**Case Study: Bike Purchase**

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12/30/2022

**1. ASK**

**1.1 What is the problem you are trying to solve?**

Strategies aimed at exploring Purchased Bikes by Age, Marital Status, Gender, Income, Children, Education, Occupation, Homeowner, Cars, Region, and Commute Distance.

**1.2 How can your insights drive business decisions?**

Using this dataset will bring new insights from bike purchases from the different variables attached.

**1.3 Key tasks**

* Show what is the average income per Gender by Purchased Bike
* Show purchase bike by Marital Status percentage
* Looking at Highest purchased bike per region
* Showing Regions with Highest purchased bike per Age Brackets
* What is the total purchased bike per car ownership
* Shows the purchased bike per Children
* Purchased bike per individuals education

**2. PREPARE**

**2.1 Where is your data located?**

The data collected is from AlexTheAnalyst <https://github.com/AlexTheAnalyst/Excel-Tutorial/blob/main/Excel%20Project%20Dataset.xlsx>

**2.2 How is the data organized?**

The data is considered structured data because is organized in a certain format, like rows and columns.

**2.3 Are there issues with bias or credibility in this data? Does your data ROCCC?**

Data has been downloaded from AlexTheAnalyst. This data meet ROCCC because is reliable, original (based on the author, so we believe with precaution), comprehensive, current, and cited.

**2.4 How are you addressing licensing, privacy, security, and accessibility?**

The data has been made available by AlexTheAnalyst under this link <https://github.com/AlexTheAnalyst/Excel-Tutorial/blob/659bf2a03970ecf0d9b110541576c13e4f4e32f8/Excel%20Project%20Dataset.xlsx>

**2.5 How did you verify the data’s integrity?**

This is public data that you can use the explore how Bike purchased in many data fields. We are going to assume the data is credible.

**3. PROCESS**

**3.1 Choose your tools**

Microsoft Excel for processing, cleaning, analysis, and data visualization.

**3.2 Check the data for errors**

Used Find & Select then Go to Special and then check for null values within the dataset. But none was found.

Used Find and Replace in Marital Status and Gender. For Marital Status M represents Married and S represents Single, and to eliminate any doubts I change it from M and S to Married and Single. For Gender, the letter F represents Female, and M represents Male and replaced F and M for Female and Male.

The Age column has many age numbers that it would make visualizations difficult to understand. So, a new column named Age Brackets was made, which includes three specific variables out of age numbers from the Age column known as “Old Adult, Middle Age, and Adolescent.”

**4. ANALYZE**

4.1 How should you organize your data to perform analysis on it?

|  |  |  |  |
| --- | --- | --- | --- |
| **Count of Purchased Bikes per Car Ownership** | **Column Labels** |  |  |
| **Row Labels** | **No** | **Yes** | **Grand Total** |
| 0 | 96 | 151 | 247 |
| 1 | 115 | 152 | 267 |
| 2 | 218 | 124 | 342 |
| 3 | 52 | 33 | 85 |
| 4 | 38 | 21 | 59 |
| **Grand Total** | **519** | **481** | **1000** |

**Observation:** This table reflects the purchased Bike per car ownership. Customers with 0 and 1 cars purchased most Bikes compared to those with more than 2 cars.

|  |  |  |  |
| --- | --- | --- | --- |
| **Count of Purchased Bikes per Children** | **Column Labels** |  |  |
| **Children** | **No** | **Yes** | **Grand Total** |
| 0 | 139 | 142 | 281 |
| 1 | 72 | 97 | 169 |
| 2 | 112 | 97 | 209 |
| 3 | 61 | 73 | 134 |
| 4 | 72 | 54 | 126 |
| 5 | 63 | 18 | 81 |
| **Grand Total** | **519** | **481** | **1000** |

**Observation:** The table reflects the bike purchased per Child. Customers with no Children show up to purchase the most out of Bikes. The more children they have the less money was spent purchasing bikes.

|  |  |  |  |
| --- | --- | --- | --- |
| **Count of Purchased Bikes** | **Column Labels** |  |  |
| **Education** | **No** | **Yes** | **Grand Total** |
| **Bachelors** | **137** | **169** | **306** |
| **Graduate Degree** | **80** | **94** | **174** |
| **High School** | **100** | **79** | **179** |
| **Partial College** | **146** | **119** | **265** |
| **Partial High School** | **56** | **20** | **76** |
| **Grand Total** | **519** | **481** | **1000** |

**Observation:** The table reflects the purchased bike per Education. Bachelors purchased the most of all categories and Partial High School with the less purchased of Bike accounted.

|  |  |  |  |
| --- | --- | --- | --- |
| **Count of Purchased Bikes** | **Column Labels** |  |  |
| **Education and Occupation** | **No** | **Yes** | **Grand Total** |
| **Bachelors** | **137** | **169** | **306** |
| Clerical | 15 | 34 | 49 |
| Management | 57 | 40 | 97 |
| Manual | 2 |  | 2 |
| Professional | 37 | 55 | 92 |
| Skilled Manual | 26 | 40 | 66 |
| **Graduate Degree** | **80** | **94** | **174** |
| Clerical | 6 | 18 | 24 |
| Management | 34 | 25 | 59 |
| Manual | 4 | 2 | 6 |
| Professional | 13 | 32 | 45 |
| Skilled Manual | 23 | 17 | 40 |
| **High School** | **100** | **79** | **179** |
| Clerical | 2 | 2 | 4 |
| Management | 6 | 6 | 12 |
| Manual | 22 | 22 | 44 |
| Professional | 30 | 25 | 55 |
| Skilled Manual | 40 | 24 | 64 |
| **Partial College** | **146** | **119** | **265** |
| Clerical | 45 | 31 | 76 |
| Management | 3 | 2 | 5 |
| Manual | 14 | 22 | 36 |
| Professional | 46 | 34 | 80 |
| Skilled Manual | 38 | 30 | 68 |
| **Partial High School** | **56** | **20** | **76** |
| Clerical | 21 | 3 | 24 |
| Manual | 22 | 9 | 31 |
| Professional |  | 4 | 4 |
| Skilled Manual | 13 | 4 | 17 |
| **Grand Total** | **519** | **481** | **1000** |

**Observation:** The table reflects the bike purchased per customer occupation. The professional occupation was the favorite among 4 out of the 5 choices except for Partial High School.

**5. SHARE**

**5.1 Avg Income per Purchase**

**Observation:** The average income of Males for purchasing a Bike was 52% and for females was 48% giving a 4% advantage to males.

**5.2 Customer Age Brackets**

**Observation:** The table reflects the number of bike purchases per Age Brackets. In this instance, Middle-Aged adults purchased the most of Age Brackets combined.

**5.3 Customer Commute**

**Observation:** The table reflects the number of purchases bike per mile. Between 0-1 Miles scored the most of bikes purchased and more than 10 Miles scored less in purchasing bikes.

**6. ACT**

**6.1 Conclusions and findings**

* The Avg Income per Purchase graph reflects Male average income higher than the Female average income. When married each gender's average income is similar while single, the Male average income is higher than the Female average income. Based on this graph, companies understand that the average income per bike purchase is Male compared to Female.

* Based on Region, the average income per Bike Purchase are higher in North America and the Pacific.

* The Customer Age Brackets graph, reflects Middle-Aged individuals spend the most in purchasing bikes and Old Adults spend less on bikes. When checking for marital status, Single Middle-Aged individuals purchased bikes the most compared to Married Middle-Aged individuals. In the respective regions, the most purchased bike is by North America. With that being said, companies should consider North America and Europe Middle-Age people spend more on bikes compared to the other age brackets, so it is necessary to offer rewards to draw the other age brackets. Furthermore, deals such as discounts when purchasing a bike with them, free service for one year, warranties, and rewards accounts.

* The Customer Commute graph reflects that individuals that commute within 0-1 miles purchased bikes the most and those of more than 10 miles the less amount purchased bike. When comparing customer commute and cars, individuals that commute within 0-1 miles have zero cars, and the higher the mile's range, the number of cars increases, and no responses answers as well. Additionally, businesses can persuade people to buy bikes by offering them discounts, freebies, upgrades, loyalty points, a year of service for free, a temporary plan to make riders gain money while driving their bikes, and the health advantages of biking over driving a car.

**7. REFERENCE PAGE**

<https://github.com/AlexTheAnalyst/Excel-Tutorial/blob/main/Excel%20Project%20Dataset.xlsx>. This was the dataset I took from it.

**8. CONTACT PAGE**

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