# Report On Bike Purchase Insight Dashboard

## 1. Introduction:

This report analyzes a dataset containing demographic, economic, and lifestyle information on 1,026 individuals. The dataset includes variables such as marital status, gender, income, education, occupation, home ownership, region, and whether individuals have purchased a bike. The goal of this analysis is to identify patterns and correlations within the data to better understand the factors that influence income and consumer behavior, particularly in relation to bike purchases.

## 2. Data Preprocessing with Excel:

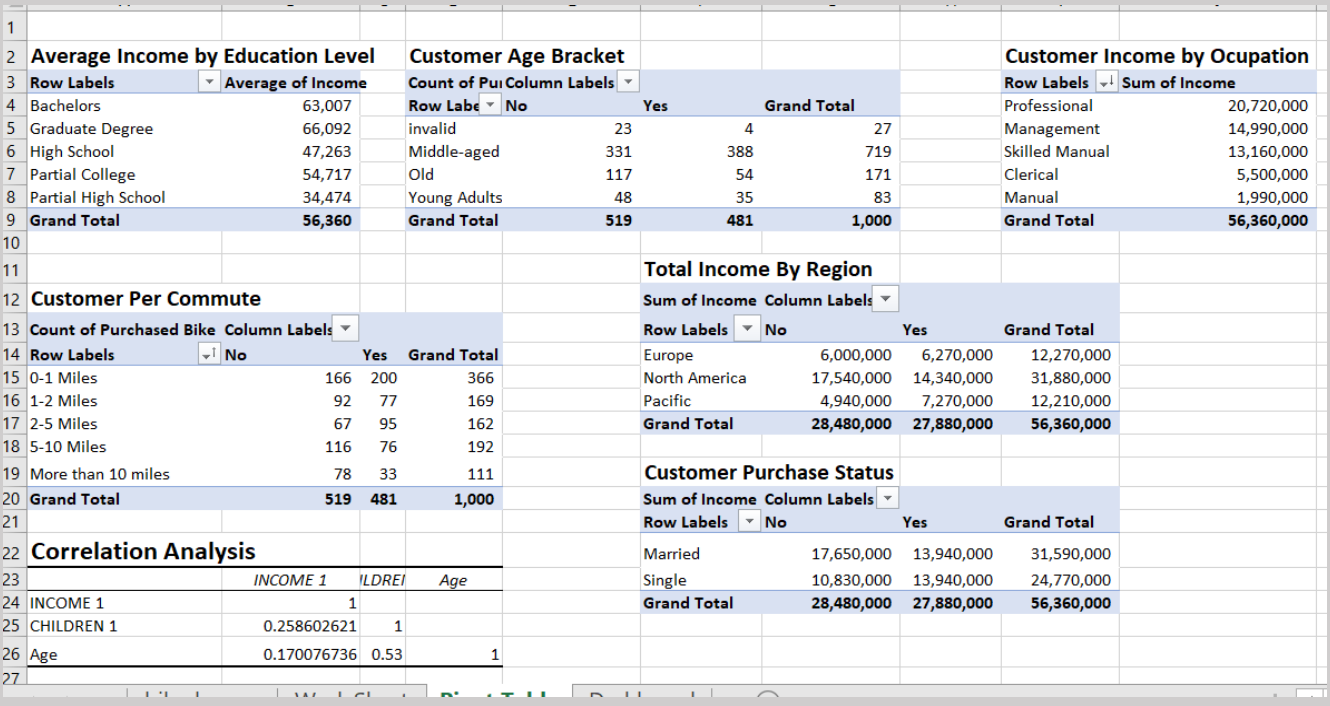
Data was checked to ascertain the data quality. check for duplicates were done and checks for blanks. The data was ascertained for completeness and no inconsistencies were found. The Marital Status and Gender column weren't in the correct data and changes were made using the Find and Replace FORMULA, (Ctrl H) to find and replace abbreviations. Before this, a new column was created Age Bracket to give an insight of the age grade.

## 3. Data Analysis in Excel:

After preprocessing, the data was exported to Pivot tables for analysis.

**Pivot Tables**: Pivot tables were created to summarize key metrics, such as the total income by region, correlation analysis to identify relationships between Income, Age and Number of Children. Customer Purchase Status Calculations: Various calculations were performed, such as average income by education level across different regions

**Insights**: These tables helped in deriving insights such as highlighting key trends in demographics, income, education, and purchasing behavior.



**Average Income by Education Level**

| Row Labels | Average of Income |
|---|---|
| Bachelors | 63,007 |
| Graduate Degree | 66,092 |
| High School | 47,263 |
| Partial College | 54,717 |
| Partial High School | 34,474 |
| **Grand Total** | **56,360** |

**Customer Age Bracket**

| Count of Pu | Column Labels | | |
|---|---|---|---|
| Row Labe | No | Yes | Grand Total |
| invalid | 23 | 4 | 27 |
| Middle-aged | 331 | 388 | 719 |
| Old | 117 | 54 | 171 |
| Young Adults | 48 | 35 | 83 |
| **Grand Total** | **519** | **481** | **1,000** |

**Customer Income by Ocupation**

| Row Labels | Sum of Income |
|---|---|
| Professional | 20,720,000 |
| Management | 14,990,000 |
| Skilled Manual | 13,160,000 |
| Clerical | 5,500,000 |
| Manual | 1,990,000 |
| **Grand Total** | **56,360,000** |

**Customer Per Commute**

| Count of Purchased Bike | Column Labels | | |
|---|---|---|---|
| Row Labels | No | Yes | Grand Total |
| 0-1 Miles | 166 | 200 | 366 |
| 1-2 Miles | 92 | 77 | 169 |
| 2-5 Miles | 67 | 95 | 162 |
| 5-10 Miles | 116 | 76 | 192 |
| More than 10 miles | 78 | 33 | 111 |
| **Grand Total** | **519** | **481** | **1,000** |

**Total Income By Region**

| Sum of Income | Column Labels | | |
|---|---|---|---|
| Row Labels | No | Yes | Grand Total |
| Europe | 6,000,000 | 6,270,000 | 12,270,000 |
| North America | 17,540,000 | 14,340,000 | 31,880,000 |
| Pacific | 4,940,000 | 7,270,000 | 12,210,000 |
| **Grand Total** | **28,480,000** | **27,880,000** | **56,360,000** |

**Correlation Analysis**

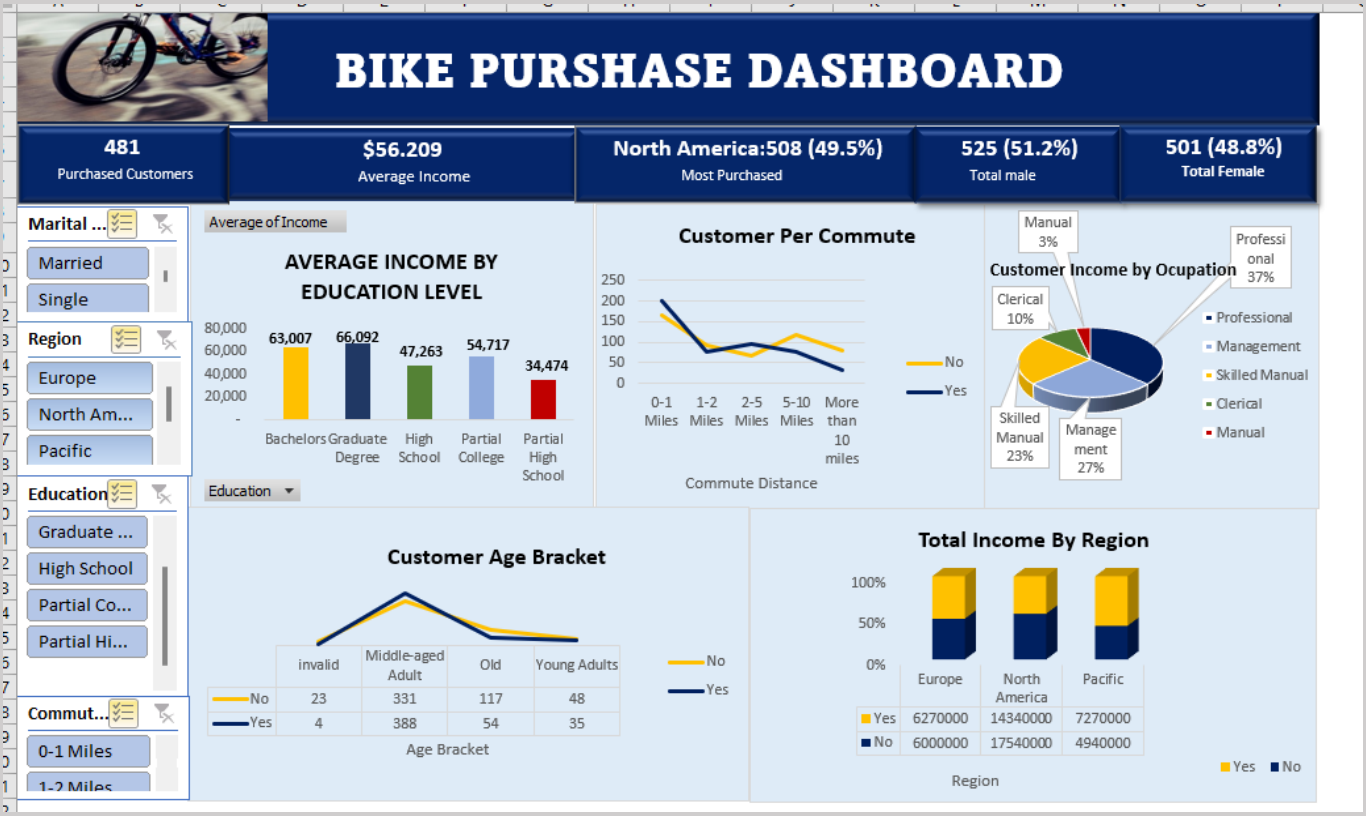
| | *INCOME 1* | *ILDREI* | *Age* |
|---|---|---|---|
| INCOME 1 | 1 | | |
| CHILDREN 1 | 0.258602621 | 1 | |
| Age | 0.170076736 | 0.53 | 1 |

**Customer Purchase Status**

| Sum of Income | Column Labels | | |
|---|---|---|---|
| Row Labels | No | Yes | Grand Total |
| Married | 17,650,000 | 13,940,000 | 31,590,000 |
| Single | 10,830,000 | 13,940,000 | 24,770,000 |
| **Grand Total** | **28,480,000** | **27,880,000** | **56,360,000** |

## 4. Visualization on Excel:

Excel was used to create an interactive dashboard that presents the findings visually:




**Total Income by Region**: A bar chart was used to compares the Demographics and income generated across different regions.

**Customer Age Bracket**: A line chart shows the age range in bike purchases, with a slight majority not purchasing bikes.

**Customer Income by Occupation**: A pie chart displays the top roles by income, showing which occupation are the most lucrative.

**Customer Per Commute**: A line chart was used to ascertain commute distance of bikes purchased by customers.

**Average Income by Education Level**: A line chart was used to show that higher educational attainment generally correlates with higher income, with graduate degree holders earning the most.

**Correlation Analysis**: This was used to generate a correlation matrix to identify relationships between Income, Age and Number of Children.

**Key Metrics**: Total income and bike purchases provide a comprehensive overview of the dataset, helping to understand the population's characteristics, financial status, and behaviors.

**5. Conclusion:** The Bike Purchase Insight Dashboard provided an uncovered regional variation and the influence of socioeconomic factors on bike purchasing decisions. It shows a comprehensive insight into the demographics, income distribution, education levels, and consumer behavior patterns of 1,026 individuals. The data highlights the strong correlation between education and income, with higher educational attainment leading to better economic outcomes. Additionally, professional and management roles are associated with higher income levels, making these individuals key targets for premium product offerings.