**What is a Macro in Excel?**

A **Macro** is a set of recorded instructions or code that automates repetitive tasks in Excel.

* It uses **VBA (Visual Basic for Applications)** behind the scenes.
* You can **record macros** (no coding needed) or **write them manually** in VBA.

**Step-by-Step: Starting with Macros**

**Step 1: Enable the Developer Tab**

1. Click File → Options → Customize Ribbon
2. Check the box for **Developer** under Main Tabs
3. Click **OK**

**Step 2: Record Your First Macro**

Let’s say we want to format a title cell.

**1. Go to Developer → Click Record Macro**

* **Macro Name**: MyFirstMacro
* **Shortcut Key**: Optional (e.g. Ctrl + Shift + M)
* **Store in**: This Workbook
* Click **OK**

**2. Perform some actions in Excel:**

* Click any cell (say A1) and type Hello Macros
* Make it **bold**, increase the font size to 14
* Change the background color

**3. Stop the Macro**

* Go back to Developer → Click **Stop Recording**

You’ve just recorded your first macro!

**Step 3: Run the Macro**

* Go to Developer → **Macros**
* Select MyFirstMacro
* Click **Run**

Excel will repeat the formatting steps you did while recording.

**Step 4: View the Macro Code in VBA**

1. Press Alt + F11 to open the **VBA Editor**
2. In the left panel, open **Modules** → Double-click Module1
3. You'll see the recorded code like this:

Sub MyFirstMacro()

Range("A1").Select

ActiveCell.FormulaR1C1 = "Hello Macros"

With Selection.Font

.Bold = True

.Size = 14

End With

Selection.Interior.Color = RGB(255, 255, 0)

End Sub

**Step 5: Editing the Macro in VBA**

Let’s clean it up a little:

Sub MyFirstMacro()

With Range("A1")

.Value = "Hello Macros"

.Font.Bold = True

.Font.Size = 14

.Interior.Color = RGB(255, 255, 0) ' Yellow

End With

End Sub

Now it's more readable and does the same thing.

**What is VBA?**

**VBA** is a programming language built into Excel and other Microsoft Office applications.

With VBA, you can:

* Automate tasks (like formatting, calculations)
* Create custom functions
* Interact with workbooks, worksheets, ranges, charts, etc.
* Build user forms and tools

**Getting Started with VBA in Excel**

**Step 1: Open the VBA Editor**

* Press Alt + F11 → opens the **VBA editor**
* Press Ctrl + R to view the **Project Explorer**

**Step 2: Insert a Module**

1. In the VBA editor: Right-click on your workbook → Insert → Module
2. You can now write code inside that module

**First VBA Program: Say Hello**

vba

CopyEdit

Sub SayHello()

MsgBox "Hello, welcome to VBA programming!"

End Sub

**How to run it:**

* Place your cursor inside the Sub
* Press F5 or go to **Run → Run Sub/UserForm**

**Example 2: Loop Through Rows and Highlight Sales Above 100**

vba

CopyEdit

Sub HighlightHighSales()

Dim i As Integer

For i = 2 To 10 ' assuming data is in rows 2 to 10

If Cells(i, 3).Value > 100 Then

Cells(i, 3).Interior.Color = RGB(144, 238, 144) ' Light green

End If

Next i

End Sub

**Example 3: Add Data to a Sheet**

vba

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Sub AddData()

Sheets("Sheet1").Range("A2").Value = "East"

Sheets("Sheet1").Range("B2").Value = "Pen"

Sheets("Sheet1").Range("C2").Value = 150

End Sub

**Example 4: Create and Use a Custom Function**

vba

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Function AddNumbers(x As Double, y As Double) As Double

AddNumbers = x + y

End Function

**Usage in Excel**:  
=AddNumbers(10, 25)

**Key VBA Concepts Cheat Sheet**

| **Concept** | **Example** |
| --- | --- |
| Declare variable | Dim i As Integer |
| If condition | If x > 10 Then ... |
| Loop | For i = 1 To 10 |
| Message Box | MsgBox "Hi!" |
| Set cell value | Range("A1").Value = 100 |
| Select sheet | Sheets("Sheet1").Select |
| Custom function | Function MyFunc(...) |