Macros & VBA for Beginners

Macros and VBA (Visual Basic for Applications) in Excel allow users to automate repetitive tasks, enhance functionality, and create complex calculations and operations that are not easily achievable with standard Excel functions. Here’s a detailed guide for beginners:

1. Enabling the Developer Tab

**Definition:** The Developer tab provides access to the Visual Basic for Applications (VBA) environment and tools for creating and managing macros.

**Steps to Enable the Developer Tab:**

1. Open Excel.
2. Click on File in the top left corner.
3. Select Options from the menu.
4. In the Excel Options dialog box, click Customize Ribbon.
5. On the right side, check the box next to Developer in the Main Tabs list.
6. Click OK.

Now, you should see the Developer tab in the Excel ribbon.

2. Recording a Task

**Definition:** Recording a macro involves capturing a series of actions performed in Excel so that they can be replayed automatically by running the macro.

**Steps to Record a Task:**

1. Go to the Developer tab.
2. Click on Record Macro.
3. In the Record Macro dialog box, do the following:
   * Enter a name for the macro in the Macro name field.
   * Assign a shortcut key (optional) in the Shortcut key field.
   * Choose where to store the macro (This Workbook for current workbook).
   * Provide a description (optional).
4. Click OK to start recording.
5. Perform the actions you want to record (e.g., formatting cells, creating formulas, etc.).
6. When finished, go back to the Developer tab and click Stop Recording.

3. Executing and Deleting a Recorded Task

**Executing a Recorded Macro:**

1. Go to the Developer tab.
2. Click on Macros.
3. In the Macro dialog box, select the macro you want to run.
4. Click Run.

**Deleting a Recorded Macro:**

1. Go to the Developer tab.
2. Click on Macros.
3. In the Macro dialog box, select the macro you want to delete.
4. Click Delete.
5. Confirm the deletion when prompted.

4. Customizing the Automated Tasks

**Definition:** Customizing a macro involves editing the VBA code to enhance or modify the recorded actions.

**Steps to Customize a Macro:**

1. Go to the Developer tab.
2. Click on Visual Basic to open the VBA editor.
3. In the Project Explorer window, find the module containing your recorded macro (usually named Module1 under Modules).
4. Double-click the module to view the macro code.
5. Edit the code as needed. For example, you can add new commands, loops, conditions, etc.
6. After making changes, close the VBA editor.
7. Run the macro to test the customized tasks.

Assignment: Simple Sales Data Analysis

**Scenario:** You have a sales dataset and you need to automate the process of summarizing sales and profit by category and then creating a chart to visualize the summary.

**Steps to Complete the Assignment:**

1. **Prepare the Dataset:**
   * Create a worksheet named "SalesData" with the following data:

| Order Date | Category        | Product Name                      | Sales  | Quantity | Profit |  
|------------|-----------------|-----------------------------------|--------|----------|--------|  
| 01/01/2023 | Furniture       | Office Chair                      | 250.00 | 5        | 50.00  |  
| 01/02/2023 | Technology      | Laptop                            | 1200.00| 2        | 200.00 |  
| 01/03/2023 | Office Supplies | Pen Set                           | 15.00  | 10       | 5.00   |  
| 01/04/2023 | Furniture       | Desk                              | 300.00 | 1        | 80.00  |  
| 01/05/2023 | Technology      | Smartphone                        | 800.00 | 3        | 150.00 |  
| 01/06/2023 | Office Supplies | Stapler                           | 10.00  | 7        | 2.00   |

1. **Record a Macro to Summarize Sales Data:**
   * Start recording a macro named SummarizeSalesData.
   * Select an empty cell (e.g., G1) and type the headers: Category, Total Sales, Total Profit.
   * Use the UNIQUE function in cell G2 to list unique categories: =UNIQUE(B2:B7).
   * Use the SUMIF function in cell H2 to sum the sales for each category: =SUMIF(B:B, G2, D:D).
   * Use the SUMIF function in cell I2 to sum the profit for each category: =SUMIF(B:B, G2, F:F).
   * Drag the formulas down to cover all unique categories.
   * Stop recording the macro.
2. **Record a Macro to Create a Chart:**
   * Start recording a macro named CreateSalesChart.
   * Select the summarized data range (e.g., G1:I4).
   * Insert a Clustered Column chart from the Insert tab.
   * Move the chart to a new worksheet named "SalesSummaryChart".
   * Customize the chart as desired (e.g., add title, labels).
   * Stop recording the macro.
3. **Run the Macros:**
   * Run the SummarizeSalesData macro to generate the summary.
   * Run the CreateSalesChart macro to create the chart.
4. **Customize the Macros (Optional):**
   * Open the VBA editor.
   * Modify the macros if needed to enhance functionality.

Example of Recorded Macro Code

Sub SummarizeSalesData()  
    Range("G1").Select  
    ActiveCell.FormulaR1C1 = "Category"  
    Range("H1").Select  
    ActiveCell.FormulaR1C1 = "Total Sales"  
    Range("I1").Select  
    ActiveCell.FormulaR1C1 = "Total Profit"  
    Range("G2").Select  
    ActiveCell.FormulaR1C1 = "=UNIQUE(B2:B7)"  
    Range("H2").Select  
    ActiveCell.FormulaR1C1 = "=SUMIF(B:B, G2, D:D)"  
    Range("I2").Select  
    ActiveCell.FormulaR1C1 = "=SUMIF(B:B, G2, F:F)"  
    Range("H2:I4").Select  
    Selection.AutoFill Destination:=Range("H2:I4")  
End Sub  
  
Sub CreateSalesChart()  
    Range("G1:I4").Select  
    ActiveSheet.Shapes.AddChart2(251, xlColumnClustered).Select  
    ActiveChart.ChartTitle.Text = "Sales Summary"  
    ActiveChart.Parent.Cut  
    Sheets.Add After:=ActiveSheet  
    ActiveSheet.Name = "SalesSummaryChart"  
    ActiveSheet.Paste  
End Sub

By following these steps, you can introduce beginners to the basics of macros and VBA in Excel, helping them understand how to automate repetitive tasks and enhance their data analysis capabilities.

<https://youtu.be/FGQ0P9jTjU0?feature=shared> 🡪 vba

<https://www.automateexcel.com/blockedfolder/VBA-Tutorial.pdf>