**Bike Sales Analysis**

This project aims to analyze a dataset of bike sales to uncover key trends, patterns, and performance metrics that can help a business make data-driven decisions. The analysis focuses on various aspects, such as sales volume, profit margins, customer demographics, and regional preferences. Using Excel as the primary tool, I have leveraged various functions, charts, and pivot tables to derive meaningful insights from the dataset.

**Data Collection and Preparation**

- **Data Cleaning**: Removed duplicates and corrected any missing or inconsistent values.
- **Data Transformation**: Converted Age columns into proper Age  formats, and created new columns for Age Bracket  to facilitate trend analysis.
- **Data Organization**: Structured the data into categories like bike type, region, and customer demographics for easier comparison.:
- **Descriptive Statistics**: Calculated the customer age bracket, average income per purchase, and customer commute.

**Data Visualization**

I used various Excel features, such as pivot tables, column charts, and line charts, to visualize the data. Here are some key visualizations:

1. **Customer Age Bracket (Line Chart):**
   - This chart  shows the number of bikes purchased and the age of those that purchase them. It also helped identify the impact of promotional campaigns on sales volume.
2. **Average income per Purchase (Column Chart)**:
   - A column chart visualizing the average income of the purchase bike and the gender.
3. **Customer Commute (Line Chart)**:
   - This shows the commute distance of the purchase bike.

**Analysis and Insights**

Based on the data analysis, several interesting trends emerged:

- **Impact of Regional Demographics**: Urban regions tended to have higher sales, likely due to greater access to cycling infrastructure and a larger customer base.
- **Price Sensitivity**: Sales data showed that married and the partial college have higher sales than others, but higher profit margins. This indicates an opportunity for upselling to customers looking for premium products.

**Conclusion and Recommendations**

The analysis has provided valuable insights into the bike sales business. Key conclusions include:

- A need for targeted advertising strategies in urban areas.
- Opportunities to increase sales of premium bikes through strategic promotions.

Based on these insights, I recommend:

1. **Inventory Optimization**: Focus on stocking more mountain bikes in regions where they sell the best.
2. **Premium Product Marketing**: Develop marketing campaigns aimed at customers willing to invest in higher-end bikes.

**Technical Skills Demonstrated**

- **Data Cleaning**: Text to Columns, Remove Duplicates, Find & Replace
- **Data Analysis**: IF
- **Pivot Tables and Pivot Charts**
- **Charts and Visualizations**: Line charts, Column charts
- **Data Transformation**: AGE BRACKET()  functions for extracting Age components

**Working Sheet**

| Gender | Income | Children | Education | Occupation | Home Owner | Cars | Commute Distance | Region | Age | Age Bracket | Purchased Bike |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Female | $40,000 | 1 | Bachelors | Skilled Manual | Yes | 0 | 0-1 Miles | Europe | 42 | Middle Age | No |
| Male | $30,000 | 3 | Partial College | Clerical | Yes | 1 | 0-1 Miles | Europe | 43 | Middle Age | No |
| Male | $80,000 | 5 | Partial College | Professional | No | 2 | 2-5 Miles | Europe | 60 | Old | No |
| Male | $70,000 | 0 | Bachelors | Professional | Yes | 1 | 5-10 Miles | Pacific | 41 | Middle Age | Yes |
| Male | $30,000 | 0 | Bachelors | Clerical | Yes | 0 | 0-1 Miles | Europe | 36 | Middle Age | Yes |
| Female | $10,000 | 2 | Partial College | Manual | Yes | 0 | 1-2 Miles | Europe | 50 | Middle Age | No |
| Male | $160,000 | 2 | High School | Management | Yes | 4 | 0-1 Miles | Pacific | 33 | Middle Age | Yes |
| Male | $40,000 | 1 | Bachelors | Skilled Manual | Yes | 0 | 0-1 Miles | Europe | 43 | Middle Age | Yes |
| Male | $20,000 | 2 | Partial High School | Clerical | Yes | 2 | 5-10 Miles | Pacific | 58 | Old | No |
| Male | $120,000 | 2 | Partial College | Manual | Yes | 1 | 0-1 Miles | Europe | 40 | Middle Age | Yes |
| Female | $30,000 | 3 | High School | Skilled Manual | Yes | 2 | 1-2 Miles | Pacific | 54 | Old | Yes |
| Female | $90,000 | 0 | Bachelors | Professional | No | 4 | 10 Miles+ | Pacific | 36 | Middle Age | No |
| Male | $170,000 | 5 | Partial College | Professional | Yes | 0 | 0-1 Miles | Europe | 55 | Old | No |
| Male | $40,000 | 2 | Partial College | Clerical | Yes | 1 | 1-2 Miles | Europe | 35 | Middle Age | Yes |
| Male | $60,000 | 1 | Partial College | Skilled Manual | No | 1 | 0-1 Miles | Pacific | 45 | Middle Age | Yes |
| Female | $10,000 | 2 | High School | Manual | Yes | 1 | 0-1 Miles | Europe | 38 | Middle Age | Yes |
| Female | $30,000 | 3 | Partial College | Clerical | No | 2 | 1-2 Miles | Pacific | 59 | Old | Yes |
| Female | $30,000 | 1 | Bachelors | Clerical | Yes | 0 | 0-1 Miles | Europe | 47 | Middle Age | No |
| Male | $40,000 | 2 | Partial College | Clerical | Yes | 1 | 1-2 Miles | Europe | 35 | Middle Age | Yes |
| Male | $20,000 | 2 | Partial High School | Clerical | Yes | 2 | 5-10 Miles | Pacific | 55 | Old | Yes |
| Female | $40,000 | 0 | Graduate Degree | Clerical | Yes | 0 | 0-1 Miles | Europe | 36 | Middle Age | Yes |
| Female | $80,000 | 0 | Bachelors | Professional | Yes | 4 | 10 Miles+ | Pacific | 35 | Middle Age | No |
| Male | $40,000 | 2 | Partial College | Clerical | Yes | 0 | 1-2 Miles | Europe | 35 | Middle Age | Yes |
| Female | $80,000 | 5 | High School | Management | No | 3 | 5-10 Miles | Europe | 56 | Old | No |
| Male | $40,000 | 2 | Partial College | Clerical | No | 1 | 0-1 Miles | Europe | 34 | Middle Age | No |
| Male | $30,000 | 1 | Bachelors | Clerical | Yes | 0 | 0-1 Miles | Europe | 63 | Old | No |
| Male | $30,000 | 0 | Partial College | Clerical | No | 1 | 0-1 Miles | Europe | 29 | Adolescent | Yes |
| Female | $100,000 | 0 | Bachelors | Professional | Yes | 1 | 5-10 Miles | Pacific | 40 | Middle Age | No |
| Male | $70,000 | 5 | Partial College | Skilled Manual | Yes | 2 | 5-10 Miles | Pacific | 44 | Middle Age | No |
| Female | $20,000 | 0 | Partial High School | Manual | Yes | 2 | 0-1 Miles | Europe | 32 | Middle Age | Yes |
| Female | $20,000 | 2 | Partial College | Manual | Yes | 0 | 0-1 Miles | Europe | 63 | Old | No |
| Male | $10,000 | 0 | Partial College | Manual | No | 1 | 0-1 Miles | Pacific | 26 | Adolescent | Yes |
| Female | $20,000 | 0 | High School | Manual | No | 1 | 5-10 Miles | Europe | 31 | Middle Age | No |
| Male | $80,000 | 2 | High School | Skilled Manual | No | 2 | 1-2 Miles | Pacific | 50 | Middle Age | Yes |

bike_buyers | **Working Sheet** | Pivot Table | Dashboard

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**Pivot Table**

| Average of Income | Column Labels | | |
|---|---|---|---|
| Row Labels | No | Yes | Grand Total |
| Female | $53,440 | $55,774 | $54,581 |
| Male | $56,208 | $60,124 | $58,063 |
| Grand Total | $54,875 | $57,963 | $56,360 |


Avg income per purchase

| Count of Purchased Bike | Column Labels | | |
|---|---|---|---|
| Row Labels | No | Yes | Grand Total |
| 0-1 Miles | 166 | 200 | 366 |
| 10+ Miles | 78 | 33 | 111 |
| 1-2 Miles | 92 | 77 | 169 |
| 2-5 Miles | 67 | 95 | 162 |
| 5-10 Miles | 116 | 76 | 192 |
| Grand Total | 519 | 481 | 1000 |


Customer Commute


Customer Age Bracket

| Count of Purchased | Column Labels | | |
|---|---|---|---|
| Row Labels | No | Yes | Grand Total |
| Adolescent | 71 | 39 | 110 |

bike_buyers | Working Sheet | **Pivot Table** | Dashboard

# Bike Sales Dashboard

**Marital ...**
- Married
- Single

**Region**
- Europe
- North America
- Pacific

**Education**
- Bachelors
- Graduate Degree
- High School
- Partial College
- Partial High Sch...

## Avg income per purchase
Average of Income



Gender ▾

Purchased Bike ▾
- No
- Yes

## Customer Age Bracket
Count of Purchased Bike



Age Bracket ▾

Purchased Bike ▾
- No
- Yes

## Customer Commute
Count of Purchased Bike



Commute Distance ▾

Purchased Bike ▾
- No
- Yes

bike_buyers | Working Sheet | Pivot Table | **Dashboard**