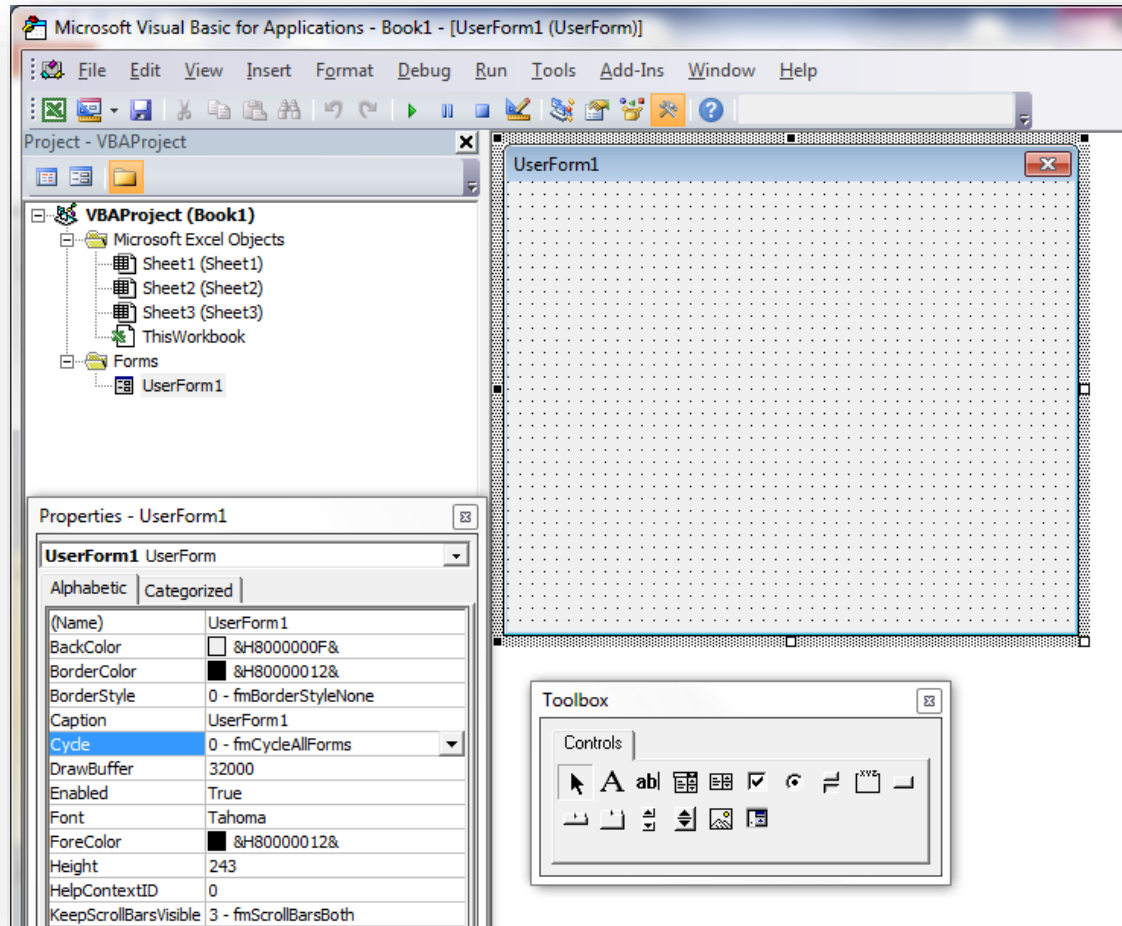
Highly Controlled Front End

From 'Splash' screens to welcome users and provide a disclaimer to a fully contained front end with restricted User options…

Add Tools - References

Link language references for Applications you want to connect with
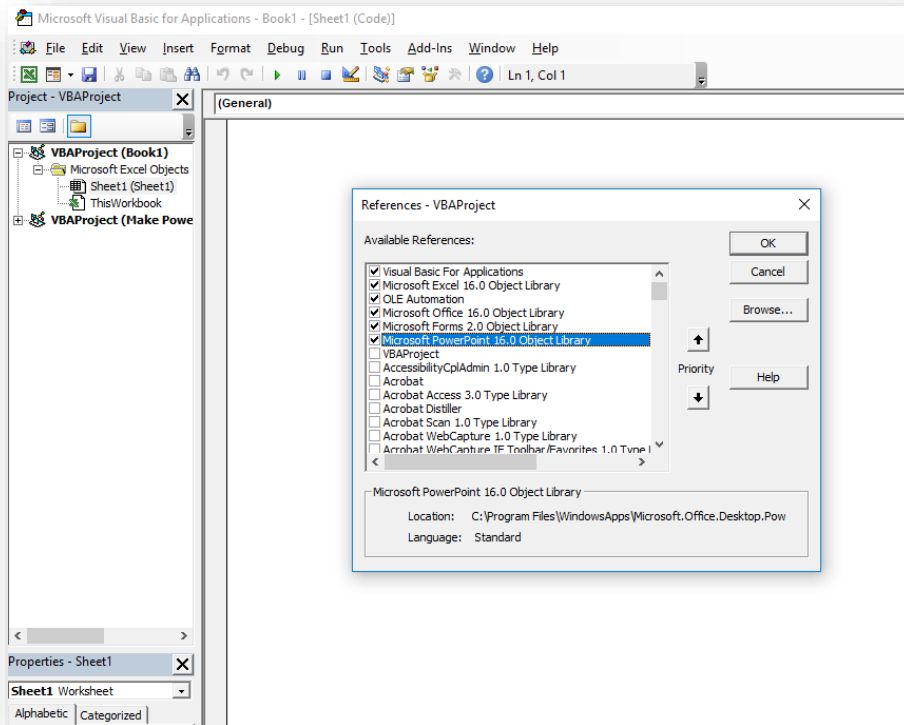
ABC Ltd - July	2021 £,000	2020 £,000
Revenue	47,125	43,558
Cost of sales	(25,698)	(23,547)
Gross profit	21,427	20,011
Admin	(1,247)	(1,458)
Property	(3,257)	(3,166)
Marketing	(2,684)	(2,869)
Operating profit	14,239	12,518
Interest	(1,844)	(2,064)
Tax	(2,567)	(1,998)
Earnings	9,828	8,456

Where to begin

- Start with small projects

- Use a scratchpad Excel file to do Macro 'follow me' to see how the code is developed

- Read other peoples code – surprisingly easy to interpret

- Use Internet search – start with VBA Excel …. to get better answers
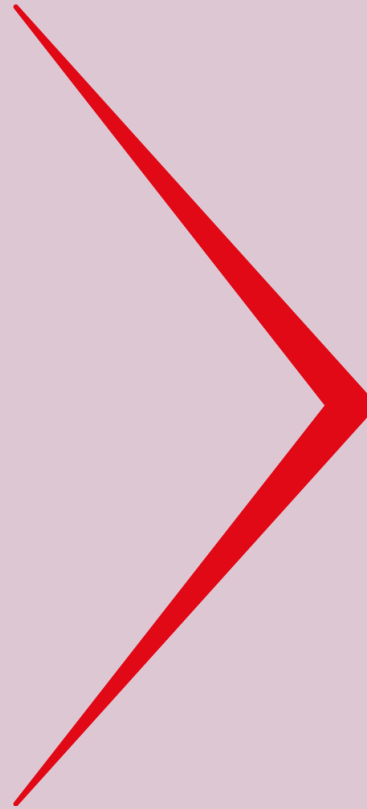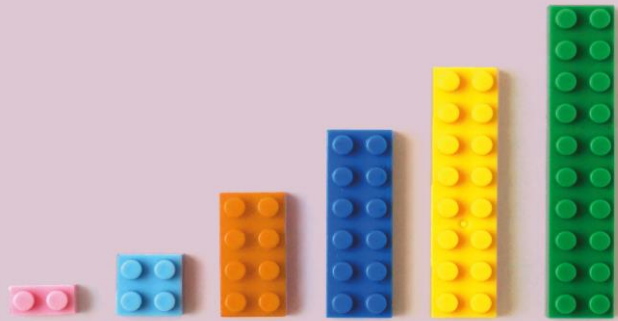
- Be patient!

Enjoy the new language and functionality

Questions

2022 webinar programme

- Tip of the Week Live – your questions answered
- Comprehensive guide to Pivot Tables (2022)
- Power Pivot – management reports
- Intro into Power Query
- Less known functions – the hidden gems
- Reviewing spreadsheets
- New Tech features

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