

Power BI Dashboard with Cards, Filter, New Measures & Matrics:

- **Cards in Power BI:**

Cards are used to display single values, making them ideal for highlighting key metrics such as total sales, revenue, or number of customers. They can display a single number or a category label, offering a concise view of important data points. When dealing with categorical features in cards, ensure that the category is properly aggregated or filtered to reflect accurate information.

- **Matrix in Power BI:**

A Matrix is similar to a pivot table in Excel. It allows you to display data in a grid format with rows and columns. You can summarize data across multiple dimensions, providing a detailed breakdown of metrics. The Matrix visual is useful for comparing data across different categories and subcategories, enabling deeper analysis through drill-down and drill-up functionality.

- **Filters in Power BI:**

Filters are used to refine and limit the data displayed in visuals. They can be applied at various levels: report, page, or visual. Filters help in focusing on specific subsets of data, making the analysis more relevant. Power BI supports different types of filters, such as basic filters, advanced filters, and relative date filters, allowing for flexible data manipulation.

- **New Measures in Power BI:**

Measures are calculations used to analyze data. They are created using DAX (Data Analysis Expressions) and can perform complex aggregations and mathematical operations. New measures allow you to create custom metrics that are not directly available in the data. These metrics can be used in various visuals to provide deeper insights and customized analysis.

- **Dealing with Categorical Features in Cards**

When dealing with categorical features in cards, the key is to ensure proper aggregation. For example, if you want to display the most frequent category or the count of unique categories, use appropriate DAX functions to calculate these values. This ensures that the card reflects meaningful information based on categorical data.

- **Example Usage**

1. Card:

- Display Total Sales: $\text{Total Sales} = \text{SUM}(\text{Sales}[\text{Amount}])$
- Display Most Frequent Category: $\text{Top Category} = \text{TOPN}(1, \text{VALUES}(\text{Sales}[\text{Category}]), \text{CALCULATE}(\text{COUNTROWS}(\text{Sales})))$

2. Matrix:

- Rows: Product Categories
- Columns: Months
- Values: Sum of Sales

3. Filters:

- Report Level Filter: Year = 2023
- Page Level Filter: Region = 'North America'
- Visual Level Filter: Product Category = 'Electronics'

4. New Measures:

- Average Sales: $\text{Average Sales} = \text{AVERAGE}(\text{Sales}[\text{Amount}])$
- Growth Rate: $\text{Growth Rate} = \frac{\text{DIVIDE}(\text{SUM}(\text{Sales}[\text{Amount}]), \text{SUM}(\text{Sales}[\text{PreviousYearAmount}])) - 1}{1}$

These components and techniques allow for powerful data visualization and analysis in Power BI, enabling users to extract meaningful insights from their data.