MS EXCEL:--------------------------------------

An Excel file is a *workbook.* Each workbook comprises one or more worksheets. A *worksheet,* also known as a *spreadsheet,* is a table where We enter data and data labels. Figure 1-2 shows a worksheet with data about rainfall in different counties.
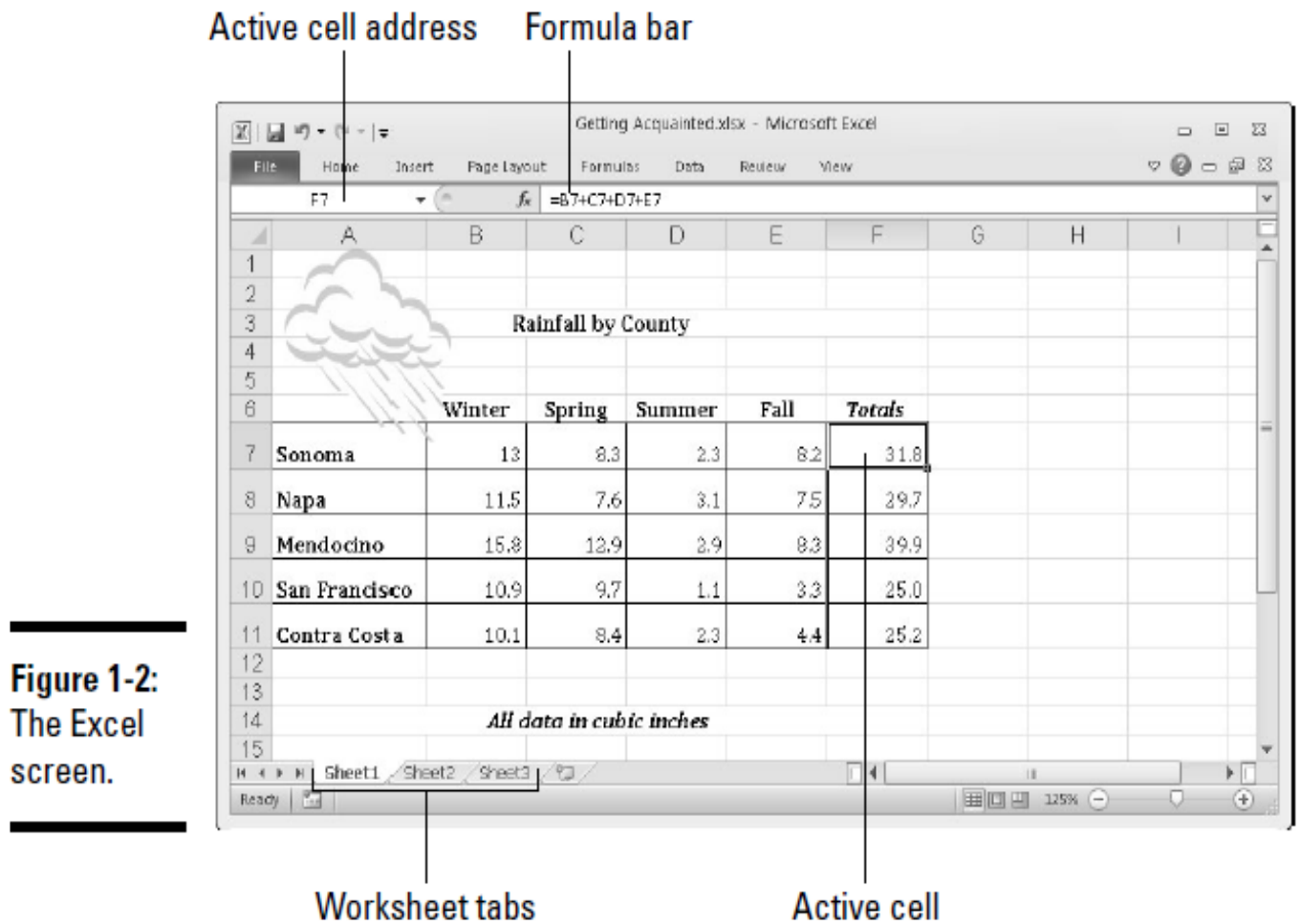

Figure 1-2: The Excel screen.

A worksheet works like an accountant's ledger — only it's much easier to use. Notice how the worksheet is divided by gridlines into columns (A, B, C, and so on) and rows (1, 2, 3, and so on). The rectangles where columns and rows intersect are *cells,* and each cell can hold one data item, a formula for calculating data, or nothing at all. At the bottom of the worksheet are tabs — Sheet1, Sheet2, and Sheet3 — for visiting the other worksheets in the workbook.

Each cell has a different cell address. In Figure 1-2, cell B7 holds 13, the amount of rain that fell in Sonoma County in the winter. Meanwhile, as the Formula bar at the top of the screen shows, cell F7, the active cell, holds the formula =B7+C7+D7+E7, the sum of the numbers in cells – We guessed it –B7, C7, D7, and E7.

Rows, columns, and cell addresses(references):-

An Excel worksheet has numerous columns and over 1 million rows. The rows are numbered, and columns are labeled A to Z; then AA to AZ; then BA to BZ, and so on. The important thing to remember is that each cell has an address whose name comes from a column letter and a row number. The first cell in row 1 is A1, the second is B1, and so on. We need to enter cell addresses in formulas to tell Excel which numbers to compute.

To find a cell's address, either make note of which column and row it lies in, or click the cell and glance at the Formula bar (refer to Figure 1-2)*. The left side of the Formula bar lists the address of the *active cell,* the cell that is selected in the worksheet. In Figure 1-2, cell F7 is the active cell.

Workbooks and worksheets:-

When we create a new Excel file, we open a *workbook,* a file with three worksheets in it. The worksheets are called Sheet1, Sheet2, and Sheet3 (we can change their names and add more worksheets).

A workbook is a stack of worksheets. Besides calculating the numbers in cells across the rows or down the columns of a worksheet, we can make calculations throughout a workbook by using numbers from different worksheets in a calculation.

Entering Data in a Worksheet

The basics of entering data
 Data enters in a worksheet cell falls in four categories:
✦ Text

✦ A value (numeric, date, or time)
✦ A logical value (True or False)
✦ A formula that returns a value, logical value, or text
Still, no matter what type of data we' re entering, the basic steps are the same:
1. Click the cell where We want to enter the data or text label.
2. Type the data in the cell.
3. Press the Enter key to enter the number or label

Editing Worksheet Data
Not everyone enters data correctly the first time. To edit data We entered in a cell, do one of the following:-
✦ **Double-click the cell.** Doing so places the cursor squarely in the cell, where We can start deleting or entering numbers and text.
✦ **Click the cell and press F2.** This technique also lands the cursor in the cell.
✦ **Click the cell We want to edit.** With this technique, We edit the data
on the Formula bar.

Deleting, Copying, and Moving Data
In the course of putting together a worksheet, it is sometimes necessary to delete, copy, and move cell contents. Here are instructions for doing these chores:
✦ **Deleting cell contents:** Select the cells and then press the Delete key; on the Home tab, click the Clear button and choose Clear Contents; or right-click and choose Clear Contents.
✦ **Copying and moving cell contents:** Select the cells and use one of these techniques:
• *Cut or Copy and Paste commands:* When We paste the data, click where We want the first cell of the block of cells We're copying or moving to go.
• *Drag and drop:* Move the pointer to the edge of the cell block, click when We see the four-headed arrow, and start dragging. Hold down the Ctrl key to copy the data.

INSERTING/DELETING/HIDE/UNHIDE----- -ROWS/COLUMNS/CELLS IN A WORKSHEET

➢ We insert rows by clicking a cell and clicking the Home tab on the ribbon. Then, in the Cells group, in the Insert list, click Insert Sheet Rows. Excel inserts a row above the row that contains the active cell.
➢ We insert a column in much the same way, by choosing Insert Sheet Columns from the Insert list. When We do this, Excel inserts a column to the left of the active cell.
➢ If We want to delete a row or column, right-click the row or column head and then, on the shortcut menu that appears, click Delete.
➢ We can temporarily hide rows or columns by selecting those rows or columns and then, on the Home tab, in the Cells group, clicking the Format button, pointing to Hide & Unhide, and then clicking either Hide Rows or Hide Columns.
➢ To return the hidden rows to the display, select the row or column headers on either side of the hidden rows or columns. Then, on the Home tab, in the Cells group, click the Format button, point to Hide & Unhide, and then click either Unhide Rows or Unhide Columns.
➢ Just as We can insert rows or columns, We can insert individual cells into a worksheet. To insert a cell, click the cell that is currently in the position where We want the new cell to appear.

The Basics of Entering a Formula

A formula, which is an expression that performs calculations on your data.
A *formula* is a way to calculate numbers. When we enter a formula in a cell, Excel computes the formula and displays its results in the cell.

No matter what kind of formula you enter, no matter how complex the formula is, follow these basic steps to enter it:
1. **Click the cell where you want to enter the formula.**
2. **Click in the Formula bar if you want to enter the data there rather than in the cell.**
3. **Enter the equals sign (=).**
You must be sure to enter the equals sign before you enter a formula.
Without it, Excel thinks you're entering text or a number, not a formula.
4. **Enter the formula.**
For example, enter **=B1*.06**. Make sure that you enter all cell addresses correctly.
5. **Press Enter or click the Enter button (the check mark on the Formula bar).** The result of the formula appears in the cell.

Table 3-1	Arithmetic Operators for Use in Formulas		
Precedence	Operator	Example Formula	Returns
1	% (Percent)	=50%	50 percent, or 0.5.
2	^ (Exponentiation)	=50^2	50 to the second power, or 2500.
3	* (Multiplication)	=E2*4	The value in cell E2 multiplied by 4.
3	/ (Division)	=E2/3	The value in cell E2 divided by 3.
4	+ (Addition)	=F1+F2+F3	The sum of the values in those cells.
4	− (Subtraction)	=G5−8	The value in cell G5 minus 8.
5	& (Concatenation)	="Part No. "&D4	The text *Part No.* and the value in cell D4.
6	= (Equal to)	=C5=4	If the value in cell C5 is equal to 4, returns TRUE; returns FALSE otherwise.
6	<> (Not equal to)	=F3<>9	If the value in cell F3 is *not* equal to 9, returns TRUE; returns FALSE otherwise.
6	< (Less than)	=B9<E11	If the value in cell B9 is less than the value in cell E11; returns TRUE; returns FALSE otherwise.
6	<= (Less than or equal to)	=A4<=9	If the value in cell A4 is less than or equal to 9, returns TRUE; returns FALSE otherwise.
6	> (Greater than)	=E8>14	If the value in cell E8 is greater than 14, returns TRUE; returns FALSE otherwise

Entering a cell range

A *cell range* is a line or block of cells in a worksheet. Instead of typing cell reference addresses one at a time, you can simply select cells on your worksheet. In Figure 3-6, I selected cells C3, D3, E3, and F3 to form cell range C3:F3. The formula in Figure 3-6 uses the SUM function to total the numeric values in cell range C3:F3.
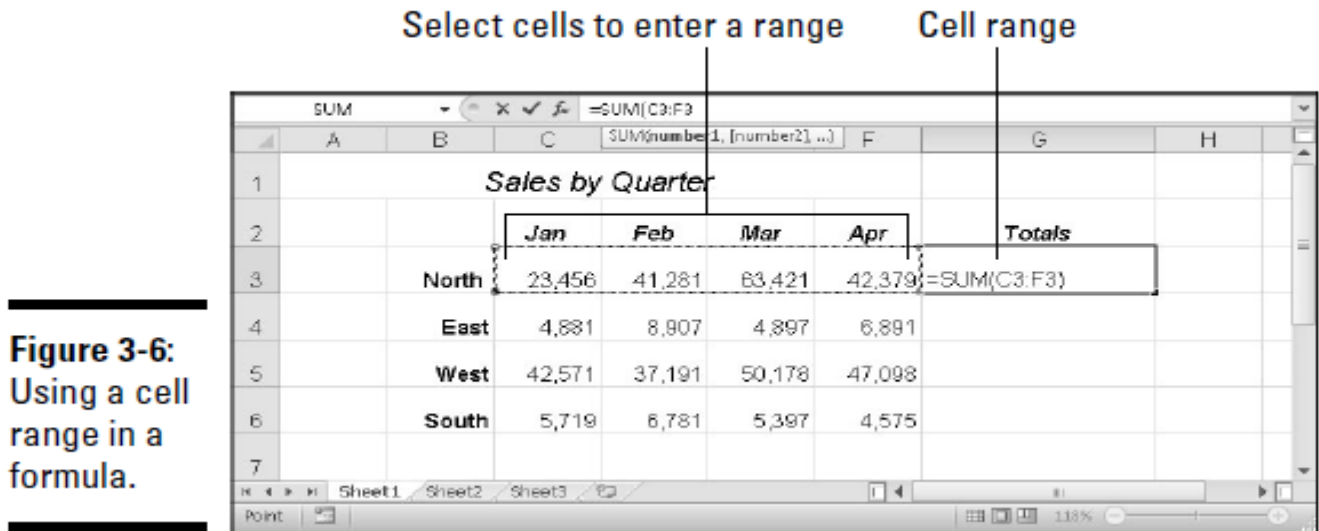

Figure 3-6: Using a cell range in a formula.

To identify a cell range, Excel lists the outermost cells in the range and places a colon (:) between cell addresses:
✦ A cell range comprising cells A1, A2, A3, and A4 is listed this way: A1:A4.
✦ A cell range comprising a block of cells from A1 to D4 is listed this way:A1:D4.

Working with Functions

A *function* is a canned formula that comes with Excel. Excel offers hundreds of functions, some of which are very obscure and fit only for use by rocket scientists or securities analysts. Other functions are very practical. For example, you can use the SUM function to quickly total the numbers in a range of cells. Instead of entering =C2+C3+C4+C5 on the Formula bar, you can enter =SUM(C2:C5), which tells Excel to total the numbers in cell C2, C3, C4, and C5. To obtain the product of the number in cell G4 and .06, you can use the PRODUCT function and enter =PRODUCT(G4,.06) on the Formula bar.
Table 3-3 lists the most common functions.

➢ To get an idea of the numerous functions that Excel offers, go to the **Formulas tab** and click the **Insert Function button**.

Table 3-3	Common Functions and Their Use
Function	**Returns**
AVERAGE(*number1,number2,...*)	The average of the numbers in the cells listed in the arguments
COUNT(*value1,value2,...*)	The number of cells that contain the numbers listed in the arguments
MAX(*number1,number2,...*)	The largest value in the cells listed in the arguments
MIN(*number1,number2,...*)	The smallest value in the cells listed in the arguments
PRODUCT(*number1,number2,...*)	The product of multiplying the cells listed in the arguments

Absolute reference: A cell reference, such as =B3, that doesn't change when you copy a formula containing the reference to another cell.

Relative reference: A cell reference in a formula, such as =B3, that refers to a cell that is a specific distance away from the cell that contains the formula. For example, if the formula =B3 were in cell C3, copying the formula to cell C4 would cause the formula to change to =B4.

> *One quick way to change a cell reference from relative to absolute is to select the cell reference in the formula box and then press F4. Pressing F4 cycles a cell reference through the four possible types of references:*
> ● *Relative columns and rows (for example, C4)*
> ● *Absolute columns and rows (for example, C4)*
> ● *Relative columns and absolute rows (for example, C$4)*
> ● *Absolute columns and relative rows (for example, $C4)*

Creating Charts

Chart: A visual summary of worksheet data, also called a graph.

The basic steps to create a chart in Excel:

1. **Go to the Insert tab.**

2. **Select the data you'll use to generate the chart.**

3. **Select the kind of chart you want.**

Either open the drop-down list in one of buttons in the Chart group on the Insert tab (Column, Line, Pie, Bar, Area, Scatter, or Other Charts) and select a chart type, or click the Charts group

button to open the Insert Chart dialog box and select a chart there. The Insert Chart dialog box shows all the kinds of charts you can create.
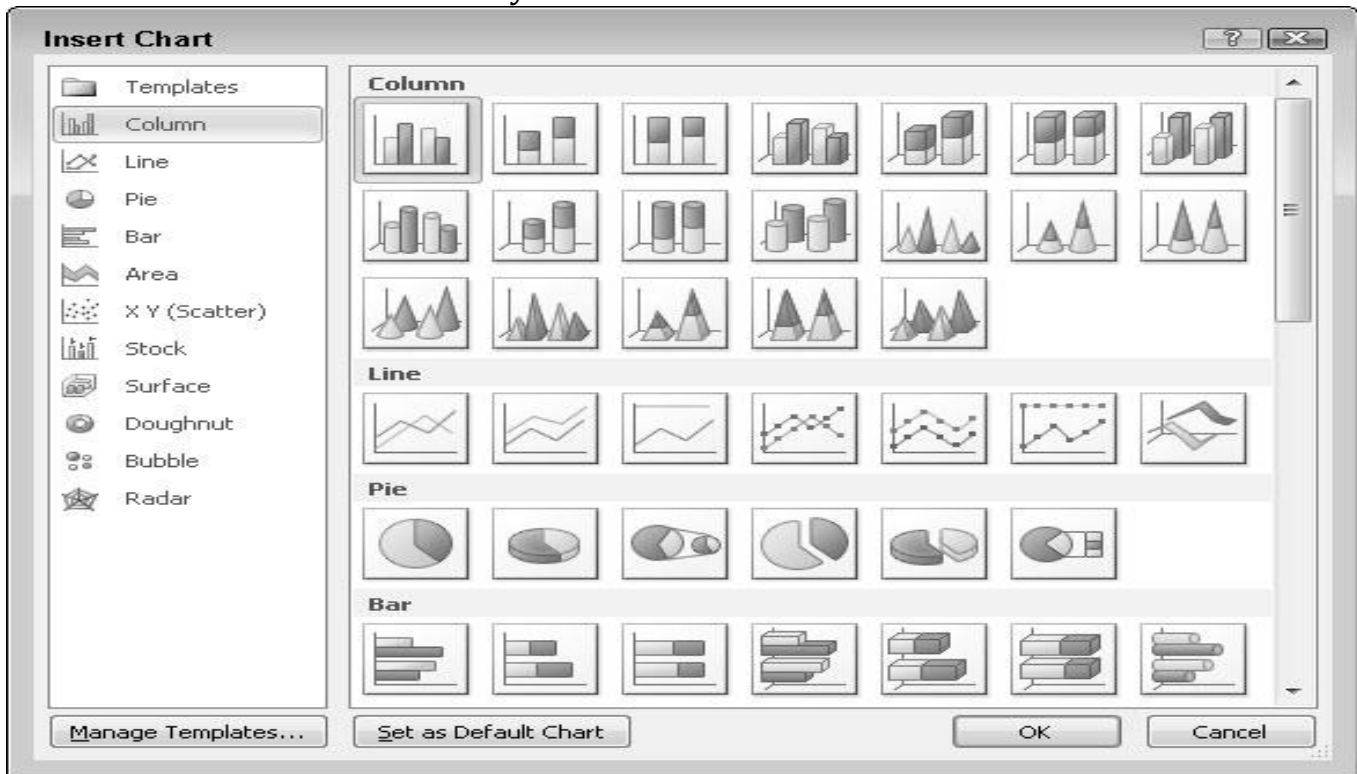
Filter:- A rule that Excel uses to determine which worksheet rows to display.

Excel spreadsheets can hold as much data as we need them to, but we might not want to work with all the data in a worksheet at the same time. We can limit the data shown on a worksheet by creating a filter, which is a rule that selects rows to be shown in a worksheet.

To create a filter, we click the cell in the data we want to filter and then, on the Home tab, in the **Editing group**, *click **Sort & Filter** and then click **Filter***. When we do, Excel displays a filter arrow at the right edge of the top cell in each column of the data. The arrow indicates that the Excel AutoFilter capability is active.

To see all the data in the list again – to unfiltered the list – click the Clear button on the Data tab.