MENTORNESS ARTICLE

TASK 1

CREATING INTERACTIVE DASHBOARDS IN POWER BI: TIPS AND TRICKS

By Varsha Jain

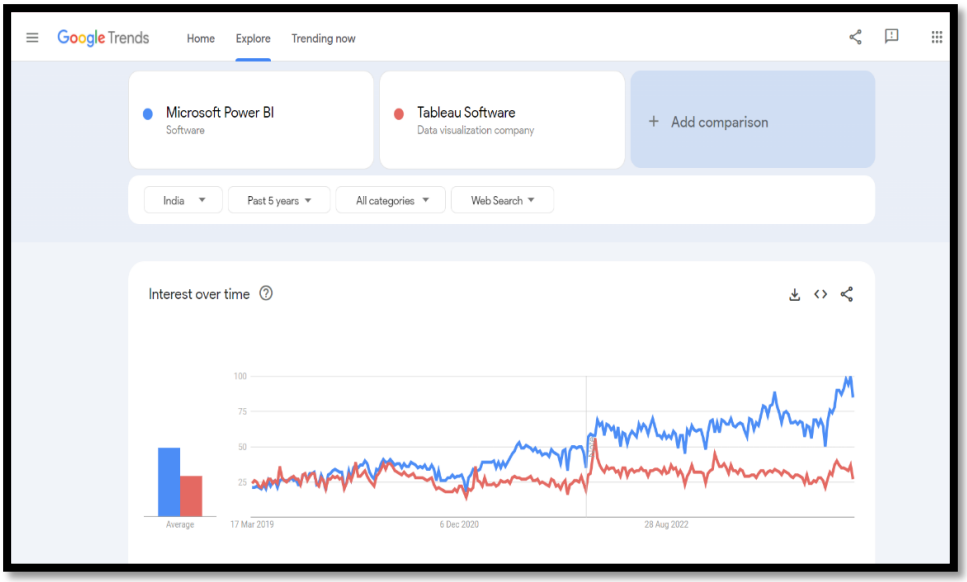
INTRODUCTION:

Power BI is a tool for data visualization that converts and manipulates data from various sources. BI i.e. Business Intelligence, the word itself defines that it is used for business purpose because of its outstanding features like visualizing and analysing data, creating reports which helps us present our data in multiple ways. Power BI comprises of 4 components:

- Power Query - Extract | Transform | Load (ETL Tool)
- Power Pivot - Data Modelling.
- Power View - Visualization.
- Power BI Service - Share & Collaborate.

WHY POWER BI?

1) Easy to learn, use and share, available everywhere.
2) Top Search in Google Trends.
3) More than 180 types of graphs and charts.
4) Data Connectivity.
5) Leader in Gartner's Magic Quadrant.



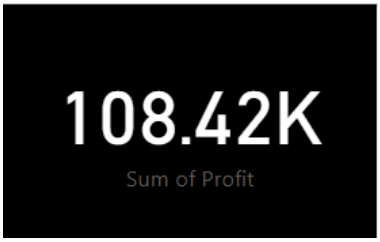
Talking about Excel:

(a) One cannot work in collaboration with Excel.
(b) Can be edited by only one individual at a time.
(c) In real-life data, it is not capable of making decisions due to the data being outdated and inaccurate.
(d) Cannot accumulate data from different sources and format it according to one's choice.

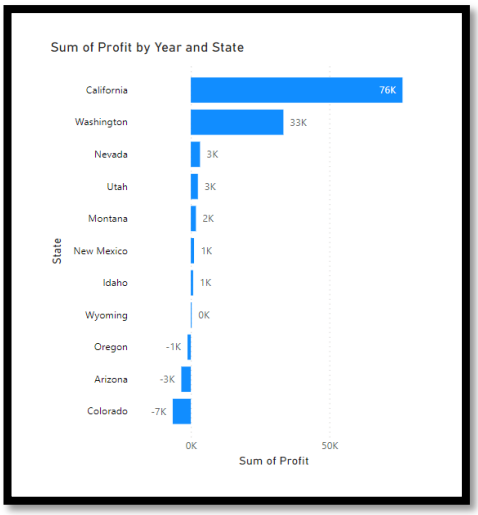
TIPS AND TRICKS WHILE MAKING A DASHBOARD:

1) Keep your Reports Clean:
   An individual should maintain and make sure that reports are well organized, easy to understand, and visuals are attractive. Below are some important steps for maintaining clean reports:
   (a) Avoid using multiple visuals in one report.
   (b) Remove visuals which are not essential because a greater number of visuals can slow down the loading times and creates negative impact on performance.
   (c) Make use of slicers and filters to create interactive dashboard along with easy navigations.
   (d) Our data may change over time. To fix this problem, one should regularly update it so that our report uses latest data available.

2) Make the most important information biggest:
   It would be difficult for a reader to focus on important information if our text and visualizations are of same size. In such scenarios, make use of Card. Card is used for highlighting summary of a data with large font size. For example, we have data of Profits of a company. Suppose an entrepreneur wants to determine the sum of profit made by the company here Card visual comes into picture. Just select Card Visual, drag, and drop the Profit column and Tada! Card depicting Sum of Profit is ready. But be sure to provide context. To add context to your visualizations, use textboxes and tooltips.



3) Use Report Page Tooltips:

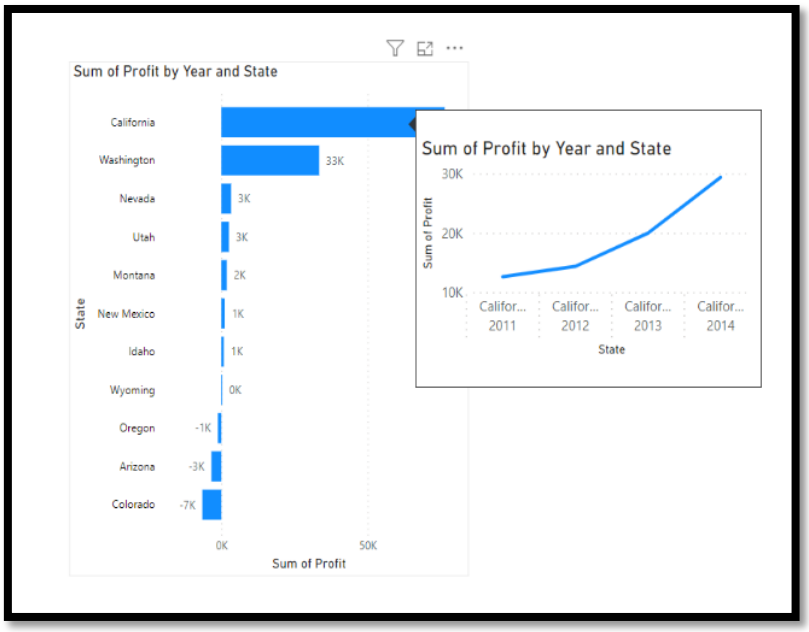


We utilize Regular Tooltip to display our data as just numbers. Report page tooltips are exactly what you need if you need to display an entire visual to your viewers without including it in your dashboard or report. One of the best tips for making your report look creative is to include mini reports in your Tooltip pop-ups. Suppose we want to see the Top States Based on Yearly Profit and Sorted in Descending Order when we hover over a bar in the below visualization.

This can be achieved by following the steps below.

1. Create a new sheet and give it a name (ex: "Tooltip").
2. Under the format page, expand the Canvas Settings section and set the type to "Tooltip".
3. Expand the Page Information section and toggle the Tooltip option to ON.
4. Set the Page View to Actual Size under View Tab.
5. Add a suitable visual and customize it as per your requirement.
6. Return to the page containing the report.
7. Select the visualization in which the Custom Tooltip is to be displayed.
8. Select the Tooltip option under format panel.
9. Set the Type option to Report Page and set the Page option name of your page created in Step 1.

When we hover over columns in the chart we can observe the mini report in the Tooltip pop-up.

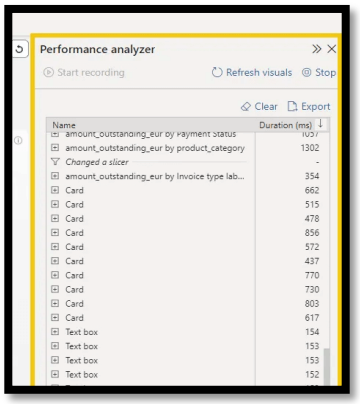


4) Use The Right Visualization for Your Data:
While developing the dashboard, keep your attention on the main goal to prevent unnecessary interactions that could detract from the insights you are attempting to provide. Keep each slide to one idea at a time to avoid cluttering. One can portray same data in multiple ways. For example, a bar chart, a network chart, a pie chart, or a variety of other visuals can be used to display categorical data.

Before choosing the visuals for your report, you should think about the story you want to tell your users which best, most accurate, and effective way is to display your data. Assume that you have two fields – category and value. Which visual should you choose? Let's explore the various options.

- Pie or donut charts can be used to compare an individual's proportion within the entire series.
- A column or bar chart would be the best option, to compare the difference between multiple values more accurately.
- Try a line or area chart to see the change between values or a waterfall chart to see the exact contributors to the changes.
- The best visual to use when categories are based on time would be a timeline or time series chart.
- The most intuitive way to display the relationship in an intricate hierarchy of subcategories of a categorical data will be a network chart.
- Use Drill Down Map PRO to display geographical data, Drill Down Graph PRO for complex node-based relationship graphs, and more.

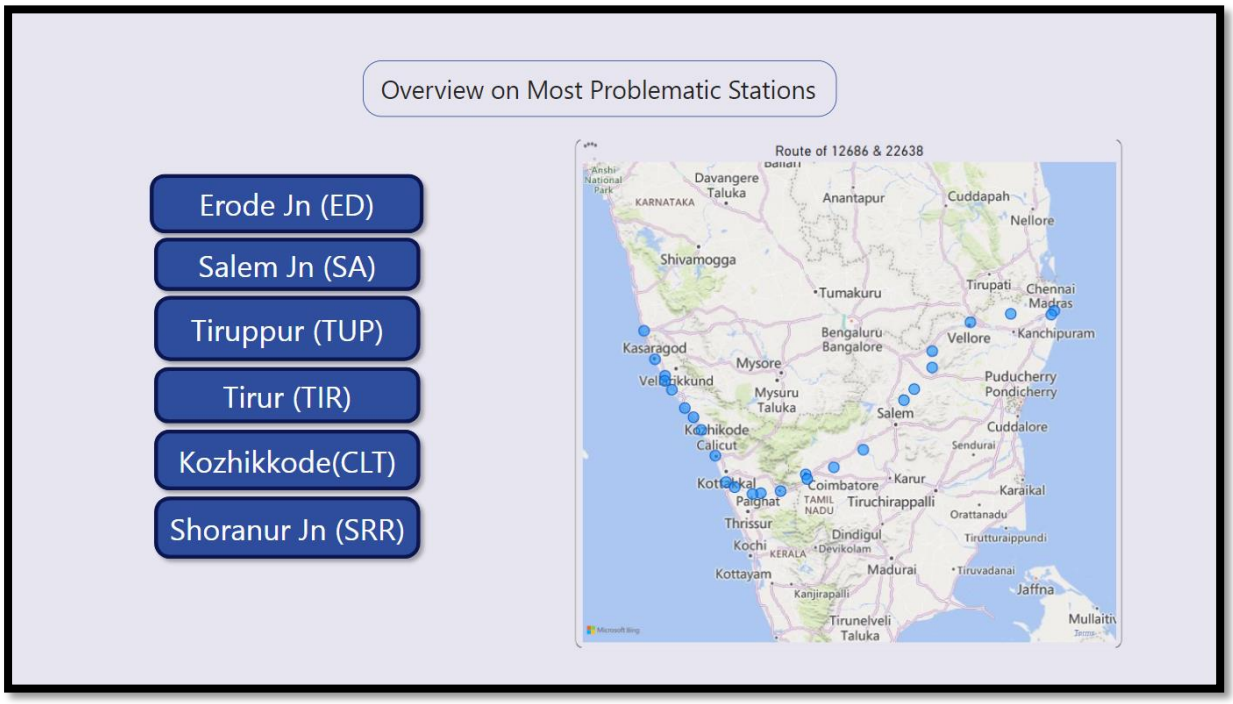
5) Optimizing your Queries with the Query Editor:
Optimizing queries in Power BI is important for improving the performance of your reports and dashboards. To retrieve and process data more effectively, query optimization helps in modifying data source queries. If you're struggling to find the cause of slowdowns of load time of your report, **Power BI Performance Analyzer** is a useful tool for identifying the culprits. This tool will look at each query and identify how its impact the performance in milliseconds. If it is observed that certain queries take longer than expected, here's the way how you can optimize them.



Some Power BI tips and tricks for beginners which will help one optimize queries in Power BI:

- Limit Data Retrieval: Retrieve only the rows and columns required for analysis. Avoid pulling unnecessary data to reduce query times.
- Use Query Folding: Data transformations are pushed back to the data source with the help of query folding. It enhances performance by reducing the amount of data sent to Power BI for processing.
- Transform Data in Source: Before loading the data into Power BI, perform data transformations in the source database or data warehouse whenever possible.
- Reduce Steps in Power Query: To reduce processing time, minimize the number of transformation steps in the Power Query editor.
- Manage Join Complexity: Avoid complex joins or join operations which involves large tables. Prefer using indexed columns for faster joins.
- Use Parameters Wisely: By reducing the volume of data retrieved, parameters allow you to filter data at the source level, thereby enhancing performance.

6) Page Navigation:
Trying to fit all visuals in a single sheet is rarely beneficial. A great way to increase focus and decrease distractions is to isolate different story elements into separate sheets. The challenging part is to provide a user-friendly method to navigate from one sheet to another.
Using action buttons in Power BI, one can easily create a type of table of contents quickly. This can be achieved by adding a Page Navigator.
To insert a Page Navigator, select the page you wish to add this feature to then click Insert tab - Elements - Buttons - Navigator - Page Navigator.
A series of buttons are generated. Each of the button will link to a different page within the report.



NOTE: Press Ctrl key and click the item which is hyperlinked while developing a report in Power BI Desktop. So that when it is published, viewer will only need to click then item for initialising its functionality.

Navigation Buttons are either placed on every sheet or on the first sheet only as a Table of Contents to display the impression of navigation controls.

Customizing the Page Navigation Buttons:

Customizations that can be applied to the Page Navigation buttons are as follows:

- Colour of the buttons.
- Orientation of the buttons. (stacked or side by side)
- Shape of the buttons.
- Size of the buttons.
- Show buttons to hidden pages.
- Show buttons to Tooltip pages.

If you are going to have the Page Navigator buttons located on the first page only, it is suggested to add a Back button to the upper-left corner of each page. It provides an easy way to return to the Table of Contents page.

These Back buttons can be added by the same procedure used to add page navigation buttons. Only modification is to select Back in Buttons Option under Elements Group.

Clicking back button redirects user to the Table of Contents page.