**Bike Sales Data Analysis and Dashboard Creation**

**Project Overview**

This project involves analyzing bike sales data along with relevant customer information including marital status, gender, income, education, occupation, region, age, and commute distance. The objective is to perform data cleaning and create an insightful sales dashboard using Excel.

**Steps Followed in the Project**

**1. Data Cleaning**

* **Removed Duplicates**: Ensured there were no duplicate entries in the dataset to maintain data integrity.
* **Replaced Abbreviations**: Standardized data by replacing abbreviations with full forms for better readability and consistency.
* **Changed Data Types**: Converted data to appropriate types (e.g., text to numbers, dates) to enable accurate analysis.
* **IF & Nested IF**: Utilized IF and nested IF functions to create data ranges for scattered data, such as age ranges and income brackets.
* **Addressed Data Anomalies**: Identified and corrected anomalies to create a uniform dataset.

**2. Data Analysis and Visualization**

* **Pivot Tables**: Created Pivot Tables to summarize and analyze data efficiently. Used Value Field Settings for custom calculations.
* **Slicers & Slicer Connection**: Implemented Slicers to filter data interactively, allowing for quick insights and easier data manipulation.
* **Charts Modification**: Customized charts (e.g., clustered column, line charts) to visually represent the data and highlight key trends.
* **Dashboard Creation**: Designed and built an interactive sales dashboard to present the findings effectively.

**3. Sales Dashboard Highlights**

**Page 1:**

* **Clustered Column Chart**: Displayed the relationship between average income per purchase by gender, complemented with a data table.
* **Age Analysis**: Illustrated that customers in the middle age bracket (31-54 years) made the most purchases.
* **Commute Distance Analysis**: Showed bike purchases by commute distance using a line chart.
* **Occupation Data**: Presented customer data categorized by different occupations.

**Page 2:**

* **Filtered Data**: Focused on single customers living in North America with a high school degree using slicers.

**Page 3:**

* **Filtered Data**: Highlighted married customers living in Europe with a bachelor’s degree using slicers.

**4. Key Insights**

* Middle-aged customers (31-54 years) purchased four times more bikes compared to younger and older age groups.
* Males, with an average income of $60,124, purchased more bikes than females.
* Customers tend to purchase bikes more for short commutes (0-1 miles) compared to longer commutes (10+ miles).

**Tools and Technologies Used**

* **Excel Functions**: IF, nested IF, Pivot Tables, Slicers
* **Visualization**: Charts (Clustered Column, Line Chart)
* **Dashboard**: Interactive and filterable dashboards for detailed insights

**Conclusion**

This project provided valuable insights into bike sales trends and customer behavior. The detailed analysis and interactive dashboard helped identify key patterns, enabling data-driven decisions to enhance business strategies.