Analyzing Sales Data

This presentation outlines a comprehensive approach to analyzing sales data, encompassing data acquisition, cleaning, visualization, and actionable insights. By leveraging powerful tools such as Kaggle, Python, and Power BI, we uncover hidden patterns and optimize sales strategies for enhanced performance.

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Obtaining Data from Kaggle

Kaggle is a leading platform for data scientists, offering a vast repository of publicly available datasets, including valuable sales data.

Data Cleaning with Python

1 Data Validation

Thorough data validation is crucial to ensure accuracy and consistency. This involves checking for duplicates, missing values, and inconsistencies in data format.

2 Handling Missing Values

Missing values are addressed by employing appropriate imputation techniques, such as mean imputation or using a machine learning model to predict missing values.

3 Data Transformation

Data transformation may be necessary to prepare the data for analysis, including converting data types, standardizing units, or encoding categorical variables.

```python
# Clean the data
data.columns[data.isnull().any()]
data.drop(columns="Column1",inplace=True)
data.dropna(inplace=True)


# See the data
data.info()
data.describe()
data.head()



# Rename
data.rename(columns={"index":"ID"},inplace=True)



# Save the new data
data.to_csv("NEWData.csv",index=False)
```

Adding Profit Column

Revenue and Cost

The dataset typically includes revenue and cost information. The revenue represents the total income generated from sales, while cost refers to expenses incurred in producing or acquiring the goods sold.

Profit Calculation

Profit is calculated by subtracting cost from revenue. This metric provides a clear understanding of the profitability of each sale or product.

Profitability Analysis

The newly added profit column enables a deeper analysis of profitability trends, identifying high-profit products or periods and areas requiring improvement.

```python
# Add Profit column
data["Check"] = data["Revenue"] >= data["Cost"]
data["Check"].value_counts()
x = data.loc[data["Check"] == False]       # 4854 False value these values are incorrect values as no negative profit
data.drop(x.index , inplace = True)        # drop these values
data["Profit"] = data["Revenue"] - data["Cost"]
data.head()
```

Interactive Dashboard on Power BI

Data Visualization

Power BI offers a wide range of visualization options, allowing for creating interactive charts, graphs, maps, and tables to effectively communicate sales data.

Interactive Elements

Interactive elements, such as filters, slicers, and drill-down capabilities, enable users to explore and analyze sales data in a dynamic and engaging way.

Dashboard Design

A well-designed dashboard presents relevant data in a clear and concise manner, highlighting key insights and trends for improved decision-making.
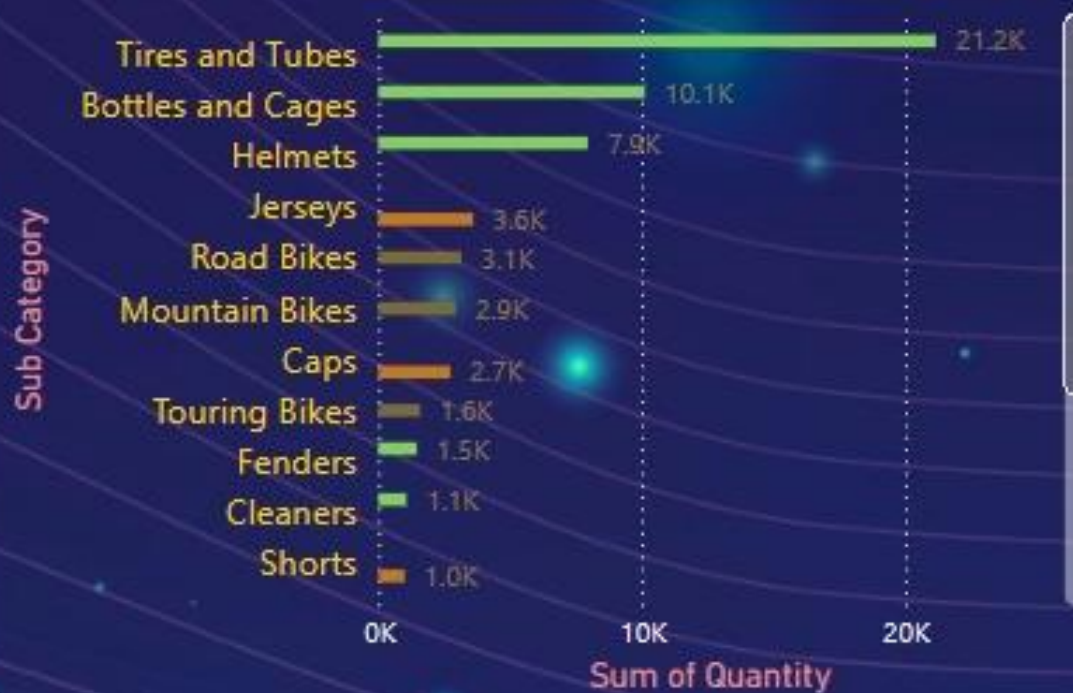
Identifying Key Insights

|	
Product Performance	The Accessories category saw the highest sales volume
Customers	I have approximately 30,000 customers, with an average age of around 36.5 years.
Seasonality and Trends	In the first half of 2015, we encountered profit challenges, but these issues were successfully resolved the following year.
Country Look	While I sold more than double the quantities in the USA, Germany achieved the highest profit.

Identifying Key Insights
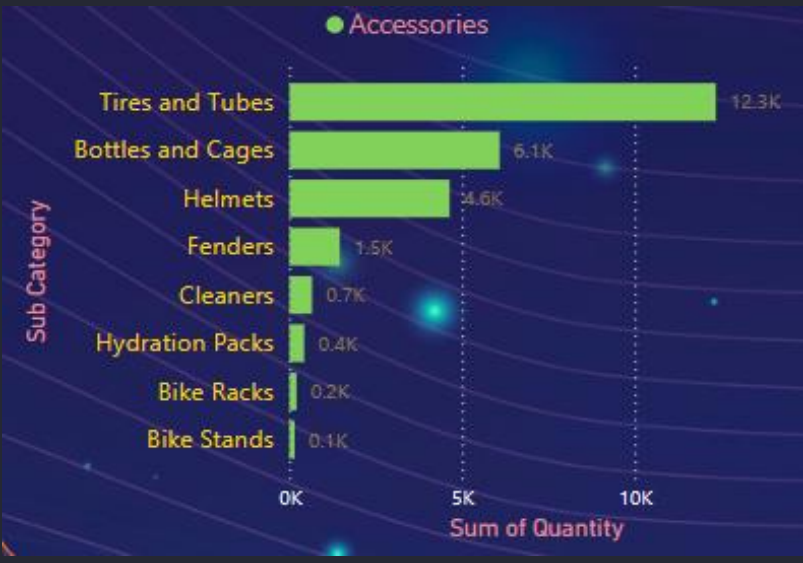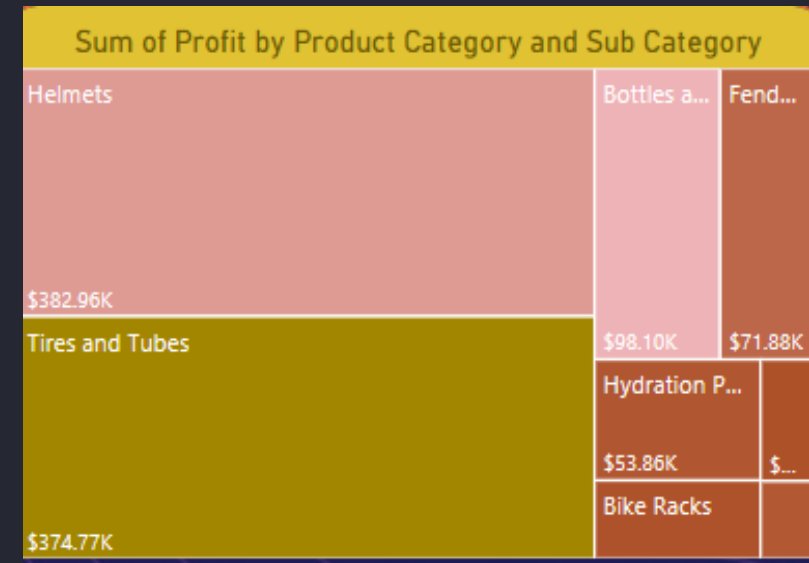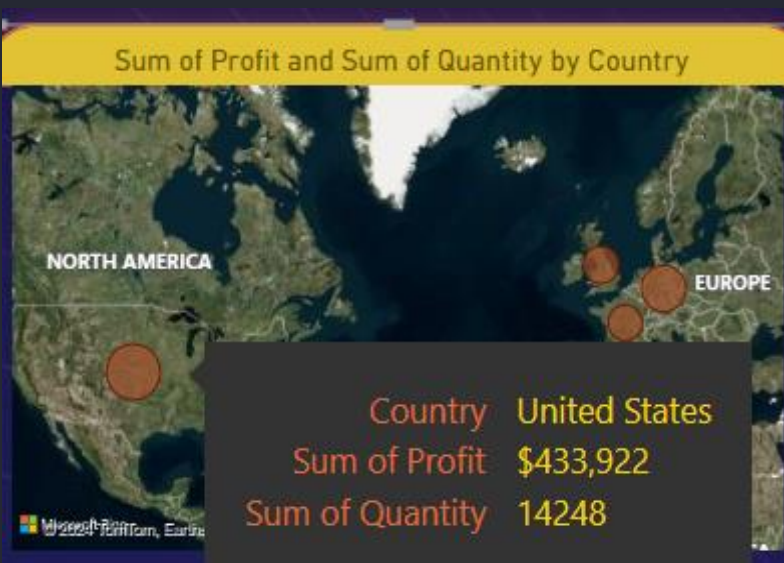
Recommendations and Next Steps

- **Increase Stock:** Boost inventory levels for accessories products.

- **Marketing Campaigns:** Launch targeted marketing campaigns in the UK and France.

- **Special Offers in Germany:** Create promotions for accessories and clothing products in Germany.

- **Targeted Offers in the USA:** Implement offers on high-profit products, focusing on those that sell best in the USA.

- **Monitor Yearly Progress:** Continuously track and assess annual performance.

- **New Product Development:** Ensure that any new products appeal to customers around the average age of 36.5 years.

Contact Me

For dataset and code check:

https://github.com/AhmedMasoud135/Data-Analysis/tree/main/Sales%20Analysis

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