DATA ANALYTICS

For Beginners

...Pivot to the Rescue

MOHAMMED ALFAN

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Author : **Mohammad Alfan**
Publishers : Skills to Succeed by AlFan
Fancis Road, Calicut - 673 001
Kerala, India,
Ph: +91 8086 738 783, 9645 738 783
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I DEDICATE THIS BOOK TO

The 3 Pillars of My Life
My Mom,
Zaina Rafa, my wife
Zidan, my son

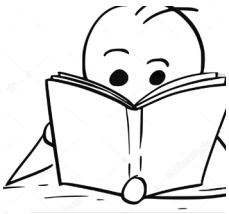
ACKNOWLEDGEMENT

First and foremost I would like to thank Almighty for making this dream of mine into a reality. Every opportunity God created on the right time and through the right people is the sole reason today, I could write this book.

Second of all, I feel blessed to have a family who has been my backbone. Without them, I am incomplete. My mom who always encouraged me to chase my dreams, made a point to always let me know her support . My better half, my wife, is another standing pillar of my life. Like how it is said, she would stand by my side as my strength no matter where I am in my life. My little champ is the next pillar holding me strong. Even though he is child he always made sure to support me giving me company when I work. His efforts to support his father, gives me the courage to chase my dreams harder. My sister, has always been my words of encouragement . She always boosted my spirits when ever I wanted it. These people are my blessings and their presence in my life is a reason I am who I am.

Last but never the least, I would like to thank every single person who has helped me learn and explore Excel, that has changed my life for the best. It is because of them that this book existed even as a thought. Behind this book are good hearts of many people who dedicated their thoughts and efforts in favour of this book. I thank every single one of them.

Thank you for making this dream happen.



How to read this book

I did a lot of research before I wrote this book. I read a lot of similar books, looked at their formats, observed the patterns they followed and such. But none met my satisfaction. All the books were highly priced with strong technical terms and tough vocabulary. In addition to this, they explained every single feature of the entire Excel application which at the end I found very confusing. That is when I decided how I would write this book. My chosen style of writing:

1. **Concept:** Instead of writing the entire Excel in one book, I thought I will write a book for each concept so that people can buy the book according to their requirement. Apart from that, this 'break down and write technique' can bring down the price of the book as well.
2. **Pattern:** My main intention to this book is teaching you how to understand the concept of Pivot table so that you can make amazing impressive reports in a matter of seconds to minutes. Taking this into consideration, I wanted to make this book more relatable. Therefore, instead of simply explaining it to you I created a page called “once upon a time” which explains you a scenario. The entire book relates to the scenario so that the reader can see themselves as the character and can understand the concept like as if they are going through it.
3. **Vocabulary:** Even though there are some fixed technical terms in Excel I have tried to make the explanation very understandable with simple phrases, spoken words and screenshots which are very easy to understand.

My Journey

Before I tell you more about this book, let me tell you how Excel became a huge part of my life. After my graduation, I wanted to have some extra certifications so as to land up with a good settling job. In 2005, I took up a 3 months course that included Tally, an accounting software and MS Office. That is how I was introduced to Excel for the first time. My introduction to Excel was quite ordinary but the 'A+' on my certificate, thrilled me. After my course, I was offered a job in a top MNC located in Bangalore. I remember how I saw Excel application open on most systems on my floor and I was super confident about my knowledge in the same. But soon I realized that what I know about Excel was just the 'basic'. People there, worked with features I did not even know, existed in Excel. My curiosity about the subject increased and I took up their help to learn more about it. The more I learned from them, the more I explored it myself. The more I explored, the more passionate I became towards it. I have tried sharing my knowledge on Excel with people through multiple platforms like workshops, training etc and this book is a part of an effort as such. This is how my journey in Excel started from a novice level to being this expert level that I am right now from my 13+years of experience through it. Therefore, beyond any certification, I learned Excel living through it, real time.

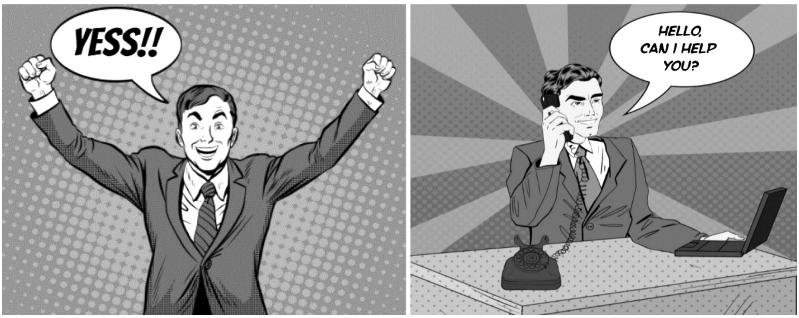
Excel has an ocean of concepts to explore but instead of explaining the whole concept in one book, I chose to publish the concepts, module wise. In this manner, I will be able to explain the concepts better and also as a readers you can choose the module or concept you want to learn . This is a first time an Excel related book has been approached in this manner.

The purpose of this book is that, I want people to know the under rated scope of Excel. This book concentrates on the most powerful tool in Excel, The PIVOT TABLE. It can help its users Excel in their career by efficient performance, saving them time and energy with expert level perfection. The concept discussed in this book is applicable for any version of Excel.

Table of Contents

Once upon a time….

Sam attended a lot of interviews and finally got his dream job. All his efforts were worth the struggle he thought. He was designated as a HR analyst in a popular Marketing firm Lagoon Blue Pvt ltd. He was happy by all the benefits of his post. He was promised a good salary, had easy commuting facility and other benefits.



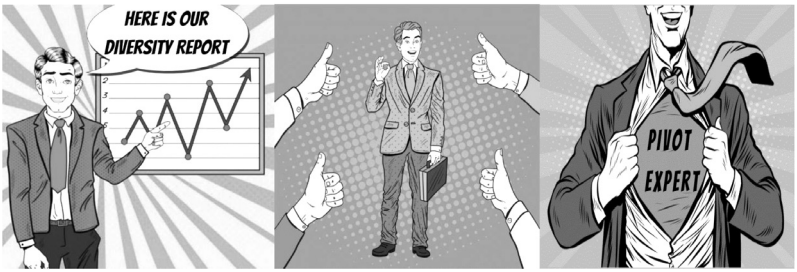
But to be at this promising post wasn't easy at all. His first review didn't go very well. He was asked to make different reports for a mass data and the reports he submitted were rejected for being raw and unreliable.

His superiors expressed their regret to have chosen him to the post. Sam was feeling totally low. He went home disappointed and disheartened. As he sat on his couch confused about what to do, his phone rang, his best friend Alex was on phone. Listening to Sam's low voice Alex understood something was wrong. When he asked, Sam told him the whole story.

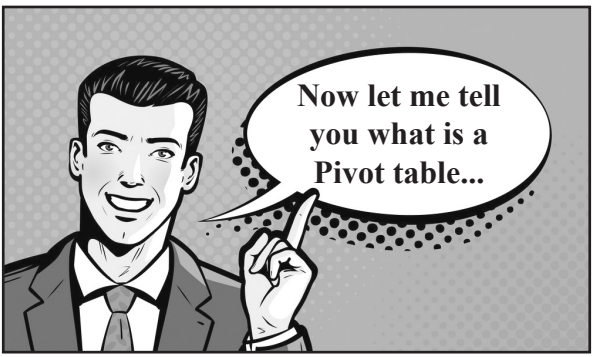
Alex laughed loudly and said, “That’s it? I have the perfect solution for you. I will come to your place and teach you the trick.” Sam waited very eagerly and finally Alex arrived. On enquiry, Sam admitted that he knows Excel in general. Alex, who was an expert in Excel, explained the most powerful tool of Excel called the PIVOT Table. In the next few hours, Alex taught Sam tips and tricks that changed his life.

The next day Sam walked into his superior's room in super confidence and submitted the reports. His boss who saw the reports stood their surprised and impressed. He asked Sam to make another report with different criteria.

His reports were submitted in the board of meetings, who were impressed by the accuracy, presentation and summarization of data including even PIVOT charts.



From then on Sam performed the best in the firm and became a reason to many other be expert like him.



Chapter 1

How Alex Explained it to Sam....

What is a Pivot table?

Data are usually represented by numbers and small details which is displayed as tables. But the usual problem would be when these data are massive in numbers. Scrutinising and analysing of such massive data into information, would be difficult to perform with just the basic features of Excel. This is where the Pivot table comes to the rescue.

A Pivot table can perform numerous calculations according to the users' demand. Users can also concentrate on the desired set of data from the huge data provided, with the help of Pivot table.

A pivot table can be based on Excel or any other databases. This powerful tool is a part of data processing and decision making as these reports determine the future of the firm.

The basic concepts of a Pivot table

After generally introducing Sam to Pivot Table, Alex tried explaining the basic concepts of a Pivot table, which would be:

- **Data table:** This is the source of Pivot table. A data table is raw data arranged and presented as a table.
- **Pivot table:** This is a table that can scrutinize and analyse data into precise and reliable reports in seconds.
- **Column:** The vertical set of a table containing data.
- **Field:** The header of a column is called a field.
- **Cell:** A cell is where all the data are stored. It is where a row and a column intersects.
- **Item:** The data that is stored in a cell is called items
- **Record:** The data that is stored in one row and belongs to the same category is called record.

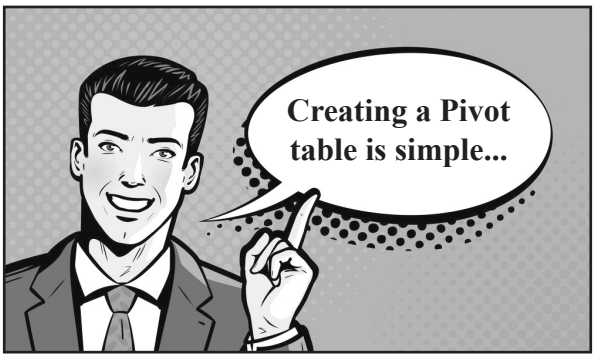
Conditions for creating a Pivot Table

Alex had explained the absolute necessary points to Sam now. Sam didn't know the existence of Pivot table and now as Alex explains him more about Pivot table, he explains the following conditions for creating a Pivot Table.

- Every column is supposed to have a title.
- In a single row, all the titles should be written.

- In a column all the data must be of the same type.
- The data provided should not contain any merged cells.
- No subtotals or grand totals should also be present in the data.
- There shouldn't be any blank spaces within the selected data.

Alex whole heartedly explained the whole concept of Pivot table and Sam turned an expert in just a night!



Chapter 2

Create a Pivot Table

Alex had explained the whole concept of Pivot Table to Sam. Sam was now clear how to handle any mass data to present them in the best desired manner.

Scenarios

Sam was provided the following mass data.

Sl. No.	Employee No	Name	Designation	Gender	Location	State	Department	Net Pay
1	MTC-0001	Emma	Jr Accountant	Female	Sanford	California	Finance & Accounts	$35,600.00
2	MTC-0066	Benjamin	General Manager (F&A)	Male	Boston	Massachusetts	Finance & Accounts	$88,710.00
3	MTC-0094	Olivia	Senior Construction Manager	Female	Austin	Texas	Engineering	$55,854.00
4	MTC-0103	Michael	Sr Accountant	Male	Sarasota	Florida	Plumbing	$60,998.00
5	MTC-0113	Alexandra	Joint General Manager (Projects)	Female	San Francisco	California	Engineering	$71,142.00
6	MTC-0115	Angelina	Senior Artist	Female	Sanford	California	HR & Administration	$60,143.00
7	MTC-0118	Anastasia	Joint Assistant General Manager	Female	Boston	Massachusetts	Engineering	$54,143.00
8	MTC-0129	Anthony	Project Engineer	Male	Orlando	Florida	Electrical	$45,231.00
9	MTC-0148	David	Senior Executive Human Resource	Male	Boston	Massachusetts	Plumbing	$70,231.00
10	MTC-0151	Sebastian	Site Engineer	Male	San Francisco	California	Engineering	$50,231.00
11	MTC-0194	Callie	Senior Executive (Secretary)	Female	Dallas	Texas	Secretariate	$67,231.00
12	MTC-0195	Nicholas	Assistant General Manager (Projects)	Female	Sanford	California	Engineering	$58,231.00
13	MTC-0195	Jackson	Sr Executive (Stores)	Male	Orlando	Florida	Contracts	$27,231.00
14	MTC-0200	Christopher	Joint Assistant General Manager	Male	Tucson	Arizona	Contracts	$54,143.00
15	MTC-0201	Matthew	Executive (F&A)	Male	Sanford	California	Finance & Accounts	$22,231.00
16	MTC-0202	Ashley	Junior Engineer (P&M)	Female	Boston	Massachusetts	HR & Administration	$30,231.00

Scenario 1

Sam's manager demanded a report to show the count of how many males and females worked at each location? This is how Pivot table helped him impress his manager.

Count of Gender	Gender		
Location	Female	Male	Grand Total
Austin	1		1
Boston	2	2	4
Dallas	1		1
Orlando		2	2
San Francisco	1	1	2
Sanford	3	1	4
Sarasota		1	1
Tucson		1	1
Grand Total	**8**	**8**	**16**

Scenario 2

Sam's manager then asked him to give another report regarding the count of employees in each location, state wise. The pivot table that Sam made in seconds and impressed the manager, is the following.

Count of Employee No	State					
Location	Arizona	California	Florida	Massachusetts	Texas	Grand Total
Austin					1	1
Boston				4		4
Dallas					1	1
Orlando			2			2
San Francisco		2				2
Sanford		4				4
Sarasota			1			1
Tucson	1					1
Grand Total	**1**	**6**	**3**	**4**	**2**	**16**

Scenario 3

Impressed by the quick perfect reports Sam had presented, his manager demanded him the 3rd report but this time watching him make it. The report he demanded was how much salary expense was spent by each department in each location. Sam very confidently produced the following result, using the Pivot table.

Sum of Net Pay	Location								
Department	Austin	Boston	Dallas	Orlando	San Francisco	Sanford	Sarasota	Tucson	Grand Total
Contracts				$27,231.00				$54,143.00	$ 81,374.00
Electrical				$45,231.00					$ 45,231.00
Engineering	$ 55,854.00	$ 54,143.00			$ 1,21,373.00	$ 58,231.00			$2,89,601.00
Finance & Accounts		$ 88,710.00				$ 57,831.00			$1,46,541.00
HR & Administration		$ 30,231.00				$ 60,143.00			$ 90,374.00
Plumbing		$ 70,231.00					$60,998.00		$1,31,229.00
Secretariate			$67,231.00						$ 67,231.00
Grand Total	**$ 55,854.00**	**$2,43,315.00**	**$67,231.00**	**$72,462.00**	**$ 1,21,373.00**	**$1,76,205.00**	**$60,998.00**	**$54,143.00**	**$8,51,581.00**

The impressed Manager asked how did he create a Pivot Table and Sam replied all smiling and confident. He said, "It's simple sir, all I did was;

1. Select the data to be used and the location of the table.
2. Dragging the fields required.
3. Use the tools provided for calculations and formatting."

The manager who didn't have any idea about the Pivot Table, patted Sam's back before walking off.

You must be wondering how did Sam manage to summarize such huge data with a variety of information, into 3 entirely different results in a matter of seconds!!

That is Pivot table for you...

Alex, took time to explain how to create a Pivot table in detail so that Sam would be thorough with the concept.

Create Pivot Table

Alex said "Creating a Pivot table is as simple as using any other simple utility in Excel. You just need to follow the steps and your Pivot table is ready!"

Steps:

1. **Data Selection:** The first step is selecting the data you want to process. You need to select the tables or cells, including the column headers that contain the data, of which you want the summarized report. Your selected data should look like in the picture below.

Sl. No.	Employee No	Name	Designation	Gender	Location	State	Department	Net Pay
1	MTC-0001	Emma	Jr Accountant	Female	Sanford	California	Finance & Accounts	$35,600.00
2	MTC-0066	Benjamin	General Manager (F&A)	Male	Boston	Massachusetts	Finance & Accounts	$88,710.00
3	MTC-0094	Olivia	Senior Construction Manager	Female	Austin	Texas	Engineering	$55,854.00
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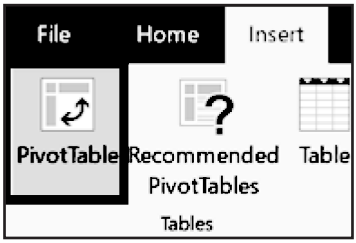
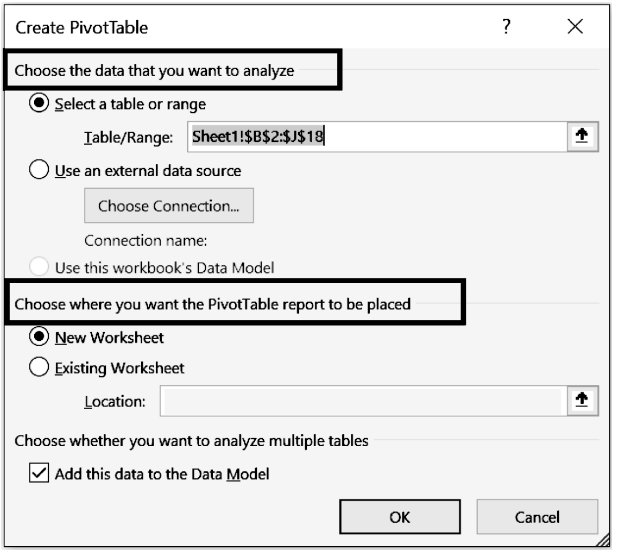
2. **Insertion of the Pivot Table:** You need to select 'Insert' Tab from the main Tab and then select 'Pivot Table' from the options below. Like shown in the picture.



3. **Dialogue box:** A 'Create Pivot Table' dialogue box appears. Like in the picture below:



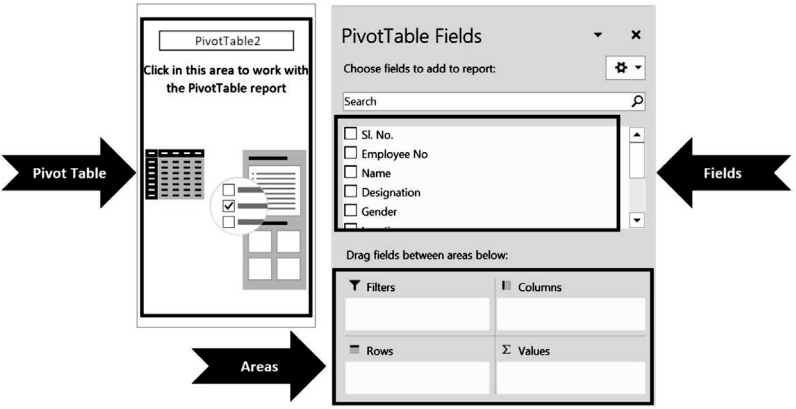
In the 'Create Pivot Table' dialogue box, there are 2 sections. The first section shows the data to select. The option 'Select a data or range' will show the data range you have selected. The next option 'Use an external source' prompts you to select the data from external sources and this option is not very widely used.

The second section shows details where you want the Pivot Table to be created. You can either select a 'New worksheet' for the Pivot Table to appear in a brand-new Worksheet or you can select 'Existing worksheet' and select the worksheet and the exact location where you want the Pivot Table to appear.

Once you decided the location, click on OK

Structure of the Pivot Table

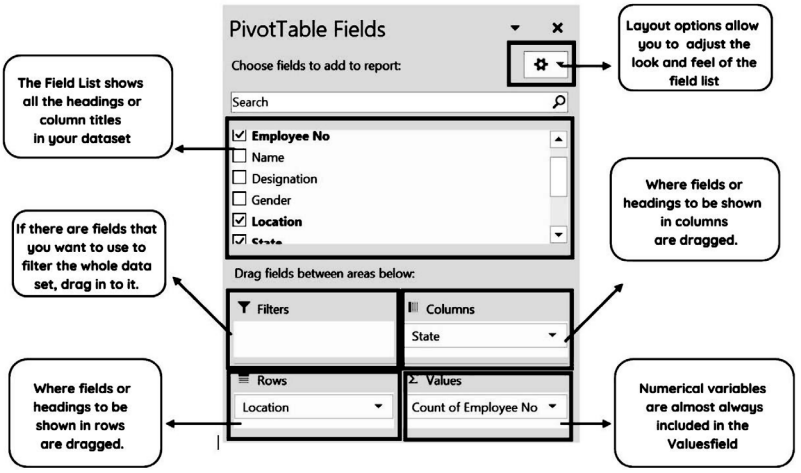
After selecting the data source and the location, an empty pivot table will appear in the worksheet along with Pivot Table Fields as shown in the below screenshot. Here is the place you can drag the appropriate fields in, and perform the desired calculations.



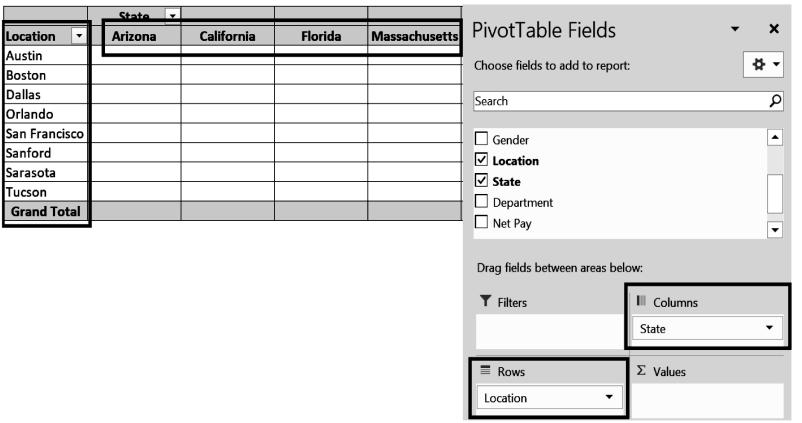
The screen is divided into three areas:

- The list of fields
- The pivot table areas
- The pivot tables

The Pivot Table List & Areas:



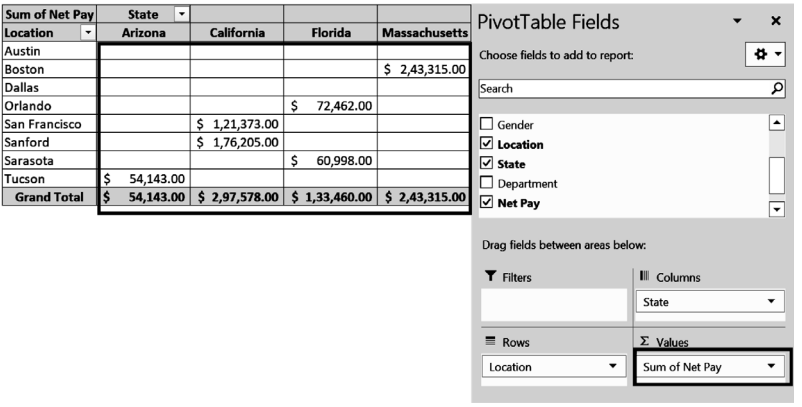
The COLUMNS and ROWS form the pivots of the pivot table, as shown in the below figure:



	State			
Location	Arizona	California	Florida	Massachusetts
Austin				
Boston				
Dallas				
Orlando				
San Francisco				
Sanford				
Sarasota				
Tucson				
Grand Total				

In the figure above, the Location appears in the ROWS, and the State appears in the COLUMNS (no calculation is performed at this stage).

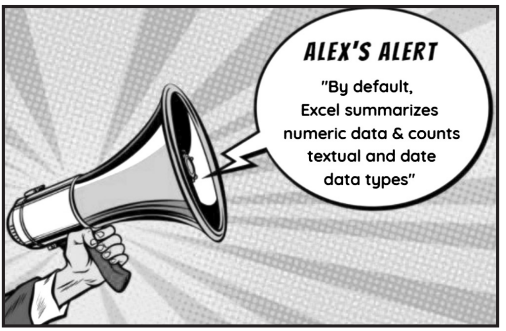
Values are data which enable calculations and are dragged into the "VALUES" region, as in the following example:



Sum of Net Pay	State			
Location	Arizona	California	Florida	Massachusetts
Austin				
Boston				$ 2,43,315.00
Dallas				
Orlando			$ 72,462.00	
San Francisco		$ 1,21,373.00		
Sanford		$ 1,76,205.00		
Sarasota			$ 60,998.00	
Tucson	$ 54,143.00			
Grand Total	$ 54,143.00	$ 2,97,578.00	$ 1,33,460.00	$ 2,43,315.00

In this example, the "Monthly Salary" field is dragged into VALUES.

The pivot table now displays the net pay/salary paid in each department (the data was formatted with decimal places and with a thousandths separator).



Classic PivotTable layout

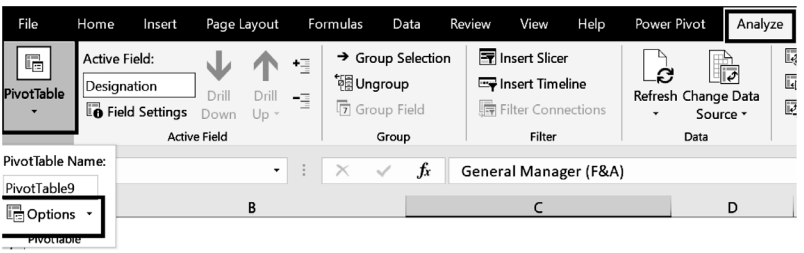
Please note that, Dragging the fields to the ROWS or COLUMNS of the pivot table, creates the title "Row Labels" or "Column Labels", respectively, as shown in the following figure:

Row Labels
Arizona
California
Florida
Massachusetts
Texas
Grand Total

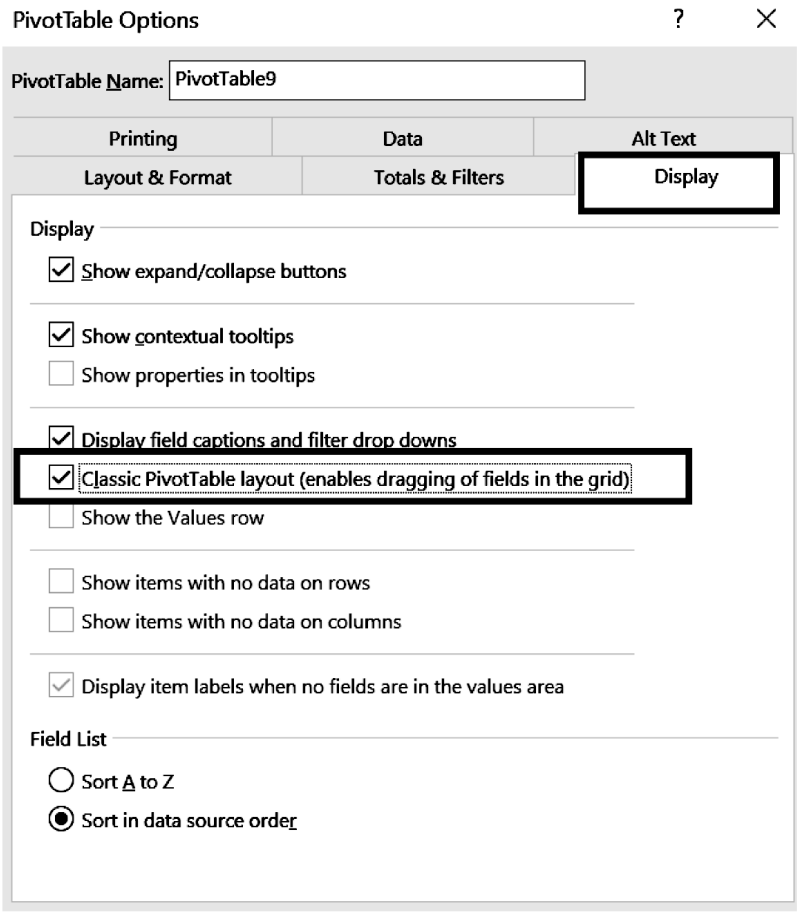
To display the actual field names (and not the title "Row Labels" or "Column Labels"), follow these steps:

1. Click the "ANALYZE" Tab.

2. Click "Options"



3. In the new window, select the “Display” tab:

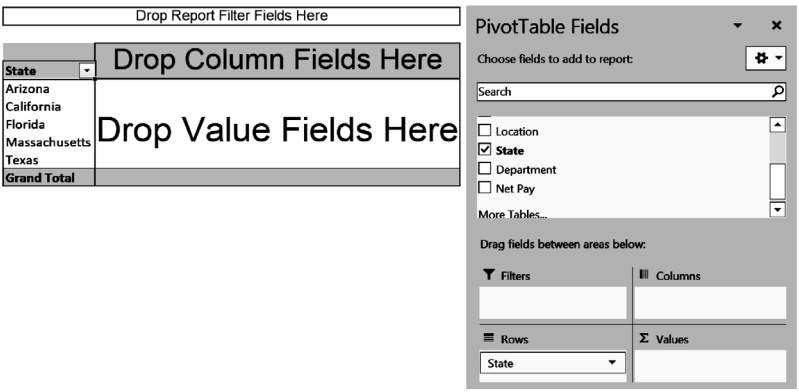


4. Check the “Classic PivotTable layout” option.

5. The field name will now appear instead of “Row Label”:

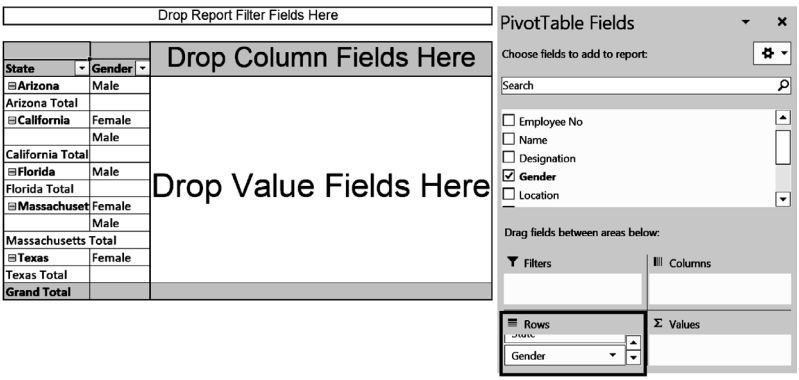
State
Arizona
California
Florida
Massachusetts
Texas
Grand Total

Please note that checking the "Classic PivotTable Layout" option enables direct dragging of fields into the pivot table itself, or into the desired area at the bottom of the screen, as shown in the following figure:



In this example, the "State" field is dragged into the ROWS. The city names listed under the "State" field appear in the pivot table, and each item appears in a different row.

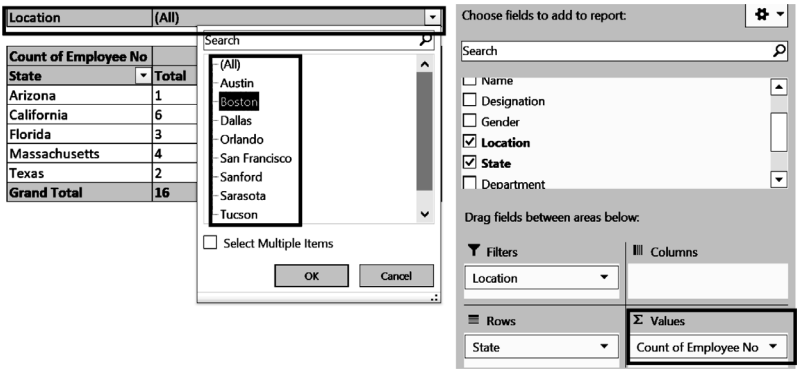
Other fields can be dragged into the ROWS as well (and also into the COLUMNS). In the following example, the "Gender" field was dragged under the field "City".



State names listed under the field "State" are shown in the pivot table, and each "State" field is distributed by gender.

Filter

As we have learned before, the fields that form the pivots of the data need to be placed in the ROWS or COLUMNS. Excel also allows us to use those fields as an additional filter for the pivot table.



In the example above, the "Section" field was dragged into the FILTERS.

Now we are free to display any of the relevant data in the pivot table:

Location	Boston

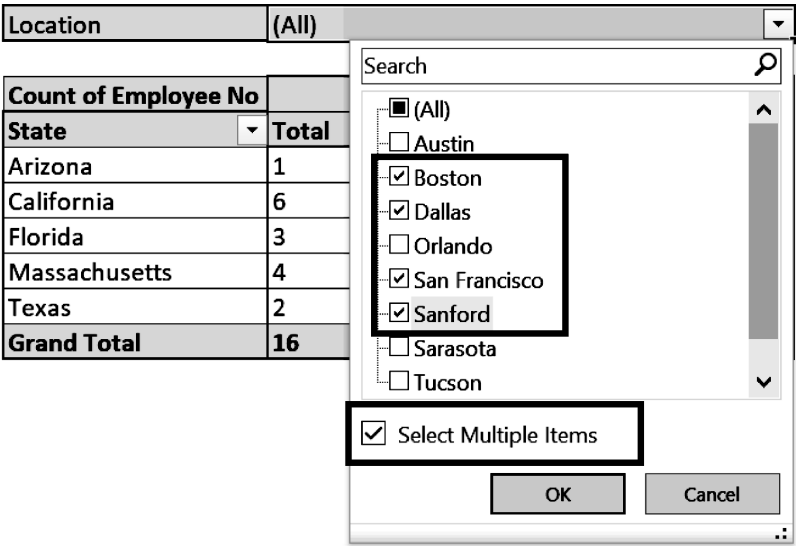
Count of Employee No	
State	Total
Massachusetts	4
Grand Total	4

In the example above, we sought to show the number of employees in each State and, using the FILTER, we reduced the information to display the count of employees who located in Boston.

Multivalued Report Filter

By default, only one item can be selected using the filter.

To select multiple items, check the "Select Multiple Items" box.

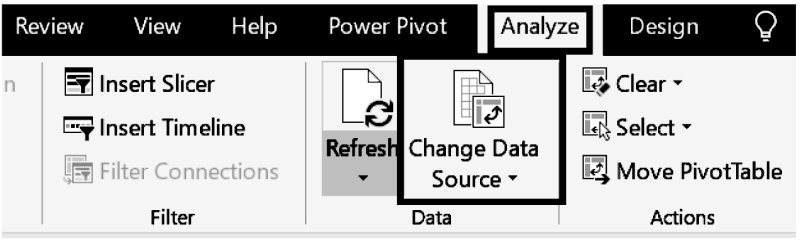


We can now select multiple items to be displayed in the pivot table.

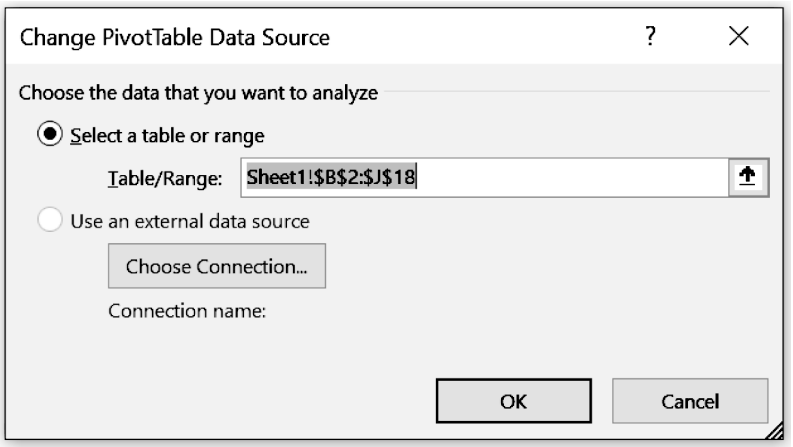
Changing the data source

After creating the pivot table, the original data range may change.

To apply the new range to the pivot table, select "PIVOTTABLE TOOLS" tab "ANALYZE" tab > "Change Data Source".



The following window for selecting a new data range will appear:



Select the desired range and click OK

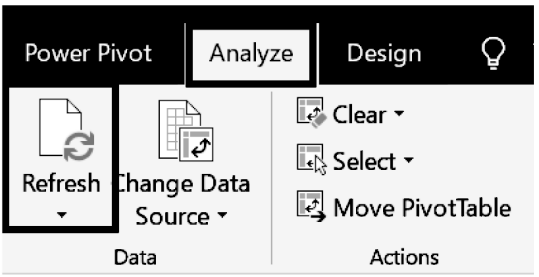
Alex then took up the next topic “Refreshing data".

Refresh Data

Explaining to Sam, Alex said, “In cases where there is an alteration to the data for which you have already created a Pivot Table, the data will not refresh automatically in the Pivot table. When you select the Pivot table, 2 new tab appears on the main tab. “ANALYZE” and “DESIGN”. For refreshing the data altered in the already existing data, you have to select “Analyze” and then “Refresh” from the options listed.”

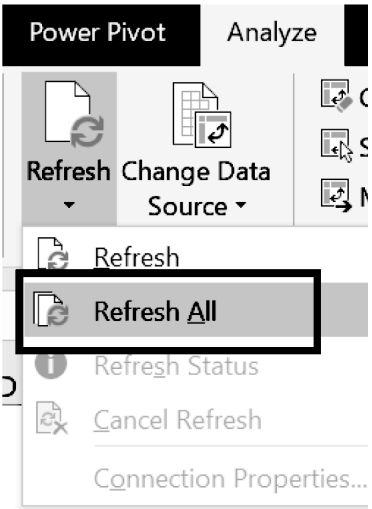
Refreshing a single pivot table:

1. Place the cursor on the pivot table you want to refresh.
2. Select the “ANALYZE” tab from “PIVOTTABLE TOOLS” tab.
3. Click “Refresh”.

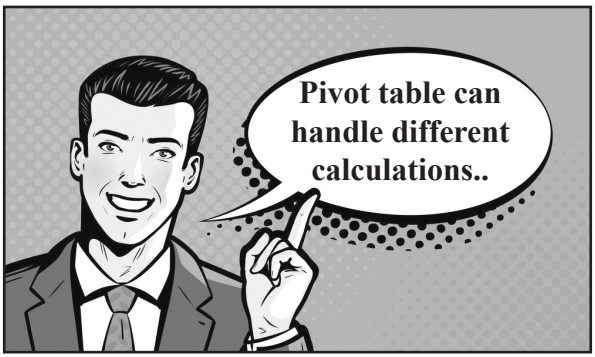


Refreshing all the pivot tables in a file

1. Place the cursor on any pivot table.
2. The “PIVOTTABLE TOOLS” tab will appear.
3. Select the “ANALYZE” tab.
4. Select the arrow under the “Refresh” icon.
5. Select “Refresh All”.



Alternatively, in order to skip the above steps, you may add the “Refresh All” icon to the quick access toolbar.



Chapter 3

Performing Calculations

Alex continued explaining, “A pivot table calculates numeric data and counts textual data.

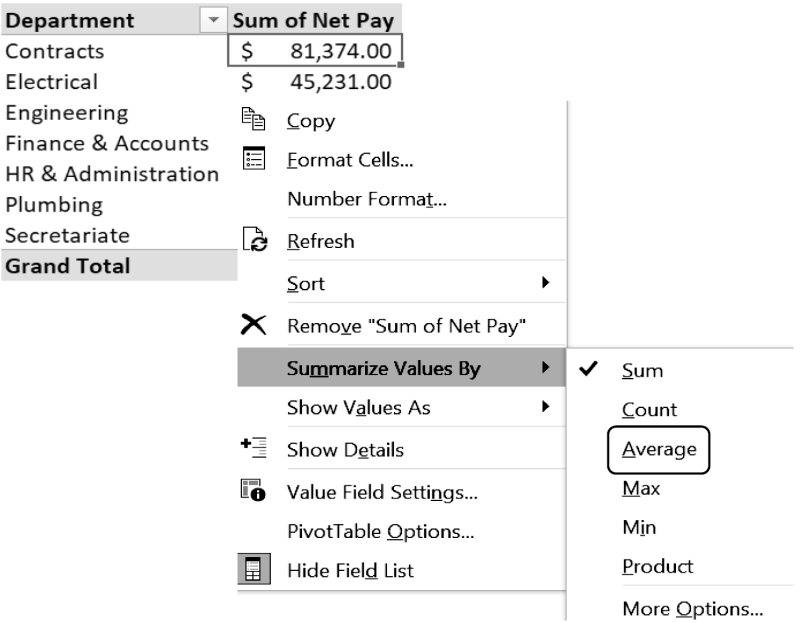
But you can always change the type of calculation you want in your report. Let me show you an example.”

He took up a pivot table and continued, “Now to compare the performance of each department, we have to find the average of each dept. And to do this, you have to;

1. Select the column you want to change. Here, selects ‘monthly salary’.

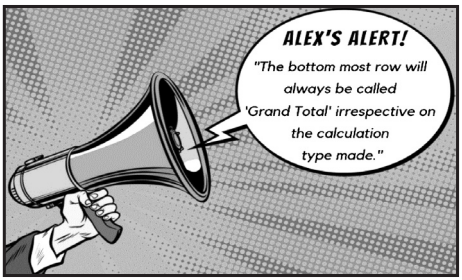
2. Right click on it and in the list, select ‘Summarize Value by'.

3. Select the desired calculation type (E.g.: Average), like shown in the picture:



4. Your desired pivot table is ready in no time:

Department		Average of Net Pay
Contracts	$	40,687.00
Electrical	$	45,231.00
Engineering	$	57,920.20
Finance & Accounts	$	48,847.00
HR & Administration	$	45,187.00
Plumbing	$	65,614.50
Secretariate	$	67,231.00
Grand Total	**$**	**53,223.81**

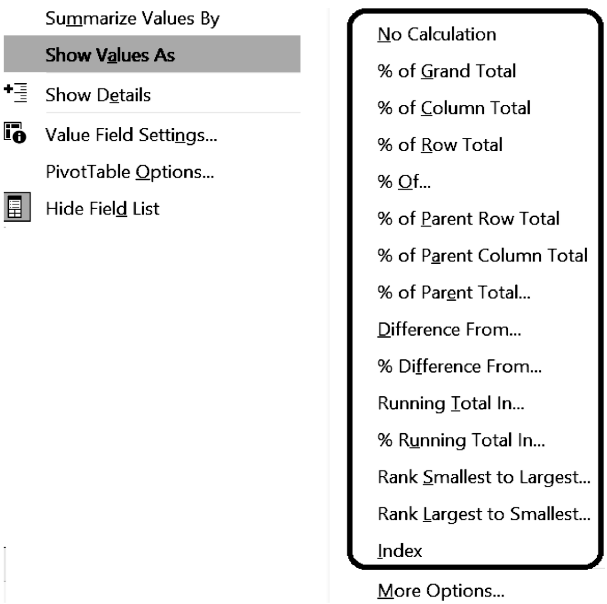


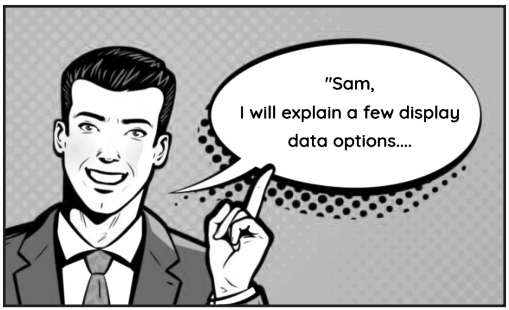
Data Display

Alex started to display about the different manners the data can be displayed.

“Like how different type of calculations can be selected, one can also select how the data has to be displayed.”

“To do so, you need to right click on the column you want to change the display of. In the list that appears, select ‘Show Values as' and in the pop up you can select the type of display you want.”





Percentage of Column Total

By selecting this option, the Pivot table will be displayed as follows.

Department	Sum of Net Pay
Contracts	9.56%
Electrical	5.31%
Engineering	34.01%
Finance & Accounts	17.21%
HR & Administration	10.61%
Plumbing	15.41%
Secretariate	7.89%
Grand Total	**100.00%**

In this pivot table we can get the percentage of salary expenditure acquired by each department.

From above table we can learn, for example, that the salary in the Engineering department constitutes 34.01% of the total salaries of the factory employees, while the salary in the Electrical Headquarters is only 5.31%.

Percentage of a Row Total

This display of data is used when there are multiple numerical columns and this display data type calculates the percentage per

row. The example below will make it very clear. The following picture shows the pivot table we are dealing:

Count of Gender	Gender		
Department	Female	Male	Grand Total
Contracts		2	2
Electrical		1	1
Engineering	4	1	5
Finance & Accounts	1	2	3
HR & Administration	2		2
Plumbing		2	2
Secretariate	1		1
Grand Total	**8**	**8**	**16**

Using this display type will give the following result

Count of Gender	Gender		
Department	Female	Male	Grand Total
Contracts	0.00%	25.00%	12.50%
Electrical	0.00%	12.50%	6.25%
Engineering	50.00%	12.50%	31.25%
Finance & Accounts	12.50%	25.00%	18.75%
HR & Administration	25.00%	0.00%	12.50%
Plumbing	0.00%	25.00%	12.50%
Secretariate	12.50%	0.00%	6.25%
Grand Total	**100.00%**	**100.00%**	**100.00%**

We can now see that saleswomen constitute 50.00% of the total number of women and salesmen are12.50% of the total number of men.

We may ask another question: among salespeople, what is the percentage of men and what is the percentage of women?

For this purpose, we present the data as a “Percentage of a Row Total” as showing below

Count of Gender	Gender		
Department	Female	Male	Grand Total
Contracts	0.00%	100.00%	100.00%
Electrical	0.00%	100.00%	100.00%
Engineering	80.00%	20.00%	100.00%
Finance & Accounts	33.33%	66.67%	100.00%
HR & Administration	100.00%	0.00%	100.00%
Plumbing	0.00%	100.00%	100.00%
Secretariate	100.00%	0.00%	100.00%
Grand Total	**50.00%**	**50.00%**	**100.00%**

Percentage of Grand Total

This display type shows the percentage when compared to the entire data. From the example above, this display type when selected shows the following result:

Count of Gender	Gender		
Department	Female	Male	Grand Total
Contracts	0.00%	12.50%	12.50%
Electrical	0.00%	6.25%	6.25%
Engineering	25.00%	6.25%	31.25%
Finance & Accounts	6.25%	12.50%	18.75%
HR & Administration	12.50%	0.00%	12.50%
Plumbing	0.00%	12.50%	12.50%
Secretariate	6.25%	0.00%	6.25%
Grand Total	**50.00%**	**50.00%**	**100.00%**

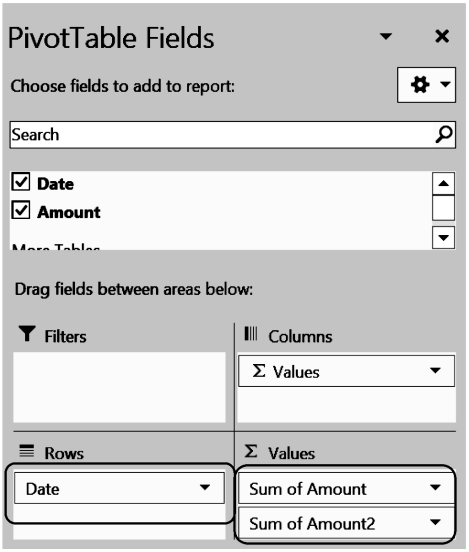
In this table we can see that when compared to the entire employees of the factory, 25.00% are saleswomen and 6.25% are salesmen.

Running total

Pivot table can also calculate running total of the data table. The following is the pivot table we will be using for the explanation. Please note that date wise sorting isn't necessary.

Date	Sum of Amount
27-01-2020	-35,600.00
28-05-2020	88,710.00
09-06-2020	-55,854.00
21-06-2020	-60,998.00
03-07-2020	71,142.00
15-07-2020	60,143.00
27-07-2020	-54,143.00
08-08-2020	45,231.00
20-08-2020	-70,231.00
Grand Total	**-11,600.00**

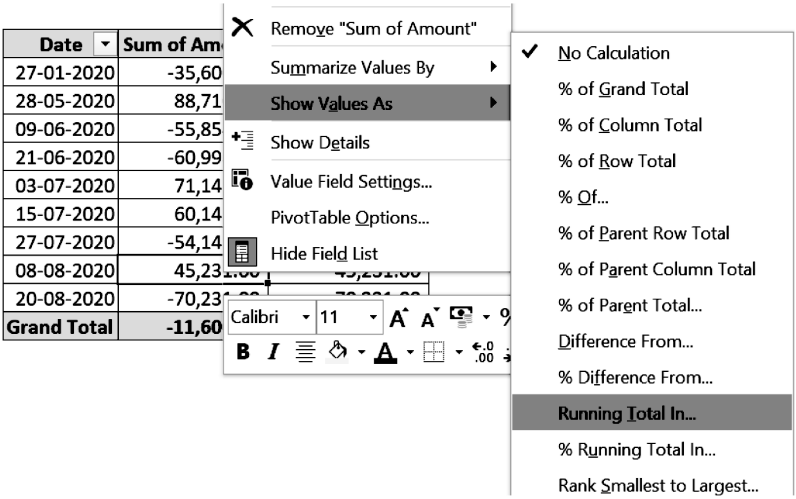
You need to drag fields to their respective areas giving you the following Pivot Table



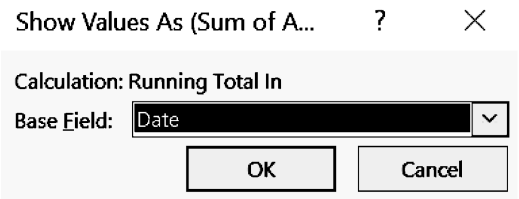
The following pivot table appears:

Date	Sum of Amount	Sum of Amount2
27-01-2020	-35,600.00	-35,600.00
28-05-2020	88,710.00	88,710.00
09-06-2020	-55,854.00	-55,854.00
21-06-2020	-60,998.00	-60,998.00
03-07-2020	71,142.00	71,142.00
15-07-2020	60,143.00	60,143.00
27-07-2020	-54,143.00	-54,143.00
08-08-2020	45,231.00	45,231.00
20-08-2020	-70,231.00	-70,231.00
Grand Total	**-11,600.00**	**-11,600.00**

At this point you can see that both the numerical columns are identical. You need to right click the 2nd column and select “show value as" and from the list that pops up, select “Running total in".



Select the field that will be used as a cumulative basis (the date field):



The following pivot table will appear:

Date	Sum of Amount	Sum of Amount2
27-01-2020	-35,600.00	-35,600.00
28-05-2020	88,710.00	53,110.00
09-06-2020	-55,854.00	-2,744.00
21-06-2020	-60,998.00	-63,742.00
03-07-2020	71,142.00	7,400.00
15-07-2020	60,143.00	67,543.00
27-07-2020	-54,143.00	13,400.00
08-08-2020	45,231.00	58,631.00
20-08-2020	-70,231.00	-11,600.00
Grand Total	**-11,600.00**	

This table shows, for example, that on 27/07/2020, an amount of -54,143.00 USD was obtained and the accrued balance for that date is 13,400 USD.

Percentage of

This is a very interesting display data option where you can compare to other data given.

The following pivot table will explain it more clearly. This pivot table is regarding salary expense in each state.

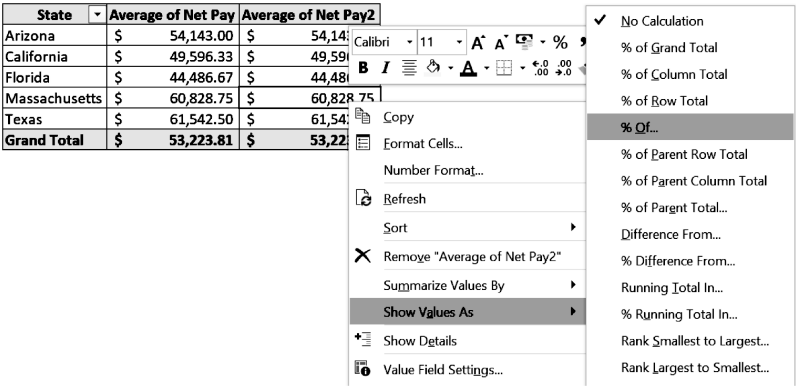
State	Sum of Net Pay
Arizona	$ 54,143.00
California	$ 2,97,578.00
Florida	$ 1,33,460.00
Massachusetts	$ 2,43,315.00
Texas	$ 1,23,085.00
Grand Total	**$ 8,51,581.00**

Drag the salary column to the value field twice. This will display the salary column twice.

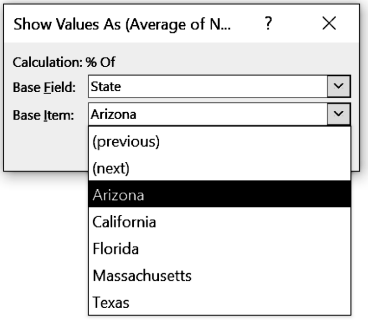
State	Sum of Net Pay	Sum of Net Pay2
Arizona	$ 54,143.00	$ 54,143.00
California	$ 2,97,578.00	$ 2,97,578.00
Florida	$ 1,33,460.00	$ 1,33,460.00
Massachusetts	$ 2,43,315.00	$ 2,43,315.00
Texas	$ 1,23,085.00	$ 1,23,085.00
Grand Total	**$ 8,51,581.00**	**$ 8,51,581.00**

Now we can find the average of the salary expenses compared to Arizona.

Right click on the 2nd column and select 'value set as' and then select '%of' in the list as showing below:



In the new window, we are asked to select the base field (the City field) and the item in the field (Florida):



The following pivot table is created:

State	Average of Net Pay	Average of Net Pay2
Arizona	$ 54,143.00	100.00%
California	$ 49,596.33	91.60%
Florida	$ 44,486.67	82.17%
Massachusetts	$ 60,828.75	112.35%
Texas	$ 61,542.50	113.67%
Grand Total	**$ 53,223.81**	

We can see that the city Florida constitutes the basis, and thus is displayed as 100%, while other cities are presented in comparison to it.

Data grouping

Alex was explaining Sam about grouping. He said "Pivot tables can group data in many ways like numeric data, textual data and date.

Grouping of numeric data

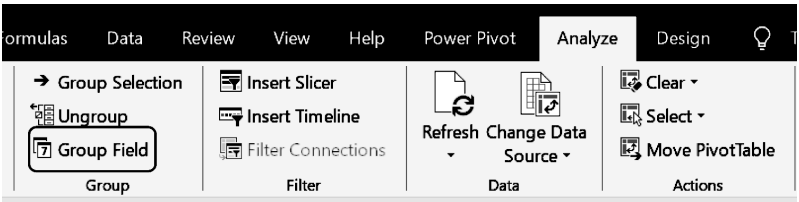
The following is the data used to explain this concept

Net Pay	Count of Employee No
$ 27,231.00	1
$ 30,231.00	2
$ 45,231.00	2
$ 54,143.00	3
$ 55,854.00	4
$ 58,231.00	1
$ 70,231.00	2
$ 88,710.00	1
Grand Total	**16**

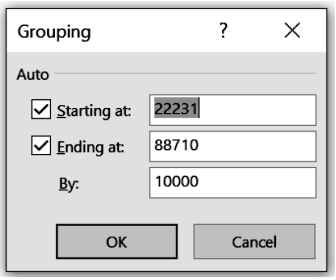
Using the above example, we can see that 4 employees earn a monthly salary of 55,854.00 USD while other employees earn greater salaries.

Even though the data seems perfect, grouping will only make it more efficient and understandable. To group the data above,

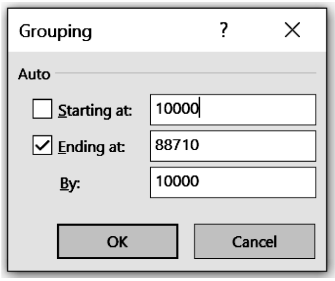
- Select one of the cells containing the numeric data.
- Under the ‘Analysis' tab select ‘Group field'



- The following window will appear:



- A small pop up appears. In this, A small field called the ‘starting at’ appears which displays the lowest value and another option called ‘Ending at' displays the highest value. They can be changed manually too, to the values we desire.



- Select the units or intervals by which you wish to group the data (in this case, we selected grouping by 1000 USD intervals).
- Select the unit by which the grouping can be done and click ok.
- The pivot table will look something like this.

Net Pay	Count of Employee No
20000-29999	1
30000-39999	2
40000-49999	2
50000-59999	8
70000-79999	2
80000-89999	1
Grand Total	**16**

We can now see, for example; that 8 employees earn monthly salaries ranging

from 50000 to 59000 USD.

Date Grouping

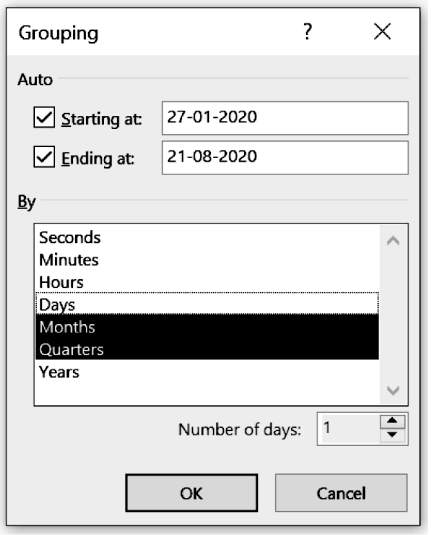
The following pivot table is used to explain date grouping. This pivot table number people hired on each date.

Date	Sum of Count of Employee
27-01-2020	1
28-05-2020	3
09-06-2020	4
21-06-2020	5
03-07-2020	2
15-07-2020	1
27-07-2020	3
08-08-2020	4
20-08-2020	4
Grand Total	**27**

Steps to follow:

1. Select any cell that contains the date data
2. Under the ‘Analysis' tab, select the ‘group field’ button.

   A window appears:



3. Select the desired options and the following will be the result (This case Selected Months & Quarter)

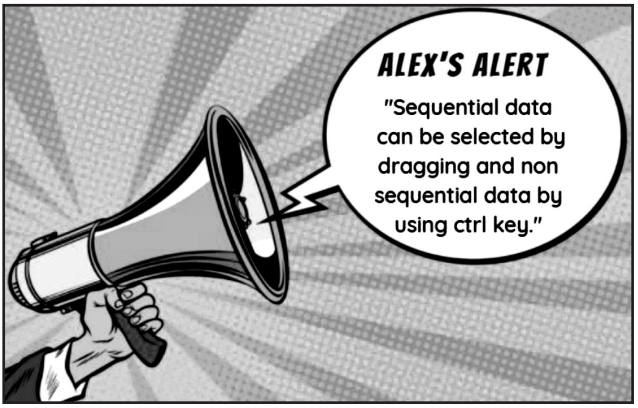
Quarters	Date	Sum of Count of Employee
⊟Qtr1	Jan	1
Qtr1 Total		1
⊟Qtr2	May	3
	Jun	9
Qtr2 Total		12
⊟Qtr3	Jul	6
	Aug	8
Qtr3 Total		14
Grand Total		27

Grouping of textual data

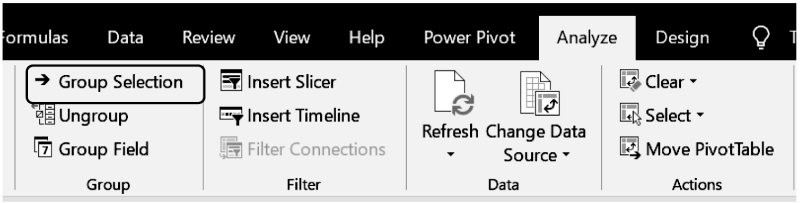
Textual data are grouped manually, unlike the numeric and date data. The manual way to do it is:

- Select the data to be grouped. Below is the pivot table in which the managers are planned to be grouped. In this example, we want to create a group of Accountant, so we select the Jr Accountant and the Sr Accountant:

Designation	Sum of Net Pay
Assistant General Manager (Projects)	$ 58,231.00
Executive (F&A)	$ 30,231.00
General Manager (F&A)	$ 88,710.00
Joint Assistant General Manager	$ 1,08,286.00
Joint General Manager (Projects)	$ 55,854.00
Jr Accountant	$ 55,854.00
Junior Engineer (P&M)	$ 30,231.00
Project Engineer	$ 45,231.00
Senior Artist	$ 55,854.00
Senior Construction Manager	$ 45,231.00
Senior Executive (Secretary)	$ 54,143.00
Senior Executive Human Resource	$ 70,231.00
Site Engineer	$ 55,854.00
Sr Accountant	$ 70,231.00
Sr Executive (Stores)	$ 27,231.00
Grand Total	**$ 8,51,403.00**



- In the Analyse tab, under the ‘Pivotable tools' select ‘group selection'.



- Another group appears. And it contains both the data selected before and in case, subtotals are opted then it is very clear that the 2 groups are merged.

Designation2	Designation	Sum of Net Pay
⊟Assistant General Manager (Projects)	Assistant General Manager (Projects)	$ 58,231.00
Assistant General Manager (Projects) Total		**$ 58,231.00**
⊟Executive (F&A)	Executive (F&A)	$ 30,231.00
Executive (F&A) Total		**$ 30,231.00**
⊟General Manager (F&A)	General Manager (F&A)	$ 88,710.00
General Manager (F&A) Total		**$ 88,710.00**
⊟Joint Assistant General Manager	Joint Assistant General Manager	$ 1,08,286.00
Joint Assistant General Manager Total		**$ 1,08,286.00**
⊟Joint General Manager (Projects)	Joint General Manager (Projects)	$ 55,854.00
Joint General Manager (Projects) Total		**$ 55,854.00**
⊟Group1	Jr Accountant	$ 55,854.00
	Sr Accountant	$ 70,231.00
Group1 Total		**$ 1,26,085.00**
⊟Junior Engineer (P&M)	Junior Engineer (P&M)	$ 30,231.00
Junior Engineer (P&M) Total		**$ 30,231.00**
⊟Project Engineer	Project Engineer	$ 45,231.00
Project Engineer Total		**$ 45,231.00**

Multivalued Report

After explaining the grouping Topic in detail Alex chose the topic ‘multivalued reports'. There are times where we have to perform large number of calculations on the same set of data.

You can do this by dragging the required field into value area several times and changing the calculation type for each.

For example, in the following, the salary field is dragged into value area 4 times.

Department	Sum of Net Pay	Sum of Net Pay2	Sum of Net Pay3	Sum of Net Pay4
Contracts	81374	81374	81374	81374
Electrical	45231	45231	45231	45231
Engineering	289601	289601	289601	289601
Finance & Accounts	146541	146541	146541	146541
HR & Administration	90374	90374	90374	90374
Plumbing	131229	131229	131229	131229
Secretariate	67231	67231	67231	67231
Grand Total	**851581**	**851581**	**851581**	**851581**

The following pivot table appears as a result

Department	Average of Net Pay	Max of Net Pay4	Min of Net Pay3	Count of Net Pay2
Contracts	40687	54143	27231	2
Electrical	45231	45231	45231	1
Engineering	57920.2	71142	50231	5
Finance & Accounts	48847	88710	22231	3
HR & Administration	45187	60143	30231	2
Plumbing	65614.5	70231	60998	2
Secretariate	67231	67231	67231	1
Grand Total	**53223.8125**	**88710**	**22231**	**16**

Calculated field

Alex moved on the next topic to explain. A calculated field lets us perform calculations between different fields or a field and constant.

Calculation regarding a single field

Tax calculation is a perfect example for this type of calculation. It is possible to either add a calculation column to the table itself

or we can add it to the Pivot table. This form of calculation is, in actual, beneficial when using data from external tables (like Access and SQL).

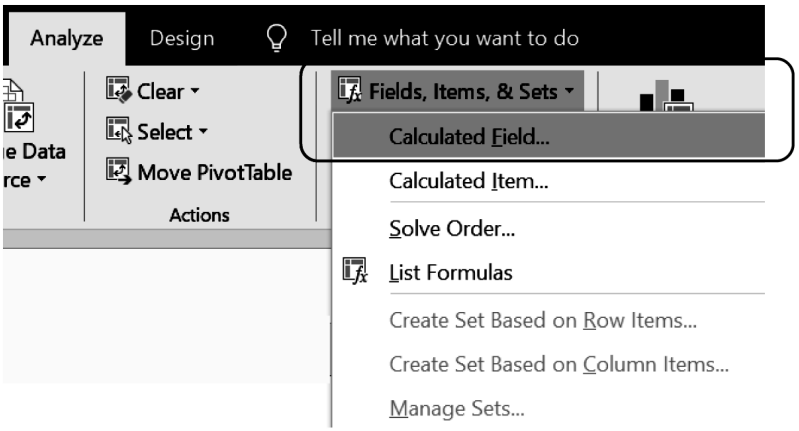
This calculation is not done on each record in the data base but as a grouped data and therefore saves memory.

Alex showed this example;

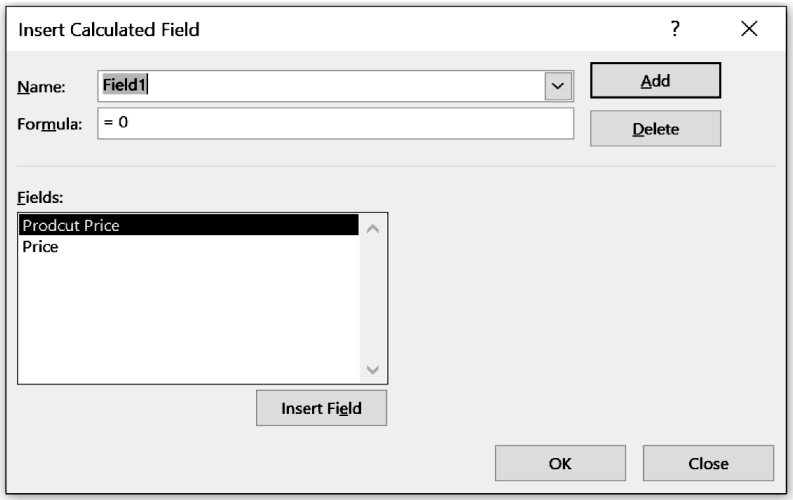
Prodcut Price	Sum of Price
AC	$ 32,000.00
Fridge	$ 45,900.00
TV	$ 29,000.00
Grand Total	**$1,06,900.00**

To perform this:

- Cursor to be placed on the pivot table.
- Select the ‘Analyse' tab
- Then select the ‘ fields, items and sets.’
- Select ‘calculated field’



A pop-up window appears



- Name the field (In the example Filed name Tax)
- Select the field in which calculation will be performed.
- Click ‘Insert field' button.

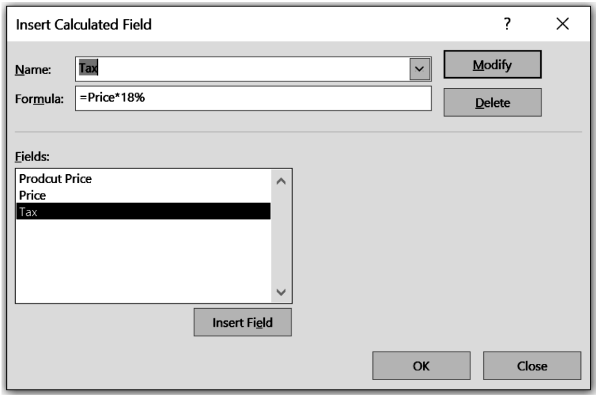
- Create a formula.
- Click ok.

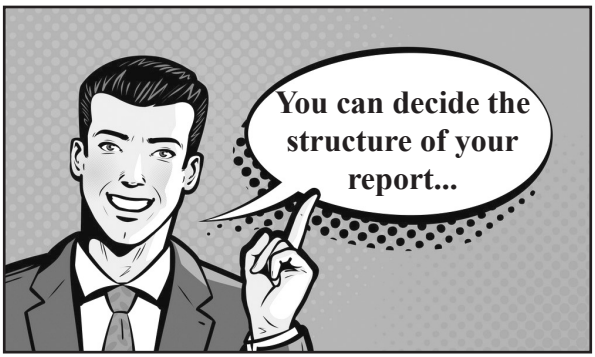
The result would appear as:

Prodcut Price	Sum of Price	Sum of Tax
AC	$ 32,000.00	$ 5,760.00
Fridge	$ 45,900.00	$ 8,262.00
TV	$ 29,000.00	$ 5,220.00
Grand Total	**$1,06,900.00**	**$19,242.00**

Deleting a calculated field

Deleting a calculated field is easy. It just need to be selected from the drop down list and select 'Delete'.





Chapter 4

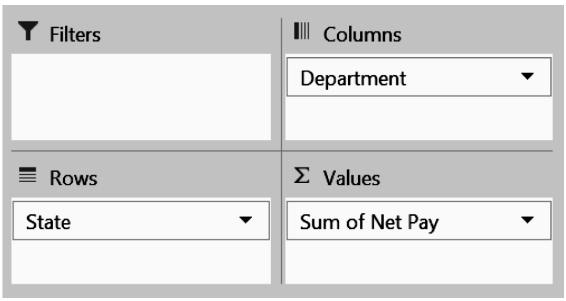
Changing the Report Structure

Alex was showing Sam how to change the report structure. It is very easy and very useful to give a perfectional look to report. Pivot table lets you change the structure of the report. The changes will be immediately visible by

- Switching between columns and rows
- Inserting columns or rows.

Switching columns and rows

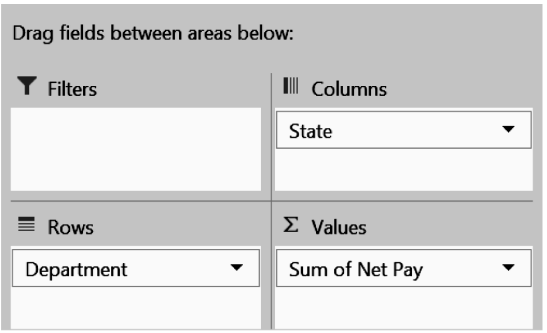
When a report is created, the location of the fields can be dragged into desired area. In the following example, a pivot table showing the monthly salary of state and department.



Sum of Net Pay	Department				
State	Contracts	Electrical	Engineering	Finance & Accounts	HR & Administrat
Arizona	54,143.00				
California			1,69,939.00	86,085.00	55,854
Florida	27,231.00	45,231.00			
Massachusetts			54,143.00	88,710.00	30,231
Texas			45,231.00		
Grand Total	**81,374.00**	**45,231.00**	**2,69,313.00**	**1,74,795.00**	**86,085**

Here, as the number of states is less and the department are comparatively high. It is better to switch the rows and columns.

All we need to do is drag the ‘State' field into COLUMNS and ‘Department' field to ROWs s showing below:



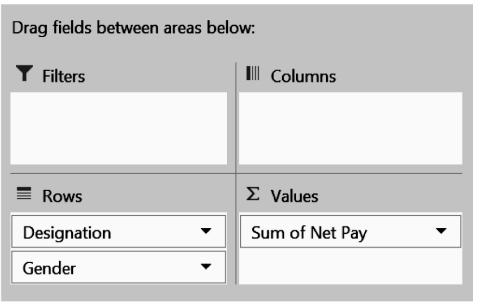
The following pivot table will appear:

Sum of Net Pay	State					
Department	Arizona	California	Florida	Massachusetts	Texas	Grand Total
Contracts	54,143.00		27,231.00			81374
Electrical			45,231.00			45231
Engineering		1,69,939.00		54,143.00	45,231.00	269313
Finance & Accounts		86,085.00		88,710.00		174795
HR & Administration		55,854.00		30,231.00		86085
Plumbing			70,231.00	70,231.00		140462
Secretariate					54,143.00	54143
Grand Total	**54,143.00**	**3,11,878.00**	**1,42,693.00**	**2,43,315.00**	**99,374.00**	**8,51,403.00**

Adding columns and rows

Columns and rows can be easily added to the report by dragging the appropriate fields to columns and rows.

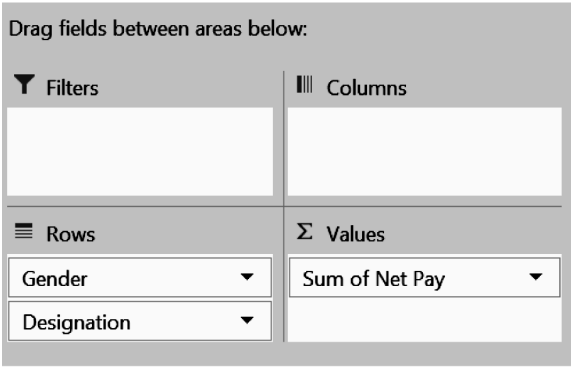
In the example here, a field gender is added to the ROW below 'Designation' field.



The following table displays the average salary in each designation, divided by role, then gender:

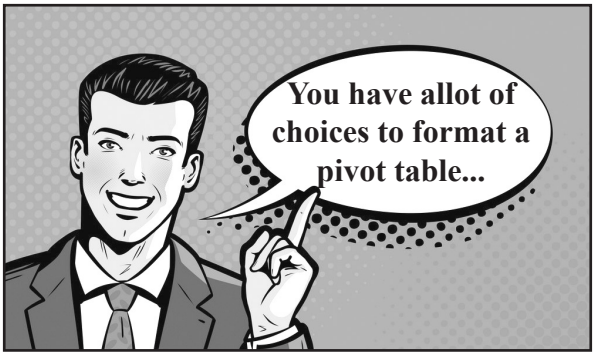
Designation	Gender	Sum of Net Pay
⊟Assistant General Manager (Projects)	Female	$ 58,231.00
⊟Executive (F&A)	Male	$ 30,231.00
⊟General Manager (F&A)	Male	$ 88,710.00
⊟Joint Assistant General Manager	Female	$ 54,143.00
	Male	$ 54,143.00
⊟Joint General Manager (Projects)	Female	$ 55,854.00
⊟Jr Accountant	Female	$ 55,854.00
⊟Junior Engineer (P&M)	Female	$ 30,231.00
⊟Project Engineer	Male	$ 45,231.00
⊟Senior Artist	Female	$ 55,854.00
⊟Senior Construction Manager	Female	$ 45,231.00
⊟Senior Executive (Secretary)	Female	$ 54,143.00
⊟Senior Executive Human Resource	Male	$ 70,231.00
⊟Site Engineer	Male	$ 55,854.00
⊟Sr Accountant	Male	$ 70,231.00
⊟Sr Executive (Stores)	Male	$ 27,231.00
Grand Total		**$ 8,51,403.00**

Within the ROW area, you can drag the 'role' below the 'gender' field.



The pivot table would appear as follows;

Gender	Designation	Sum of Net Pay
Female	Assistant General Manager (Projects)	$ 58,231.00
	Joint Assistant General Manager	$ 54,143.00
	Joint General Manager (Projects)	$ 55,854.00
	Jr Accountant	$ 55,854.00
	Junior Engineer (P&M)	$ 30,231.00
	Senior Artist	$ 55,854.00
	Senior Construction Manager	$ 45,231.00
	Senior Executive (Secretary)	$ 54,143.00
Male	Executive (F&A)	$ 30,231.00
	General Manager (F&A)	$ 88,710.00
	Joint Assistant General Manager	$ 54,143.00
	Project Engineer	$ 45,231.00
	Senior Executive Human Resource	$ 70,231.00
	Site Engineer	$ 55,854.00
	Sr Accountant	$ 70,231.00
	Sr Executive (Stores)	$ 27,231.00
Grand Total		**$ 8,51,403.00**



Chapter 5

Formatting Pivot Tables

Structure Format

Alex was explaining the structure format of the Pivot table. "Pivot Tables has default format which is set by the software.

But, we also do have options to customize it as per our desire."

Subtotals

Alex was explaining on how to format the subtotals. In case, the pivot table contains at least two fields in the ROWS or COLUMNS, then there would be subtotals after every change of an item in the field as shown in the following picture:

Gender	Designation	Sum of Net Pay
⊟Female	Assistant General Manager (Projects)	$ 58,231.00
	Joint Assistant General Manager	$ 54,143.00
	Joint General Manager (Projects)	$ 55,854.00
	Jr Accountant	$ 55,854.00
	Junior Engineer (P&M)	$ 30,231.00
	Senior Artist	$ 55,854.00
	Senior Construction Manager	$ 45,231.00
	Senior Executive (Secretary)	$ 54,143.00
Female Total		**$ 4,09,541.00**
⊟Male	Executive (F&A)	$ 30,231.00
	General Manager (F&A)	$ 88,710.00
	Joint Assistant General Manager	$ 54,143.00
	Project Engineer	$ 45,231.00
	Senior Executive Human Resource	$ 70,231.00
	Site Engineer	$ 55,854.00
	Sr Accountant	$ 70,231.00
	Sr Executive (Stores)	$ 27,231.00
Male Total		**$ 4,41,862.00**
Grand Total		**$ 8,51,403.00**

Subtotal format

We can alter the subtotal format in order to differentiate it from the data. Formatting can be done in different ways like cell colour, font size, highlights etc. The steps to format would be:

On one of the titles, in the total row, place the cursor. In our example,

you can place the cursor on “Female Total”.

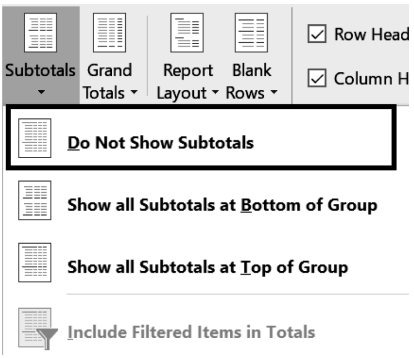
- Move the cursor to the left till + shape turns into ➔ shape.
- The entire row is selected.

Gender	Designation	Sum of Net Pay
⊟Female	Assistant General Manager (Projects)	$ 58,231.00
	Joint Assistant General Manager	$ 54,143.00
	Joint General Manager (Projects)	$ 55,854.00
	Jr Accountant	$ 55,854.00
	Junior Engineer (P&M)	$ 30,231.00
	Senior Artist	$ 55,854.00
	Senior Construction Manager	$ 45,231.00
	Senior Executive (Secretary)	$ 54,143.00
Female Total		**$ 4,09,541.00**
⊟Male	Executive (F&A)	$ 30,231.00
	General Manager (F&A)	$ 88,710.00
	Joint Assistant General Manager	$ 54,143.00
	Project Engineer	$ 45,231.00
	Senior Executive Human Resource	$ 70,231.00
	Site Engineer	$ 55,854.00
	Sr Accountant	$ 70,231.00
	Sr Executive (Stores)	$ 27,231.00
Male Total		**$ 4,41,862.00**
Grand Total		**$ 8,51,403.00**

Now we can alter the cell formats as desired (cell filling, colour, size, etc.)

Removing or changing the subtotals location:

- Place the cursor on the Pivot Table.
- Select Design tab and then Subtotals

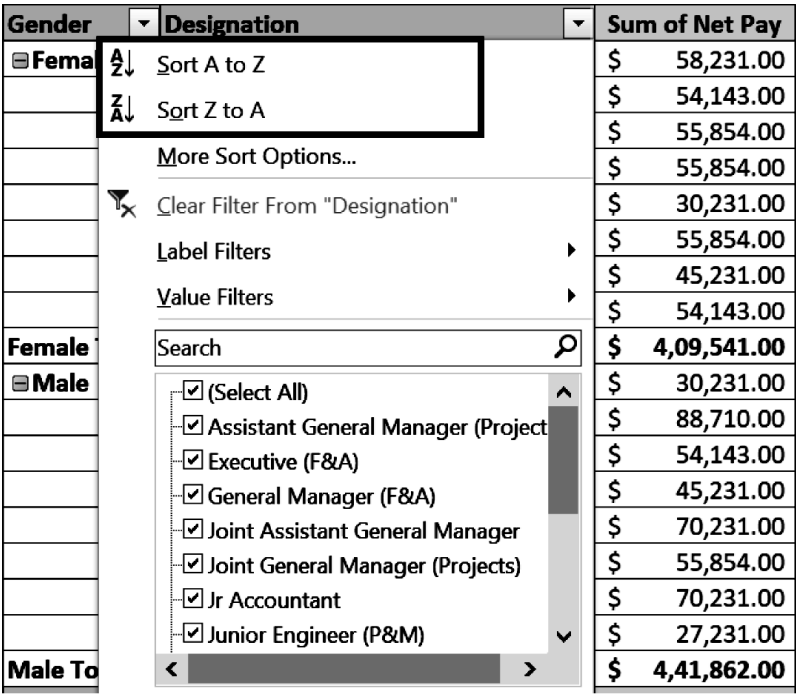


- Select the option as per requirement.

Sorting

After explaining all the above, Alex began explaining sorting. Pivot tables are already sorted in ascending order while it is created. It is possible to change the sorting order through the following steps:

- Click on the arrow which is on the top of the field.
- Click the preferred sorting order.



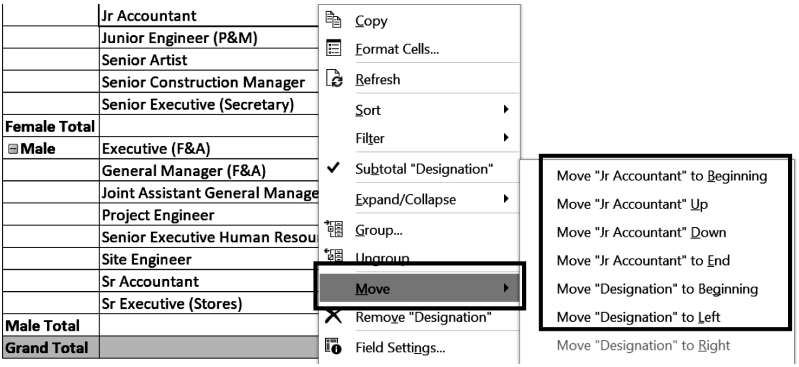
In addition to this, the pivot table allows us to arrange the data by moving the field to any desired position.

Methods to move the field is:

o Right click the item to be moved.

o From the drop-down list, select 'Move'

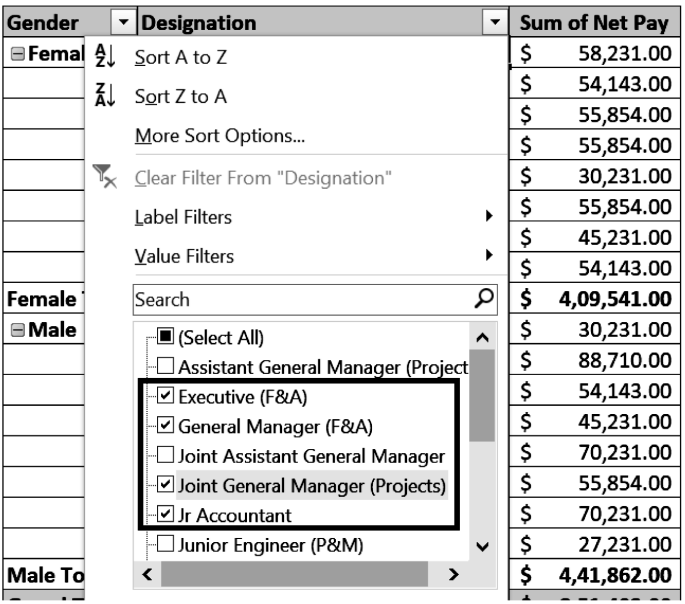
o Choose the position to move.



Filtering

A Pivot table by default displays all the fields dragged into it. But we can choose to display just a few fields by using the option of filter. For which, follow the following steps:

- Click the arrow on top of the field.
- The values to be displayed has to be selected.



- Click ok and the following Pivot Table will be displayed.

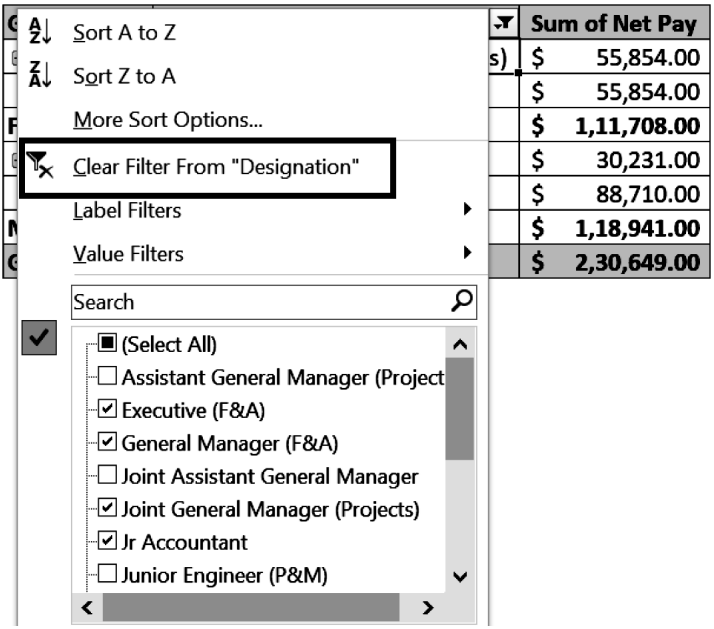
Gender	Designation	Sum of Net Pay
Female	Joint General Manager (Projects)	$ 55,854.00
	Jr Accountant	$ 55,854.00
Female Total		**$ 1,11,708.00**
Male	Executive (F&A)	$ 30,231.00
	General Manager (F&A)	$ 88,710.00
Male Total		**$ 1,18,941.00**
Grand Total		**$ 2,30,649.00**

Note: The filter icon has been changed from to in order to indicate that the data has been filtered.

Removing Filtering

To remove filtering option,

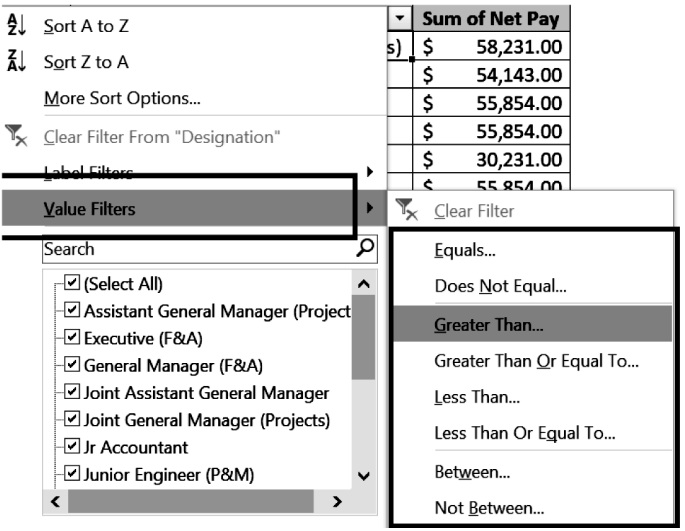
- Click the filtering arrow
- Select 'clear filter'



Value filters

Alex was teaching Sam that there are other ways to filter data. Pivot tables can filter data by displaying only data greater than or less than a certain value. Steps to apply this filter:

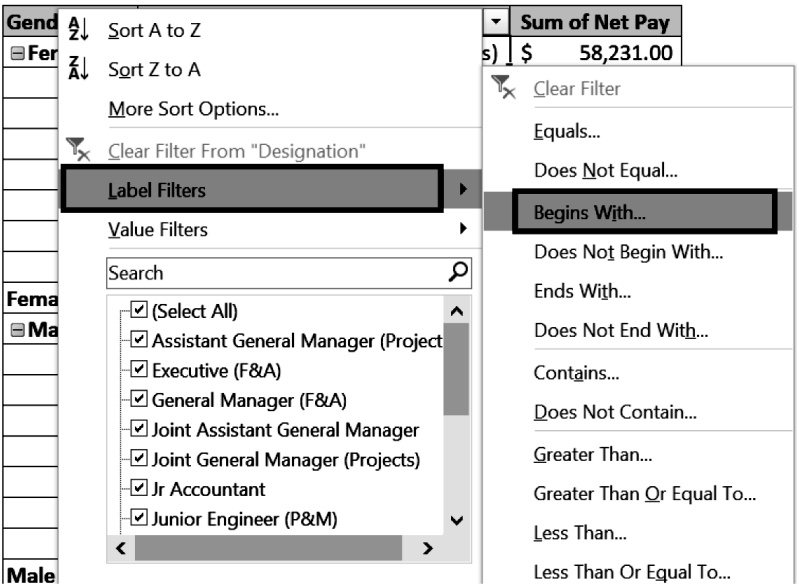
- Click on the filtering arrow.
- Select ‘Value filter’
- Select the desired filtering option:



Label Filters

Textual data can be filtered in different manners by displaying textual data that contains, end with, begins or doesn’t contain a certain data.

- Click on the filtering arrow.
- Select ‘Label filter’
- Select the desired filtering option:



A pop up appears, where you need to choose your condition and the letters that should be the part of the condition. In the following example, we want to see all the city names beginning with the word 'Senior':

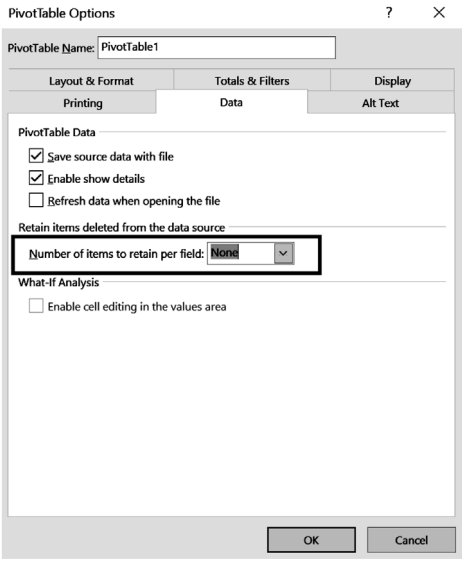
The following pivot table will appear.

Gender	Designation	Sum of Net Pay
Female	Senior Artist	$ 55,854.00
	Senior Construction Manager	$ 45,231.00
	Senior Executive (Secretary)	$ 54,143.00
Female Total		**$ 1,55,228.00**
Male	Senior Executive Human Resource	$ 70,231.00
Male Total		**$ 70,231.00**
Grand Total		**$ 2,25,459.00**

Removing data which has been deleted from the filter list

One common form of changes that data bases undergo is deletion of data on the basis of which the pivot table is made. But these deleted data will still continue to appear in the list of fields. To delete these data, select ‘options’ under the ‘Analyse’ tab.

In the window that pops up select ‘Data’ Tab.



In number of items to retain per field, select ‘None’

Slicers

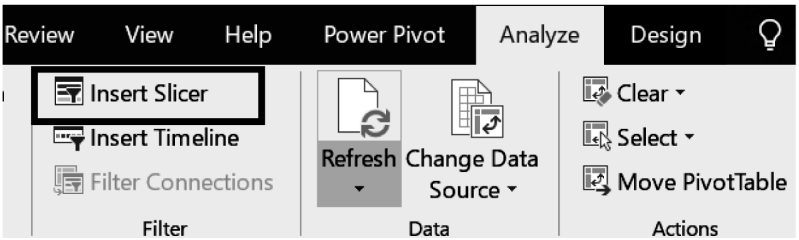
Alex introduced a new concept called slicers. It is a new addition to the Excel family. It displays the current filtering state. A slicer replaces the use of drop down list of items to be filtered. In order to use a Slicer, make sure the file is in 2010 format at least. In

case the file is older, then the slicer will be made inactive. The file will have to be made into latest version by going to file tab, selecting "info" category, and then convert

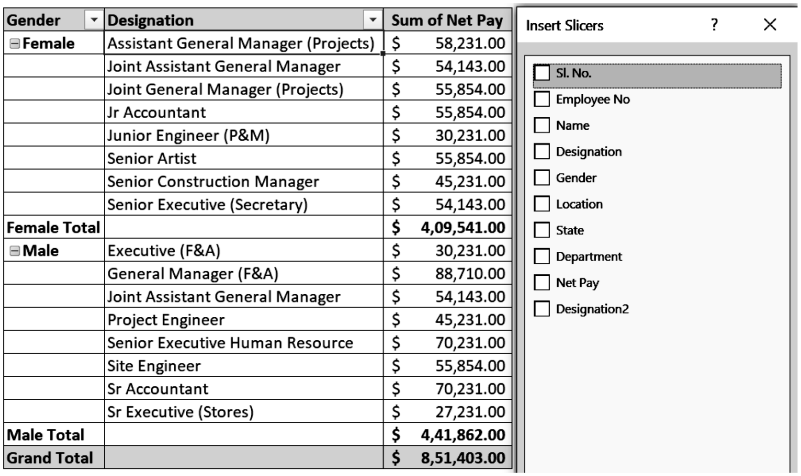
Creating filters using slicers:

To create the filter:

- Create a Pivot table.
- Under the 'Analyse' tab, select, 'Insert Slicers' (it can also be found in the 'Insert' tab)



- The following window pops.

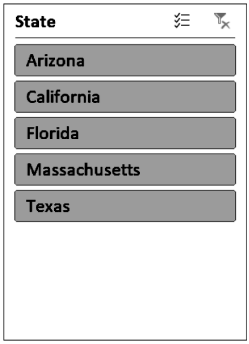


Gender	Designation	Sum of Net Pay
Female	Assistant General Manager (Projects)	$ 58,231.00
	Joint Assistant General Manager	$ 54,143.00
	Joint General Manager (Projects)	$ 55,854.00
	Jr Accountant	$ 55,854.00
	Junior Engineer (P&M)	$ 30,231.00
	Senior Artist	$ 55,854.00
	Senior Construction Manager	$ 45,231.00
	Senior Executive (Secretary)	$ 54,143.00
Female Total		**$ 4,09,541.00**
Male	Executive (F&A)	$ 30,231.00
	General Manager (F&A)	$ 88,710.00
	Joint Assistant General Manager	$ 54,143.00
	Project Engineer	$ 45,231.00
	Senior Executive Human Resource	$ 70,231.00
	Site Engineer	$ 55,854.00
	Sr Accountant	$ 70,231.00
	Sr Executive (Stores)	$ 27,231.00
Male Total		**$ 4,41,862.00**
Grand Total		**$ 8,51,403.00**

- Select the field you want to add the slicer in the Pivot table.
- Select 'ok'

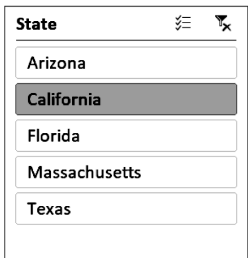
- The slicer window appears (Example – Select 'State')

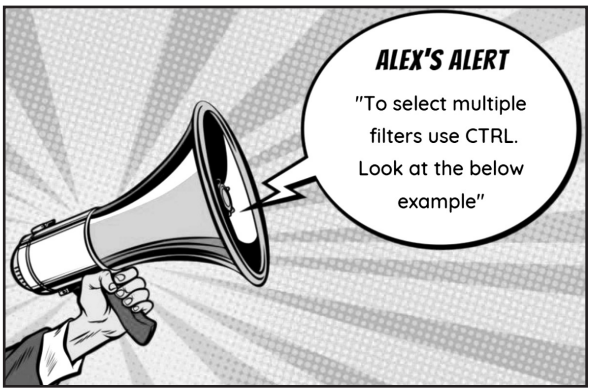
Gender	Designation	Sum of Net Pay
⊟Female	Assistant General Manager (Projects)	$ 58,231.00
	Joint Assistant General Manager	$ 54,143.00
	Joint General Manager (Projects)	$ 55,854.00
	Jr Accountant	$ 55,854.00
	Junior Engineer (P&M)	$ 30,231.00
	Senior Artist	$ 55,854.00
	Senior Construction Manager	$ 45,231.00
	Senior Executive (Secretary)	$ 54,143.00
Female Total		**$ 4,09,541.00**
⊟Male	Executive (F&A)	$ 30,231.00
	General Manager (F&A)	$ 88,710.00
	Joint Assistant General Manager	$ 54,143.00
	Project Engineer	$ 45,231.00
	Senior Executive Human Resource	$ 70,231.00
	Site Engineer	$ 55,854.00
	Sr Accountant	$ 70,231.00
	Sr Executive (Stores)	$ 27,231.00
Male Total		**$ 4,41,862.00**
Grand Total		**$ 8,51,403.00**



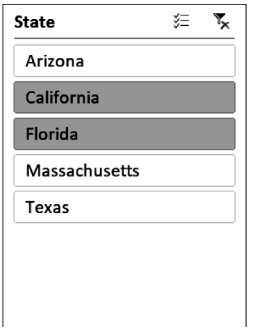
- Once the desired items are selected only the filtered records will be displayed (Here Alex selected state 'California')

Gender	Designation	Sum of Net Pay
⊟Female	Assistant General Manager (Projects)	$ 58,231.00
	Joint General Manager (Projects)	$ 55,854.00
	Jr Accountant	$ 55,854.00
	Senior Artist	$ 55,854.00
Female Total		**$ 2,25,793.00**
⊟Male	Executive (F&A)	$ 30,231.00
	Site Engineer	$ 55,854.00
Male Total		**$ 86,085.00**
Grand Total		**$ 3,11,878.00**





Gender	Designation	Sum of Net Pay
⊟Female	Assistant General Manager (Projects)	$ 58,231.00
	Joint General Manager (Projects)	$ 55,854.00
	Jr Accountant	$ 55,854.00
	Senior Artist	$ 55,854.00
Female Total		**$ 2,25,793.00**
⊟Male	Executive (F&A)	$ 30,231.00
	Project Engineer	$ 45,231.00
	Site Engineer	$ 55,854.00
	Sr Accountant	$ 70,231.00
	Sr Executive (Stores)	$ 27,231.00
Male Total		**$ 2,28,778.00**
Grand Total		**$ 4,54,571.00**



Manipulating slicers

- Select a slicer.
- The slicers tab will appear.

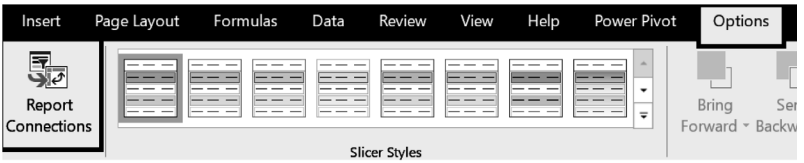
Changing the slicers name

The title that will appear as the window title can be altered (Options > Slicer Caption)

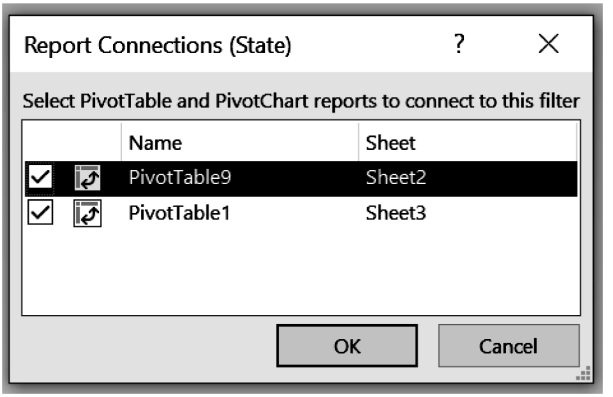
Creating connection

In cases where there are more Pivot tables connected to the same data then, the slicers can be linked to more than one table.

- Click Report connections (Options > Report Connections)



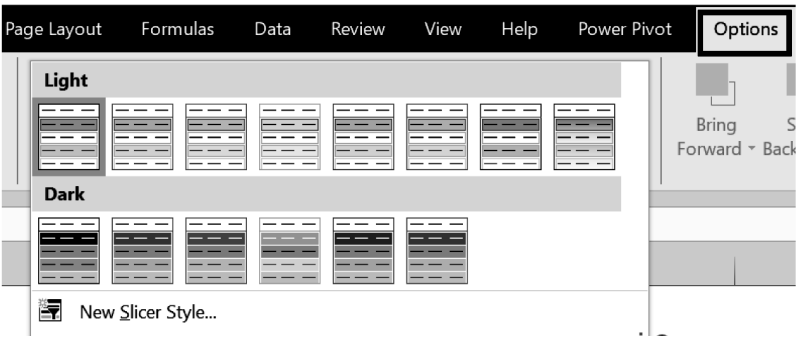
- The following pop up window appears:



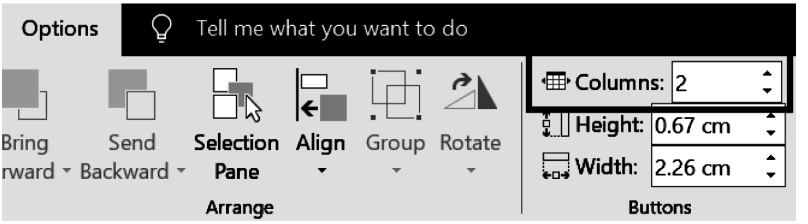
- Select the desired table.

Changing the slicer appearance

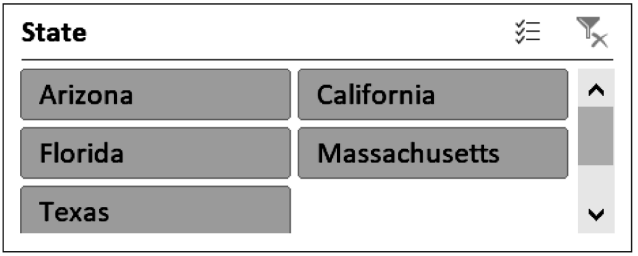
- A variety of appearances can be selected for a slicer.



- Number of columns to appear in a slicer along with the size of the button can be set.



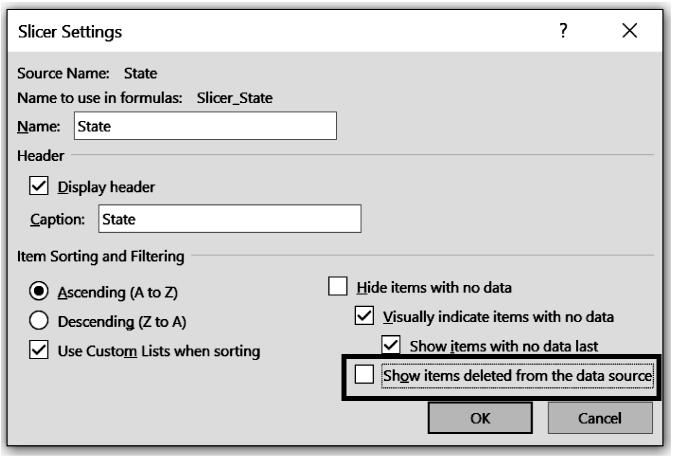
- The result :



Removing items which were deleted from the data source

At times, the slicers can contain the deleted items that doesn't exist in the source data anymore. They can be deleted as follows:

- Select the slicer window.
- Under 'Slicer Tools' select options tab, click slicer settings
- The following window appears.



- Uncheck, "Show items deleted from the data source"

The Timeline

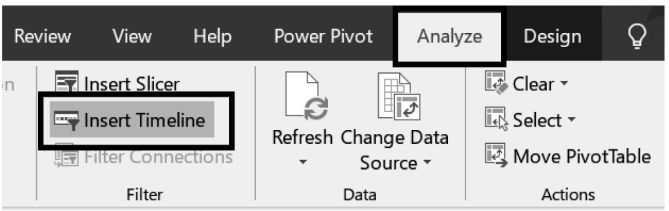
Another tool that help us filter is the 'Timeline'. It filters the record by dates.

Insert timeline

- Create a Pivot table (Sample data given below)

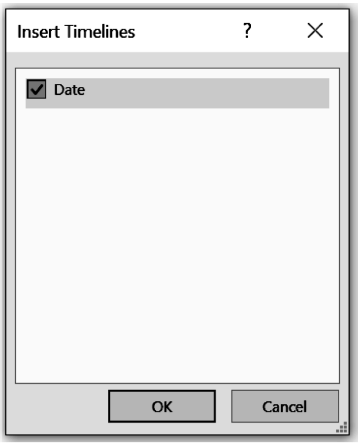
Date	Sum of Amount
27-01-2020	-35,600.00
28-05-2020	88,710.00
09-06-2020	-55,854.00
21-06-2020	-60,998.00
03-07-2020	71,142.00
15-07-2020	60,143.00
27-07-2020	-54,143.00
08-08-2020	45,231.00
20-08-2020	-70,231.00
Grand Total	**-11,600.00**

- Under the "Analyse" tab select 'Insert Timeline"



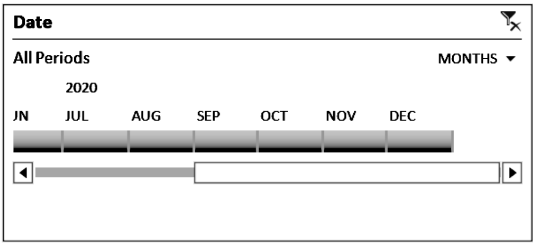
- A window containing the date field appears.

Date	Sum of Amount
27-01-2020	-35,600.00
28-05-2020	88,710.00
09-06-2020	-55,854.00
21-06-2020	-60,998.00
03-07-2020	71,142.00
15-07-2020	60,143.00
27-07-2020	-54,143.00
08-08-2020	45,231.00
20-08-2020	-70,231.00
Grand Total	**-11,600.00**



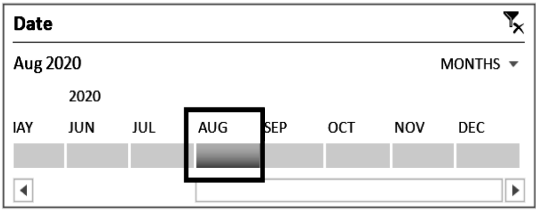
- Click the desired fields and click ok
- The timeline will appear

Date	Sum of Amount
27-01-2020	-35,600.00
28-05-2020	88,710.00
09-06-2020	-55,854.00
21-06-2020	-60,998.00
03-07-2020	71,142.00
15-07-2020	60,143.00
27-07-2020	-54,143.00
08-08-2020	45,231.00
20-08-2020	-70,231.00
Grand Total	-11,600.00



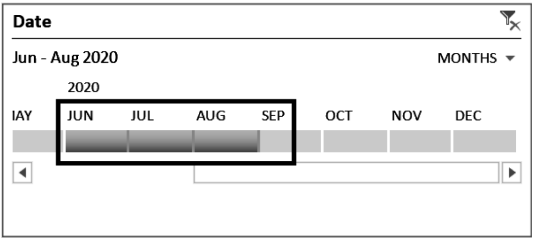
- Select the desired period in the timeline.

Date	Sum of Amount
08-08-2020	45,231.00
20-08-2020	-70,231.00
Grand Total	-25,000.00



- To select continuous period simply drag over it.

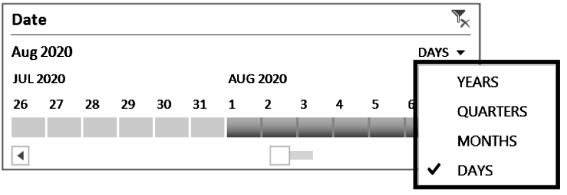
Date	Sum of Amount
09-06-2020	-55,854.00
21-06-2020	-60,998.00
03-07-2020	71,142.00
15-07-2020	60,143.00
27-07-2020	-54,143.00
08-08-2020	45,231.00
20-08-2020	-70,231.00
Grand Total	-64,710.00



Changing the time period

- Click the arrow, as shown in the picture.

Date	Sum of Amount
08-08-2020	45,231.00
20-08-2020	-70,231.00
Grand Total	-25,000.00



- Select the desired time period.

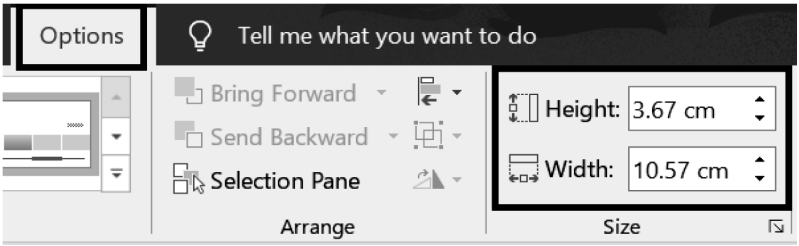
Changing the timeline appearance

A variety of selections can be made for a time line's appearance.

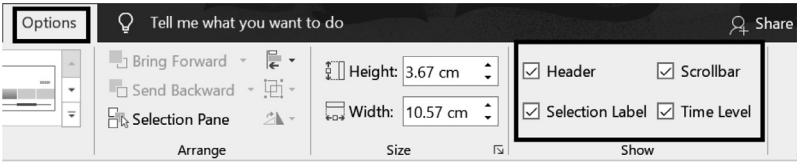
- Select 'Options' tab under the 'Timeline tool and Change the Timeline caption if you wish..

- Select a style

- Select the timeline size



- Show or hide the Header, selection label and time level, or appearance of the scroll bar :



- You can connect it to numerous Pivot tables by pressing "Report connections" button and selecting the desired pivot tables.

Sam was so thrilled by all these amazing information Alex was telling him. He was slowly realizing his passion for Pivot Tables

Chapter 6

Design Tab

Alex had covered major part of Pivot table and now it was about the DESIGN TAB. Pivot tables can be very much formatted through various methods like cell formatting options etc. Formatting commands are found in Layout category

"Pivot Table Tools" ->Design tab which are further divided to different categories.

Layout category

- Subtotals: This feature enables the ability to cancel subtotals or show them either above or below the group.
- Totals: This enables us to show or hide the totals in ROWS or COLUMNS.
- Report Layout: This can be used to view the Pivot table in a tabular form. We can also use this to repeat or cancel the repetition of labels.
- Blank rows: This feature lets us remove blank rows between items.

Pivot table style options

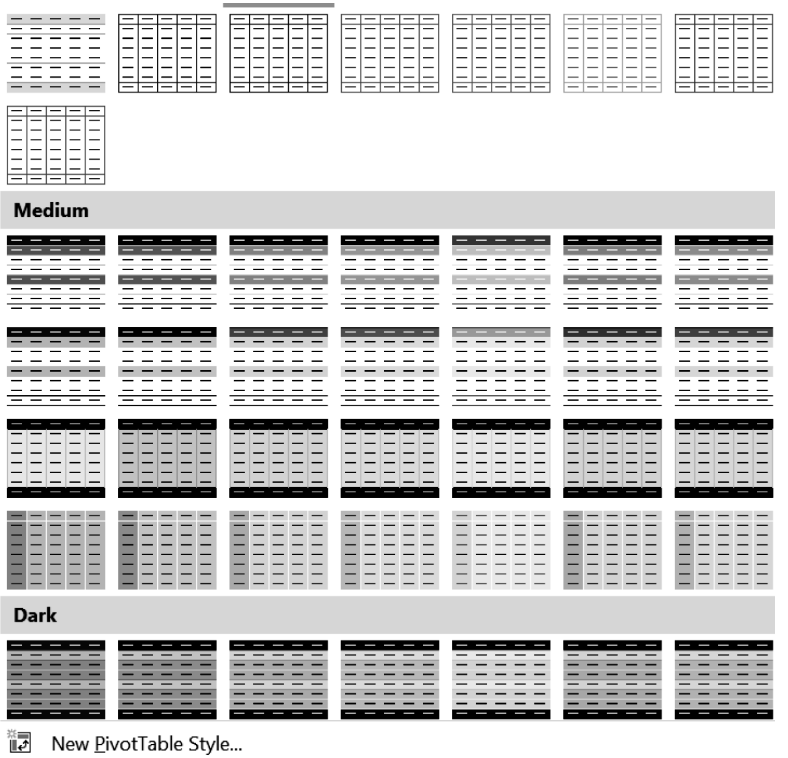
- **Row Header:** This feature helps us to enable or disable bolding of items.
- **Column Header:** This feature helps us enable or disable bolding of fields.
- **Banded Row/Banded Column:** This colours the rows or columns alternately

Quick design styles of Pivot tables

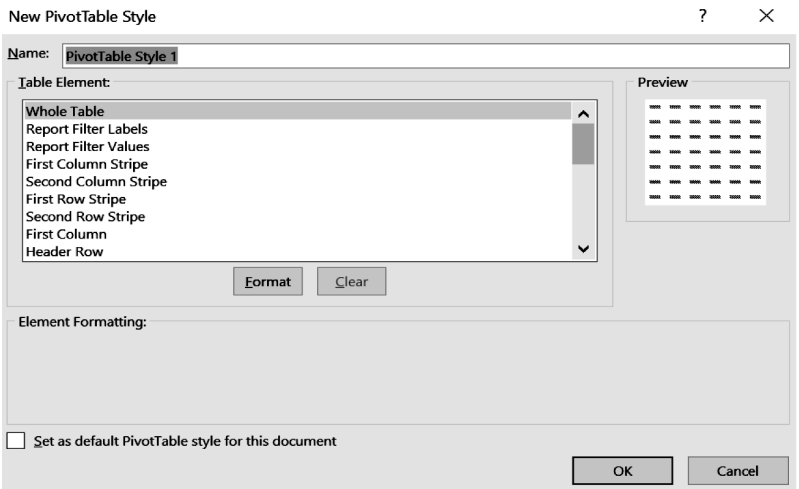
This feature enables us to choose from different styles.

Choosing a new style

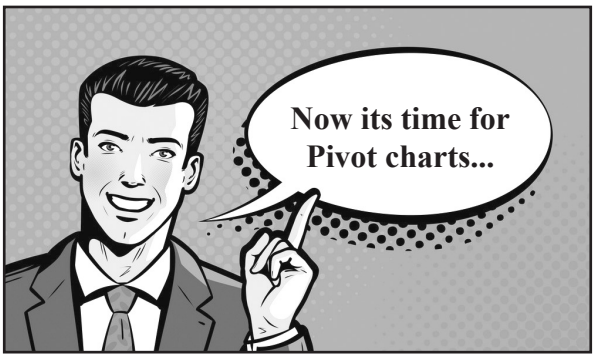
- To create a new design for the pivot table:
- Click, 'New Pivot Table Style'



- The following window will pop up



- Name the newly defined style and design
- The new style will appear at the top of the customization list, in the gallery.



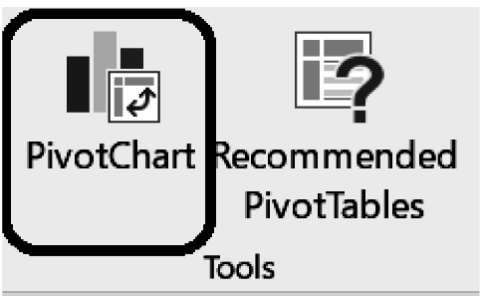
Chapter 7

Pivot Chart

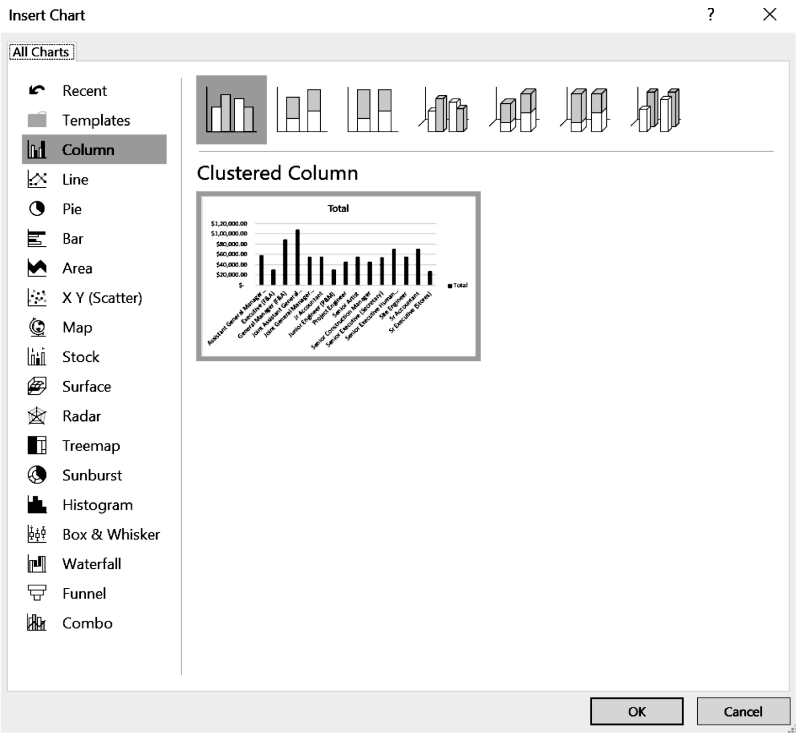
Alex was all done with Pivot Tables and now he was introducing Pivot charts. When Pivot tables can give a precise report on the data, a Pivot chart can give a pictorial representation of the same. A chart can be added to a Pivot table or create the same as a Pivot Table.

Adding a chart to an existing Pivot table

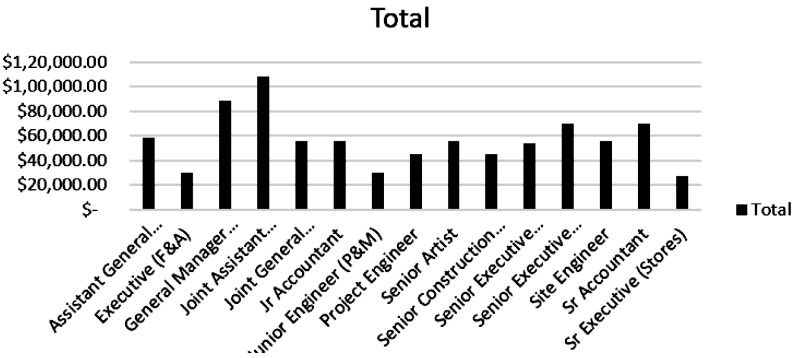
- Place the cursor on the Pivot table.
- Select the “Analyze” tab -> Pivot charts

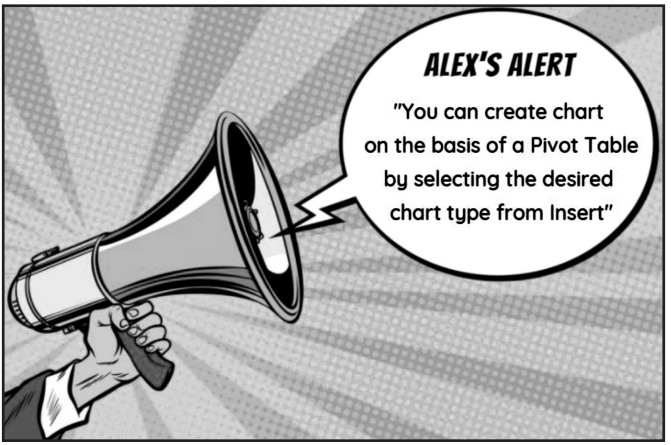


- The following pop up window appears:



- Select the chart type and click ok
- The selected chart will appear.





Edit a PivotChart

When a PivotChart is selected, there will be two icons that appear on the upper right side of the chart. These icons can be used to add in chart elements, change the color or style, etc. of a chart.

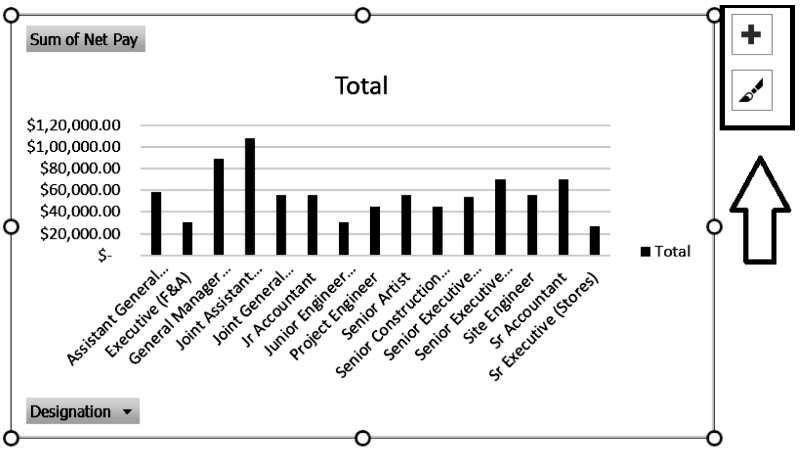


Chart Element

The plus icon allows Chart Elements, chart title, data labels, etc. to the chart. To add an element to the chart, place a checkmark next to the element name.

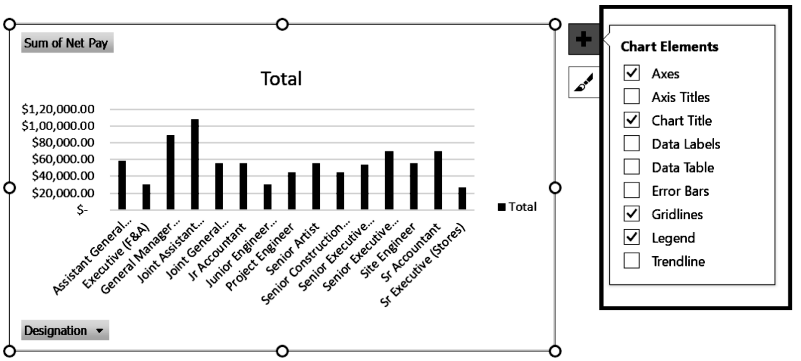
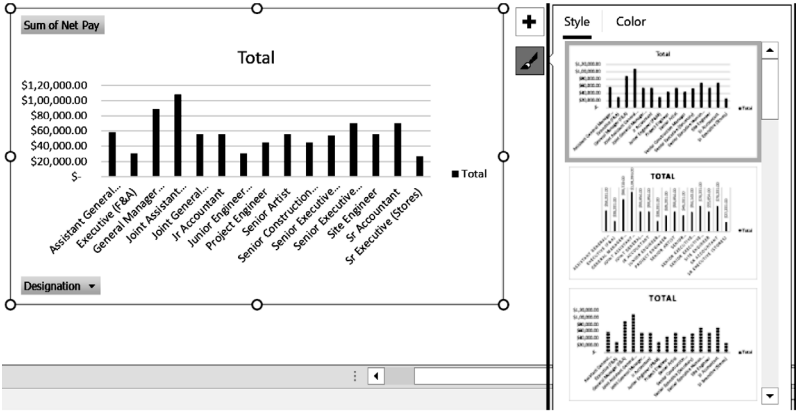


Chart Style

The paintbrush icon, will include options for the Chart Styles and the chart colors.



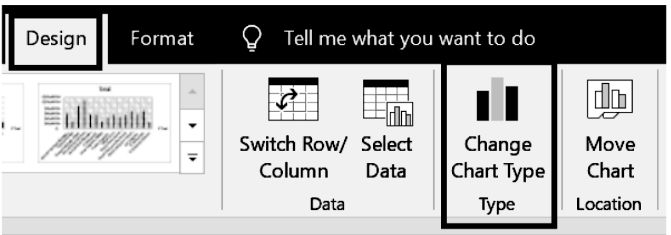
Note: Each chart type will display the styles differently. Remember to use the scrollbar to see all options that are available for a particular chart type.

To change the colour of the chart, click on the colour tab to select a new color scheme.

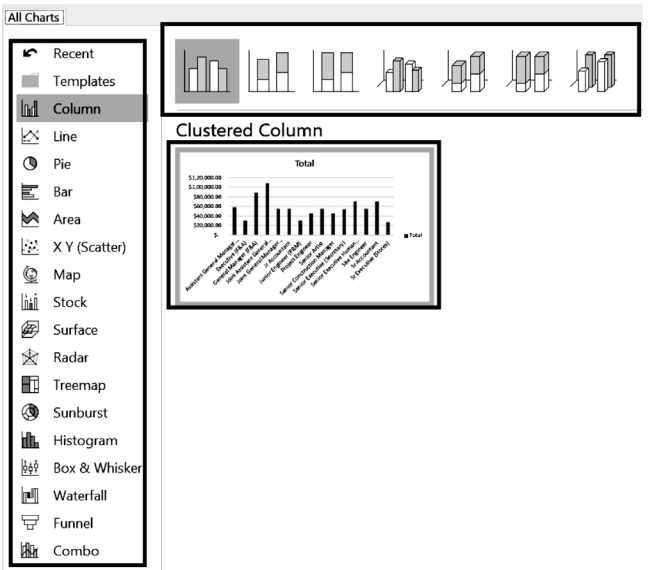
Change Chart Type

To change the chart type, make sure the PivotChart is selected,

navigate to the Design tab, and then select the Change Chart Type icon.

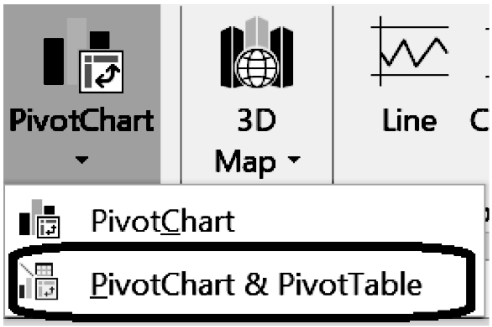


On the Change Chart type window, select the appropriate chart type and then click OK to change the chart.



Simultaneously creating a pivot table and a chart

- Place the cursor on the data table.
- Select the “insert” tab.
- Click the arrow below the pivot chart button.
- Select the Pivot chart &Pivot table



- Pivot chart and pivot table will appear in the same window
- Dragging the fields in the desired area will make pivot table and pivot chart display them simultaneously.

With this, Alex finished teaching Sam all he had to know about Pivot table. Sam was surprised at how interesting and Simple Pivot table is. Giving Alex a buddy hug and promising a huge treat in return to the favor. Sam sat back on his desk to work on the reports his Manager had demanded.

Sam from then on was the most efficient and appreciated employee of the firm who grew the ladders of success just because of his knowledge in Excel

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Pivot Table Shortcut Keys

Select entire pivot table	Ctrl A
Toggle pivot table checkbox	Space
Group pivot table items	Alt Shift →
Ungroup pivot table items	Alt Shift ←
Add pivot chart to current worksheet	Alt F1
Add pivot chart to new worksheet	F11
Hide item from pivot table	Ctrl -
Launch pivot table wizard	Alt D P

Epilogue

Dear Readers,

A lot of research and observations are put in to finally create this book. I have put in my whole hearted effort and skills to guide you through my best knowledge. But as it is said nothing can be perfect, neither can be this book. So in case you have any query or suggestions or criticisms, please do feel free to contact me thorough the mail id provided here. Considering all your valuable suggestions and criticisms, the next edition will be improvised accordingly.

Thank You.
Mohammed Alfan
skills2succeed.alfan@gmail.com