Detailed Project Report (DPR)

Petrol Price Forecasting (Machine Learning)

By

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Introduction

This project aims to forecast petrol price using machine learning models.

Problem Statement

The ONGCF is a organization dedicated to the exploration and production of oil and natural gas. Price information is supplied on a weekly basis. It seeks to forecast crude oil prices for the following 16 months, from January 1, 2019 to April 1, 2020. The main goal is to predict and forecast the prices based upon the best model.

Approach

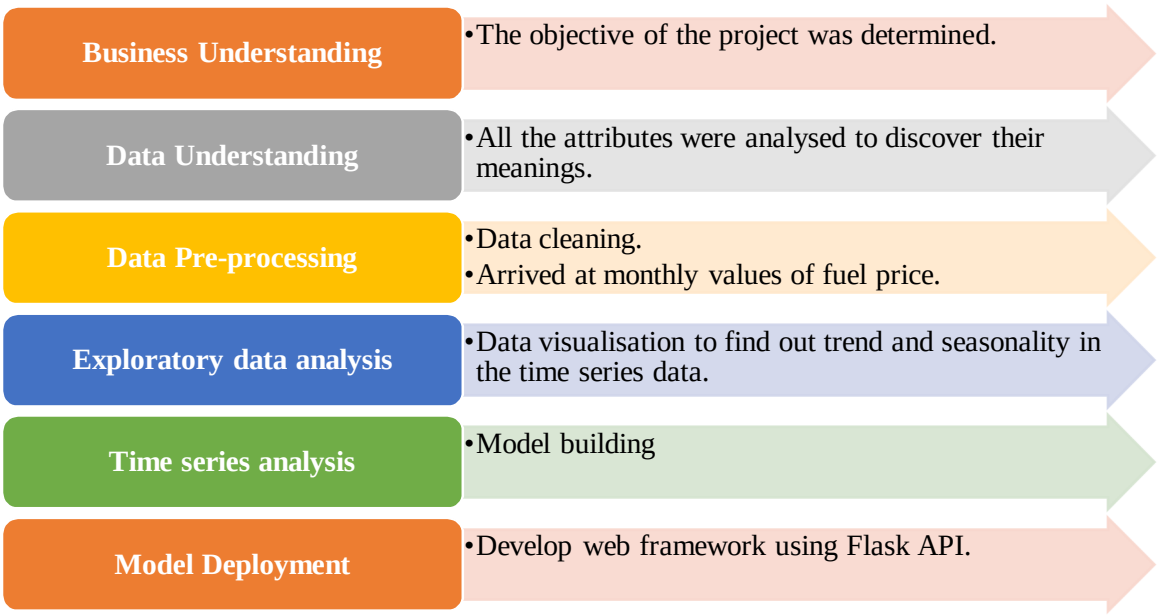
This project involves data pre-processing like Data cleaning, Exploratory data analysis, Model building and Model deployment. Different models like Auto regressive (AR), Moving average (MA), Auto regressive moving average (ARMA), Auto regressive integrated moving average (ARIMA) and Seasonal auto regressive integrated moving average (SARIMA) models were built and then tested on to test data.

Dataset overview

The data contains petrol prices (Petrol (USD)) and Date column in train_data.csv. The test data has the dates for which the predictions are to be made (column names: Date and Prediction), corresponding to which Prediction is blank.

User I/O workflow

Design Flow



Conclusion

Out of all the models, ARIMA best predicted the petrol prices with least RMSE of 0.21 and MAPE of 3.03%. Hence ARIMA model can be best utilized to forecast the petrol prices.