BIKE BUYERS DASHBOARD DOCUMENTATION

***Introduction:***

This dashboard aims to analyse bike purchases among 1000 users from various backgrounds. The dataset encompasses details such as Marital Status, Gender, Income, Children, Education, Occupation, Home Owner, Cars, Commute Distance, Region, Age, and Purchased Bike. The primary focus is on utilising visualisations to derive insights into purchasing behaviour.

## ***Data Preprocessing:***

Before analysis, data cleaning was crucial. Null values were addressed and rectified to ensure accurate and reliable insights. The cleaned dataset serves as the foundation for subsequent visualisations.

1. Marital Status and gender missing values were added by evaluating the count of most common values to the missing one.
2. We used MODE to find the most occurring value and entered the same for the income.
3. We used Median to fill the missing values in Age and Children.
4. We used COUNTIF for missing values for Cars and Homeowner values.
5. Duplicates(if any) were removed.

***Exploration and Visualisations:***

1. **Bar Chart (Marital Status):**
   * **Question:** How does the count of bike purchases vary among different marital statuses?
   * **Insights:** It can be inferred that more Single individuals are more likely to make bike purchases.
2. **Bar Chart (Gender):**
   * **Question:** Does gender influence bike purchases?
   * **Insights:** A bar graph comparing the count of male and female customers sheds light on the fact that more males purchase bikes than women.
3. **Histogram (Income):**
   * **Question:** What is the distribution of income among bike buyers?
   * **Insights:** The income distribution histogram identifies income brackets 10000-80000 are more likely to be making bike purchases.
4. **Histogram (Age):**
   * **Question:** Are certain age groups more inclined to purchase bikes?
   * **Insights:** The age distribution histogram helps understand more 35-44 year old individuals as bike buyers.
5. **Box Plot (Income):**
   * **Question:** Are there outliers in the income distribution impacting purchasing behaviour?
   * **Insights:** The box plot highlights income outliers and their potential influence on bike purchases. They are the people in the income range of 150000 and above.
6. **Pie Chart (Region):**
   * **Question:** Are there regions with notably higher bike purchases?
   * **Insights:** A pie chart visually represents that North america has higher bike purchase than the other two regions.
7. **Scatter Plot (Income vs. Age):**
   * **Question:** Do individuals with higher incomes tend to be in specific age groups?
   * **Insights:** The scatter plot explores the relationship between income and age among bike buyers.The 25-34 age group shows a relatively high count in the lower income bracket (10000-40000).
8. **Stacked Bar Chart (Marital Status & Gender):**
   * **Question:** How does the distribution of bike purchases differ considering both marital status and gender?
   * **Insights:** It tells us more married people purchase bikes with more married males purchasing than females.

***Conclusion****:*

The comprehensive dashboard aids in understanding the dynamics of bike purchases among diverse user groups. Each visualisation offers unique insights, contributing to informed decision-making.