# RESULTS - BIKE BUYERS ANALYSIS

**Bar Chart (Marital Status):**

Question: How does the count of bike purchases vary among different marital statuses? Are married individuals more likely to purchase bikes?

The bar chart shows a slight variation in bike purchases between single and married individuals, indicating a marginal difference in likelihood between the two groups.

**Bar Chart (Gender):**

Question: Build a bar graph to compare the count of male and female customers. Does gender influence bike purchases, and if so, to what extent?

The bar graph does reveal a slight difference in the count between male and female customers, suggesting a minor variance in bike purchases based on gender within the dataset.

**Histogram (Income):**

Question: What is the distribution of income among bike buyers? Are there specific income brackets that show a higher likelihood of bike purchases?

Bike purchases are notably higher within the income range of $40,000 to $60,000 among buyers.

**Histogram (Age):**

Question: Create a histogram to understand the age distribution of bike buyers. Are certain age groups more inclined to purchase bikes?

The histogram indicates a prominent preference for bike purchases within the middle age group (31-55), suggesting a strong inclination for biking among individuals in this demographic.

**Box Plot (Income):**

Question: Identify outliers in the income distribution of bike buyers. Are there any extreme income values, and how might they impact purchasing behavior?

The box plot analysis of income among bike buyers reveals no outliers, suggesting a absence of extreme income values within this dataset.

**Pie Chart (Region):**

Question: Represent the distribution of bike purchases by region using a pie chart. Are there regions where bike purchases are notably higher?

North America leads in bike purchases, notably higher at 45.7% compared to other regions.

**Scatter Plot (Income vs. Age):**

Question: Create a scatter plot to investigate the relationship between income and age. Do individuals with higher incomes tend to be in specific age groups?

In the scatter plot, individuals between 40 to 50 years old appear to show a potential trend towards higher incomes.

**Stacked Bar Chart (Marital Status & Gender):**

Question: How does the distribution of bike purchases differ when considering both marital status and gender simultaneously? Are there notable patterns?

Married men and single women tend to make more bike purchases compared to single men and married women, as seen in the stacked bar chart.

**Correlation Heatmap (Numeric Variables):**

Question: Use a heatmap to visualize the correlation matrix between numeric variables. What variables show a strong correlation, and how might this influence purchasing behavior?

The heatmap reveals moderate correlations: 0.45 between income and cars, and 0.53 between age and children. These associations could impact purchasing behavior, indicating a link between income and car ownership and age with the number of children in a household.