Detailed Project Report

E-commerce Dashboard

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Project Title	E-commerce Dashboard
Technologies	Excel
Domain	E-commerce
Project Difficulties level	Advanced

Problem Statement:

E-commerce (electronic commerce) is the buying and selling of goods and services, or the transmitting of funds or data, over an electronic network, primarily the internet. These business transactions occur either as business-to-business (B2B), business-to-consumer (B2C), consumer-to-consumer or consumer-to-business.

Business Scenario:

The Analytics team of an Online E-Commerce Company wants to design a Sales dashboard to analyze the sales based on various product categories. The company wants to add user control for product category, so users can select a category and can see the trend month-wise and product-wise accordingly.

The Analytics team also wants to create a histogram to analyze number of shipping days.

The company's database keeps track of the following data fields:

Brand Name, Company Name, Disease Medical Use, Invoice date, Company code, Ship-to-Country, Ship-to-Country Full Name, Sold-to party- Code, Sold-to party Country, Sold-to party Country Full Name, Delivery Plant, Payment terms, External Agent, Sales quantity, Price TC /Kg, Revenue, External commissions, Month.

Overview

- Use the Saved Sample – E-Commerce database.
- Prepare a table of Sales and Profit month-wise in working sheet.
- Prepare the sales table region-wise in the working sheet.
- Create User Control Combo box for Product Category.
- Create Column Chart of month-wise table and region-wise table.
- Link the table with combo box.

What Is an Excel Dashboard?

The Excel Dashboard provides an overview of metrics and other data points in one place.
In simple terms, dashboards are visual representations of data.
They mostly consist of charts and graphs, thereby grabbing the user's attention. Looking at raw Excel data can be boring. Creating a Dashboard in Excel can help you interpret the data by giving an advanced level overview of the same.

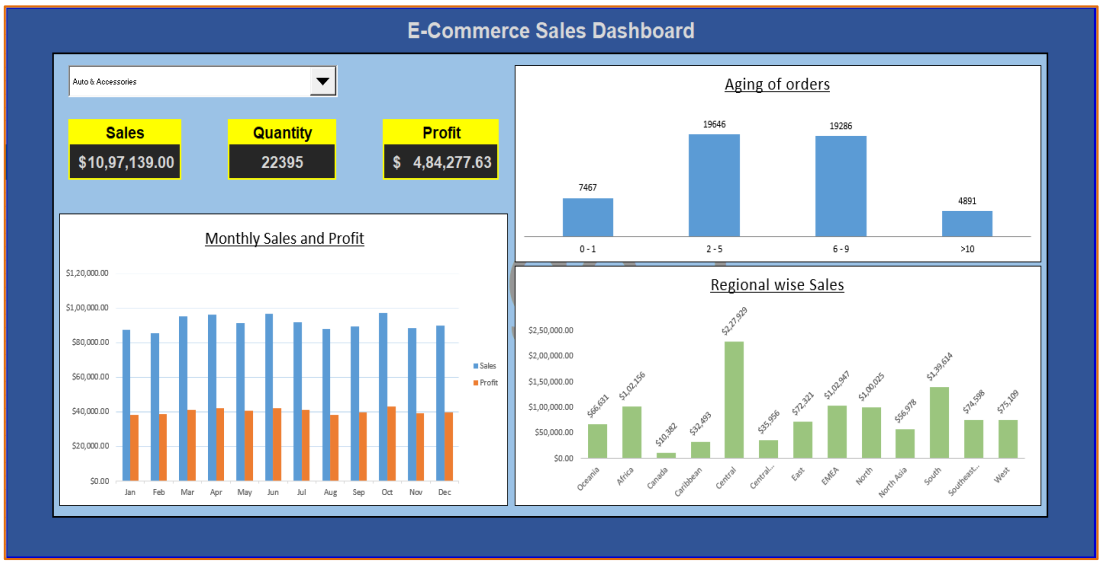
- To provide you with a better understanding, look at the following dataset that we will be using in this article to demonstrate how to create Excel Dashboards. The dataset comprises the buying and selling of goods and services, or the transmitting of funds or data, over an electronic network, primarily the internet. These business transactions occur either as business-to-business (B2B), business-to-consumer (B2C), consumer-to-consumer or consumer-to-business.

You can download the dataset by clicking on this link.

Take a look at the gist of the dataset below.

A	B	C	D	E	F	G	H	I	J	K	
Order ID	Order Date	Ship Date	Aging	Ship Mode	Product Category	Product	Sales	Quantity	Discount	Profit	Ship
AU-2015-1	09-11-2015	17-11-2015	8	First Class	Auto & Accessories	Car Media Players	$ 140.0	2	0.05	$ 46.0	$
AU-2015-2	30-06-2015	02-07-2015	2	First Class	Auto & Accessories	Car Speakers	$ 211.0	3	0.03	$ 112.0	$
AU-2015-3	05-12-2015	13-12-2015	8	First Class	Auto & Accessories	Car Body Covers	$ 117.0	5	0.01	$ 31.2	$
AU-2015-4	09-05-2015	16-05-2015	7	First Class	Auto & Accessories	Car & Bike Care	$ 118.0	2	0.05	$ 26.2	$
AU-2015-5	09-07-2015	18-07-2015	9	First Class	Auto & Accessories	Tyre	$ 250.0	1	0.04	$ 160.0	$
AU-2015-6	25-02-2015	05-03-2015	8	First Class	Auto & Accessories	Bike Tyres	$ 72.0	3	0.04	$ 24.0	$
AU-2015-7	09-04-2015	10-04-2015	1	First Class	Auto & Accessories	Car Mat	$ 54.0	1	0.05	$ 54.0	$
AU-2015-8	30-03-2015	06-04-2015	7	First Class	Auto & Accessories	Car Seat Covers	$ 114.0	5	0.02	$ 22.6	$
AU-2015-9	09-02-2015	16-02-2015	7	First Class	Auto & Accessories	Car Pillow & Neck Rest	$ 231.0	5	0.03	$ 116.4	$
AU-2015-10	21-04-2015	01-05-2015	10	First Class	Auto & Accessories	Car Media Players	$ 140.0	2	0.02	$ 54.4	$
AU-2015-11	16-11-2015	26-11-2015	10	First Class	Auto & Accessories	Car Speakers	$ 211.0	4	0.01	$ 122.6	$
AU-2015-12	01-09-2015	02-09-2015	1	First Class	Auto & Accessories	Car Body Covers	$ 117.0	4	0.04	$ 18.3	$
AU-2015-13	09-07-2015	16-07-2015	7	First Class	Auto & Accessories	Car & Bike Care	$ 118.0	1	0.02	$ 35.6	$
AU-2015-14	22-07-2015	27-07-2015	5	First Class	Auto & Accessories	Tyre	$ 250.0	3	0.04	$ 140.0	$
AU-2015-15	12-10-2015	21-10-2015	9	First Class	Auto & Accessories	Bike Tyres	$ 72.0	4	0.01	$ 18.0	$
AU-2015-16	23-02-2015	05-03-2015	10	First Class	Auto & Accessories	Car Mat	$ 54.0	2	0.01	$ 27.0	$
AU-2015-17	04-05-2015	08-05-2015	4	First Class	Auto & Accessories	Car Seat Covers	$ 114.0	2	0.05	$ 22.6	$
AU-2015-18	12-06-2015	19-06-2015	7	First Class	Auto & Accessories	Car Pillow & Neck Rest	$ 231.0	5	0.05	$ 93.3	$
AU-2015-19	13-05-2015	20-05-2015	7	First Class	Auto & Accessories	Car Media Players	$ 140.0	2	0.05	$ 46.0	$
AU-2015-20	27-07-2015	02-08-2015	6	First Class	Auto & Accessories	Car Speakers	$ 211.0	2	0.02	$ 122.6	$
AU-2015-21	09-12-2015	13-12-2015	4	First Class	Auto & Accessories	Car Body Covers	$ 117.0	5	0.01	$ 31.2	$
AU-2015-22	09-02-2015	16-02-2015	7	First Class	Auto & Accessories	Car & Bike Care	$ 118.0	2	0.03	$ 30.9	$
AU-2015-23	20-07-2015	26-07-2015	6	First Class	Auto & Accessories	Tyre	$ 250.0	4	0.02	$ 150.0	$

Now, look at the Dashboard below that depicts the sales based on various product categories.



Steps to Build an Excel Dashboard

Listed below are the steps that need to be followed to help you understand how to build an Excel Dashboard easily.

Understanding Data Set

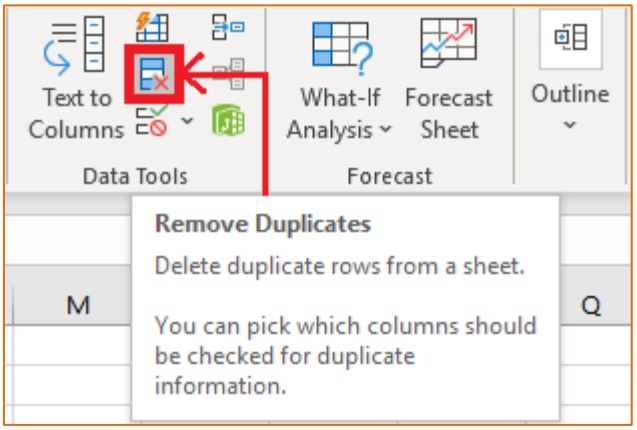
To create dashboards, we first need to explore the dataset in our Excel workbook.

Brand Name, Company Name, Disease Medical Use, Invoice date, Company code, Ship-to-Country, Ship-to-Country Full Name, Sold-to party- Code, Sold-to party Country, Sold-to party, Country Full Name, Delivery Plant, Payment terms, External Agent, Sales quantity, Price TC /Kg, Revenue, External commissions, Month.

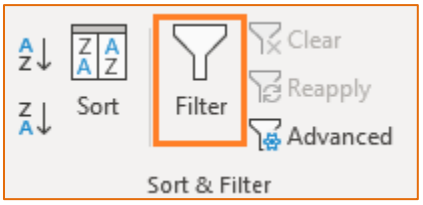
Filter and Clean Your Data

Before you start working on your data, it is important to make sure the imported data has no errors.

- You should see to it that there are no duplicate values in the dataset. To ensure that the dataset is free from duplicates, select the entire dataset and go to the Data tab and select the Remove Duplicates option in the Data Tools section.



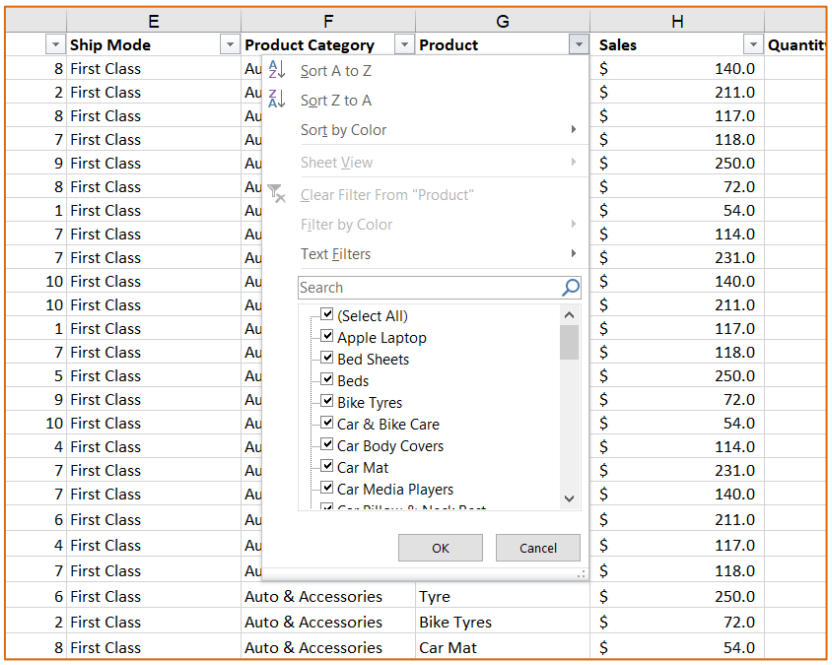
- When you want to work on a particular set of data within the dataset, we can use the Filter option. This option filters out the data to your requirements. To do this, select the whole dataset and go to the Data tab and locate a Filter option.



Once you click on this, you can see an arrow pointing down appearing on the column headers of the dataset. Clicking on this arrow will open up options from which we can select the required data.

In this report, let's check any null value or blank value present in the data set.

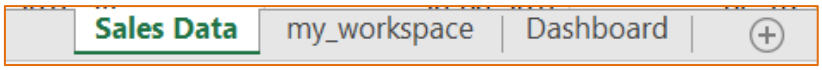
- We can do so by selecting the Filter option on each column header.
- You will see a drop-down box with various filters that you can search for null or blank values, if present.
- Also, you can filter the data based on multiple parameters, and also sort it by ascending or descending order.



	E	F	G	H	
	Ship Mode	Product Category	Product	Sales	Quantit
8	First Class	Au		$ 140.0	
2	First Class	Au		$ 211.0	
8	First Class	Au		$ 117.0	
7	First Class	Au		$ 118.0	
9	First Class	Au		$ 250.0	
8	First Class	Au		$ 72.0	
1	First Class	Au		$ 54.0	
7	First Class	Au		$ 114.0	
7	First Class	Au		$ 231.0	
10	First Class	Au		$ 140.0	
10	First Class	Au		$ 211.0	
1	First Class	Au		$ 117.0	
7	First Class	Au		$ 118.0	
5	First Class	Au		$ 250.0	
9	First Class	Au		$ 72.0	
10	First Class	Au		$ 54.0	
4	First Class	Au		$ 114.0	
7	First Class	Au		$ 231.0	
7	First Class	Au		$ 140.0	
6	First Class	Au		$ 211.0	
4	First Class	Au		$ 117.0	
7	First Class	Au		$ 118.0	
6	First Class	Auto & Accessories	Tyre	$ 250.0	
2	First Class	Auto & Accessories	Bike Tyres	$ 72.0	
8	First Class	Auto & Accessories	Car Mat	$ 54.0	

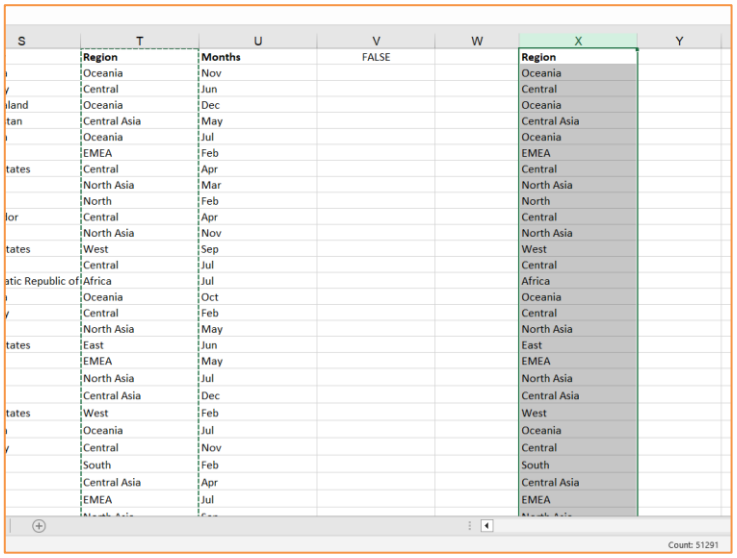
Build a Dashboard

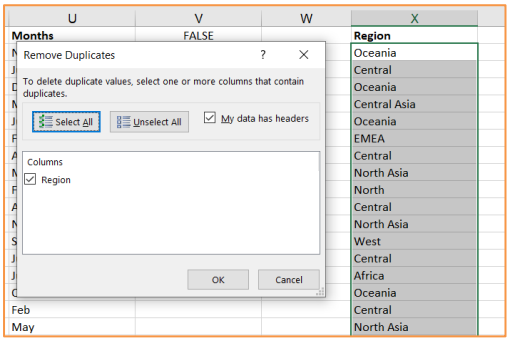
Once we are done cleaning and filtering the data to our requirements, we can create two to three sheets to organize our data by using one sheet for our Dashboard and the other to store our filtered data, which is named here as Dashboard Table.

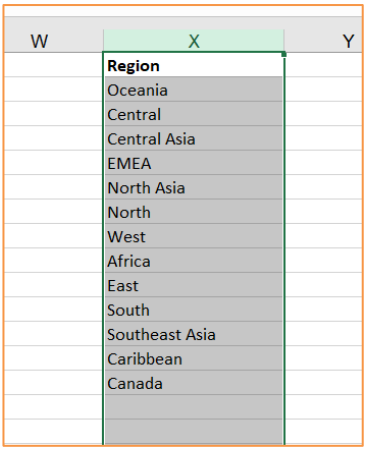


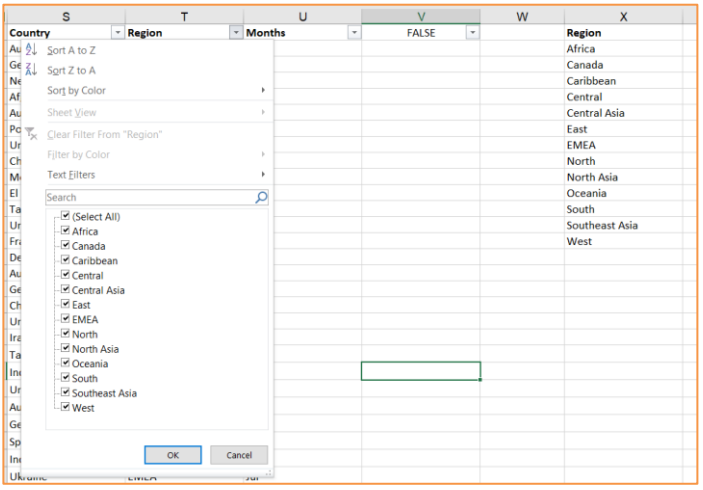
Building Data Set

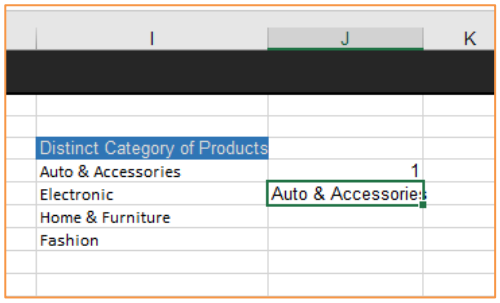
Before going further, we have to prepare data for visualization.
Now we have to get distinct data from all different column, and to carry out that task we have to select the desired column and copy that column in separate place and running “Remove Duplicate” option from the data tool of data ribbon.

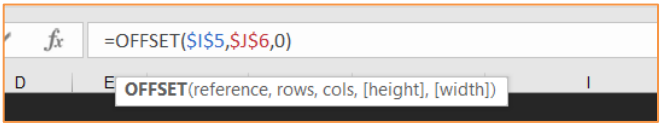






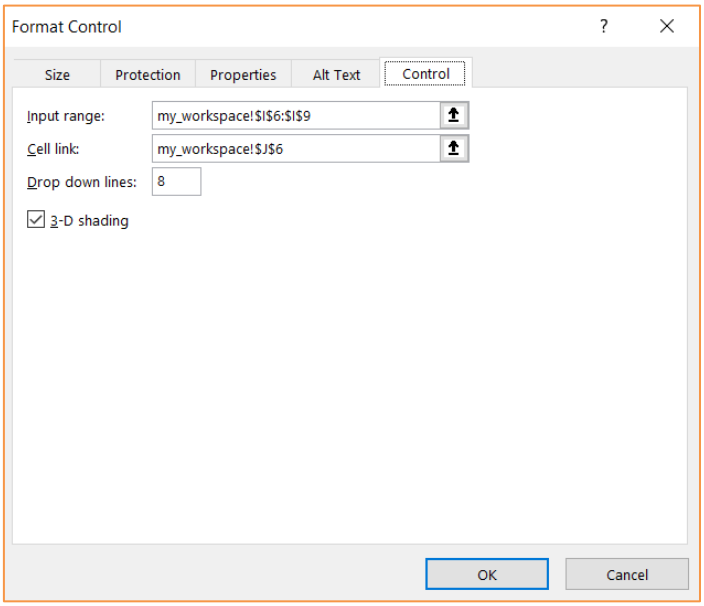


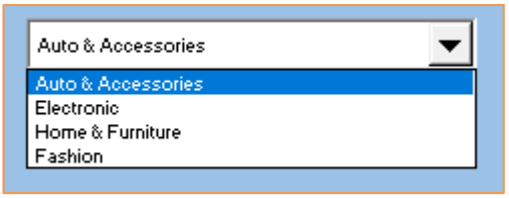




Using this data, we will create a combo box.

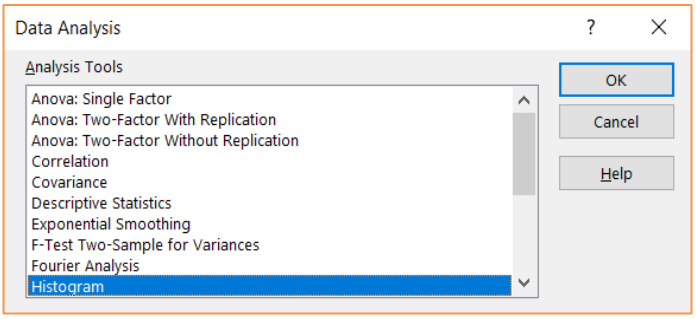
Developer > insert (controls ribbon) > Combo box (From controls)



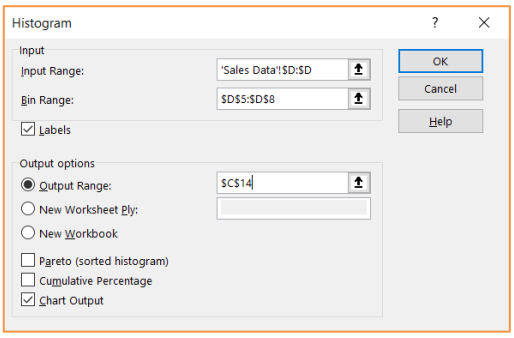


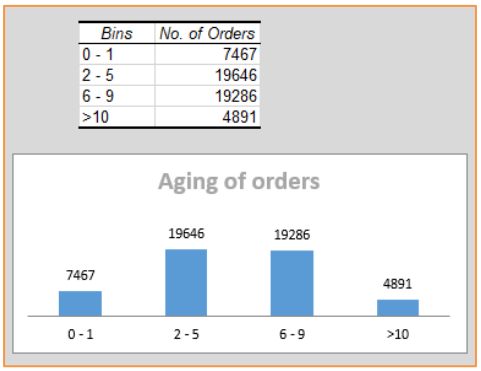
Using bin size, creating histogram using data analysis tool

BIN	Frequency
0-1	1
2-5	5
6-9	9
>10	



Using aging and frequency range we can get the desired table with visuals.





Bins	No. of Orders
0 - 1	7467
2 - 5	19646
6 - 9	19286
>10	4891

Creating dynamic tables for category wise sales, order and profit:

Category	Total sales	Quantity	Profit
Auto & Accessories	$10,97,139.00	22395	$4,84,277.63
Electronic	$3,94,738.00	8211	$1,74,175.04
Home & Furniture	$13,19,407.00	31055	$5,87,597.65
Fashion	$52,12,097.00	92071	$24,83,852.63
Total	$80,23,381.00	153732	$37,29,902.95

For Sales,

```
=SUMIFS('Sales Data'!H:H,'Sales Data'!F:F,$I14)
```

For Quantity,

```
=SUMIFS('Sales Data'!I:I,'Sales Data'!F:F,$I14)
```

For Profit,

```
=SUMIFS('Sales Data'!K:K,'Sales Data'!F:F,$I14)
```

Generating dynamic table for monthly sales and profit data:

Month	Sales	Profit
Jan	$87,526.00	$38,447.32
Feb	$85,683.00	$38,753.10
Mar	$95,249.00	$41,165.32
Apr	$95,962.00	$42,365.80
May	$91,445.00	$40,871.83
Jun	$96,597.00	$42,010.25
Jul	$91,690.00	$40,958.90
Aug	$88,153.00	$38,237.91
Sep	$89,216.00	$39,655.96
Oct	$97,347.00	$43,305.21
Nov	$88,575.00	$39,016.39
Dec	$89,696.00	$39,489.64
Total	$10,97,139.00	$4,84,277.63

For Monthly sales we have to consider month as well as the combo box selection whose output is store in J7 cell using “offset” formula.

```
=SUMIFS('Sales Data'!$H:$H,'Sales Data'!$U:$U,my_workspace!$N6,'Sales Data'!$F:$F,my_workspace!$J$7)
```

Similarly for monthly profit,

```
=SUMIFS('Sales Data'!$K:$K,'Sales Data'!$U:$U,my_workspace!$N6,'Sales Data'!$F:$F,my_workspace!$J$7)
```

Creating dynamic table for regional sales:

“R” column represents the regions value.

“J7” represent the combo box selection for product category list.

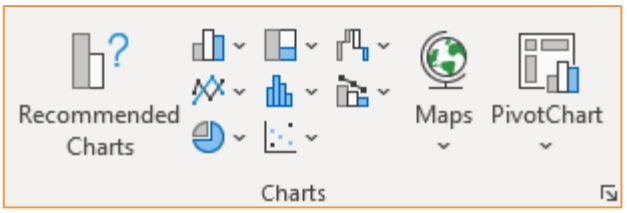
Regions	Sales
Oceania	$66,631.00
Africa	$1,02,156.00
Canada	$10,382.00
Caribbean	$32,493.00
Central	$2,27,929.00
Central Asia	$35,956.00
East	$72,321.00
EMEA	$1,02,947.00
North	$1,00,025.00
North Asia	$56,978.00
South	$1,39,614.00
Southeast Asia	$74,598.00
West	$75,109.00
Total	$10,97,139.00

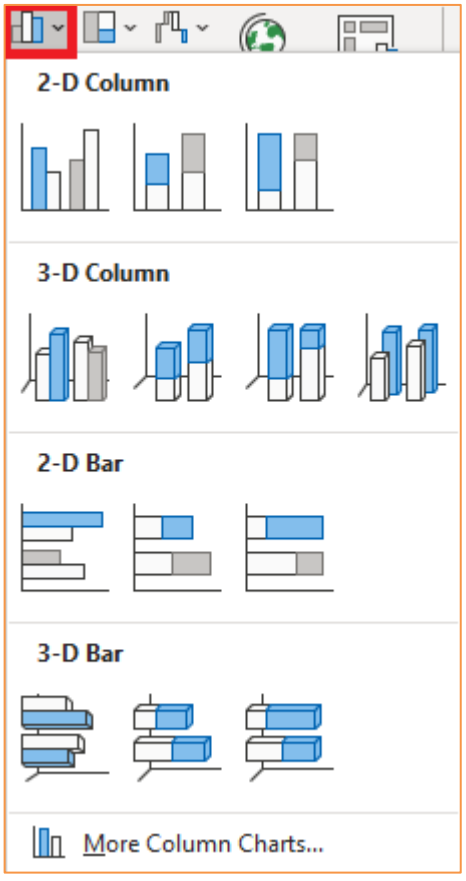
```
=SUMIFS('Sales Data'!$H:$H,
        'Sales Data'!$T:$T,my_workspace!$R6,
        'Sales Data'!$F:$F,my_workspace!$J$7)
```

SUMIFS(sum_range, **criteria_range1**, criteria1, [criteria_range2, criteria2], [criteria_range3, criteria3], ...)

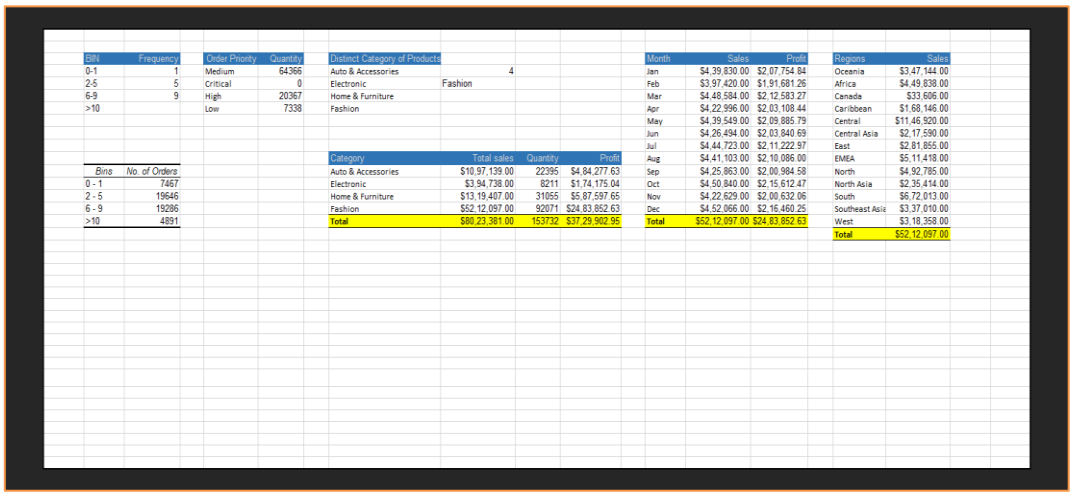
Select the Data

Once we have the data that is required, we can now start making charts. As you can see, we locate the INSERT TAB → Charts section and select the desired chart.



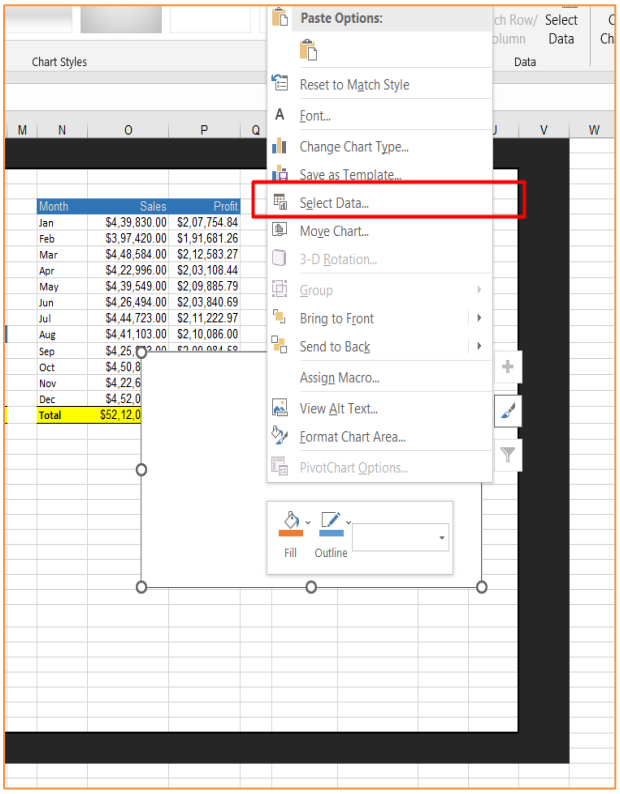


Once we do that, we can see a blank window open up on our Excel sheet. If you right-click on this blank window, you will find an option to Select Data.

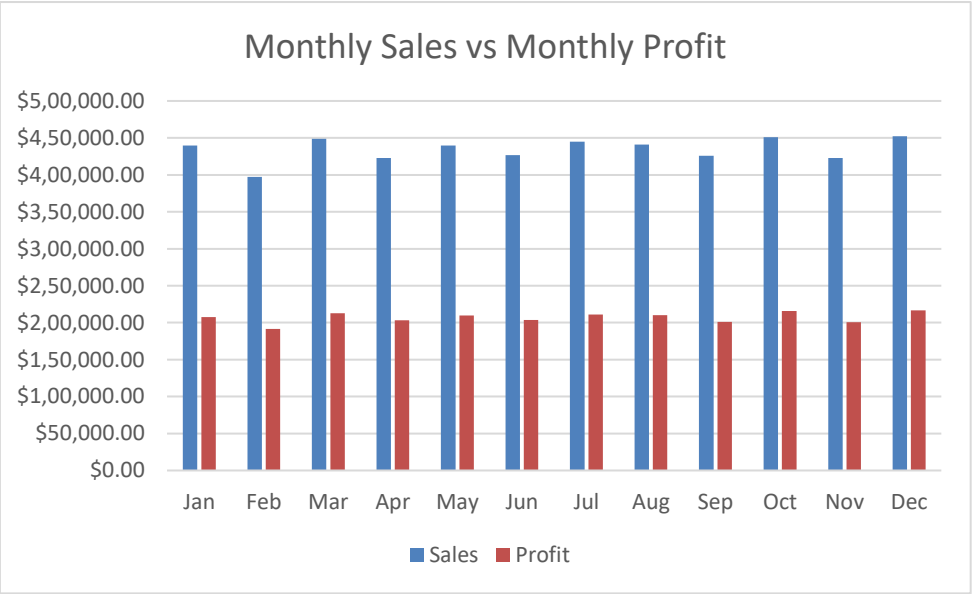


Clicking on this will open up a window called Select Data Source.

- Here, you can add the chart data range by simply dragging your mouse and selecting the required data.
- Now, select the Legend entries (or Vertical axis). In this example, we select profit and sales for our Y axis values.
- For the horizontal axis, we select all the months.

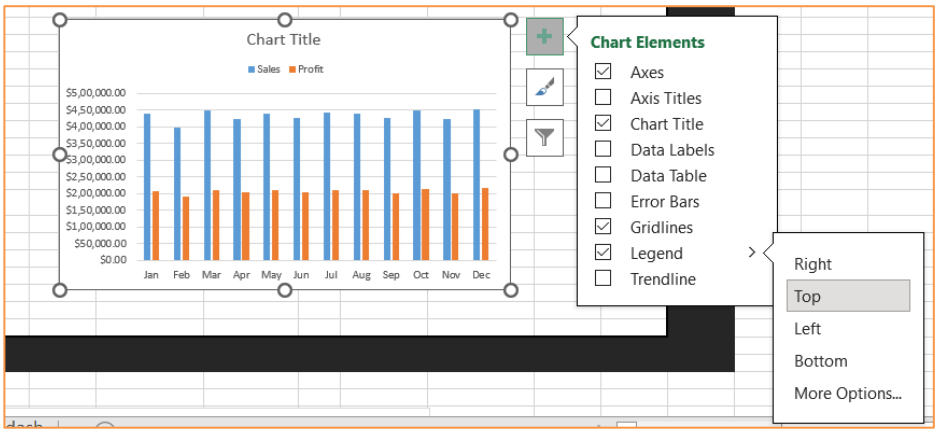


After specifying the appropriate values, click on OK. A graph will now be displayed on your worksheet. You can cut and paste it on the Dashboard Excel sheet that was created for organizing the dashboards.



Customize your Chart Accordingly

- To make your charts appealing and attractive, we can change the graph's colors, add text or give more information about it, etc.
- To do this, double click on the chart and use the different customization options available in the toolbar.
- You can also select the option right next to the chart.
- This will open a drop-down box consisting of various Chart Elements.



Repeats Steps for the Rest of the Data

An Excel Dashboard includes numerous charts and graphs. So, go ahead and add more visual elements to your Dashboard, as per your choice.

You can use the filter option to filter out the data in your database and form appropriate charts. In the following Dashboard, we have a clustered bar chart expected delivery time and different statistics.

As you can see, these elements together help us track various metrics and make complex datasets easier to analyse. With this, you have reached the end of the process of building your personalized Dashboard from a dataset.