

- * we will data set HR dataset
- * Extending same dashboard with using filter & lets format the final dashboard

Let's apply filter for department

1. Drag dept. from data pane to filter \rightarrow filter on this page first book. \rightarrow Basic filtering
2. Now, you can see, HR dept. is selected & now in below picture, you can see that only HR data is visible, whereas, R&D and Sales data will not be shown.
3. Now, let's try for advanced filter

Let's find out results for salary greater than equal to 10000.

Filter type: advancing filter

Value: 10000

4. Now, let's try for 'TopN' filtering. Try to display top 4 job roles having highest job satisfaction.

Select "Job satisfaction Rating" visual \rightarrow in filter pane,

Filter on this visual \rightarrow Job role \rightarrow

Filter type: TopN show item: Top: 4

By value: Sum of Job satisfaction.

Dashboard -

Filters in power BI, Formatting dashboard

Filter pane : You can apply filters in the Filter pane,
① make selections in slices directly on the report page itself. The filter pane shows the fields in individual visuals

There are 4 types of standards of filters that you can create in Filter pane:

1. Visual filter applies to a single visual on a report page. You see visual level filters when you select a visual on the report canvas. Even if you can't edit a report you can select a visual & filter it
2. Page filter applies to all the visuals on the report page
3. Report filter applies to all pages in report
4. Drill through filter, with drill through in power BI service & power BI desktop, you create a destination report page that focuses on a specific entity, such as Supplier.

* Format the row header & column header → text color
background color

* Also, format the Row grand total & column grand-total

+ Now apply same steps for creating Stacked Bar chart

* Now apply same steps for creating Donut

A donut chart is similar to pie chart in that it shows the relationship of parts to a whole. The only difference is that the middle is blank & allows space for label(s) icon

Slicer: It is a stand alone chart that can be used to ~~display~~ filter other visual on the page. Slicer ~~can~~ come in many different formats & can be formatted to allow selection of only one, many \textcircled{a} all available values

* Select pie chart

* Now apply the same steps for creating STACKED COLUMN CHART.

* A column chart, commonly referred to as a vertical bar graph, a visual tool utilized to display & compare numerical data across different categories

* Optional: As you can see, age is not sorted correctly, so we have to create additional column.

* Once sort age column is created change the data type of column if it's not in whole no.

* Click on "close & Apply"

* Now, on canvas, in data pane → select CP-age-band → click on sort by column → select newly created column sort age & now

click on ~~order & filter~~.

* Now apply the same steps for creating MATRIX

* The matrix visual is a type of table visual that supports a stepped layout. A table supports 2-dim, but a matrix makes it easier to display data meaningfully across multiple dimensions.

* then we have to create new column for attrition count. For this, select attrition column
 → click on Add column → new will open then add details as follows.

- * change the data type of the column to whole no.
- * click on Close & Apply
- * you will ~~realy~~ be back on canvas area with table loaded in Data pane
- * we will start with KPI chart
- * A key performance Indicator is a visual cue that communicates the amount of progress made toward a measurable goal.

Now format this particular visual with title, size, colour.

- ① Click on "Format your visual" in visualization panel
- ② Goto general tab

- a. click on Title-type "Overall employee" in Textbox,
 keep Horizontal alignment & colour of your choice.
- b. expand effects → OFF the background of KPI
- c. Effects → on visual border → change the color &
 so rounded corners.

- ③ Now, goto visual tab → OFF the category level
- ④ In visual tab, call at value → change the font color.

Program 7: Creating Reports & visualizations - Different types of charts, Formatting charts with title, colors.

17 Most Common charts available in Power BI:-

- * Bar chart
- * Line chart
- * Scatter plot
- * Sparkline
- * pie chart
- * Gauge
- * waterfall chart
- * Funnel chart
- * Heat map/matrix
- * Histogram
- * Box plot
- * Maps
- * Tables
- * Indicators
- * Area chart
- * Radar @ spider chart
- * Tree

- i) Open power BI desktop
- ii) Click on Get data in ribbon pane
- iii) Click on Excel worksheet option
- iv) Choose specific data set and open it.
- v) Click on Transform Data button.
- vi) Power Query Editor window will open
- vii) We have to perform some transformation on the table
- viii) Clicks on Select Row & click on Use first row as header

To Remove columns:-

- * From Home Tab Select Manage Columns group → Select Remove Columns.
- * You can also right-click one of the selected column headers & select Remove columns from the menu.
- * The Selected columns are removed, & the step Removed columns appears in Applied steps.

Once all the required transformations are done the report should be created in the Power BI Desktop

- * Apply the changes in power query Editor and load them into power BI Desktop.
- * Selecting Close & Apply from the Home tab of the ribbon.
- * You can also select just Apply to keep the query open in power Query Editor while you work in power BI Desktop.

Notice that the Applied steps in Query settings already contain a few steps, you can select each step to see the effect in the power Query editor.

To change a data type

- * Select the column (or) columns to change.
- * Hold down the Shift key to select several adjacent columns, (or) Ctrl to select non-adjacent columns.
- * Either right-click a column header, select Change Type.
- * Choose a new data type from the menu, (or) drop down the list next to Data Type in the Transform group of the Home tab;
- * Select a new data type.

To Reduce/Delete the Rows

- * From the Home tab select
- * Reduce Rows > Remove Rows > Remove Bottom Rows.
- * In the Remove Bottom Rows dialog box, enter 10, & then select OK.

3: At this point you can select Load to load the table, Ⓛ Transform data to make changes in table ↵

↪ when you select Transform data, power Query editor launches with a representative view of the table. The Query settings pane is on the right, Ⓛ you can always show it by selecting Query setting on the View tab of power Query Editor.

Transforming the data :

Once connected to a data source, you can adjust data to meet your need.

To transform data, you provide power Query Editor with step-by-step instructions for adjusting the data while loading and presenting it. Transforming data doesn't affect the original data source, only the particular view of the data.

Transforming the data, includes renaming columns Ⓛ tables, removing rows Ⓛ columns Ⓛ changing data type.

power Query Editor captures these steps sequentially, under Applied Steps in the Query settings pane.

program: 6:- Querying Data from csv - Query editor,
Connecting the data from the Excel source, clean,
Transform the data.

power BI Desktop also includes the power Query editor, which opens in separate windows. In power BI Query Editor, you can build queries & transform data, then load the refined data model into power BI desktop to create reports.

Along the left side of power BI desktop are icons for 3 power BI views:

Report data; and model, from top to bottom. The current view is indicated by the yellow bar along the left, and you can change views by selecting any of the icons.

Now To get Data from different sources -- The steps.

Step1: Select Get data in the power BI Desktop Home tab & in get data window, scroll through the list of all data sources

On the power BI Home tab, select Get data > Excel work

2: click on the file you need and open the file, once you open the file below the window with navigator appears, select the file.

Power Q&A: when dealing with giant data, it becomes crucial to get to know the in-depth details of the data.

Bullet reports:

In power BI desktop review view, you can build visualizations and reports. The report view has six main areas:

- ① The ribbon at the top, which displays common tasks associated with reports & visualizations.
- ② The canvas area in the middle, where you create and arrange visualizations.
- ③ The page tab area at the bottom, which lets you select ④ add report pages.
- ④ The filter pane, where you can filter data visualizations.
- ⑤ The visualizations pane, where you can add, change ⑥ customize visualizations, and apply drill-throughs.
- ⑥ The format pane, where you design the report visualizations.
- ⑦ The field pane, which shows the available fields in your dataset.

visualizations: this contains the list of available visualizations fields: this section contains the list of available fields ~~visualizations~~ that are available in data model.

The major components of power BI interface are

power Query editor: It is the process of cleaning & transforming data & permits user to access data sets connecting from multiple sources. It is included on the power BI desktop. Business user may view the data from different db like MySQL & SQLServer.

Powerview: It is a data visualization tool that assists users in developing stunning charts and colourful maps, that turn data into a story.

Power of maps:

It is a 3D map visualization tool to identify geospatial data on Map visual. It helps organizations to examine the maximum sales production geography.

Power pivot: It is a Data Modelling technique that is used to create relationships b/w db; It performs complex computation by utilizing DAX functions.

- (5) Download begins & you will get exe file which will be downloaded in your download folder.
- (6) Double click on the .exe file, to get the installation wizard.
- (7) Click on Next button until you get Finish button and finally installation will be done.
- (8) Once the installation is done, double click on Power BI App.
- (9) When you launch the app, Power BI Desktop will start with a blank report. Let's go over the components of the Power BI Desktop interface.

Ribbon: The top ribbon contains most of the controls and options needed for building the report.

Views: This is made up of the Report view, the Data view & mode view.

Canvas: This is the main design area where visualizations and other elements are added.

Page Selected: For navigation to other pages in report.

Filter: Field can be added here to filter the data.

analyses, and creates reports full of visualizations that highlight interesting facts & insights
iii) The designer ~~has~~ pins visualizations from reports to dashboard & shares ~~all~~ the reports and dashboards with business users like you

power-BI Interface has 5 main areas in the Report.

Downloading and installing Power BI desktop:

The power BI desktop is available in both 32 & 64-bit versions. To download the latest version, you can use the link -

The steps to be followed -

① Download from the link.

<https://www.microsoft.com/en-us/power-platform/products/power-bi/downloads>.

② Click on products → power BI → Desktop

③ Click on Advanced download option

④ Select the language as English & click on download, choose PBI Desktop setup_x64.exe

Program 5: Introducing Power BI - Components and interface. - The report has 5 main areas.

Power BI includes the following components -

Power BI Desktop - This is used to create reports and data visualization on the dataset.

Power BI Gateway - You can use power BI on-premises gateway to keep your data front by connecting to your on-premises data sources without the need to move data.

Power BI Mobile Apps: Using power - BI mobile apps, you can stay connected to their data from anywhere. Power BI apps are available for windows, IOS & Android platform.

Power BI services & There is a cloud service it is used to publish power BI reports & data visualizations

Flow of work:

i) A typical power BI workflow involves more than one type of content.

ii) A power BI designer collects data from semantic models, brings it into power BI Desktop for

key differences b/w power BI and Tableau:

power BI	Tableau
power BI uses DAX for measuring and calculating columns	Tableau deploys MDX for dimensions and measures
power BI is best for a limited volume of data	Tableau can handle huge volumes of data and still offer better performance
power BI offers many data points for data visualization.	Tableau has better data visualization

Experiment No.....	Date :
SHRIDEVI INSTITUTE OF ENGINEERING AND TECHNOLOGY, TUMKUR	Page No. : 82
There are 2 key differences b/w power BI & Tableau:	
1) power BI only works on windows, whereas Tableau supports both windows and mac os.	
2) pricing options differ b/w power BI & Tableau. However, Tableau is generally more expensive option	
Why power BI?	
" DATA" --- Analysis and Decision making.	
Organizations need a tool that can help them understand the large amount of data that they are collecting. It is a powerful data visualization and analysis tool that allows businesses to turn raw data into actionable insights & report	
Microsoft power BI comes with a free paid version. The free version only provides power BI tools like power BI desktop and power BI to dashboard, whereas in the premium version they provide services like live report sharing, power view and more power BI apps.	

POWER BI:

Power BI is a business intelligence tool that allows you to connect to various data sources, visualize the data in reports and dashboards, and then share them with anyone you want.

Power BI is a Data visualization and Business Intelligence tool that converts data from different data sources to interactive dashboards and BI reports.

What is Power BI used for:

Power BI is a tool in the category of Business Intelligence (BI). The purpose of BI is to track key performance indicators (KPI's) and uncover insights in business data so as to better inform decision-making across the organization.

Power BI is used in different ways depending on the role of the individual, from developers, analyst, managers, and directors, to everyone in b/w

How Does power BI Compare to other Tools like Tableau & excel?

Power BI and Tableau are both business intelligence tools and have a lot of overlap in terms of their capabilities.

- ii) To build your dashboard, drag the sheet you want in to the center where it says. Drop sheet here. For our purposes, we need to drag Sheet1 and Sheet2 where the map and line graph are saved. When you drag, you will notice an area of your screen will shade over where your graph will drop when put it down.
- iii) We can also add additional titles and objects to the dashboards by choosing an object from the objects side panel and dragging it to the dashboard. We are going to add titles to the bottom line graph to differentiate b/w the Canada line & the province.
- iv) Now, to add an interactive layer b/w the graphs, we can choose a graph that can act as a filter to other. We will choose the line graph to act as a filter to the map. To do this click on the line graph and a grey sidebar should appear.

vi) we can add a text box to the label the highlighted pointed by dragging "drag to add text" onto the line graph.

vii) we have now created a story with three sheets of how Ontario had the highest health expenditure in the year 2016.

Saving your and publishing your Tableau public workbook.

Once satisfied with your workbook, which includes sheets, dashboards, and stories, you can publish it to the Tableau public website. This is the only way to save your workbook using Tableau public.

Creating a Dashboard with Tableau:

i) Dashboards are a great way to combine your data visualizations and them interact with one another. A lot of businesses use dashboards keep up-to-date in real time about key performance indicators a glance.

(caption). Rename sheet1 to "provincial Health Expenditure in 2016"

ii) use the arrows located on the side of the caption field to navigate to sheet2. click on "Add a caption" and rename sheet2 to " provincial Health Expenditure from 1975-2018"

iii) In this story , we are going to narrow in and draw attention to the province @ territory that is spending the most amount of money on health . Drag an additional copy of "sheet1" and drop it b/w the two existing sheets. Select "Add a caption" and rename it to " Ontario".

iv) On the map, click on the province Ontario and then navigate to the caption field and select "Update". Your screen will show Ontario highlighted from the rest of Canada.

v) Select the right arrow to navigate to " provincial Health Expenditure from 1975-2018". Hover over the line representing Ontario and select the data point representing health expenditure during the year 2016. Then click "update".

Program 4: Dashboard and Storytelling - Components of Dashboard, Understanding how to place worksheets in containers, Actions and filters & filter types.

Creating a Story with Tableau public

With Tableau public, you are able to organize your data in order to tell a meaningful story. This is beneficial when you are doing a presentation, creating an article, or uploading to a website, as it helps your audience understand your data.

Stories are created through assembling the different worksheets and dashboards. We can highlight important data points, add text box and pictures to help convey our story. However, there are many different ways to tell a story. For example, one technique is called "tailoring in" where the story starts with a big picture view and zooms in on a specific detail.

To begin, select "New story" at the bottom right of your screen

- i) Drag "Sheet1" and "Sheet2" on to "Drag a sheet here". We can rename each story board by clicking "Add a