### **Bike Buyers Dataset (Google Sheets Dashboard)**

This dataset has details of 1000 users from different backgrounds and whether or not they buy a bike. This data can be used to build the dashboard in Google Sheets. There are some NA (Null / Empty) values injected in the dataset. Use this dataset for Data Cleaning, Exploration, and Visualization.

**Columns -**

* ID
* Marital Status
* Gender
* Income
* Children
* Education
* Occupation
* Home Owner
* Cars
* Commute Distance
* Region
* Age
* Purchased Bike

You are a data analyst and your job is to help the business stakeholders to make better decisions. You have to explore the dataset, perform the preprocessing, or any data manipulation that is required.   
  
To solve this problem you need to build a dashboard in Google Sheets. Here are some suggestions that you can follow, feel free to explore more on your own.

**1. 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?

*Married individuals purchased 539 bikes, while single individuals purchased 461 bikes. This indicates that married individuals are more likely to purchase bikes compared to single individuals.*

**2. 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?

*Gender does influence bike purchases to some extent. Among the customers, males purchased 509 bikes, while females purchased 491 bikes. This suggests that there is a relatively small difference in bike purchases between genders, indicating a moderate influence of gender on bike purchasing behavior*

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**3. Histogram (Income) (I used Stacked area chart):**

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

*Yes, the income bracket of $60,000 or greater shows a higher likelihood of bike purchases, with 166 bikes purchased.*

**4. Histogram (Age) (I used Stacked area chart):**

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

*Yes, the age group of 40 has shown a higher inclination towards purchasing bikes, with a total of 41 bikes purchased.*

**5. Box Plot (Income) (I used Scatter Chart):**

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

*Extreme income values are evident in the dataset. For instance, individuals with an income of $60,000, who purchased 166 bikes, exhibit substantial purchasing capability within this bracket. Conversely, those earning $170,000 and purchasing only 3 bikes signify an outlier with limited purchasing activity despite a higher income. Similarly, individuals earning $10,000, purchasing 74 bikes, demonstrate notable presence despite their lower income bracket.*

**6. 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?

*Yes, there are regions where bike purchases are notably higher. For example, in North America, the count of bike purchases is 508, indicating a significant number of bike purchases compared to other regions.*

**7. 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?

*Individuals aged 17 with an income of $120,000 are present 166 times in the dataset, whereas individuals aged 166 with an income of $60,000 are present only once. This suggests that individuals with higher incomes tend to be in specific age groups, such as younger individuals with higher incomes.*

**8. 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?

*The notable pattern observed is that married males bought the highest number of bikes (298), followed by single females with slightly fewer purchases (250). Married females made the fewest bike purchases (241), followed by single males (211), indicating a trend where married individuals, particularly males, tend to buy more bikes compared to single individuals, irrespective*

**9. 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?

**10. Pair Plot (Subset of Variables): (This is optional in Google Sheets)**

Question: Create a pair plot for a subset of variables (e.g., Income, Age, Children). Are there clear relationships between these variables, and how might they impact bike purchases?

The above 10 plots are suggestions that you can build, first, build the individual charts and then create a functional dashboard in a new sheet.