

Class: IX

Sub: IT

UNIT 4: ELECTRONIC SPREADSHEET

1. CREATE A SPREADSHEET

1.1 Introduction to spreadsheet:

Spreadsheet: A **spreadsheet** or ~~worksheet~~ is a file made of rows and columns that helps to sort, organize, and arrange data efficiently, and calculate numerical data.

Electronic Spreadsheet: An electronic spreadsheet can be used to automatically perform numerical calculations.

Examples of spreadsheet programs:

- Google Sheets - (online and free).
- iWork Numbers - Apple Office Suite.
- LibreOffice -> Calc (free).
- Microsoft Excel.
- OpenOffice -> Calc (free).

Uses for spreadsheet software:

- Household Finance Planning
- Business Accounts and Budgeting
- Invoices
- Wages
- Calculations e.g. Adding, Subtracting, etc.
- Creating Graphs e.g. bar chart, pie chart.
- Collect data from different sources e.g. phone number, prices.

Advantages of Spreadsheet:

- Calculations are correct.
- Calculations are completed automatically.

- Information is organised and easy to access.
- Information is easy to edit if a mistake has been made by retyping or using 'undo'.
- Data can be easily sorted and filtered.
- Data can be quickly analysed.
- Reports can be made more visual by using charts and graphs.

1.2 Starting a Spreadsheet:

Steps to start MS-Excel are:-

1. Double Click on a shortcut key of the MS-Excel icon, if available, on the desktop.

OR

2. Click **Start - > All Programs->Microsoft Office->MS Excel**

1.3 Components of a Spreadsheet:

Following are the components of a spreadsheet are:-

1. Worksheet: It is grid of horizontal rows and vertical columns.

2. Workbook: A workbook contains one or more worksheets.

3. Row: A row is horizontal arrangement of cells.

- The rows are named by numbers (1, 2, 3, 4...).

- There are 1,048,576 rows on a worksheet.

- Row height is 409 points.

4. Column: A column is a vertical arrangement of cells.

- The columns are named by alphabets (A, B, C....Y, Z, AA, AB, AC... AZ, BA, BB...)

- There are 16,384 columns on a worksheet.

- Column width is 255 characters.

5. Cell: A cell is where the rows and columns intersect. Worksheet is also called an array of cells.

- A cell may contain text, numbers, date or a formula.

- A cell address in a spreadsheet identifies location of the cell.

- It is a combination of column name and row number of the cell, such as A2 or B16 etc.

6. Active cell: This is the cell on which the cursor is currently placed. It is outlined by a dark border. Data is always entered in the active cell.

7. Formula Bar: This is located below the Ribbon. It displays the contents of the active cell. It can also be used to enter and edit data.

8. Scroll Bar: These help to scroll through the content and body of the worksheet. There are two scroll bars –

a. Horizontal scroll bar

b. Vertical scroll bar

9. Cell Range: A cell range in an Excel file is a collection of selected cells.

Formula with a function

Column (Vertical)

Cell Reference and Formula Bar

Row (Horizontal)

Cell Containing a Label

Cell containing a Number

Cell containing a Formula - see also formula bar at the top of the sheet

Range B5:D8

	A	B	C	D	E	F	G	H	I	J
1	Weekly Shipping Expenses									
2										
3	Company	Monday	Wednesday	Friday						
4										
5	Fed. Ex.	32.4	26.8	14.4						
6	UPS	19	17.35	23.17						
7	Airborne	16	12.45	5.6						
8	Roadway	72	18.92	36.72						
9										
10	Daily									
11	Total.	139.4								
12										
13										

2. APPLY FORMULA AND FUNCTIONS IN SPREADSHEET

2.1 Different types of data:

There are three types of data in cells: labels, values, and formulas.

a) Label (text): Labels are descriptive pieces of information, such as names, months, or other identifying statistics, and they usually include alphabetic characters.

b) Values (numbers): Values are generally raw numbers or dates.

c) Formula: Formulas are instructions for Excel to perform calculations.

2.2 Entering Data:

1. To enter data in Excel, just select a cell and begin typing. You'll see the text appear both in the cell and in the formula bar above.
2. To tell Excel to accept the data you've typed, press enter. The information will be entered immediately, and the cursor will move down one cell.
3. You can also press the tab key instead of the enter key. If you press tab, the cursor will move one cell to the right once the information has been entered.
4. When Excel sees that you are typing into a list, pressing enter at the end of the row will move the cursor down one row and back to the first column.
5. At any time while you are typing you can press the escape key to cancel. This brings Excel back to the state it was in before you started typing.
6. When you want to delete information that has already been entered, just select the cells, and press the delete key.

2.3 Mathematical Operators used in formula:

1. Excel uses standard operators for equations, such as a
2. **plus sign** for addition (+),
3. **minus sign** for subtraction (-),
4. **asterisk** for multiplication (*),
5. **forward slash** for division (/), and
6. **caret** (^) for exponents.

Note: All formulas must begin with an **equals sign (=)**.

Addition	+	=5+5
Subtraction	-	=5-5
Multiplication	*	=5*5
Division	/	=5/5
Exponents	^	=5^5

2.4 Entering Formula:

To enter a formula, execute the following steps.

1. Select a cell.
2. To let Excel know that you want to enter a formula, type an equal sign (=).
3. Type the formula for example, A1+A2.
4. Press Enter key

Edit a Formula

When you select a cell, Excel shows the value or formula of the cell in the formula bar.

1. To edit a formula, click in the formula bar and change the formula.
2. Press Enter key.

2.5 Entering Function:

Function: A **function** is a **predefined formula** that performs calculations using specific values in a particular order.

Insert a Function in Excel:

1. Click the cell where you want to add a formula.
2. Click the Insert Function button.

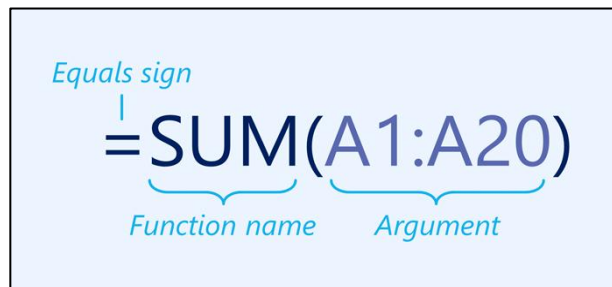
3. Search for a function using one of these methods: Type a few keywords that describe the function you want and click Go. ...
4. Select the desired function.
5. Click OK. ...
6. Enter the formula arguments.
7. Click OK.

The parts of a function:

Syntax: In order to work correctly, a function must be written a specific way, which is called the **syntax**.

- The basic syntax for a function is the **equals sign (=)**, the **function name** (SUM, for example), and one or more **arguments**.

Syntax →



There are three parts in syntax:

1. Equal sign (=)
2. Function name
3. Argument

- Excel includes many common functions that can be used to quickly find the **sum**, **average**, **count**, **maximum value**, and **minimum value** for a range of cells. In order to use functions correctly, you'll need to understand the different **parts of a function** and how to create **arguments** to calculate values and cell references.
- Once you are familiar with the function you want to use, all you have to do is enter an equal sign (=) in the cell, followed by the name of the function and the cell range it applies to.

Creating a function:

There are a variety of functions available in Excel. Here are some of the most common functions you'll use:

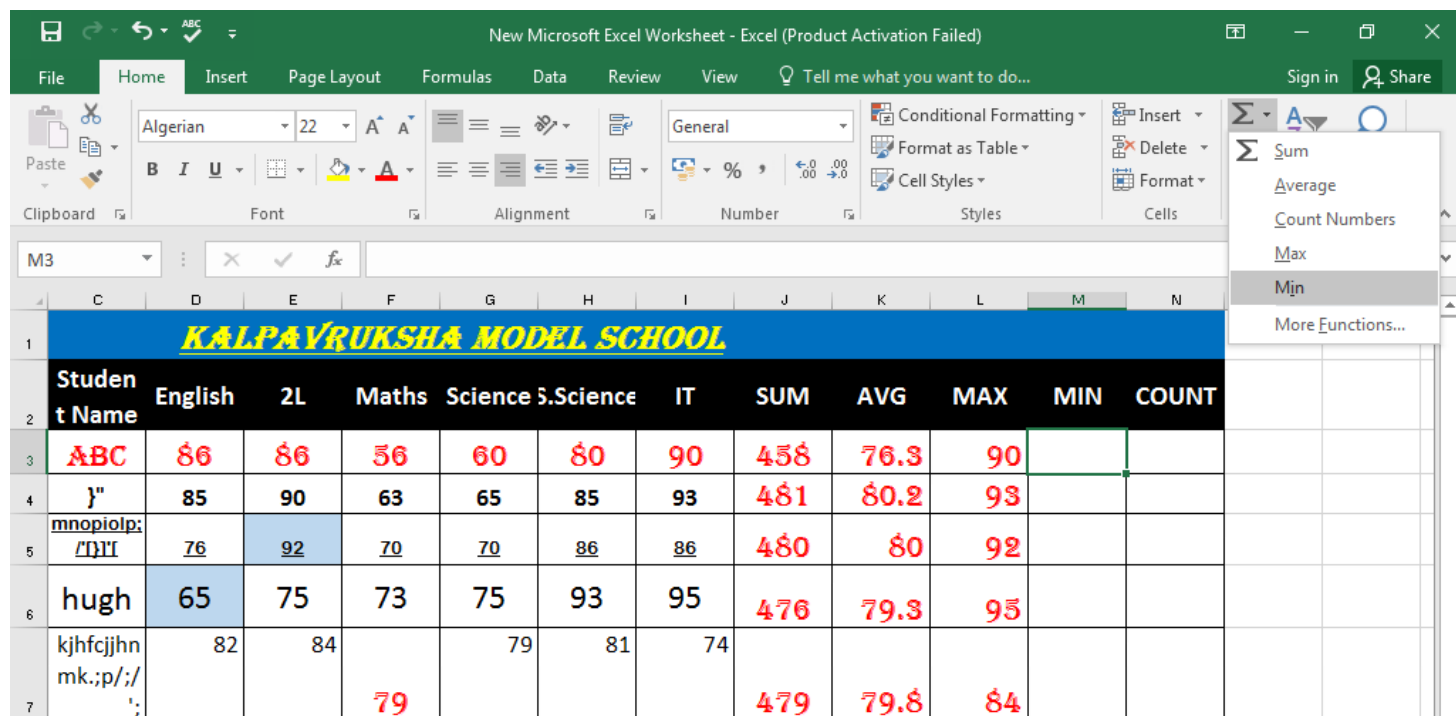
- **SUM:** This function **adds** all of the values of the cells in the argument.
- **AVERAGE:** This function determines the **average** of the values included in the argument. It calculates the sum of the cells and then divides that value by the number of cells in the argument.
- **COUNT:** This function **counts** the number of cells with numerical data in the argument. This function is useful for quickly counting items in a cell range.
- **MAX:** This function determines the **highest cell value** included in the argument.

- **MIN:** This function determines the **lowest cell value** included in the argument.

Creating function using the AutoSum command:

The **AutoSum** command allows you to automatically insert the most common functions into your formula, including SUM, AVERAGE, COUNT, MIN, and MAX.

- AutoSum command is available under **Home tab** in **Editing Group**.



Steps to insert a function using AutoSum Command:

- 1) Select the **cell** that will contain the function.
- 2) In the **Editing** group on the **Home** tab, click the **arrow** next to the **AutoSum** command. Next, choose the **desired function** from the drop-down menu.
- 3) Excel will place the **function** in the cell and automatically select a **cell range** for the argument.
- 4) Press **Enter** on your keyboard. The function will be **calculated**, and the **result** will appear in the cell.

Note: The **AutoSum** command can also be accessed from the **Formulas** tab on the **Ribbon**.

Insert a column:

Following are the steps to insert a column.

- 1) Select a column where you want to insert a column.
- 2) Click mouse right button, it display a menu and select insert option.
- 3) A column will be inserted.

Insert a Row:

Following are the steps to insert a row.

- 1) Select a column where you want to insert a row.

- 2) Click mouse right button, it display the menu and select insert option.
- 3) A row will be inserted.

Delete a column:

Following are the steps to delete a column.

- 1) Select a column which you want to delete.
- 2) Click mouse right button, it display the menu and select delete option.
- 3) Selected column will be deleted.

Delete a row:

Following are the steps to delete a row.

- 1) Select a row which you want to delete.
- 2) Click mouse right button, it display the menu and select delete option.
- 3) Selected row will be deleted.

Rename a Sheet in a spreadsheet:

Following are the steps to insert a sheet in a spreadsheet.

- 1) Select the sheet which you want to rename.
- 2) Click mouse right button, it display the menu and select rename option.
- 3) Selected sheet will be renamed.

Delete a Sheet in a spreadsheet:

Following are the steps to delete a sheet in a spreadsheet.

- 1) Select the sheet which you want to delete.
- 2) Click mouse right button, it display the menu and select delete option.
- 3) Selected sheet will be deleted.

3. FORMAT DATA IN THE SPREADSHEET:

3.1 Formatting tool:

- All cell content uses the same **formatting** by default, which can make it difficult to read a workbook with a lot of information.
- Basic formatting can customize the **look and feel** of your workbook, allowing you to draw attention to specific sections and making your content easier to view and understand.

To change the font:

- By default, the font of each new workbook is set to Calibri.
- When creating a workbook in the workplace, you have to select a font that is easy to read.

- Along with Calibri, standard reading fonts include Cambria, Times New Roman, and Arial.

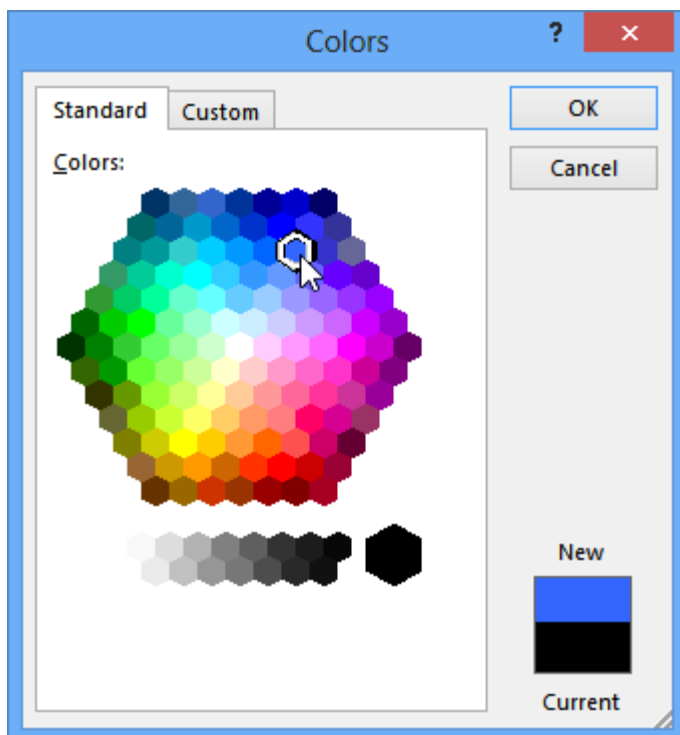
To change the font size:

1. Select the cell(s) you want to modify.
2. Click the drop-down arrow next to the Font Size command on the Home tab. The Font Size drop-down menu will appear.
3. Select the desired font size. A live preview of the new font size will appear as you hover the mouse over different options. In our example, we will choose 16 to make the text larger.
4. The text will change to the selected font size.

To change the font color:

1. Select the cell(s) you want to modify.
2. Click the drop-down arrow next to the Font Color command on the Home tab. The color menu will appear.
3. Select the desired font color. A live preview of the new font color will appear as you hover the mouse over different options. In our example, we'll choose Green.
4. The text will change to the selected font color.

Note: Select More Colors at the bottom of the menu to access additional color options.



To use the Bold, Italic, and Underline commands:

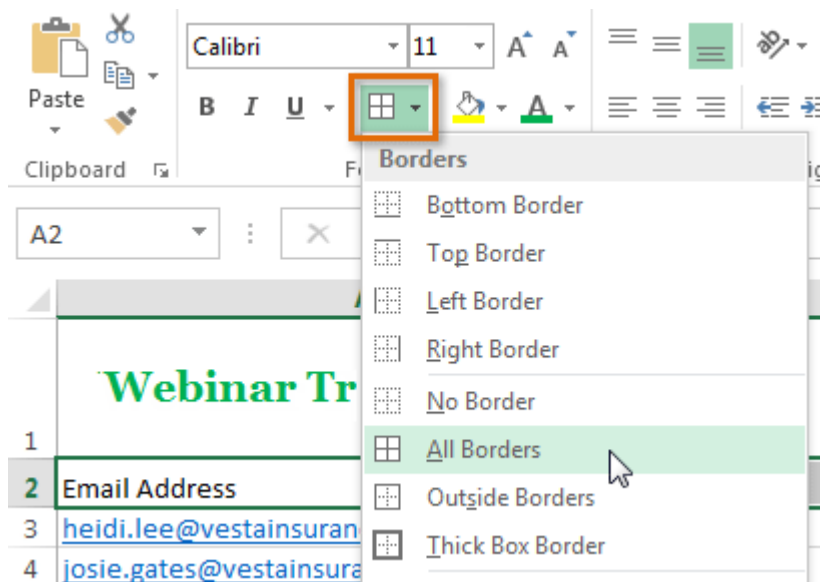
1. Select the **cell(s)** you want to modify.
2. Click the **Bold (B)**, **Italic (I)**, or **Underline (U)** command on the **Home** tab. In our example, we'll make the selected cells **bold**.
3. The **selected style** will be applied to the text.

Cell borders and fill colors

Cell borders and **fill colors** allow you to create clear and defined boundaries for different sections of your worksheet. Below, we'll add cell borders and fill color to our **header cells** to help distinguish them from the rest of the worksheet.

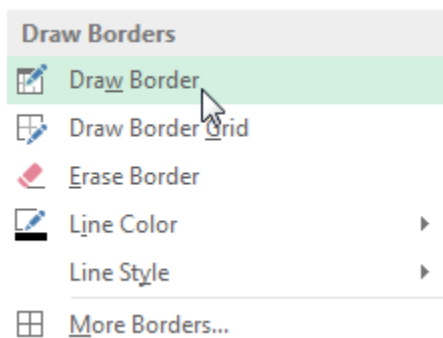
To add a border:

1. Select the **cell(s)** you want to modify.
2. Click the **drop-down arrow** next to the **Borders** command on the **Home** tab. The **Borders** drop-down menu will appear.
3. Select the **border style** you want to use. In our example, we will choose to display **All Borders**.



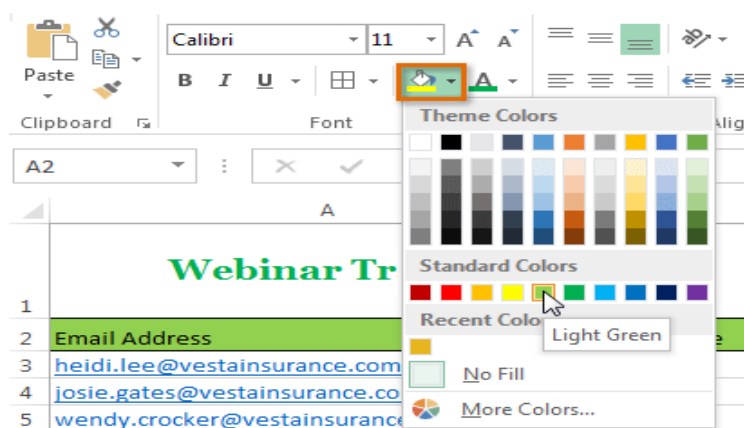
4. The **selected border style** will appear.

You can draw borders and change the **line style** and **color** of borders with the **Draw Borders** tools at the bottom of the Borders drop-down menu.



To add a fill color:

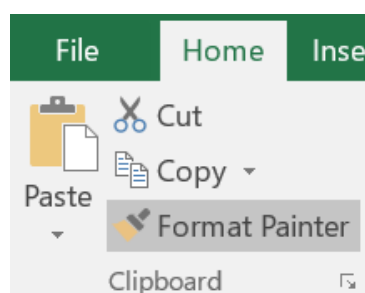
1. Select the **cell(s)** you want to modify.
2. Click the **drop-down arrow** next to the **Fill Color** command on the **Home** tab. The **Fill Color** menu will appear.
3. Select the **fill color** you want to use. A **live preview** of the new fill color will appear as you hover the mouse over different options. In our example, we'll choose **Light Green**.



4. The **selected fill color** will appear in the selected cells.

Format Painter

If you want to copy formatting from one cell to another, you can use the **Format Painter** command on the **Home** tab. When you click the Format Painter, it will copy all of the formatting from the selected cell. You can then **click and drag** over any cells you want to paste the formatting to.



Text alignment

- By default, any text entered into your worksheet will be aligned to the bottom-left of a cell.
- By default, any numbers entered will be aligned to the bottom-right.
- Changing the **alignment** of your cell content allows you to choose how the content is displayed in any cell, which can make your cell content easier to read.

Following are the two different types of text alignment options:

1) Horizontal text alignment:

- a) **Left align:** Aligns content to the left border of the cell
- b) **Centre align:** Aligns content an equal distance from the left and right borders of the cell
- c) **Right Align:** Aligns content to the right border of the cell

2) Vertical text alignment:

- a) **Top Align:** Aligns content to the top border of the cell
- b) **Middle Align:** Aligns content an equal distance from the top and bottom borders of the cell.
- c) **Bottom Align:** Aligns content to the bottom border of the cell

To change horizontal text alignment:

1. Select the **cell(s)** you want to modify.
2. Select one of the three **horizontal alignment** commands on the **Home** tab. In our example, we'll choose **Centre Align**.
3. The text will **realign**.

To change vertical text alignment:

1. Select the **cell(s)** you want to modify.
2. Select one of the three **vertical alignment** commands on the **Home** tab. In our example, we'll choose **Middle Align**.
3. The text will **realign**.

Note: You can apply **both** vertical and horizontal alignment settings to any cell.

Change the orientation of text in a cell:

1. Select a cell, row, column, or a range.
2. Select **Home** > **Orientation**, and then select an option.

You can rotate your text up, down, clockwise, or counter clockwise, or align text vertically:

Rotate text to a precise angle:

1. Select a cell, row, column, or a range.
2. Select **Home** > **Orientation** > **Format Cell Alignment**.
3. Under **Orientation** on the right side, in the **Degrees** box, use the up or down arrow to set the exact number of degrees that you want to rotate the selected cell text.

Wrap text in a cell:

Microsoft Excel can wrap text so it appears on multiple lines in a cell. You can format the cell so the text wraps automatically, or enter a manual line break.

Wrap text automatically

1. In a worksheet, select the cells that you want to format.
2. On the **Home** tab, in the **Alignment** group, click **Wrap Text**. (On Excel for desktop, you can also select the cell, and then press **Alt + H + W**.)

Notes:

- Data in the cell wraps to fit the column width, so if you change the column width, data wrapping adjusts automatically.
- If all wrapped text is not visible, it may be because the row is set to a specific height or that the text is in a range of cells that has been merged.

Adjust the row height to make all wrapped text visible

1. Select the cell or range for which you want to adjust the row height.
2. On the **Home** tab, in the **Cells** group, click **Format**.
3. Under **Cell Size**, do one of the following:
 - To automatically adjust the row height, click **AutoFit Row Height**.
 - To specify a row height, click **Row Height**, and then type the row height that you want in the **Row height** box.

Tip: You can also drag the bottom border of the row to the height that shows all wrapped text.

Merge Cells in Excel

Merged cell: Combines two or more cells in Excel to create a new, larger cell is called merged cell.

- This is useful for organizing information and creating headers, without the need to resize individual cells. Here's how to do it.

Merge Cells with the Merge & Center Command in the Home Tab

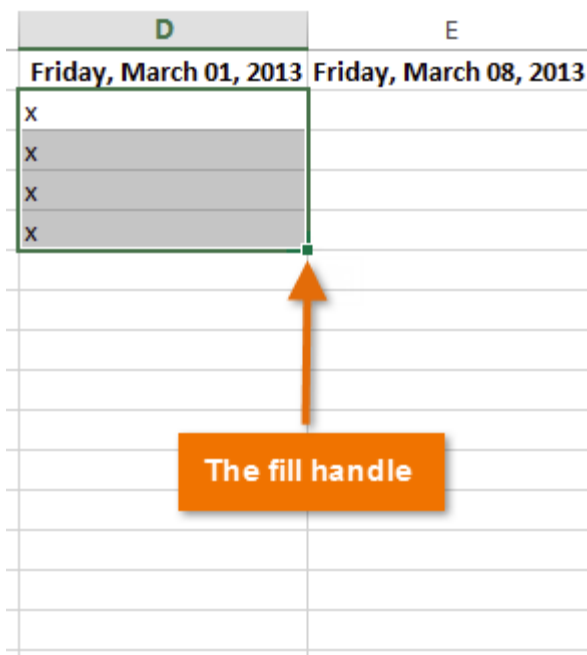
1. **Select** the cells you want to merge together.
2. Go to the **Home** tab.
3. Click on the **Merge & Center** command found in the **Alignment** section.

Fill Handle:

- There may be times when you need to copy the content of one cell to several other cells in your worksheet.
- You could **copy and paste** the content into each cell, but this method would be time consuming.
- Instead, you can use the **fill handle** to quickly copy and paste content to **adjacent cells** in the same row or column.

Steps to use fill handle:

1. Select the **cell(s)** containing the content you want to use. The **fill handle** will appear as a small square in the bottom-right corner of the selected cell(s).



2. Click, hold, and drag the **fill handle** until all of the cells you want to fill are **selected**.

[illegible]

3. Release the mouse to **fill** the selected cells.

[illegible]

To continue a series with the fill handle:

- The fill handle can also be used to **continue a series**. Whenever the content of a row or column follows a sequential order, like **numbers (1, 2, 3)** or **days (Monday, Tuesday, Wednesday)**, the fill handle can guess what should come next in the series.

- In many cases, you may need to select **multiple cells** before using the fill handle to help Excel determine the series order.
- In our example below, the fill handle is used to extend a series of **dates** in a column.

G	H
Friday, March 01, 2013	
Friday, March 08, 2013	
	Friday, March 29, 2013

G	H
Friday, March 01, 2013	
Friday, March 08, 2013	
Friday, March 15, 2013	
Friday, March 22, 2013	
Friday, March 29, 2013	

You can also **double-click** the fill handle instead of clicking and dragging. This can be useful with larger spreadsheets, where clicking and dragging may be awkward.

	A
1	1
2	2
3	
4	