**Madhav Store Analysis Project Documentation in Power BI**

**Project Overview:**

This Power BI analysis aims to generate valuable business insights for Madhav Store using their sales data. The key objective is to analyze profit, quantity, and amount by categories, sub-categories, payment modes, customer names, and states, along with evaluating overall performance using various visualizations. These insights will be crucial for understanding the store's trends and identifying areas for improvement.

**1. Steps of the Analysis Process**

**Step 1: Load the Text/CSV Data File into Power BI**.

1. On the **Home tab**, click **Get Data**.
2. Choose **Text/CSV** as the data source type and select the CSV file containing the Madhav Store data.

**Step 2: Transform Data Using Power Query Editor**

1. **Open Power Query Editor**:
   * Click on **Transform Data** to open the Power Query Editor.
2. **Check for Null Values**:
   * Inspect each column to check for any null values.
   * For any column with null values, you can:
     + Remove rows with null values if necessary.
     + Replace null values with default values (e.g., zero for quantity).
3. **Check Data Types**:
   * Ensure that each column has the correct data type (e.g., Date for the "Order Date" column, Decimal Number for "Amount" and "Profit", etc.).
   * If necessary, change the data types by selecting the column and then selecting **Data Type** from the ribbon.
4. **Add Calculated Column for Average Order Value (AOV)**:
   * Create a new calculated column for **Average Order Value (AOV)** in details table by using the formula:  
     Average Order Value = Amount / Quantity
   * This will help in calculating the average value per order for analysis.
5. **Apply Changes**:
   * Once the data is cleaned and transformed, click **Close & Apply** to load the transformed data into Power BI.

**2. Creating Visualizations**

**Step 3: Vertical Bar Chart of Sum of Profit by Order Date (Month Only)**

1. **Select the Vertical Bar Chart** visualization from the Visualizations pane.
2. Drag **Order Date** to the **Axis** and **Profit** to the **Values**.
3. In the **Date Hierarchy** of the Order Date field, click on the small drop-down arrow and select **Month**.
4. The chart will display the sum of profit by month for all orders.

**Step 4: Horizontal Bar Chart of Top 5 Sub-Categories to Sum of Profit**

1. **Select the Horizontal Bar Chart** visualization.
2. Drag **Sub-Category** to the **Axis** and **Profit** to the **Values**.
3. In the **Visualizations pane**, under the **Filters** section, set a **Top N** filter for the **Sub-Category** by selecting **Top 5** based on the **Sum of Profit**.
4. This chart will display the top 5 sub-categories based on profit.

**Step 5: Donut Chart of Category to Sum of Quantity**

1. **Select the Donut Chart** visualization from the pane.
2. Drag **Product Category** to the **Legend** and **Quantity** to the **Values**.
3. This donut chart will show the sum of quantities sold across each product category.

**Step 6: Donut Chart of Payment Mode to Sum of Quantity**

1. **Select the Donut Chart** visualization again.
2. Drag **Payment Mode** to the **Legend** and **Quantity** to the **Values**.
3. This donut chart will represent the total quantity sold by different payment modes.

**Step 7: Cards for Key Metrics**

1. **Card Visuals**: Select the **Card** visualization.
2. For each card:
   * **Card 1**: Drag **Amount** to the **Values** field to show the **Total Amount**.
   * **Card 2**: Drag **Profit** to the **Values** field to show the **Total Profit**.
   * **Card 3**: Drag **Quantity** to the **Values** field to show the **Total Quantity Sold**.
   * **Card 4**: For **Average Order Value**, drag the newly created **Average Order Value (AOV)** column to the **Values** field.
3. The cards will display the total of each metric, including the average order value.

**Step 8: Top 4 States to Sum of Amount (Horizontal Bar Chart)**

1. **Select the Horizontal Bar Chart**.
2. Drag **State** to the **Axis** and **Amount** to the **Values**.
3. Set a **Top N** filter in the **Filters pane** to show the **Top 4** states based on the **Sum of Amount**.
4. This chart will show the top 4 states contributing the most to the total sales amount.

**Step 9: Top 4 Customer Names to Sum of Amount**

1. **Select the Horizontal Bar Chart**.
2. Drag **Customer Name** to the **Axis** and **Amount** to the **Values**.
3. Set a **Top N** filter to display the **Top 4** customers based on the **Sum of Amount**.
4. This chart will show the top 4 customers contributing the most to the sales amount.

**Step 10: Slicers for Filtering**

1. **Order Date by Quarters**:
   * Select **Slicer** visualization.
   * Drag **Order Date** to the **Field** section and select **Quarter** to slice data by quarters.
2. **States**:
   * Add another **Slicer** visualization.
   * Drag **State** into the slicer to allow users to filter the visuals by different states.

**3. Insights**

* **Monthly Profit Trends**: The **Vertical Bar Chart** provides insights into how profit has varied across different months, highlighting peak sales periods and helping to identify trends (e.g., seasonal spikes or low sales months).
* **Top 5 Sub-Categories by Profit**: The **Horizontal Bar Chart** shows which sub-categories are generating the highest profit, enabling the store to focus on top-performing sub-categories to maximize revenue.
* **Quantity Breakdown by Category**: The **Donut Chart for Categories** helps in understanding the total number of products sold in each category. This is useful for stock and inventory management decisions, indicating which categories are in high demand.
* **Quantity by Payment Mode**: The **Donut Chart for Payment Mode** shows how different payment methods are used in transactions, allowing the store to analyze customer preferences regarding payment options.
* **Overall Performance**: The **Cards** for total amount, profit, quantity, and average order value provide high-level KPIs. They help assess the overall financial health of the store and determine the average spending per customer/order.
* **Top 4 States**: The **Horizontal Bar Chart for States** displays the highest-grossing states by total amount, helping the business identify geographic areas with the most potential.
* **Top 4 Customers**: The **Bar Chart for Customers** highlights the most profitable customers, allowing for targeted marketing, loyalty programs, or exclusive offers to enhance customer retention.
* **Data Filtering**: The slicers for **Order Date by Quarters** and **States** allow for interactive filtering, helping users drill down into the data to analyze specific time periods or regions for more granular insights.

