

PRODUCT SALES ANALYSIS

ABSTRACT

- ❖ The "Product Sales Analysis" machine learning project aims to develop a predictive model that can analyze and forecast product sales based on historical data.
- ❖ This project utilizes a dataset containing information about product attributes, sales channels, pricing, and time-related factors.

OBJECTIVES

- ❖ Product sales analysis typically has several objectives, including:
Performance Evaluation, Identifying Trends, Customer Insights, Inventory Management, Competitive Analysis, Profitability Analysis, Marketing Effectiveness, Forecasting, Geographic Analysis, Product Lifecycle Management, Customer Retention, Identifying Growth Opportunities, Cost Reduction, Quality Improvement, Compliance and Reporting
- ❖ By achieving these goals we would know about the sales, profit of the products.

DESIGN THINKING

- ❖ Data Preprocessing
- ❖ Exploratory Data Analysis (EDA)
- ❖ Feature Selection
- ❖ Model Development
- ❖ Model Evaluation
- ❖ Deployment
- ❖ Interpretability

DATA PREPROCESSING

DATA COLLECTION:

- ▶ Gather sales data from various sources, such as POS (Point of Sale) systems, online sales platforms, and databases.

DATA CLEANING:

- ▶ Handle missing data: Identify and fill in missing values or decide how to handle them (e.g., remove rows with missing values).
- ▶ Remove duplicates: Eliminate duplicate entries in the dataset.
- ▶ Correct errors: Address any data entry errors or inconsistencies.

Exploratory Data Analysis (EDA)

- ❖ Conduct an in-depth analysis of the dataset to identify patterns, correlations, and insights related to product sales.
- ❖ Summarize data by aggregating sales figures (e.g., daily, monthly, or yearly totals).

FEATURE SELECTION

- ❖ Create new features: Generate relevant features that may aid in analysis (e.g., calculating average order value, sales growth rates).
- ❖ Feature selection: Choose the most important features for analysis to reduce dimensionality and improve model performance.
- ❖ Outlier Detection and Handling: Identify outliers in the data that may skew analysis results. Decide whether to remove outliers or transform them

MODEL DEVELOPMENT AND EVALUATION

- ❖ Build and evaluate various machine learning models, such as regression, time series forecasting, or neural networks, to predict future product sales accurately.
- ❖ Assess the models' performance using appropriate metrics like Mean Absolute Error (MAE), Root Mean Square Error (RMSE), or R-squared to determine the best-performing model.

DEPLOYMENT AND INTERPRETABILITY

- ❖ Create an interface or API to allow users to input product attributes and obtain sales forecasts.
- ❖ Provide insights into the factors driving product sales, allowing stakeholders to make data-informed decisions.

CONCLUSION

- ❖ The "Product Sales Analysis" project aims to assist businesses in optimizing inventory management, pricing strategies, and demand forecasting, ultimately improving profitability and customer satisfaction.
- ❖ In conclusion, we know about the sales trends and patterns, product performance, inventory management etc.,

THANK
YOU