

NAAN MUDHALVAN

APPLIED DATA SCIENCE – GROUP 2

PROJECT 3 : FUTURE SALES PREDICTION

The aim is to build a predictive model and find out the sales of each product at a particular store. Using this model, Big Marts like Target will try to understand the properties of products and stores which play a key role in increasing sales. So the idea is to find out the properties of a product, and store which impacts the sales of a product. We came up with certain hypothesis in order to solve the problem statement relating to the various factors of the products and stores. We develop a predictive model using data science for forecasting the sales of a business such as Target Corporation.

- By using this model, we will try to understand the properties of products and stores which play a key role in increasing sales.
- We came up with certain hypothesis in order to solve the problem statement relating to the various factors of the products and stores.
- We'll be performing some basic data exploration and come up with some inferences about the data.
- In our model we have used future sales prediction dataset.

1. Introduction:

The "Future Sales Prediction" project aims to develop a predictive model that forecasts future sales for a retail business. This project leverages data science techniques and machine learning to assist businesses in making informed decisions regarding inventory management, marketing strategies, and revenue optimization.

2. Problem Statement:

The problem is to develop a predictive model that uses historical sales data to forecast future sales for a retail company. The objective is to create a tool that enables the company to optimize inventory management and make informed business decisions based on data driven sales predictions. This project involves data preprocessing, feature engineering, model selection, training and evaluation.

3. Data Collection:

Data for this project is collected from various sources, including historical sales data, product information, customer data. Data preprocessing techniques are applied to clean and format the data for analysis.

4. Data Exploration and Feature Engineering:

Exploratory data analysis (EDA) is conducted to gain insights into the dataset, identify trends, and discover correlations. Feature engineering is performed to create relevant features that can improve the accuracy of the predictive model.

5. Model Evaluation:

The predictive models are evaluated using various metrics such as Mean Absolute Error (MAE), Mean Squared Error (MSE), and Root Mean Squared Error (RMSE). Cross-validation is applied to assess model generalization. The best-performing model is selected for deployment.

6. Deployment:

The selected predictive model is deployed in a production environment, allowing stakeholders to make real-time sales forecasts. Integration with existing systems or dashboards may be required for seamless adoption.

7. Monitoring and Maintenance:

Continuous monitoring of the deployed model is crucial to ensure its accuracy and reliability. Model performance is assessed regularly, and updates or retraining may be necessary to adapt to changing business conditions.

8. Result:

The project provides businesses with accurate sales forecasts, enabling them to optimize inventory levels, plan marketing campaigns effectively, and improve revenue forecasting. This leads to increased profitability and better decision-making.