BUDGET SALES ANALYSIS

Detailed project report

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PROJECT DETAILS

PROJECT TITLE	Budget sales analysis
TECHNOLOGY	Business Intelligence
DOMAIN NAME	Retail & Sales
TOOLS	Jupyter Notebook, Excel, Power BI, Python

PROJECT STATEMENT

The main objective is to analyze the sales and budget data to uncover trends, optimize the product offering, and make data-driven decisions for business growth. The project will analyze customer behavior, product performance, and sales performance across various dimensions like demographics, regions, and product categories.

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OBJECTIVE

- To perform data cleaning, transformation, and exploratory analysis.
- To generate key insights from sales data such as gender and occupation influence on sales.
- Visualize patterns and metrics across different sales dimensions.
- Evaluate sales performance by time (monthly/yearly), product categories, and customer demographics.
- Provide data-backed recommendations to improve marketing and sales strategies.

BENEFITS

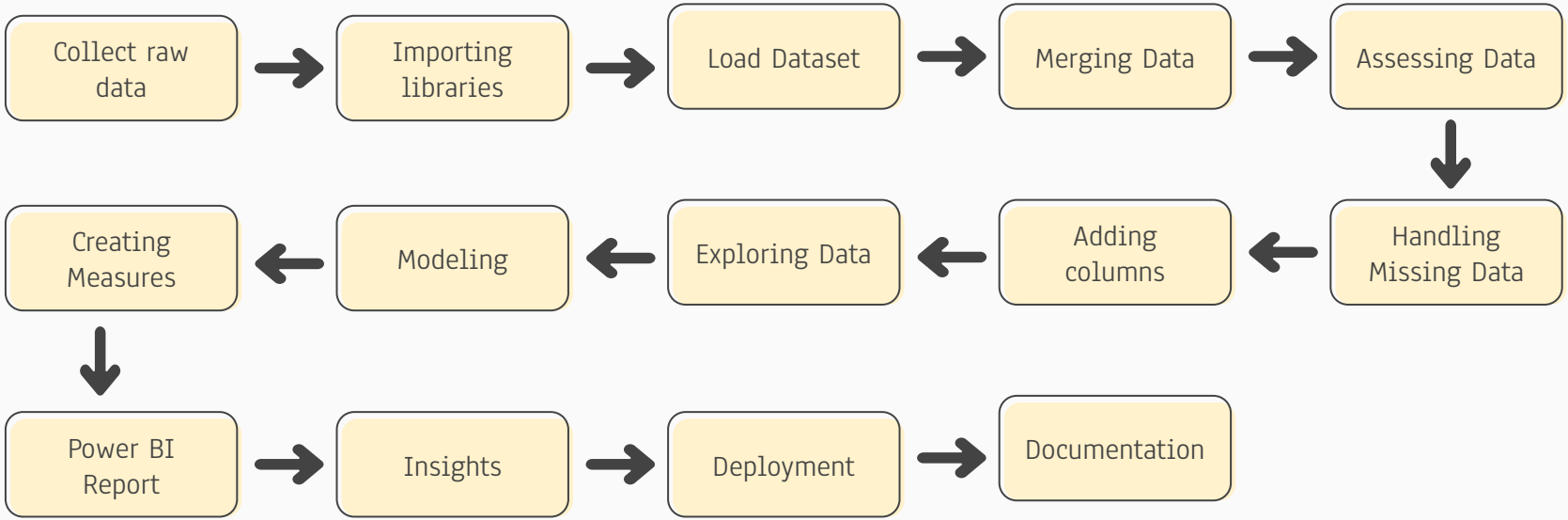
- Enhanced decision-making for marketing and sales strategies.
- Improved understanding of customer demographics and purchase behaviors.
- Identification of top-performing products and customer segments.
- Increased efficiency in resource management and sales targeting.

DATA ATTRIBUTES

The analysis uses datasets related to customers, products, sales, and geographical territories.

- Customer Data:
  - CustomerKey, FullName, Gender, MaritalStatus, YearlyIncome, Occupation, Education, Number of Children, Home Ownership, Commute Distance, Number of Cars Owned.
- Product Data:
  - ProductKey, ProductName, SubCategory, Category, ListPrice, ProductLine, Days to Manufacture, ModelName.
- Territory Data:
  - SalesTerritoryKey, Region, Country.
- Sales Data:
  - OrderDate, SalesAmount, SalesOrderNumber, ProductKey, CustomerKey, SalesTerritoryKey, PromotionKey, Tax Amount, Total Product Cost, UnitPrice.

ARCHITECTURE



1. Collect Raw Data - This step involves extracting the data from different sources relevant to the problem statement or obtaining data from the client

2. Importing Libraries - Import analysis related python libraries example - Pandas, Numpy, Plotly, datetime etc

3. Data Wrangling - Contains following steps gathering data, assessing data, handling missing data and adding columns

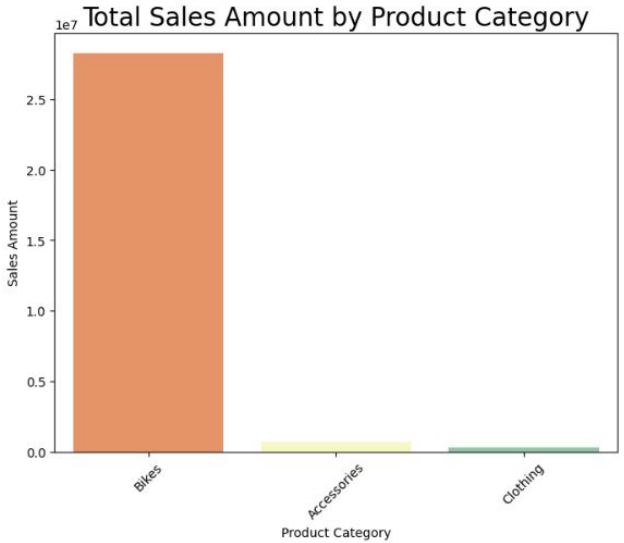
4. Exploring Data - Once the data is loaded and pre- processed, we perform data analysis using python libraries and Business Intelligence tools like Power BI

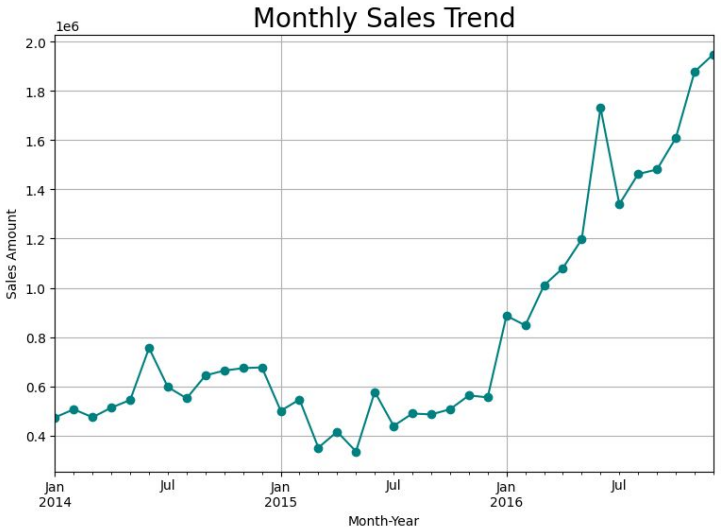
5. Data Modelling - Data Modelling is one of the features used to connect multiple data sources in Bl tool using a relationship. A relationship defines how data sources are connected with each other and you can create interesting data visualizations on multiple data sources

6. Deployment - The prepared visualizations are deployed on the powerbi.microsoft.com site. Where they will be available publicly

INSIGHTS

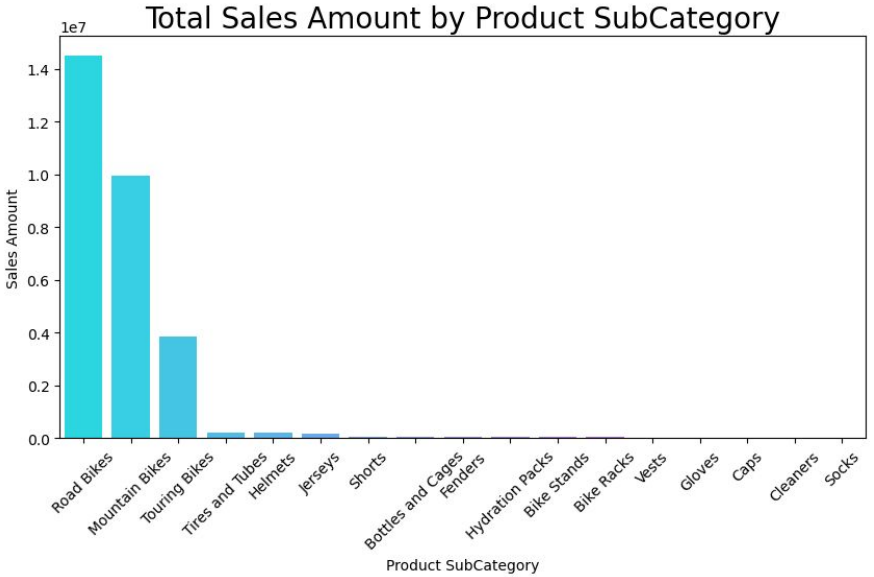
Sales by Product Category: The highest sales are generated by the *Bikes* category. This indicates that marketing and promotional efforts could be concentrated here for further revenue growth.

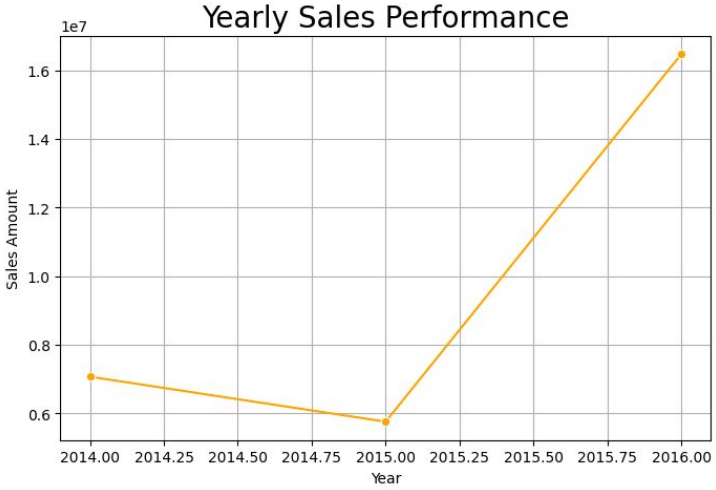




Sales Trends: There is a noticeable peak in sales during December 2016, suggesting a seasonal or promotional effect. Businesses could consider implementing similar strategies during peak periods.

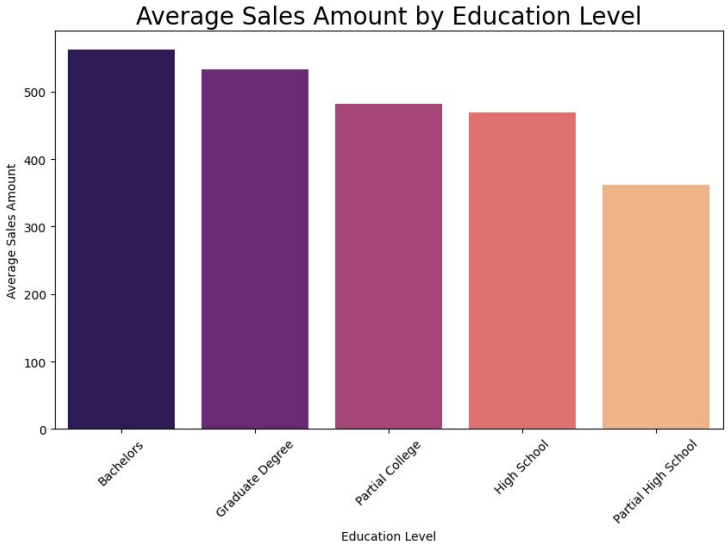
Product Subcategory Performance: Road Bikes leads as the top-performing subcategory, showing an opportunity for targeted marketing to customers interested in premium products.





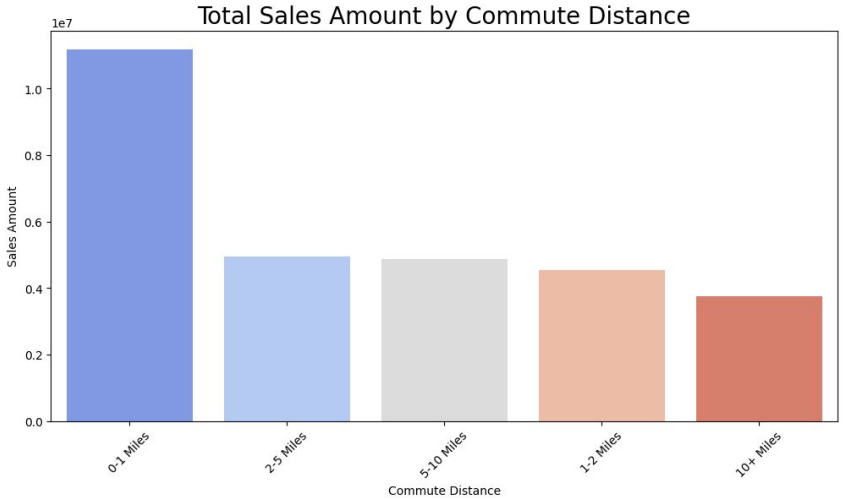
Yearly Sales Performance: Significant growth in sales is observed in 2016, which is an indicator of positive business momentum. This trend could be further analyzed to understand the drivers behind this growth.

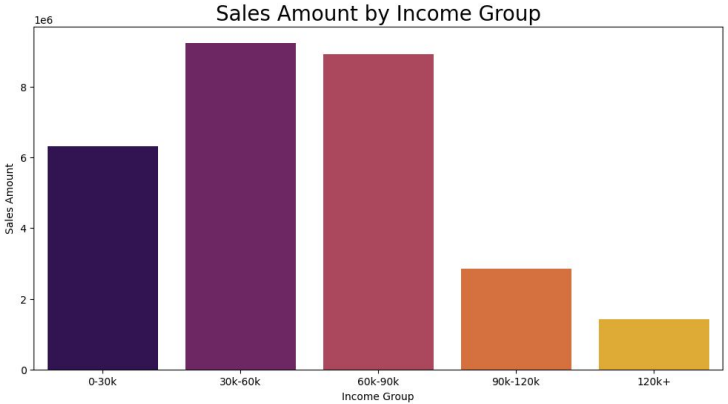
Sales vs Order Quantity: Higher order quantities correlate with increased sales, especially within the Bikes category. This suggests that larger product orders lead to more revenue, possibly driven by bulk sales or high-value items.



Customer Demographics: Customers with Bachelors spend the most on average, suggesting targeted promotions.

Commute Distance and Sales: Customers who travel longer distances tend to make higher-value purchases, potentially showing a dedication to a particular product or store.





Income Group Analysis: The income group between *30k - 60k* contributes the most to sales, representing a valuable customer segment. Marketing efforts could focus on this group to maximize impact.

KEY PERFORMANCE INDICATORS (KPI)

Growth Analysis:

- Quarterly Growth/Decay Rate
- Seasonal Growth/Decay Rate
- Monthly Growth/Decay

Sales Analysis:

- Year-Wise Sales Comparison
- Monthly Sales and Profit
- Monthly Transactions

Sales Performance Report:

- Total Sales
- Country-Wise Sales
- Top 10 Customers by Sales
- Profit Margin
- Average Daily Sales

Country-Wise Analysis Dashboard:

- Total Sales by Category
- Sub-category Sales

Category-Wise Analysis Dashboard:

- Total Sales
- Average Daily Sales
- Growth/Decay Rate
- Profit Margin
- Total Sales by Country

Customer Profile Dashboard:

- Customer
- Customer Key
- Age
- Annual Income
- Category-Wise Sales:
- Bikes
- Clothing
- Accessories

CONCLUSION

- A significant proportion of sales comes from customers aged 40-59 and from higher income groups.
- The **Bike category** generates the highest sales and profit, followed by accessories and clothing, indicating a high demand for these products.
- There is a **7-day gap** between order and shipment, which could be reduced to optimize delivery logistics.
- Promotions should target **December** and **mid-week days (Wednesday and Saturday)** as these times show the highest sales activity.

Q&A

Q1) What was the type of data?
Ans) The data was a combination of numerical and Categorical values.

Q 2) What was the complete flow you followed in this Project?
Ans) Refer slide 7th for better Understanding

Q3) What techniques were you using for data?
Ans) -Removing unwanted attributes.
-Visualizing relation of independent variables with each other and output variables.
-Checking and changing distribution of continuous values.
-Removing outliers
-Cleaning data and imputing if null values are present. -Transforming data to yield the desired result.

THANK YOU