Excel Macros

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About the Tutorial

An Excel macro is an action or a set of actions that you can record, give a name, save and run as many times as you want and whenever you want.

Macros help you to save time on repetitive tasks involved in data manipulation and data reports that are required to be done frequently.

Audience

This guide targets novice developers and those new to Excel Macros. After completing this tutorial, your firm foundation in creating macros will allow you to use macros efficiently.

Prerequisites

When you record a macro, Excel stores it as a VBA code. You can view this code in the VBA editor. You can understand the code and modify it if you have substantial knowledge of Excel VBA. However, if you do not have sufficient knowledge, then we will suggest you to go through our short tutorials on VBA.

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Table of Contents

1. Excel Macros – Overview

An Excel macro is an action or a set of actions that you can record, give a name, save and run as many times as you want and whenever you want. When you create a macro, you are recording your mouse clicks and keystrokes. When you run a saved macro, the recorded mouse clicks and keystrokes will be executed in the same sequence as they are recorded.

Macros help you to save time on repetitive tasks involved in data manipulation and data reports that are required to be done frequently.

Macro and VBA

You can record and run macros with either Excel commands or from Excel VBA.

VBA stands for Visual Basic for Applications and is a simple programming language that is available through Excel Visual Basic Editor (VBE), which is available from the DEVELOPER tab on the Ribbon. When you record a macro, Excel generates VBA code. If you just want to record a macro and run it, there is no need to learn Excel VBA. However, if you want to modify a macro, then you can do it only by modifying the VBA code in the Excel VBA editor.

You will learn how to record a simple macro and run it with Excel commands in the chapter - Creating a Simple Macro. You will learn more about macros and about creating and / or modifying macros from Excel VBA editor in the later chapters.

Personal Macro Workbook

A macro can be saved in the same workbook from where you recorded it. In that case, you can run the macro from that workbook only and hence you should keep it open. Excel gives you an alternative way to store all your macros. It is the personal macro workbook, where you can save your macros, which enables you to run those macros from any workbook.

You will learn about Personal Macro Workbook in the chapter - Saving all your Macros in a Single Workbook.

Macro Security

Macros will be stored as VBA code in Excel. As with the case of any other code, macro code is also susceptible to malicious code that can run when you open a workbook. This is a threat to your computer. Microsoft provided with the Macro Security facility that helps you in protecting your computer from such macro viruses.

You will learn more about this in the chapter - Macro Security.

Absolute References and Relative References

While recording a macro, you can use either absolute references or relative references for the cells on which you are clicking. Absolute references make your macro run at the same cells where you recorded the macro. On the other hand, relative references make your macro run at the active cell.

You will learn about these in the chapters - Using Absolute References for a Macro and Using Relative References for a Macro.

Macro Code in VBA

You can record and run macros from Excel even if you do not know Excel VBA. However, if you have to modify a recorded macro or create a macro by writing VBA code, you should learn Excel VBA. You can refer to the Excel VBA tutorial in this tutorials library for this.

However, you should know how to view the macro code. You can learn how to access VBA editor in Excel and about the different parts of the VBA editor in the chapter – Excel VBA.

You can learn how to view the macro code in Excel VBA editor and you can understand the macro code in the chapter - Understanding Macro Code.

Assigning Macros to Objects

You can assign a macro to an object such as a shape or a graphic or a control. Then, you can run the macro by clicking on that object. You will learn about this in the chapter - Assigning Macros to Objects.

Running Macros

Excel provides several ways to run a macro. You can choose the way you want to run a macro. You will learn about these different possible ways of running a macro in the chapter - Running a Macro.

Creating a Macro Using VBA Editor

If you decide to write the macro code, you can learn it in the chapter - Creating a Macro Using VBA Editor. However, the prerequisite is that you should have Excel VBA knowledge.

Editing a Macro

You can modify macro code in Excel VBA editor. If you want to make extensive changes, you should have Excel VBA knowledge. But, if you want to make only minor changes to the code or if you want to copy the VBA code from a recorded macro to another macro, you can refer to the chapter - Editing a Macro.

You can rename a macro and even delete it. You will learn about this also in the same chapter.

User Forms

A Form is normally used to collect required information. It will be self-explanatory making the task simple. Excel User Forms created from Excel VBA editor serve the same purpose, providing the familiar options such as text boxes, check boxes, radio buttons, list boxes, combo boxes, scroll bars, etc. as controls.

You will learn how to create a User Form and how to use the different controls in the chapter – User Forms.

Debugging Macro Code

At times, a macro may not run as expected. You might have created the macro or you might be using a macro supplied to you by someone. You can debug the macro code just as you debug any other code to uncover the defects and correct them. You will learn about this in the chapter - Debugging Macro Code.

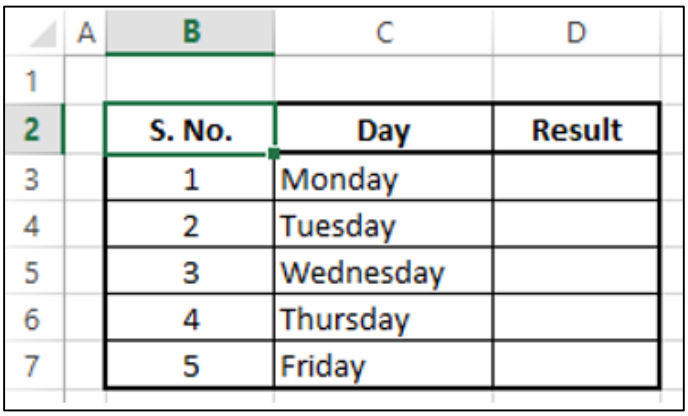
Configuring a Macro to Run on Opening a Workbook

You can make your macro run automatically when you open a workbook. You can do this either by creating an Auto_Run macro or by writing VBA code for workbook open event. You will learn this in the chapter - Configuring a Macro to Run on Opening a Workbook.

2. Excel Macros – Creation

You can create a macro with Excel commands by recording the key strokes and mouse clicks, giving the macro a name and specifying how to store the macro. A macro thus recorded can be run with an Excel command.

Suppose you have to collect certain results repeatedly in the following format –



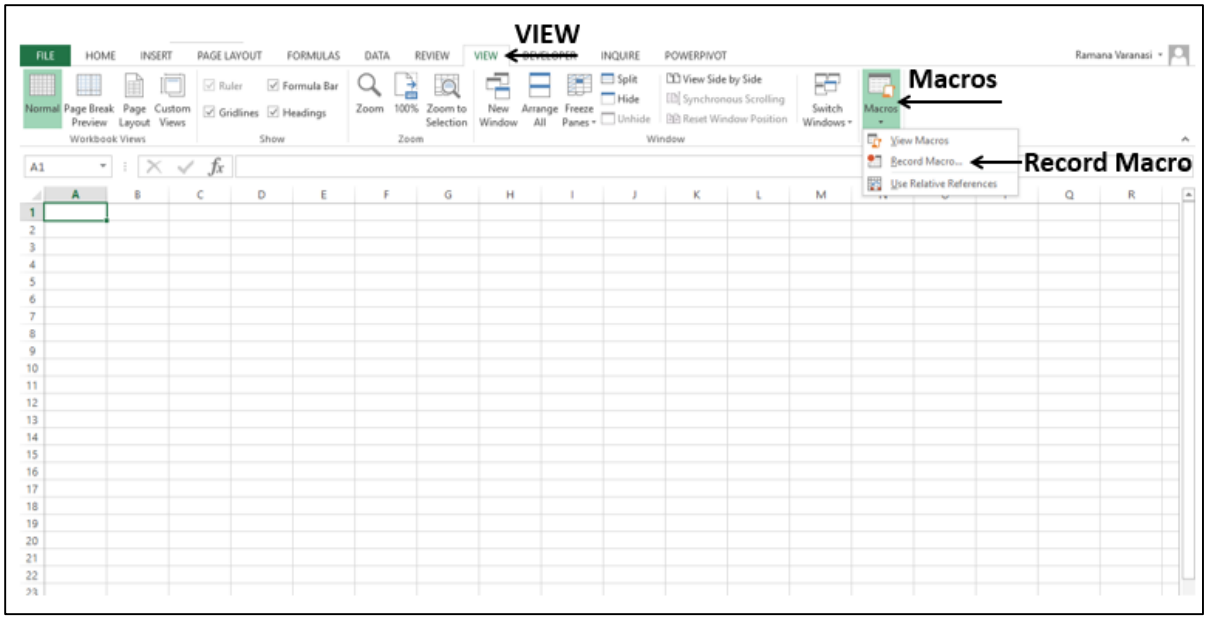
	A	B	C	D
1				
2		S. No.	Day	Result
3		1	Monday	
4		2	Tuesday	
5		3	Wednesday	
6		4	Thursday	
7		5	Friday	

Instead of creating the table each time, you can have a macro to do it for you.

Recording a Macro

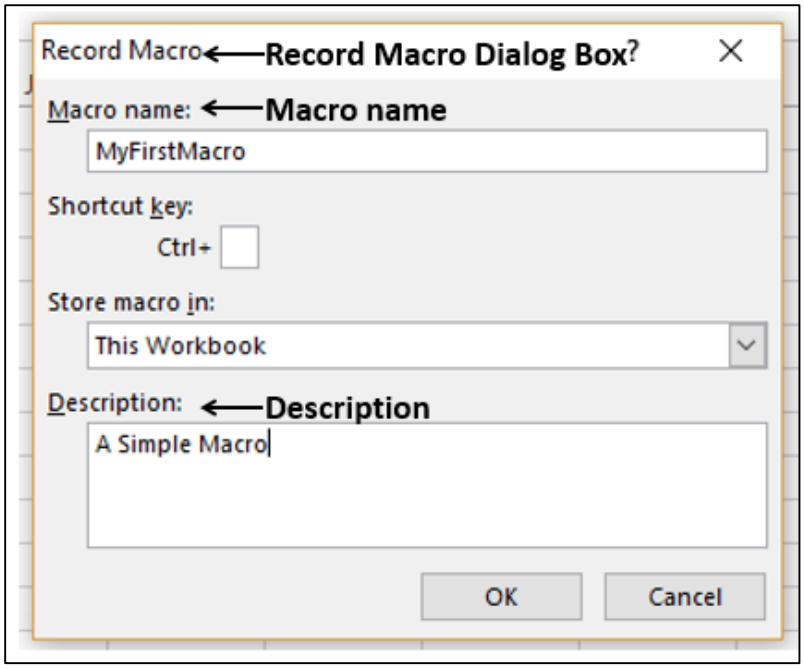
To record a macro do the following –

- Click the VIEW tab on the Ribbon.
- Click Macros in the Macros group.
- Select Record Macro from the dropdown list.



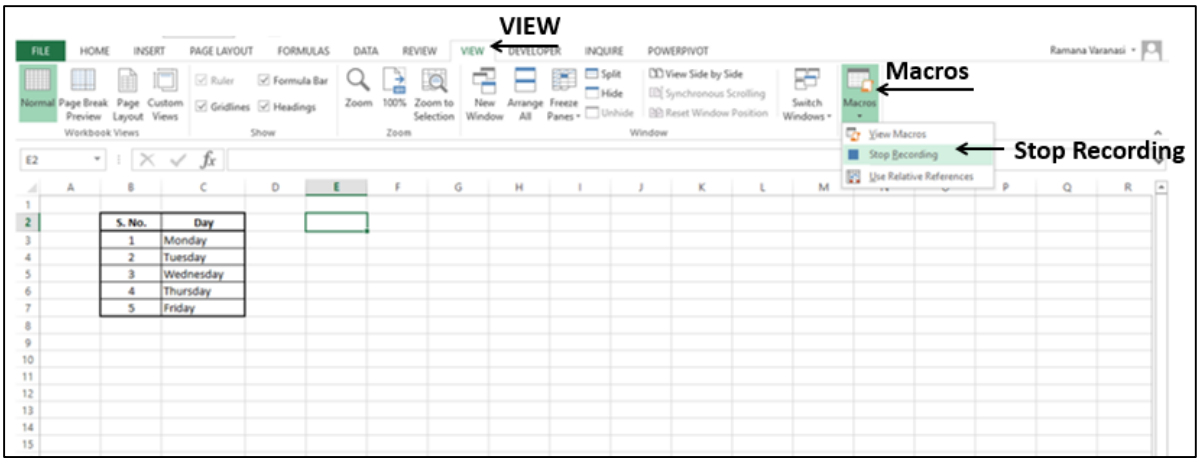
The **Record Macro** dialog box appears.

- Type **MyFirstMacro** in the Macro name box.
- Type **A Simple Macro** in the Description box and click OK.



Remember that whatever key strokes and mouse clicks you do, will be recorded now.

- Click in the cell B2.
- Create the table.
- Click in a different cell in the worksheet.
- Click the VIEW tab on the Ribbon.
- Click Macros.
- Select **Stop Recording** from the dropdown list.



Your macro recording is completed.

The first step to click on a particular cell is important as it tells where exactly the macro has to start placing the recorded steps. Once you are done with the recording, you have to click Stop Recording to avoid recording of unnecessary steps.

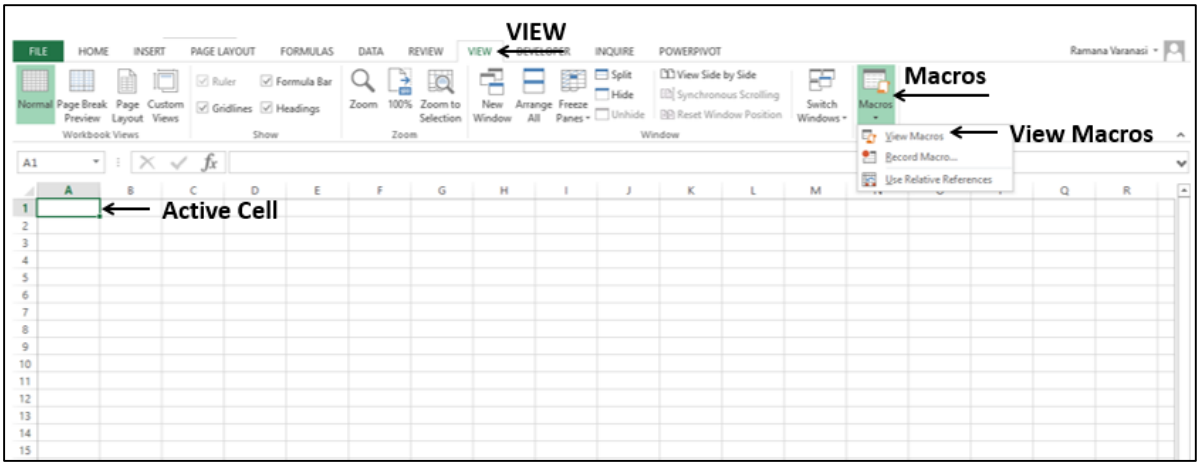
Running a Macro

You can run the macro you have recorded any number of times you want. To run the macro, do the following -

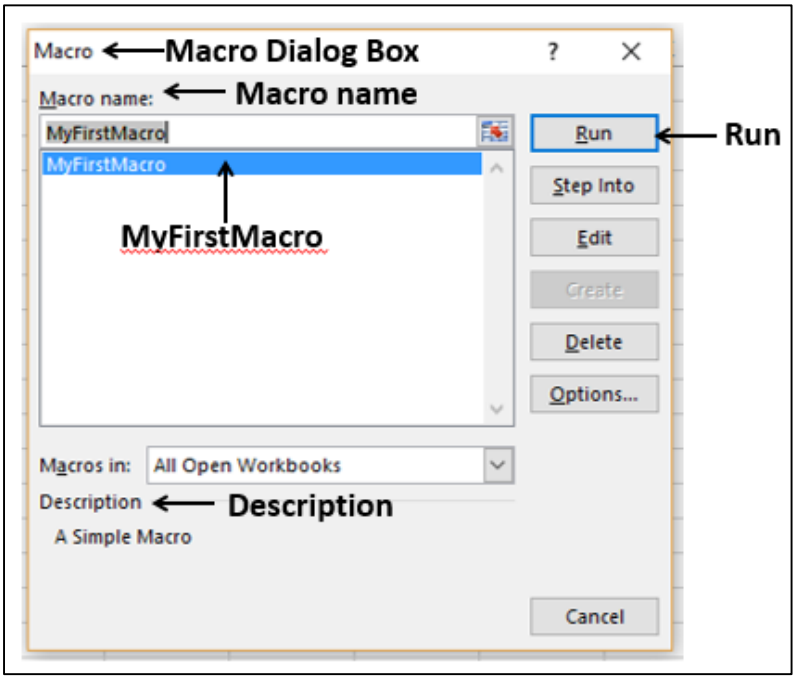
- Click on a new worksheet.

Note the active cell. In our case, it is A1.

- Click the **VIEW** tab on the Ribbon.
- Click **Macros**.
- Select **View Macros** from the dropdown list.

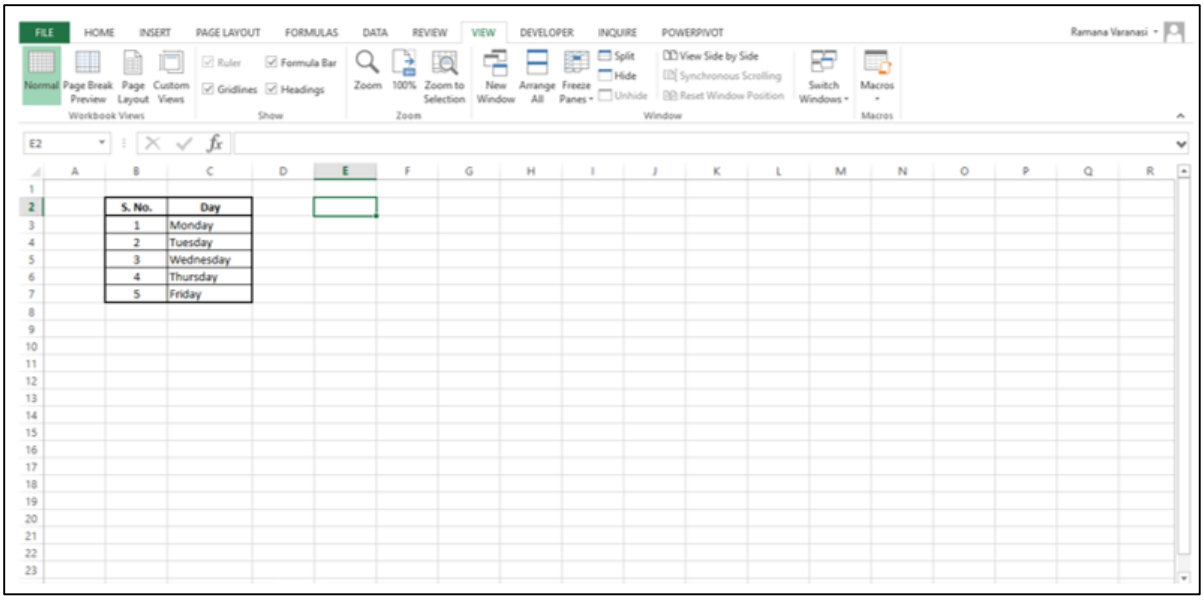


The Macro dialog box appears.



Only the macro that you recorded appears in the Macros list.

- Click the macro name – MyFirstMacro in the Macro dialog box. The description you typed while recording the macro will get displayed. Macro description allows you to identify for what purpose you have recorded the macro.
-
- Click the Run button. The same table that you have created while recording the macro will appear in just a split of a second.



You have discovered the magic wand that Excel provides you to save time on mundane tasks. You will observe the following –

- Though the active cell before running the macro was A1, the table is placed in the cell B2 as you have recorded.
-
- In addition, the active cell became E2, as you have clicked that cell before you stopped recording.

You can run the macro in multiple worksheets with different active cells before running the macro and observe the same conditions as given above. Just keep a note of this and you will understand later in this tutorial why it has occurred so.

You can also have a macro recording that places your recorded steps in the active cell. You will learn how to do this as you progress in the tutorial.

Storing a Macro

You might wonder how to save the macros that are created. In this context you need to know-

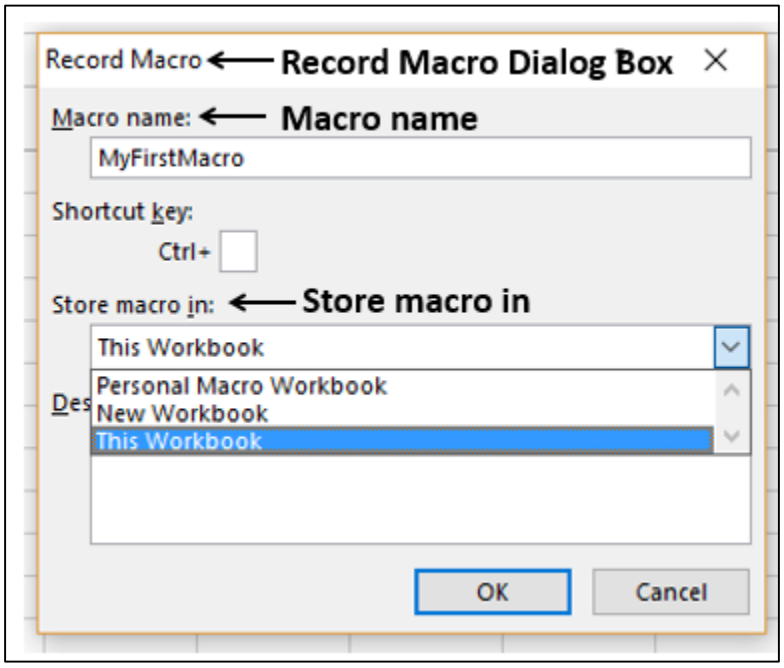
- Storing a macro
- Saving a macro enabled file

As and when you create a macro, you can choose where to store that particular macro. You can do this in the **Record Macro** dialog box.

Click the box - **Store macro in**. The following three options are available-

- This Workbook.

- New Workbook.
- Personal Macro Workbook



This Workbook

This is the default option. The macro will be stored in your current workbook from where you created the macro.

New Workbook

This option, though available, is not recommended. You will be asking Excel to store the macro in a different new workbook and mostly it is not necessary.

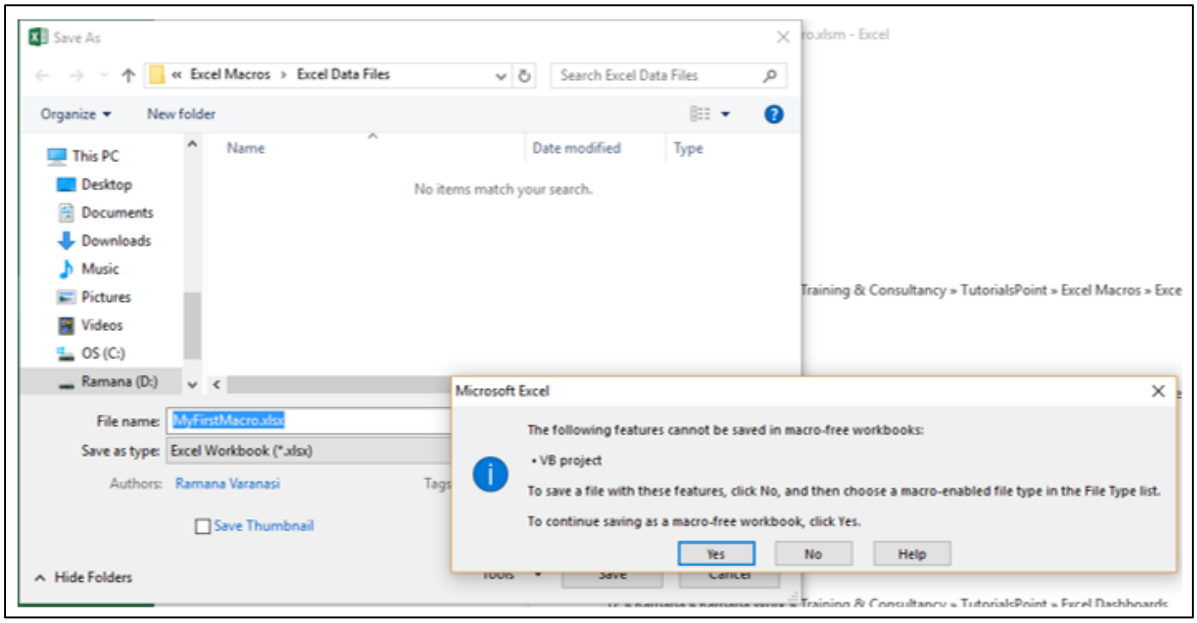
Personal Macro Workbook

If you create several macros that you use across your workbooks, Personal Macro Workbook provides you with the facility to store all the macros at one place. You will learn more about this option in the next chapter.

Saving a Macro Enabled File

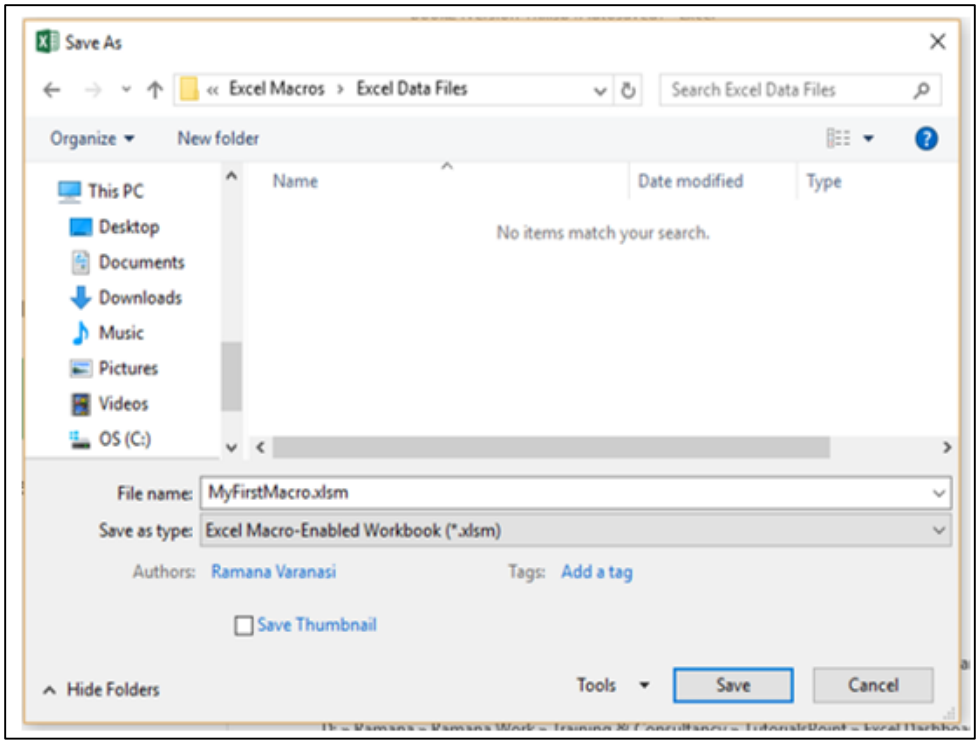
If you had chosen **This Workbook** as the option for storing the macro, you would need to save your workbook along with the macro.

Try to save the workbook. By default, you would be asking Excel to save the workbook as an .xls file. Excel displays a message saying that an Excel feature VB project cannot be saved in a macro free workbook, as shown below.



Note: If you click Yes, Excel will save your workbook as a macro free .xls file and your macro that you stored with This Workbook option will not get saved. To avoid this, Excel provides you an option to save your workbook as a macro-enabled workbook that will have .xlsm extension.

- Click No in the warning message box.
- Select Excel Macro-Enabled Workbook (*.xlsm) in the Save as type.
- Click Save.



You will learn more about these in later chapters in this tutorial.

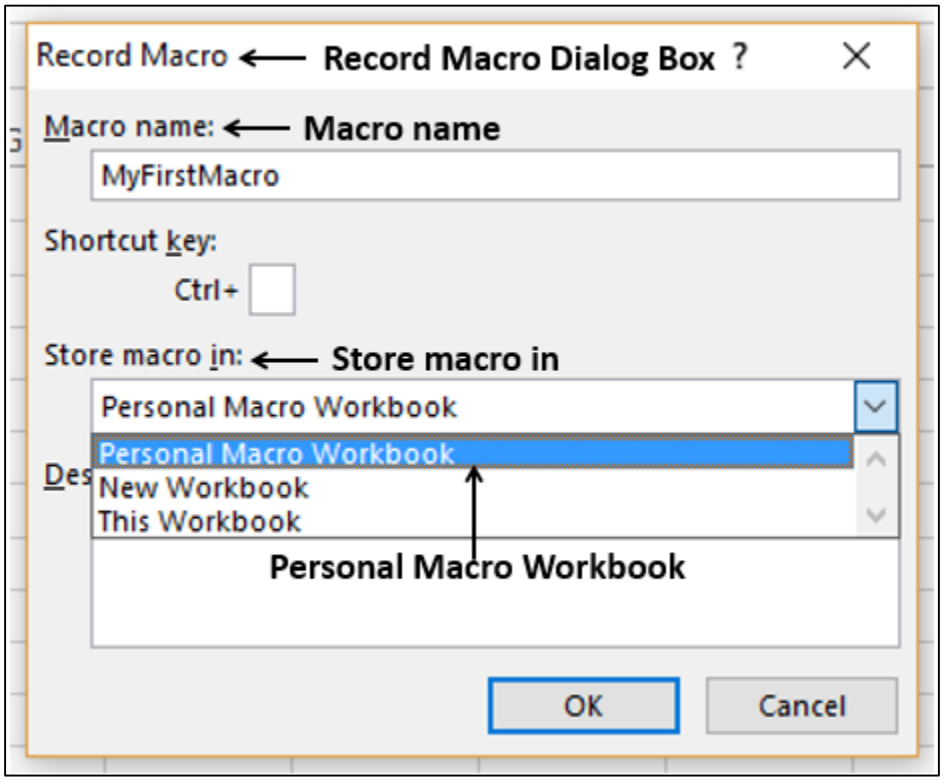
3. Excel Macros – Macros in a Single Workbook

Excel provides you with a facility to store all your macros in a single workbook. The workbook is called Personal Macro Workbook - Personal.xlsb. It is a hidden workbook stored on your computer, which opens every time you open Excel. This enables you to run your macros from any workbook. There will be a single Personal Macro Workbook per computer and you cannot share it across computers. You can view and run the macros in your Personal Macro Workbook from any workbook on your computer.

Saving Macros in Personal Macro Workbook

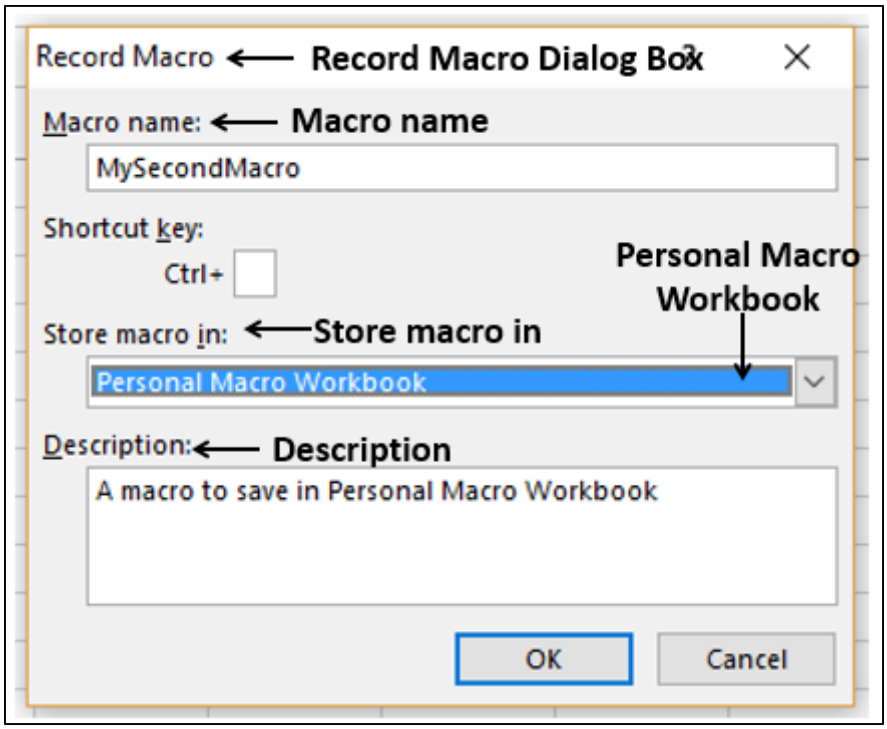
You can save macros in your Personal Macro Workbook by selecting it as the storing option while recording the macros.

Select Personal Macro Workbook from the drop down list under the category **Store macro in**.



- Record your second macro.
- Give macro details in the Record Macro dialog box as shown below.

- Click OK.

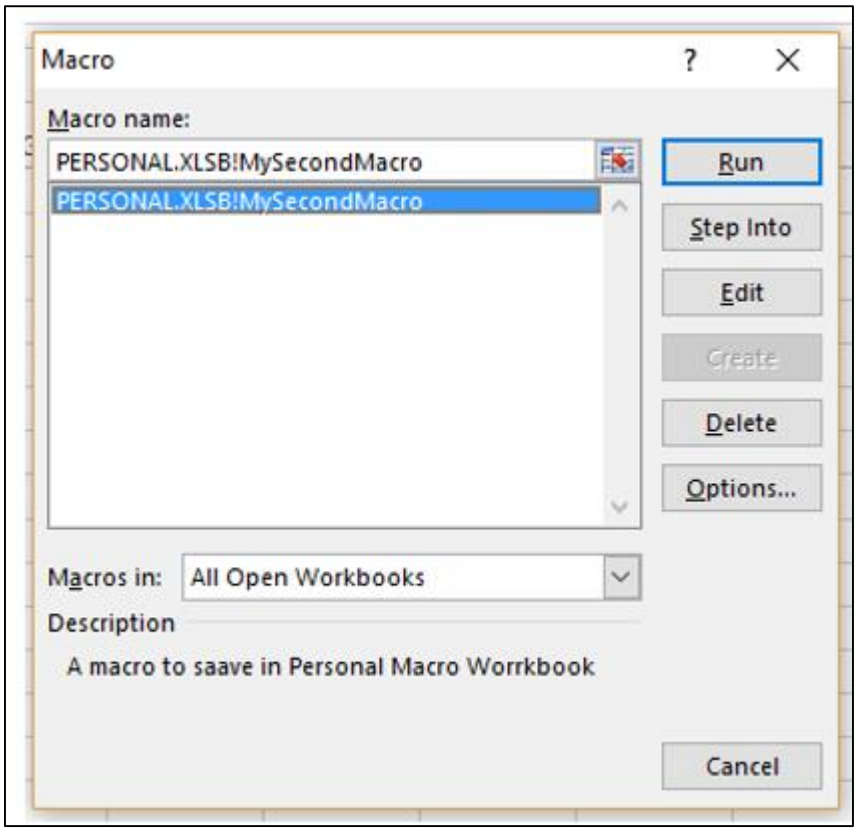


Your recording starts. Create a table as shown below.

	A	B	C
1			
2		S. No.	Month
3		1	January
4		2	February
5		3	March
6		4	April
7		5	May
8		6	June

- Stop recording.

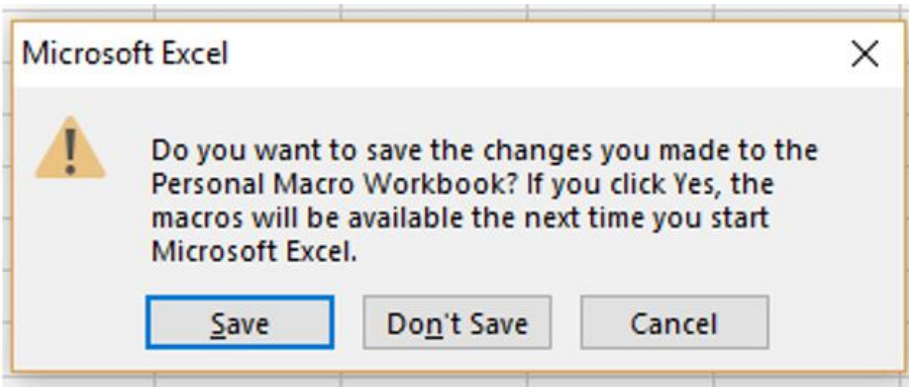
- Click the VIEW tab on the Ribbon.
- Click Macros.
- Select **View Macros** from the dropdown list. The Macro dialog box appears.



The macro name appears with a prefix PERSONAL.XLSB! indicating that the Macro is in the Personal Macro Workbook.

Save your workbook. It will get saved as an .xls file as the macro is not in your workbook and close Excel.

You will get the following message regarding saving the changes to the Personal Macro Workbook –

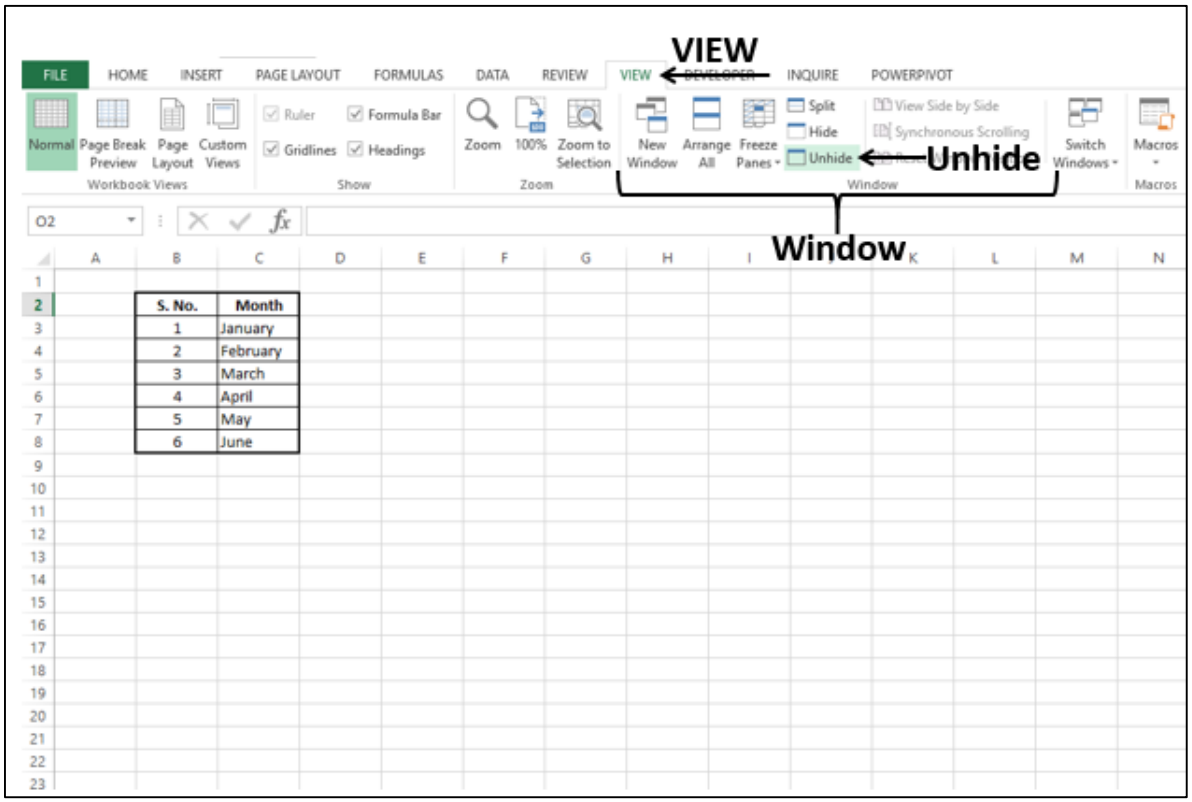


Click the Save button. Your macro is saved in the **Personal.xlsb** file on your computer.

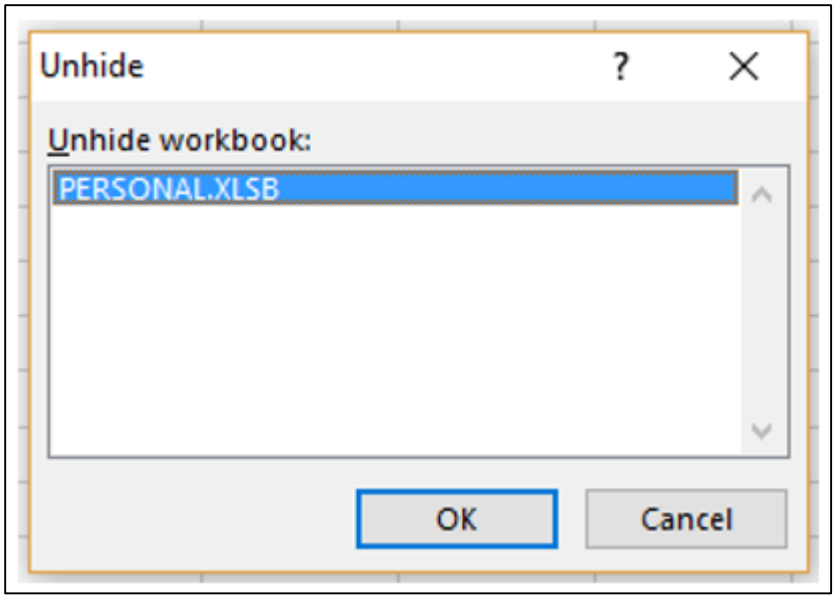
Hiding / Unhiding Personal Macro Workbook

Personal Macro Workbook will be hidden, by default. When you start Excel, the personal macro workbook is loaded but you cannot see it because it is hidden. You can unhide it as follows-

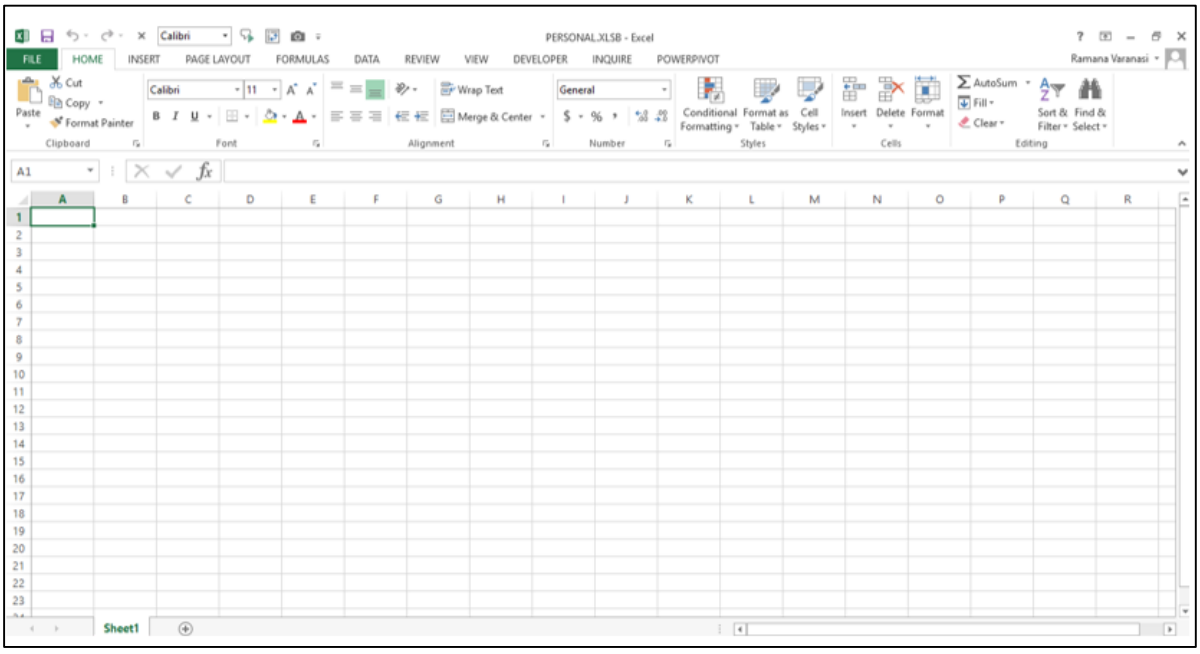
- Click the **VIEW** tab on the Ribbon.
- Click Unhide in the Window group.



The Unhide dialog box appears.



PERSONAL.XLSB appears in the Unhide workbook box and click OK.



Now you can view the macros saved in the personal macro workbook.

To hide the personal macro workbook, do the following –

- Click on the personal macro workbook.
- Click the VIEW tab on the Ribbon.

- Click Hide on the Ribbon.

Running Macros Saved in Personal Macro Workbook

You can run the macros saved in personal macro workbook from any workbook. To run the macros, it does not make any difference whether the personal macro workbook is hidden or unhidden.

- Click View Macros.
- Select the macro name from the macros list.
- Click the Run button. The macro will run.

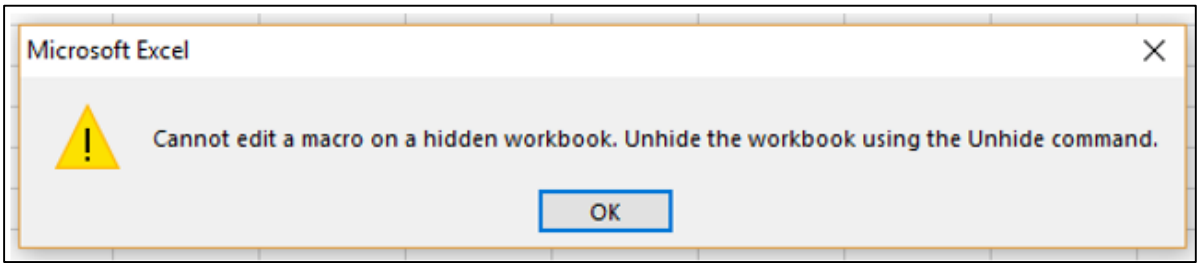
Adding / Deleting Macros in Personal Macro Workbook

You can add more macros in personal macro workbook by selecting it for Store macro in option while recording the macros, as you had seen earlier.

You can delete a macro in personal macro workbook as follows –

- Make sure that the personal macro workbook is unhidden.
- Click the macro name in the View Macros dialog box.
- Click the Delete button.

If the personal macro workbook is hidden, you will get a message saying "Cannot edit a macro on a hidden workbook".



Unhide the personal macro workbook and delete the selected macro.

The macro will not appear in the macros list. However, when you create a new macro and save it in your personal workbook or delete any macros that it contains, you will be prompted to save the personal workbook just as in the case you saved it first time.

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