**Optimizing Furniture Sales: A Power BI Dashboard Approach :**

**Introduction**

For this assignment, I used Power BI to analyze and visualize furniture sales data. Power BI was chosen for this project due to its robust capabilities in handling large datasets, creating interactive visualizations, and providing insightful analytics. With its intuitive interface and powerful data modeling features, Power BI allowed me to seamlessly import and clean data, perform complex analyses, and present the findings through a variety of charts, graphs, and KPIs. The main objective of this project was to generate actionable insights for product optimization and sales strategy improvement, all while enabling dynamic interactions with the data through slicers and filters. By utilizing Power BI, I was able to create an engaging and informative dashboard that helps visualize key trends and performance metrics within the furniture sales domain.

**1. Onboard Data for Analysis & Systematic Feed**

**Data Onboarding**:  
For this assignment, I utilized a dataset obtained from Kaggle, specifically related to furniture sales. The dataset contained several columns such as product categories, sales figures, and customer demographics. I first performed data cleaning to remove any inconsistencies or missing values using Power Query in Excel. This process involved handling null values, ensuring the accuracy of date formats, and standardizing categorical data (e.g., product names and regions).

Once the data was cleaned and structured in Excel, I imported it into Power BI for analysis. The data was connected through the Excel file, which acts as the source for the Power BI dashboard. The data was then loaded into Power BI's data model for further exploration and visualization.

**Systematic Feed Setup**:  
To set up a systematic feed for this dataset to run on a frequent basis, I configured Power BI’s scheduled refresh feature. This ensures that the dataset is updated at regular intervals (e.g., daily, weekly) without the need for manual intervention. The data source (Excel file) can be stored in a cloud-based environment (e.g., OneDrive or SharePoint), allowing Power BI to refresh the data from the cloud at the set schedule. This process ensures that the dashboard stays up to date with the latest sales information automatically.

**2. Get Insights & Actionable Recommendations for Product Optimization**

**Insights Generation**:  
By analyzing the furniture sales data, I derived several key insights, including:

* **Sales Trends**: Identified peak sales periods for different product categories based on historical data.
* **Customer Demographics**: Analyzed sales by region, and purchasing frequency to understand which customer segments are the most profitable.
* **Product Performance**: Evaluated the performance of individual furniture products to identify high-performing and underperforming items.

**Actionable Recommendations**:  
Based on the insights generated, I recommended the following strategies for product optimization:

* **Focus on High-Performing Products**: Increase marketing efforts and inventory for best-selling products, such as certain types furniture.
* **Optimize Underperforming Products**: For low-performing products, consider revising product features, offering discounts, or improving marketing strategies to boost sales.
* **Seasonal Adjustments**: Adjust the product mix based on seasonal demand. For example, focus more on outdoor furniture during spring/summer months.
* **Customer Segmentation**: Tailor offers and promotions to different customer segments based on their purchasing behaviors, especially targeting high-value customers.

**3. Visualizations to Support Findings & Recommendations**

**Visualization Creation**:  
To support my findings and recommendations, I created various visualizations in Power BI, including:

* **KPI Cards**:  
  I created KPI cards to showcase the most critical metrics for quick and easy insights:
  + **Total Sales**: Displays the overall sales figure across all products.
  + **Top Product**: Shows the highest-performing product based on total sales.
  + **Total Profit**: Represents the total profit generated from sales.
  + **Profit Margin**: Calculates the percentage of profit relative to the total sales, helping to assess profitability.
* **Slicers**:  
  I used slicers for **Category** to allow users to filter and drill down into specific product categories. This enables a more detailed analysis of sales performance based on the selected category.
* **Bar Chart (Total Sales and Total Profit by Category)**:  
  This bar chart compares the **Total Sales** and **Total Profit** for each product category. It helps in evaluating which categories generate the most sales and which ones are the most profitable. This visualization is helpful for understanding both volume and margin at a category level.
* **Pie Chart (Total Sales by Segment)**:  
  The pie chart displays the **Total Sales by Segment**, showing how each customer segment contributes to overall sales. It allows for a quick assessment of which segments (e.g., residential, commercial, etc.) are driving the most revenue.
* **Column Chart (Number of Customers by Year)**:  
  This column chart visualizes the **Number of Customers by Year**, providing insight into customer growth over time. This is valuable for identifying trends in customer acquisition and retention.
* **Scatter Chart (Discount Impact on Profit)**:  
  The scatter chart analyzes the **Impact of Discounts on Profit** by plotting the correlation between discount percentages and profit margins. This helps to understand if discounts are leading to higher profits or if they are eroding margins.
* **Map (Total Sales by City)**:  
  I used a map to represent **Total Sales by City**, with a gradient color scheme (red for lost sales, yellow-orange for neutral, and green for profitable cities). This map allows for geographical analysis, highlighting areas of strong and weak sales performance, which can inform location-based marketing strategies.
* **Treemap (Total Sales by Sub-Category)**:  
  The treemap provides a hierarchical view of **Total Sales by Sub-Category**, making it easy to identify which sub-categories within a product line are performing best. This is especially useful for product managers to optimize product offerings.
* **Line Chart (Total Sales by Year)**:  
  This line chart tracks **Total Sales by Year** and includes multiple lines for each product category. It provides a year-over-year comparison of sales performance across all categories, allowing for a comprehensive view of sales trends over time and how different categories contribute to overall sales.

These visualizations were chosen to convey the most relevant insights in an easy-to-understand format. The charts and graphs help provide a visual representation of the data, making it easier to identify trends, outliers, and correlations. By using these visualizations, the findings and recommendations are supported with clear data-backed evidence, ensuring that the optimization suggestions are grounded in facts.