step 1: Load Data into Power BI:

- o Open Power BI Desktop.

- o Go to **Home** > **Get Data** > **Excel** and load the Sales.xlsx file.

- o Select the Sales sheet and click **Transform Data** to open Power Query.

2. **Data Cleaning**:

- o Remove unnecessary columns (if any).

- o Check for missing values and handle them (e.g., fill or remove).

- o Ensure data types are correct (e.g., OrderDate as Date, UnitPrice as Decimal).

- o Remove duplicates (if any).

- o Add a **Year-Month** column for time-based analysis:

- o Click **Close & Apply** to load the cleaned data into Power BI.

Step 2: Prepare the Data Model

1. **Create a Calendar Table**

Calendar = CALENDAR(MIN(Sales[OrderDate]), MAX(Sales[OrderDate]))

- ▪ Add columns like Year, Month, and Quarter to the Calendar table.

- ▪ Create a relationship between Calendar[Date] and Sales[OrderDate].

Step 3: Create Calculated Columns and Measures with DAX

1. **Key Measures**:

Total Sales = SUM(Sales[LineTotal])

Total Quantity = SUM(Sales[OrderQty])

Avg Order Value = AVERAGE(Sales[TotalDue])

Sales Growth =

VAR CurrentMonthSales = CALCULATE([Total Sales], FILTER(Sales, Sales[Year-Month] = MAX(Sales[Year-Month])))

VAR PreviousMonthSales = CALCULATE([Total Sales], FILTER(Sales, Sales[Year-Month] = MAX(Sales[Year-Month]) - 1))

RETURN IF(PreviousMonthSales = 0, 0, (CurrentMonthSales - PreviousMonthSales) / PreviousMonthSales)

2. **Product Performance**:

Top Product =

VAR TopProduct = FIRSTNONBLANK(Sales[Product], [Total Sales])RETURN TopProduct

3. **Regional Performance**:

Sales by Territory = SUM(Sales[LineTotal])

Step 4: Design the Report Pages

Page 1: Overview Dashboard

- **Visualizations**:

    1. **Card**: Total Sales, Total Quantity Sold, Average Order Value.

    2. **Line Chart**: Sales Trend Over Time (X-axis: Year-Month, Y-axis: Total Sales).

    3. **Bar Chart**: Top 5 Products by Sales.

    4. **Map**: Sales by Territory (use a map visual with Territory and Total Sales).

- **Filters**:

    o Year-Month, Territory, Product Category.

Page 2: Product Performance

- **Visualizations**:

    1. **Bar Chart**: Sales by Product Category.

    2. **Table**: Product Sales Breakdown (Product, Total Sales, Total Quantity).

    3. **Pie Chart**: Revenue Distribution by Product Category.

- **Filters**:

    o Product Category, Year-Month.

Page 3: Regional Analysis

- **Visualizations**:

    1. **Map**: Sales by Territory.

2. **Bar Chart**: Top 5 Territories by Sales.

3. **Line Chart**: Sales Growth Rate by Territory.

4. Add slicers for Year-Month, Territory, and Product Category on each page.

   o

Cross-Filtering:

   o Ensure all visuals are connected so that selecting a filter updates all related visuals.

1. Impact of Product Categories and Regions on Sales Performance

- **Question:** How do different product categories perform across various regions?

- **Approach:**

   o **Visualization:** Use a **stacked bar chart** or **clustered column chart** to compare sales performance (e.g., TotalDue) across different product categories (ProductCategory) and regions (TerritoryGroup).

   o **Steps:**

      1. Drag ProductCategory to the X-axis.

      2. Drag TerritoryGroup to the Legend.

      3. Drag TotalDue to the Y-axis.

   o **Insight:** This will show which product categories are performing well in which regions and identify potential areas for improvement.

- **Question:** Which regions contribute the most to sales for each product category?

- **Approach:**

   o **Visualization:** Use a **map visualization** to show sales distribution by region and product category.

   o **Steps:**

      1. Drag Territory to the Location field.

      2. Drag ProductCategory to the Legend.

      3. Drag TotalDue to the Size field.

   o **Insight:** This will highlight which regions are driving sales for specific product categories.

2. Analyzing Sales Trends Question: How have sales trends evolved over time?

- **Approach:**

  - **Visualization:** Use a **line chart** to visualize sales trends over time.

  - **Steps:**

    1. Drag OrderDate to the X-axis.

    2. Drag TotalDue to the Y-axis.

    3. Optionally, add ProductCategory or TerritoryGroup to the Legend to break down trends by category or region.

  - **Insight:** This will help identify seasonal trends, growth patterns, or declines in sales over time.

- **Question:** Are there any seasonal patterns in sales?

- **Approach:**

  - **Visualization:** Use a **line chart** or **bar chart** to analyze sales by month or quarter.

  - **Steps:**

    1. Create a new column in Power Query to extract the month or quarter from OrderDate.

    2. Drag the new column to the X-axis.

    3. Drag TotalDue to the Y-axis.

  - **Insight:** This will reveal if certain times of the year have higher or lower sales.

3. Analyzing Revenue Distribution

- **Question:** How is revenue distributed across different product categories?

- **Approach:**

  - **Visualization:** Use a **pie chart** or **donut chart** to show revenue distribution by product category.

  - **Steps:**

    1. Drag ProductCategory to the Legend.

    2. Drag TotalDue to the Values field.

  - **Insight:** This will show which product categories contribute the most to total revenue.

- **Question:** What is the revenue distribution by region?

- **Approach:**

  - **Visualization:** Use a **map visualization** or **bar chart** to show revenue distribution by region.

  - **Steps:**

    1. Drag Territory to the X-axis or Location field.

    2. Drag TotalDue to the Y-axis or Size field.

  - **Insight:** This will highlight which regions generate the most revenue.

4. KPIs for Product Performance

- **Question:** Which products are the top performers in terms of revenue?

- **Approach:**

  - **Visualization:** Use a **bar chart** or **table** to show the top products by revenue.

    1. **Steps:**

    2. Drag Product to the Axis.

    3. Drag TotalDue to the Values field.

    4. Sort the chart by TotalDue in descending order.

  - **Insight:** This will identify the best-selling products.

  - **Insight:** This will help identify high-margin products.

- **Question:** What is the average order value by product category?

- **Approach:**

  - **Visualization:** Use a **bar chart** or **table** to show average order value by product category.

  - **Steps:**

    1. Drag ProductCategory to the Axis.

    2. Drag TotalDue to the Values field.

    3. Change the aggregation to **Average**.

  - **Insight:** This will show which product categories have the highest average order value.