

## VBA Research – How to read information from Cells, Add information to Cells, Error Check, Create Buttons, etc.

## How to Read information from Cells

- Using function “MsgBox Cells (row#, col#)” or “MsgBox Range (“Cell id/range”)
- The importance for reading in information is knowing where the information is, whether there are definitive cells where the data would be or looping through the worksheet to find the information.

Examples of reading in values from cells: <https://analysistabs.com/excel-vba/read-get-data-from-cell-worksheet/>

Examples of looping through the sheet to find values:

<https://www.excel-dome.com/solutions/find-and-select-cells-with-specific-value-in-a-worksheet/>

Can also use: `.Cells.Find(what:="value you're looking for")`, which returns a range and then find the offset/where the location is in order to be able to actually access the cell

<https://www.youtube.com/watch?v=BbIHkbF8oWU>

### Searching through Worksheet to locate specific value:

- Can be done by brute force or utilizing another quicker/more efficient algorithm:
- Implementing a Binary Search:

<https://bettersolutions.com/vba/arrays/finding-binary-search.htm>

-this is specifically efficient way to implement the search since the worksheet lists the courses in alphabetical order by course subject. This will allow the runtime to be cut down to:  $O(\log n)$

Design for entering courses for searching:

Create Schedule	Courses:
	CIS*3760*0101
	CIS*3530*0101
	CIS*3150*0101
	MATH*2270*0101
	MATH*2200*0101

## How to Add information to cells

-Can add text or data to an array by taking the same functions as above, Cell(), Range(), and adding the suffix ".Value" = "what needs to go in cell"

-Note: you can also declare a variable as a Range, locate the cell and find the offset to add a value to the cell (same as listed above)

-Can search along the column to find the times of the start and end time of specific activities:

-and then search along the row to locate the day that the activity occurs (where they conflict will be the cell the data needs to be added in)

	Mon	Tue	Wed	Thu	Fri
Time:					
7:00:00 AM					
7:30:00 AM					
8:00:00 AM					
8:30:00 AM	CIS*3760*0101 Lab	CIS*3760*0101 Lecture CIS*3760*0101 Seminar		CIS*3760*0101 Lecture	
9:00:00 AM					
9:30:00 AM					
10:00:00 AM					
10:30:00 AM					
11:00:00 AM					
11:30:00 AM					
12:00:00 PM					
12:30:00 PM					
1:00:00 PM					
1:30:00 PM					
2:00:00 PM					
2:30:00 PM					
3:00:00 PM					
3:30:00 PM					
4:00:00 PM					
4:30:00 PM					
5:00:00 PM					
5:30:00 PM					
6:00:00 PM					
6:30:00 PM					
7:00:00 PM					
7:30:00 PM					
8:00:00 PM					
8:30:00 PM					
9:00:00 PM					
9:30:00 PM					
10:00:00 PM					
10:30:00 PM					

## Change colour of cells

-<range>.Interior.ColorIndex = <integer value for colour>

-<range>: can use Range() or Cells() functions to locate the cells that need to change colour

<https://www.excel-easy.com/vba/examples/background-colors.html#:~:text=Changing%20background%20colors%20in%20Excel,background%20color%20of%20a%20cell.>

<https://www.automateexcel.com/vba/change-background-color/>

## Change size of cells

-An important consideration is how to ensure that the text in the cells can be seen without having to manually change the size of the cells:

- excel has a way to make cells autofit text
- In VBA you can autofit all cells in a spreadsheet:  
"With <worksheet>.Cells  
    .EntireColumn.AutoFit  
    .EntireRow.AutoFit  
End With"

<https://learn.microsoft.com/en-us/office/vba/api/excel.range.autofit>

## Change borders of cells

-Can add borders to cells knowing the Range() or location of the cell Cells():

- <range>Borders(<location of boarder>).LineStyle = XLLineStyle.xlContinuous
- <location of boarder>: xlEdgeBottom, xlEdgeTop, xlEdgeLeft, xlEdgeRight

<https://excelchamps.com/vba/borders/>

<https://software-solutions-online.com/excel-vba-border-style-and-thickness-afdad/>

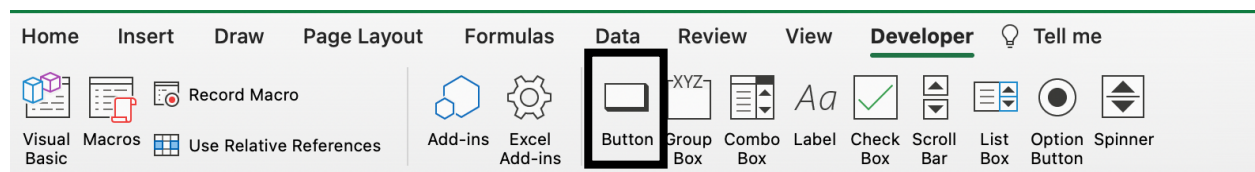
## **Error Checking in VBA**

- 1) Alert box/Textboxes can be used to alert the user of an error input:
  - a. MsgBox
- 2) Changing the colour of the cells can mean something

<https://excelmacromastery.com/vba-error-handling/>

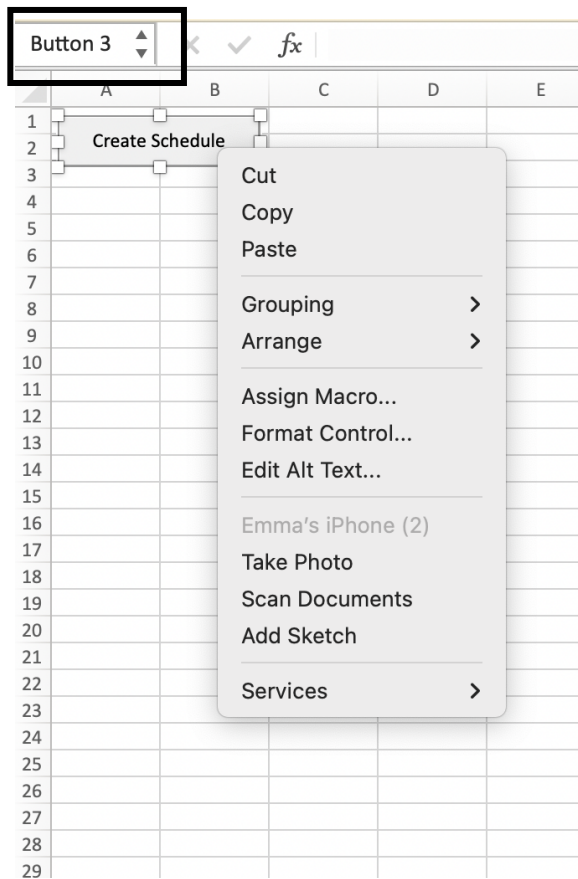
<https://www.automateexcel.com/vba/error-handling/>

## **Creating Buttons**

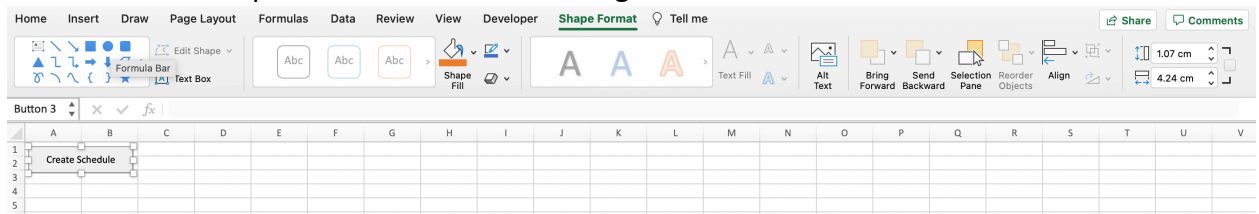


In the developer tab, a button can be added to the page:

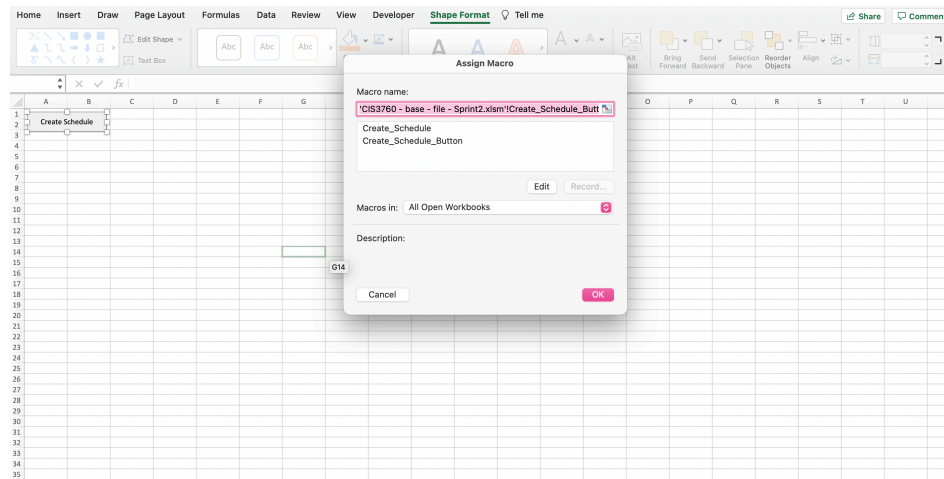
1. You can change the name of the button



2. You can change the style of the button
  - a. Use the shape format tab to make changes

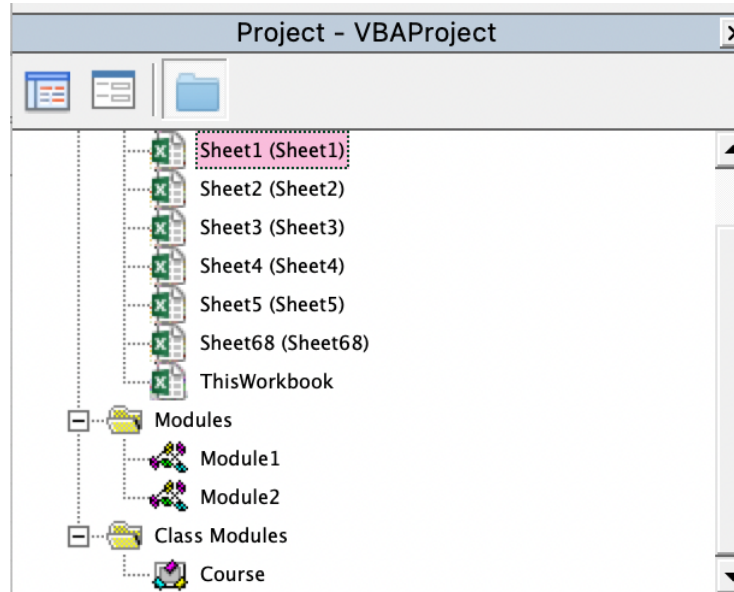


3. You can add functionality by adding a module to the button to be executed upon clicking
  - a. Can add macro by right clicking and choosing "Add macro" then you can choose the module you want connected to the button



## Creating Classes in VBA

-Classes can be created in VBA to allow for custom objects to be used



-Can add classes in the “Class Module” Section of the project

<https://www.wallstreetmojo.com/vba-class/>

[https://analystcave.com/vba-vba-class-](https://analystcave.com/vba-vba-class-tutorial/#:~:text=Creating%20a%20new%20VBA%20Class&text=To%20add%20a%20new%20VB)

[tutorial/#:~:text=Creating%20a%20new%20VBA%20Class&text=To%20add%20a%20new%20VB](https://analystcave.com/vba-vba-class-tutorial/#:~:text=Creating%20a%20new%20VBA%20Class&text=To%20add%20a%20new%20VB)  
[A,Insert%20then%20select%20Class%20Module%20.&text=Classes%20in%20VBA%20are%20si](https://analystcave.com/vba-vba-class-tutorial/#:~:text=Creating%20a%20new%20VBA%20Class&text=To%20add%20a%20new%20VB)  
[milar,procedures%2C%20functions%2C%20variables%20etc.](https://analystcave.com/vba-vba-class-tutorial/#:~:text=Creating%20a%20new%20VBA%20Class&text=To%20add%20a%20new%20VB)