

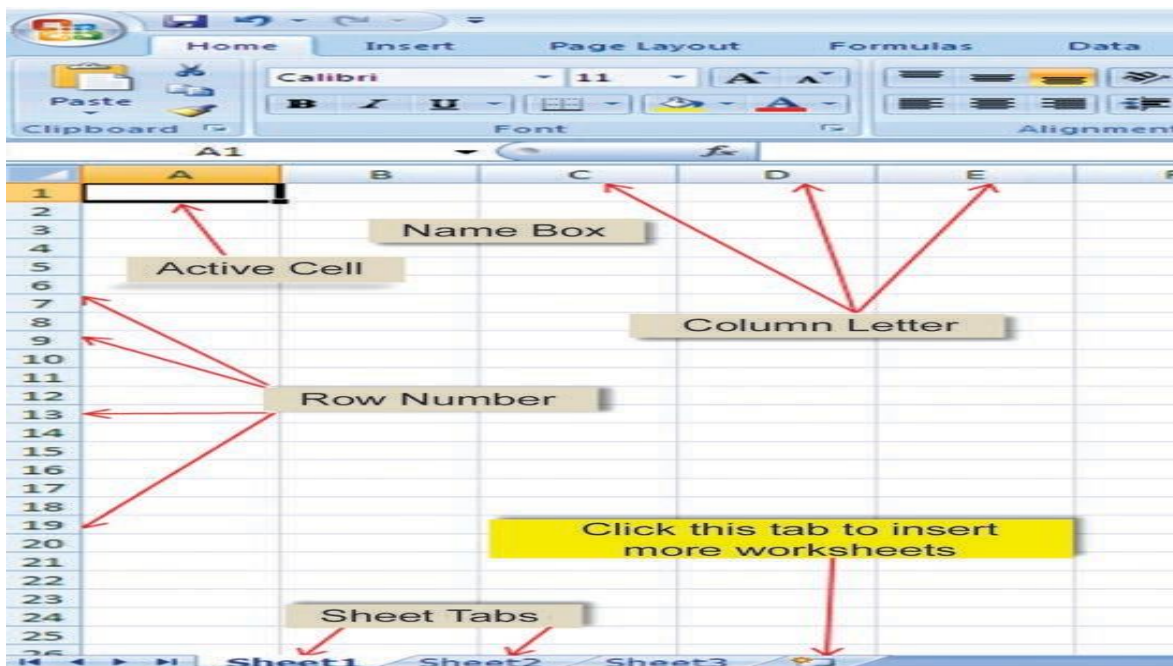
**Program 1:** Getting started with Excel: Creation of spread sheets, Insertion of rows and columns, Drag & Fill, use of Aggregate functions.

### Creation of spread sheets

- A spreadsheet is a configuration of rows and columns. Rows are horizontal vectors while columns are vertical vectors.
- A spreadsheet is also known as a worksheet. It is used to record, Calculate and compare numerical or financial data.
- Spreadsheet application is a computer program that allows us to add and process data. We shall understand spreadsheet with the help of MS-Excel, which is one of the Microsoft Office Suite of software.

**Step 1:** Open MS Excel.

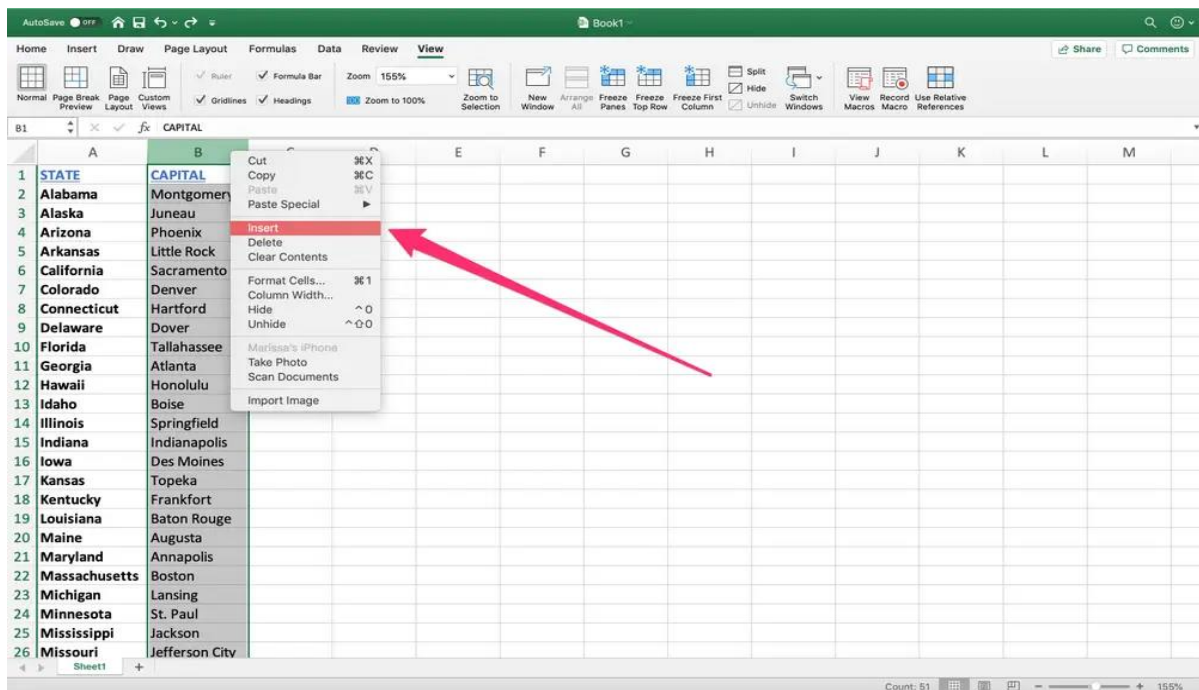
**Step 2:** Go to Menu and select New >> Click on the Blank workbook to create a simple worksheet.



## Step 3:

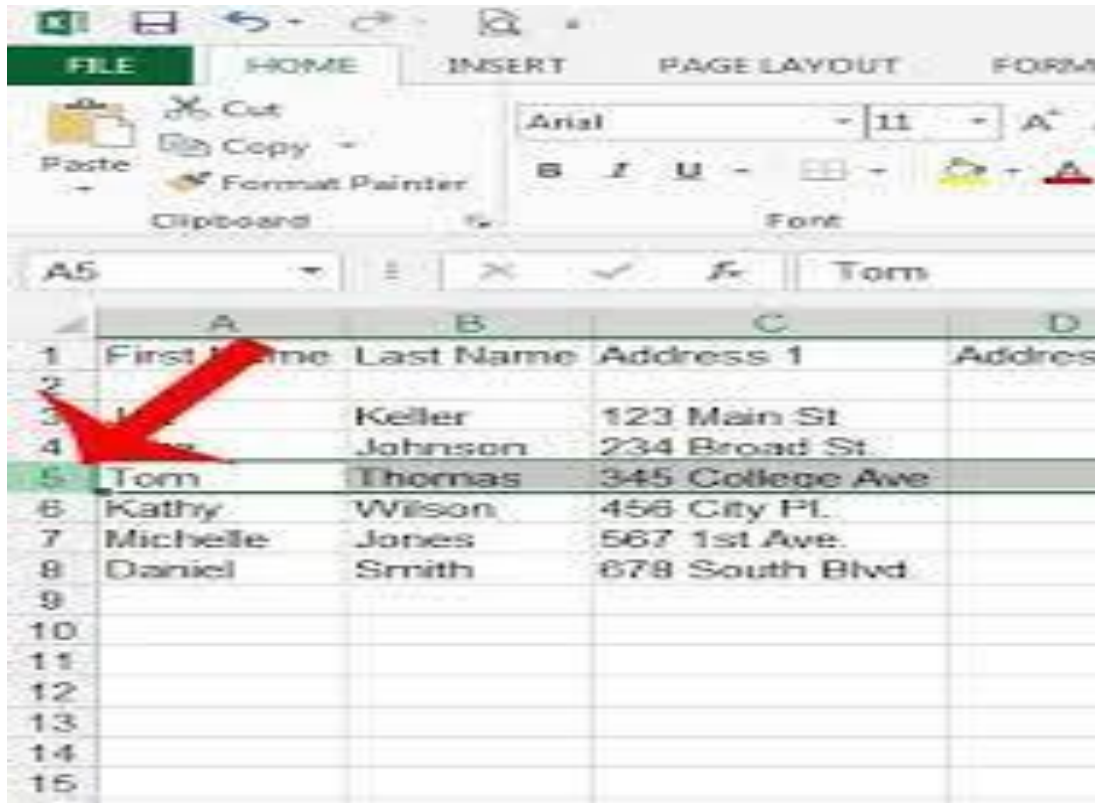
### Insertion of columns

- 1) Select any cell within the column, then go to Home> Insert> Insert sheet Columns.
- 2) Alternatively, right –click the top of the column and then select insert.



### Insertion of row

- 1) Select any cell within the row, then go to Home> Insert> Insert sheet rows.
- 2) Alternatively, right –click the top of the row number and then select insert.



#### **Step 4:**

##### **Drag and Fill**

We want to enter data in cell 1 to cell 10 [A1:A10] starting value from 10 and in step of 10 we will get 10, 20.....100 by using drag option.

- 1) Select the cells that contain the data that we want to fill [A1:A2] into adjacent cells [A3:A10].
- 2) Drag the fill handle across the cells that we want to fill.
- 3) To choose how we want to fill the selection, click auto fill options, and then click the option that we want.

	A	B	C
1			
2			1
3			2
4			3
5			
6			
7			
8			

Drag the pointer over the cells to fill.

### **Step5:**

#### Use of Aggregate function.

The AGGREGATE function in Excel allows applying different aggregate functions like AVERAGE, SUM, PRODUCT, COUNT, MAX, or MIN to a list of data.

- An aggregate function performs a calculation on a set of values, and returns a single value.
- Aggregate functions ignore null values.

VARSHITHA S - Microsoft Excel (Product Activation Failed)

File Home Insert Page Layout Formulas Data Review View

Clipboard Font Alignment Number Styles Cells Editing

116 fx

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
1	SL.NO	NAME	USN	DOB	SUB1	SUB2	SUB3	TOTAL	Percentage										
2	1	JOHN	4RA17CS001	03/01/2000	55	61	78	194	64.7										
3	2	JANE	4RA17CS002	04/01/2000	78	71	56	205	68.3										
4	3	ALEX	4RA17CS003	05/01/2000	91	81	78	250	83.3										
5	4	EMILY	4RA17CS004	06/01/2000	69	91	66	226	75.3										
6	5	MICHAEL	4RA17CS005	07/01/2000	45	89	78	212	70.7										
7	6	OLIVIA	4RA17CS006	08/01/2000	56	99	90	245	81.7										
8	7	ETHAN	4RA17CS007	09/01/2000	78	89	34	201	67.0										
9	8	SOPHIA	4RA17CS008	10/01/2000	85	45	67	197	65.7										
10	9	LIAM	4RA17CS009	11/01/2000	96	55	58	209	69.7										
11	10	AVA	4RA17CS010	12/01/2000	56	67	67	190	63.3										
12								MAX	83.3										
13								MIN	63.3										
14																			
15																			
16																			
17																			
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26																			
27																			

Sheet1 Sheet2 Sheet3

Ready

1:43 AM 01/01/2008

## Program 2: Working with Data: Importing data, Data entry & Manipulation, Sorting & filtering

DATA: data is information that has been translated into a form that is efficient for movement or processing

There are at least three key concepts when starting a data project:

- Data requests should begin with a list of questions we want to answer.
- Data often is messy and needs to be cleaned.
- Data may have undocumented features

```
2005,Control,182 Republic of Moldova's Presidency Office (Apparatus),8182 Republic of Moldova's Presidency Office (Apparatus),...818 Central apparatus (Office) of ministries and other administrative author-  
ities,81 General purpose state services,81.82 Executive authorities,113 Payment for goods and services,113.63 Office supplies, utensils and household goods",Base component,Non-personnel recurrent,135184,  
200500,194488,72  
2005,Control,182 Republic of Moldova's Presidency Office (Apparatus),8182 Republic of Moldova's Presidency Office (Apparatus),...818 Central apparatus (Office) of ministries and other administrative author-  
ities,81 General purpose state services,81.82 Executive authorities,113 Payment for goods and services,113.06 Books and periodicals,Base component,Non-personnel recurrent,30000,44000,26372.38  
2005,Control,182 Republic of Moldova's Presidency Office (Apparatus),8182 Republic of Moldova's Presidency Office (Apparatus),...818 Central apparatus (Office) of ministries and other administrative author-  
ities,81 General purpose state services,81.82 Executive authorities,113 Payment for goods and services,113.09 Nutrition/Food,Base component,Non-personnel recurrent,8,4500,4455.3  
2005,Control,182 Republic of Moldova's Presidency Office (Apparatus),8182 Republic of Moldova's Presidency Office (Apparatus),...818 Central apparatus (Office) of ministries and other administrative author-  
ities,81 General purpose state services,81.82 Executive authorities,113 Payment for goods and services,113.18 Drugs and consumables,Base component,Non-personnel recurrent,8,1000,1000  
2005,Control,182 Republic of Moldova's Presidency Office (Apparatus),8182 Republic of Moldova's Presidency Office (Apparatus),...818 Central apparatus (Office) of ministries and other administrative author-  
ities,81 General purpose state services,81.82 Executive authorities,113 Payment for goods and services,113.11 Telecommunication and mail services,Base component,Non-personnel recurrent,384300,384300,35588  
9.67  
2005,Control,182 Republic of Moldova's Presidency Office (Apparatus),8182 Republic of Moldova's Presidency Office (Apparatus),...818 Central apparatus (Office) of ministries and other administrative author-  
ities,81 General purpose state services,81.82 Executive authorities,113 Payment for goods and services,113.13 Transportation services,Special means,Non-personnel recurrent,200000,330400,8.35  
2005,Control,182 Republic of Moldova's Presidency Office (Apparatus),8182 Republic of Moldova's Presidency Office (Apparatus),...818 Central apparatus (Office) of ministries and other administrative author-  
ities,81 General purpose state services,81.82 Executive authorities,113 Payment for goods and services,113.18 Current repair of equipment and inventory,Base component,Non-personnel recurrent,35800,123000,  
2412  
2005,Control,182 Republic of Moldova's Presidency Office (Apparatus),8182 Republic of Moldova's Presidency Office (Apparatus),...818 Central apparatus (Office) of ministries and other administrative author-  
ities,81 General purpose state services,81.82 Executive authorities,113 Payment for goods and services,113.20 Use of government and local insignia/symbols, state distinction signs",Base component,Non-per-  
sonnel recurrent,0,31300,0  
2005,Control,182 Republic of Moldova's Presidency Office (Apparatus),8182 Republic of Moldova's Presidency Office (Apparatus),...818 Central apparatus (Office) of ministries and other administrative author-  
ities,81 General purpose state services,81.82 Executive authorities,113 Payment for goods and services,113.22 Printing services,Base component,Non-personnel recurrent,11500,250000,248118.8  
2005,Control,182 Republic of Moldova's Presidency Office (Apparatus),8182 Republic of Moldova's Presidency Office (Apparatus),...818 Central apparatus (Office) of ministries and other administrative author-  
ities,81 General purpose state services,81.82 Executive authorities,113 Payment for goods and services,113.23 Remuneration costs,Base component,Non-personnel recurrent,32400,65700,53516.39  
2005,Control,182 Republic of Moldova's Presidency Office (Apparatus),8182 Republic of Moldova's Presidency Office (Apparatus),...818 Central apparatus (Office) of ministries and other administrative author-  
ities,81 General purpose state services,81.82 Executive authorities,113 Payment for goods and services,113.36 IT and PC works,Base component,Non-personnel recurrent,90700,126700,90819.81  
2005,Control,182 Republic of Moldova's Presidency Office (Apparatus),8182 Republic of Moldova's Presidency Office (Apparatus),...818 Central apparatus (Office) of ministries and other administrative author-  
ities,81 General purpose state services,81.82 Executive authorities,114 Duty travel,114.82 Travels abroad,Base component,Non-personnel recurrent,19630,38700,47783.21  
2005,Control,182 Republic of Moldova's Presidency Office (Apparatus),8182 Republic of Moldova's Presidency Office (Apparatus),...818 Central apparatus (Office) of ministries and other administrative author-  
ities,81 General purpose state services,81.82 Executive authorities,116 Employee's share of the mandatory health insurance premiums,116.81 Employer's share of the mandatory health insurance premiums payme-  
nt in the country,Base component,Personnel,88800,88800,87733  
2005,Control,182 Republic of Moldova's Presidency Office (Apparatus),8182 Republic of Moldova's Presidency Office (Apparatus),...818 Central apparatus (Office) of ministries and other administrative author-  
ities,81 General purpose state services,81.82 Executive authorities,135 Transfers to population,135.81 Lifetime pensions and indemnities,Base component,Non-personnel recurrent,221300,221300,221256  
2005,Control,182 Republic of Moldova's Presidency Office (Apparatus),8182 Republic of Moldova's Presidency Office (Apparatus),...818 Central apparatus (Office) of ministries and other administrative author-  
ities,81 General purpose state services,81.82 Executive authorities,135 Transfers to population,135.25 Other transfers made to population,Base component,Non-personnel recurrent,189400,189400,189364.8  
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ities,81 General purpose state services,81.82 Executive authorities,242 Purchase of fixed assets,242.00 Purchase of fixed assets,Base component,Capital,112800,1484700,1158498.5  
2005,Control,182 Court of Accounts,8182 Court of Accounts,...818 Central apparatus (Office) of ministries and other administrative authorities,81 General purpose state services,81.83 Financial, budget/finan-  
cial and control services",111 Remuneration of work,Special means,Personnel,0,34000,4400.15  
2005,Control,182 Court of Accounts,8182 Court of Accounts,...818 Central apparatus (Office) of ministries and other administrative authorities,81 General purpose state services,81.83 Financial, budget/finan-  
cial and control services",111 Remuneration of work,111.00 Remuneration of work,Base component,Personnel,630300,783800,732563.57  
2005,Control,182 Court of Accounts,8182 Court of Accounts,...818 Central apparatus (Office) of ministries and other administrative authorities,81 General purpose state services,81.83 Financial, budget/finan-  
cial and control services",112 Mandatory state social insurance premiums,112.00 Mandatory state social insurance premiums,Special means,Personnel,0,25500,17432.17  
2005,Control,182 Court of Accounts,8182 Court of Accounts,...818 Central apparatus (Office) of ministries and other administrative authorities,81 General purpose state services,81.83 Financial, budget/finan-
```


### Step 1:

### Importing data

One more method for data entry for any application we can use the following easiest method which will transfer data into required cells by copying or importing to Excel worksheet. These data files may be either in text files or non-text files format.

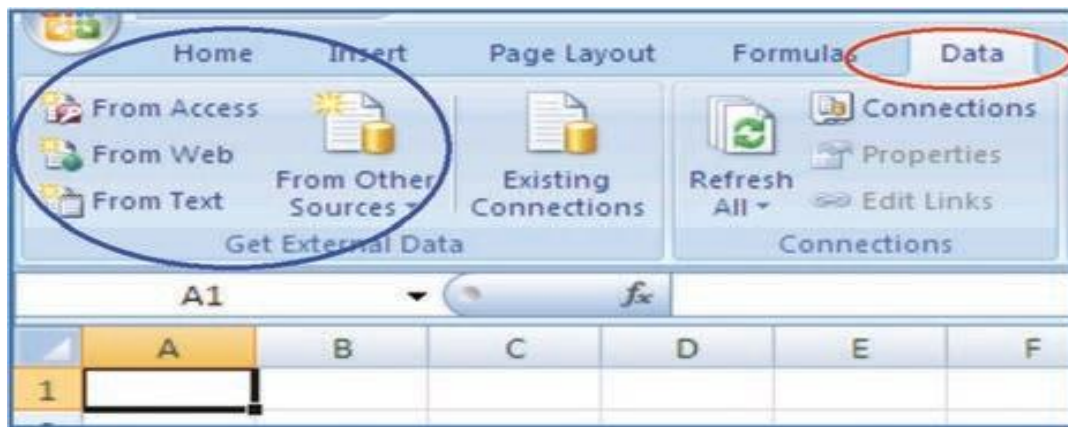


- 1) Create data file using Notepad program of MS Windows (to get Notepad screen on desktop; click on Start button -> All Programs -> Accessories -> Notepad).
- 2) A comma-separated data values in one line of this text file is a row in a spreadsheet and each entry, separated by a comma, is a column entry for that row.
- 3) In the first line provides names for the columns of the spreadsheet.
- 4) In the next line onward start entering the data separate by comma as per the names given in first line.
- 5) It may possible that every data may not be of similar length but each data (even a blank data) should be separated by comma as per the names of the column.
- 6) Open a new Excel worksheet from the Office Button.
- 7) Select Data Tab on the Ribbon.
- 8) On Data tab; an option Get External Data having From Text option.
- 9) Click on “From Text” which will allow selecting a Notepad file saved as .cvm into Excel format directly and data will be copied into respective columns and rows.
- 10) Each and every data from Notepad file can be saved as an Excel data file.



**empdata - Notepad**  
File Edit Format View Help

EC No.,	Name,	Designation,	Salary,	Date of Birth,	Date of Joining
05805,	Ramesh Bahel,	GM,	40000.00,	24-11-1952,	16-01-1981
04724,	Kanu Patel,	GM,	46000.00,	23-02-1953,	19-03-1978
06104,	Shashikant,	AVP,	52000.00,	16-01-1953,	16-01-1983
05555,	Kamini,	Typist,	15000.00,	16-04-1980,	20-05-1999
15805,	Ramesh Patel,	Cashier,	18000.00,	24-11-1988,	16-01-2008
24724,	Kanu Sharma,	Peon,	6000.00,	23-02-1980,	19-03-2006



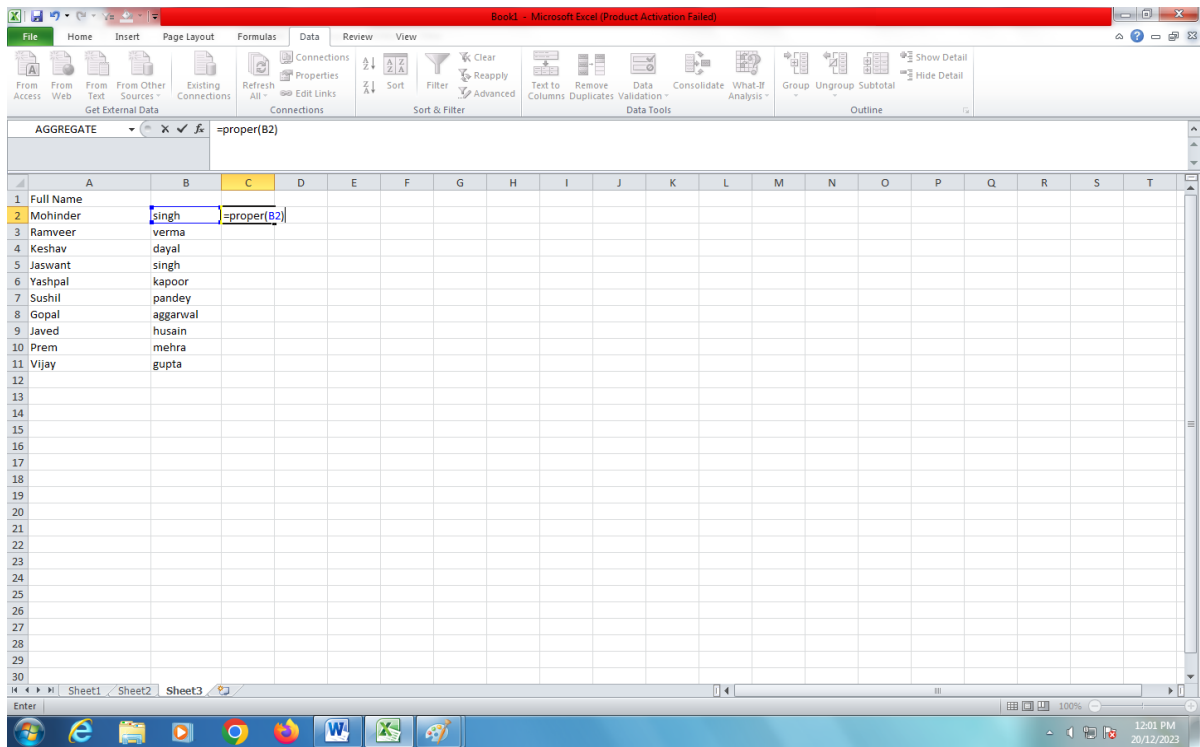
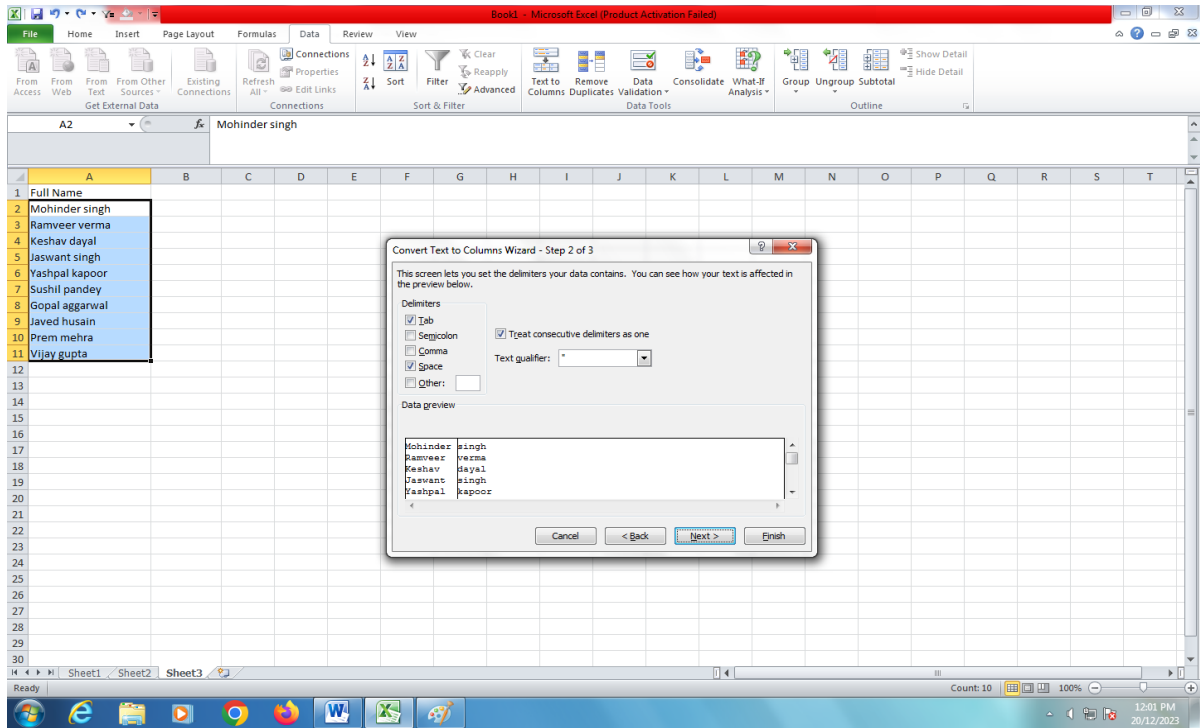
	A	B	C	D	E	F
1						
2	EC No.	Name	Designation	Salary	Date of Birth	Date of Joining
3	5805	Ramesh Bahel	GM	40000	24-11-1952	16-01-1981
4	4724	Kanu Patel	GM	46000	23-02-1953	19-03-1978
5	6104	Shashikant	AVP	52000	16-01-1953	16-01-1983
6	5555	Kamini	Typist	15000	16-04-1980	20-05-1999
7	15805	Ramesh Patel	Cashier	18000	24-11-1988	16-01-2008
8	24724	Kanu Sharma	Peon	6000	23-02-1980	19-03-2006

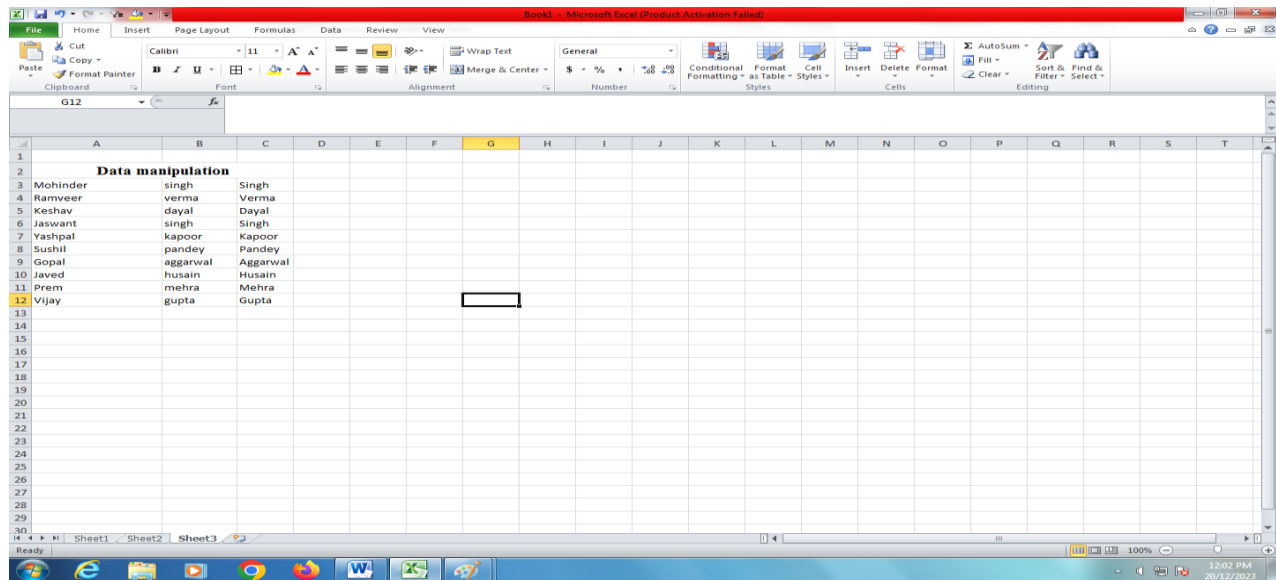
## Step 2:

### Data Entry & Manipulation

- Data manipulation is the modification of information to make easier to read or more structured.







### Step 3:

#### Sorting

#### 1. Sort quickly and easily

1. Select a single cell in the column we want to sort.
2. On the **Data** tab, in the **Sort & Filter** group, click  to perform an ascending sort (from A to Z, or smallest number to largest).




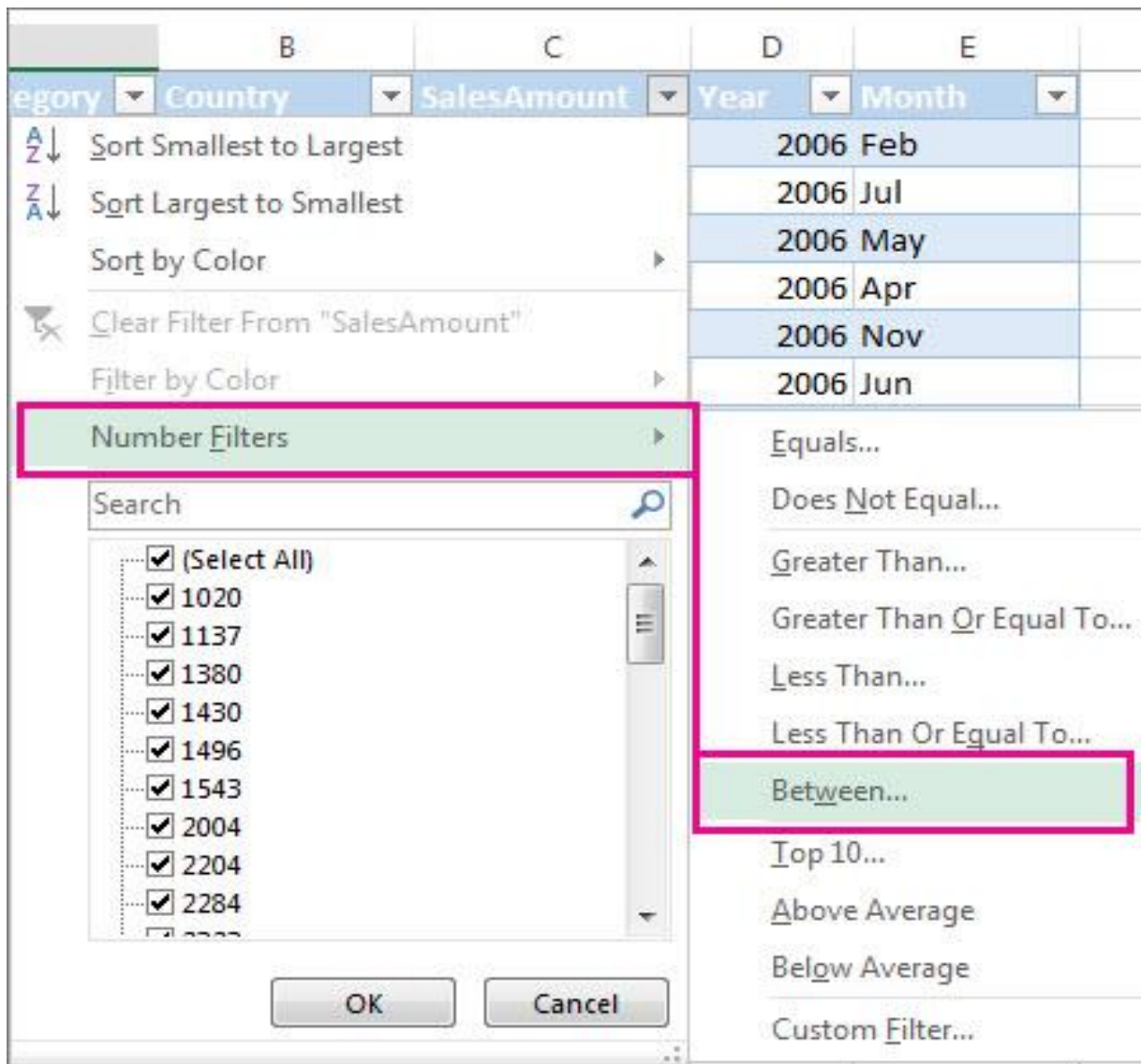
3. Click  to perform a descending sort (from Z to A, or largest number to smallest).

## Step 4:

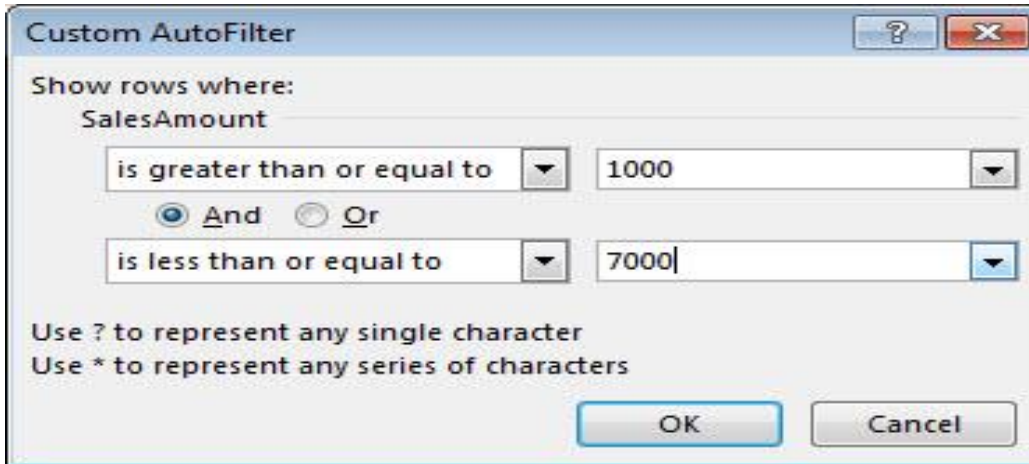
### Filter

#### 1. Filter a range of data

1. Select any cell within the range.
2. Select **Data** > **Filter**.
3. Select the column header arrow 
4. Select **Text Filters** or **Number Filters**, and then select a comparison, like **Between**.



5. Enter the filter criteria and select **OK**.



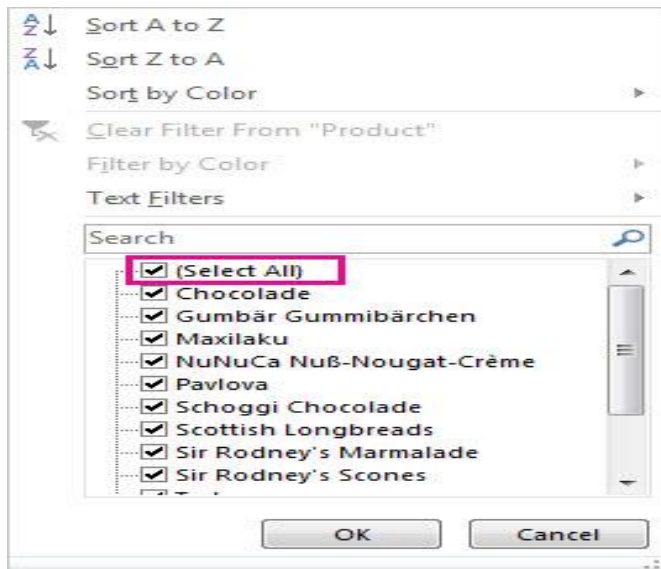
The image shows the 'Custom AutoFilter' dialog box. It has a title bar with a question mark and a close button. The main text says 'Show rows where: SalesAmount'. Below this, there are two criteria: 'is greater than or equal to 1000' and 'is less than or equal to 7000'. The 'And' radio button is selected. At the bottom, there are 'OK' and 'Cancel' buttons. Instructions at the bottom state: 'Use ? to represent any single character' and 'Use \* to represent any series of characters'.

2. Filter data in a table

When we create and format tables, filter controls are automatically added to the table headers.

	A	B	C	D	E	F	G
1	Product	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Grand Total	Average Sales
2	Chocolade	\$ 744.60	\$ 162.56	\$ 68.85	\$ 306.00	\$ 1,282.01	\$ 320.50
3	Gumbär Gummibärchen	\$ 5,079.60	\$ 1,249.20	\$ 2,061.17	\$ 2,835.68	\$ 11,225.65	\$ 2,806.41
4	Maxolaku	\$ 1,605.60	\$ 620.00	\$ 835.00	\$ -	\$ 3,060.60	\$ 765.15
5	NuNuCa Nuß-Nougat-Crème	\$ 193.20	\$ 865.20		\$ 493.50	\$ 1,551.90	\$ 517.30
6	Pavlova	\$ 1,685.36	\$ 2,646.08	\$ 1,849.70	\$ 999.01	\$ 7,180.15	\$ 1,795.04
7	Schoggi Chocolate	\$ 1,755.00	\$ 5,268.00	\$ 2,195.00	\$ 1,756.00	\$ 10,974.00	\$ 2,743.50
8	Scottish Longbreads	\$ 1,267.50	\$ 1,062.50	\$ 492.50	\$ 1,935.00	\$ 4,757.50	\$ 1,189.38
9	Sir Rodney's Marmalade		\$ 4,252.50	\$ 1,360.80	\$ 1,701.00	\$ 7,314.30	\$ 2,438.10
10	Sir Rodney's Scones	\$ 1,418.00	\$ 756.00	\$ 1,733.00	\$ 1,434.00	\$ 5,341.00	\$ 1,335.25
11	Tarte au sucre	\$ 4,728.00	\$ 4,547.92	\$ 5,472.30	\$ 6,014.60	\$ 20,762.82	\$ 5,190.71
12	Teatime Chocolate Biscuits	\$ 943.89	\$ 349.60	\$ 841.80	\$ 204.70	\$ 2,339.99	\$ 585.00
13	Valkoinen suklaa	\$ 845.00		\$ 385.94	\$ 942.50	\$ 2,173.44	\$ 724.48
14	Zaanse koeken	\$ 817.00	\$ 285.95	\$ 668.80	\$ 1,159.00	\$ 2,930.75	\$ 732.69
15	<b>Total</b>	<b>\$21,082.75</b>	<b>\$22,065.51</b>	<b>\$17,964.86</b>	<b>\$19,780.99</b>	<b>\$ 80,894.11</b>	<b>\$ 1,626.42</b>

1. Select the column header arrow  for the column we want to filter.
2. Uncheck (**Select All**) and select the boxes we want to show.



3. Click **OK**. The column header arrow  changes to a  **Filter** icon. Select this icon to change or clear the filter.

## Program 3: Working with data: Data validation, Pivot table & Pivot Chart

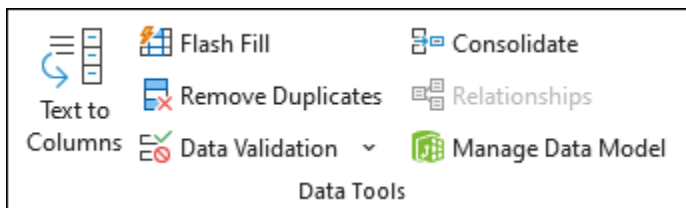
### Step 1:

#### Data Validation

- Data validation is a feature to define restrictions on type of data entered into a cell. We can configure data validation rules for cells data that will not allow users to enter invalid data, There may be warning messages when users tries to type wrong data in the cell. The messages also guide users to what input is expected for the cell, and instructions to correct any errors.
- Data validation is invaluable because it is necessary that data must be accurate and consistent.

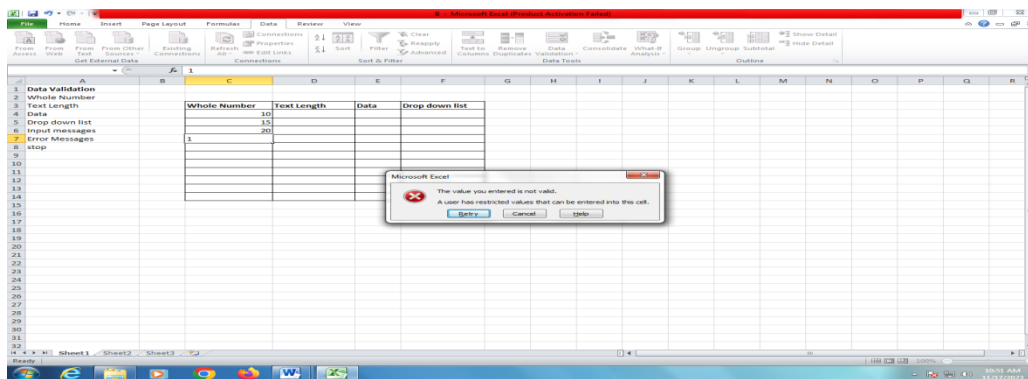
1. Select the cell(s) you want to create a rule for.

2. Select **Data >Data Validation**.



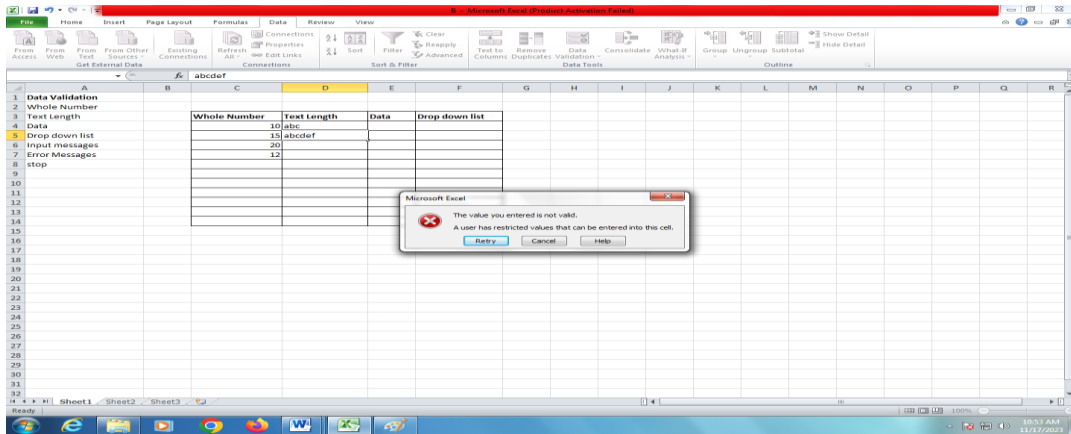
3. On the **Settings** tab, under **Allow**, select an option:

- **Whole Number** - to restrict the cell to accept only whole numbers.

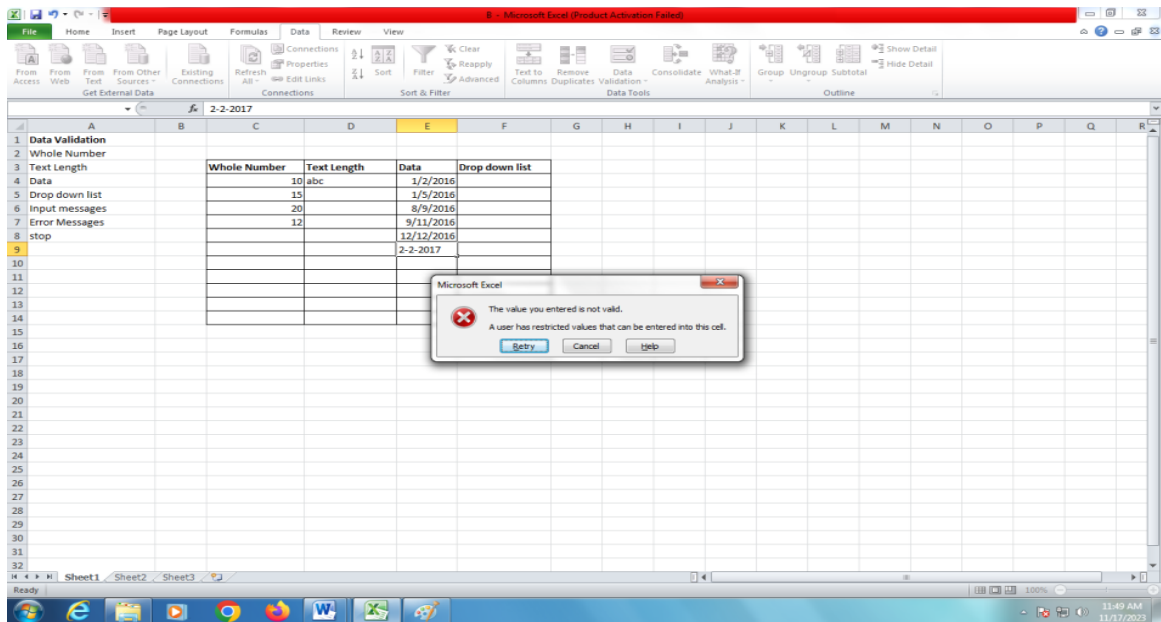


- **Text Length** - to restrict the length of the text.

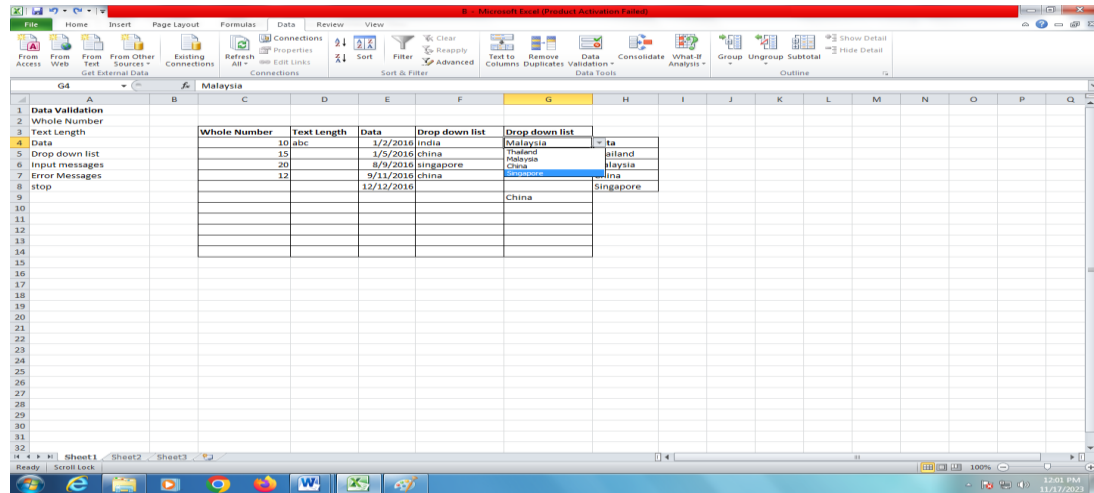




- **Date** - to restrict the cell to accept only date.



**Drop down List:** By this option pre-defined items names list is referred and restrict the users to select accordingly.

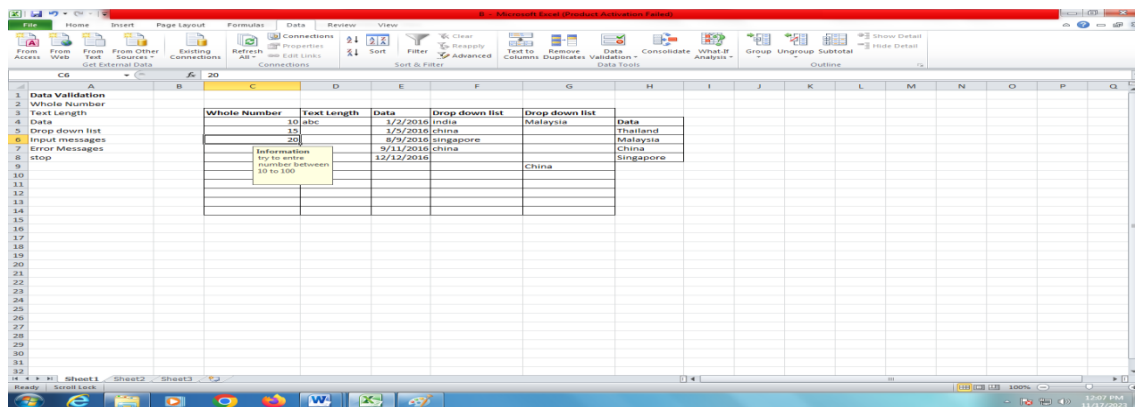


4. Under **Data**, select a condition.

5. Set the other required values based on what we chose for **Allow** and **Data**.

6. Select the **Input Message** tab and customize a message users will see when entering data.

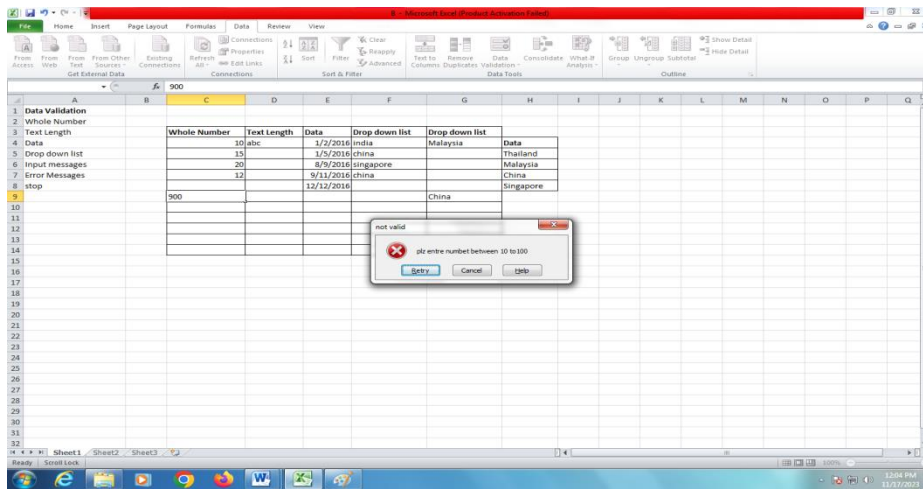
7. Select the **Show input message when cell is selected** checkbox to display the message when the user selects or over the selected cell(s).



8. Select the **Error Alert** tab to customize the error message and to choose a **Style**.

9. Select **OK**.

Now, if the user tries to enter a value that is not valid, an **Error Alert** appears with your customized message.



## Step 2

### Pivot Table

A PivotTable is a powerful tool to calculate, summarize, and analyze data. PivotTables work a little bit differently depending on what platform we are using to run Excel.

1. Select the cells you want to create a PivotTable from. ...
2. Select Insert > PivotTable.
3. This creates a PivotTable based on an existing table or range. ...
4. Choose where we want the PivotTable report to be placed. ...
5. Select OK.

Microsoft Excel (Product Activation Failed) - pivot

File Home Insert Page Layout Formulas Data Review View

Tables JB Date

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30

	A	B	C	D	E	F	G
1	Date	Product	Region	Name	Units	Sales	COGS
2	7/19/2016	Chair	East	John	16	\$200.00	\$232.99
3	7/20/2016	Table	South	Rita	24	\$250.00	\$240.35
4	7/21/2016	Board	West	Neeta	30	\$810.71	\$435.64
5	7/22/2016	Marker	West	Joseph	19	\$418.54	\$190.05
6	7/23/2016	Laptop	East	Robert	38	\$722.22	\$304.00
7	7/24/2016	Projector	Midwest	Nick	20	\$460.28	\$220.63
8	7/25/2016	Switch	South	Rayan	23	\$483.58	\$213.57
9	7/26/2016	Lights	South	Harry	6	\$114.53	\$48.26
10	7/27/2016	Camera	Midwest	Luke	29	\$609.12	\$269.16
11	7/28/2016	PenDrive	South	Simon	57	\$1,197.90	\$527.98
12	7/29/2016	Chair	West	John	12	\$228.89	\$96.02
13	7/30/2016	Table	West	Rita	60	\$1,380.07	\$660.40
14	7/31/2016	Board	East	Neeta	54	\$1,026.96	\$432.75
15	8/1/2016	Marker	South	Joseph	40	\$760.24	\$320.20
16	8/2/2016	Laptop	West	Robert	18	\$414.11	\$198.71
17	8/3/2016	Projector	West	Nick	64	\$1,728.81	\$928.38

18 19 20 21 22 23 24 25 26 27 28 29 30

Point

11:58 AM 1/1/2023

Create PivotTable

Choose the data that you want to analyze

Select a table or range

TableRange: Sheet2!\$A\$1:\$G\$17

Use an external data source

Choose Connection...

Connection name:

Choose where you want the PivotTable report to be placed

New Worksheet

Existing Worksheet

Location: Sheet2!\$J\$8

OK Cancel

Microsoft Excel (Product Activation Failed) - pivot

File Home Insert Page Layout Formulas Data Review View Options Design

PivotTable Name: Active Field: PivotTable2

Options PivotTable

Expand Entire Field

Field Settings

Active Field

Group Selection

Ungroup

Group Field

Group

Sort & Filter

Sort

Insert Slicer

Refresh

Change Data Source

Clear

Select

Move PivotTable

Summarize Values By

Show Values As

Fields, Items, & Sets

PivotChart

OLAP Tools

What-If Analysis

Field List

+/- Buttons

Field Headers

Show

J8

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30

	A	B	C	D	E	F	G
1	Date	Product	Region	Name	Units	Sales	COGS
2	7/19/2016	Chair	East	John	16	\$200.00	\$232.99
3	7/20/2016	Table	South	Rita	24	\$250.00	\$240.35
4	7/21/2016	Board	West	Neeta	30	\$810.71	\$435.64
5	7/22/2016	Marker	West	Joseph	19	\$418.54	\$190.05
6	7/23/2016	Laptop	East	Robert	38	\$722.22	\$304.00
7	7/24/2016	Projector	Midwest	Nick	20	\$460.28	\$220.63
8	7/25/2016	Switch	South	Rayan	23	\$483.58	\$213.57
9	7/26/2016	Lights	South	Harry	6	\$114.53	\$48.26
10	7/27/2016	Camera	Midwest	Luke	29	\$609.12	\$269.16
11	7/28/2016	PenDrive	South	Simon	57	\$1,197.90	\$527.98
12	7/29/2016	Chair	West	John	12	\$228.89	\$96.02
13	7/30/2016	Table	West	Rita	60	\$1,380.07	\$660.40
14	7/31/2016	Board	East	Neeta	54	\$1,026.96	\$432.75
15	8/1/2016	Marker	South	Joseph	40	\$760.24	\$320.20
16	8/2/2016	Laptop	West	Robert	18	\$414.11	\$198.71
17	8/3/2016	Projector	West	Nick	64	\$1,728.81	\$928.38

18 19 20 21 22 23 24 25 26 27 28 29 30

Ready

11:58 AM 1/1/2023

PivotTable2

To build a report, choose fields from the PivotTable Field List

PivotTable Field List

Choose fields to add to report:

Date

Product

Region

Name

Units

Sales

COGS

Drag fields between areas below:

Report Filter

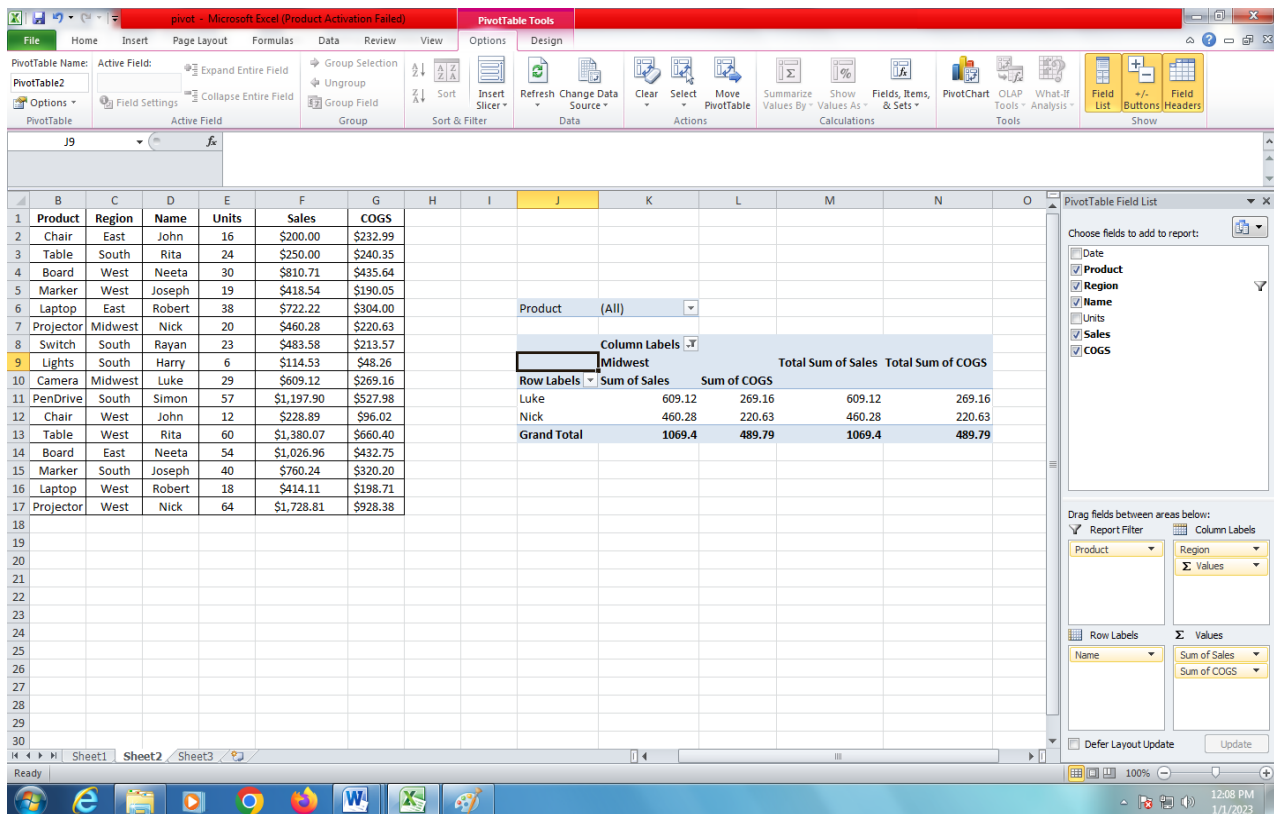
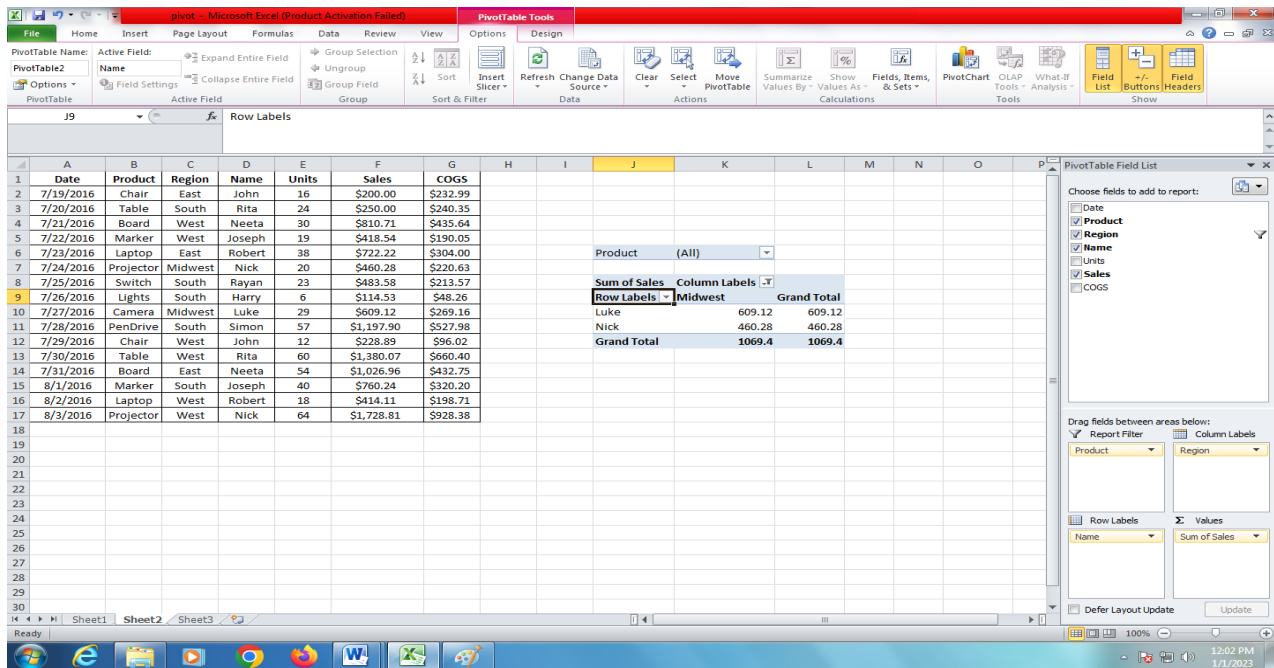
Column Labels

Row Labels

Values

Defer Layout Update

Update



## Step 3

### Pivot chart

1. Select a cell in our table.
2. Select Insert > PivotChart.
3. Select where we want the PivotChart to appear.
4. Select OK.
5. Select the fields to display in the menu.

