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**Petrol Price Forecasting**

Low Level Design

Domain: Machine Learning

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# **Document Version Control**

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# **Introduction**

### What is Low-Level Design Document?

The goal of LLD or a low-level design document is to give the internal logical of the actual program code for Metro Interstate Traffic Volume Prediction. It will explain the purpose and features of the system, the interfaces of the system, what the system will do, the constraints under which it must operate and how the system will react to external stimuli.

The main objective of the project is to predict if traffic volume is in high or low on particular date. Weather circumstance, special days like holidays, daytime (morning, afternoon, night and etc.), a temperature, a weekday, a numeric percentage of cloud cover are vital attributes for predicting traffic volume.

### Scope

Low-level design (LLD) is a component-level design process that follows a step-by-step refinement process. This process can be used for designing data structures, required software architecture, source code and ultimately, performance algorithms. Overall, the data organization may be defined during requirement analysis and then refined during data design work.

# **Architecture**

Data Preparation

Model

Development

# **Architecture Description**

### Data Preparation

Data Description

The price data from the Petroleum Company. The goal of this project is to build a prediction model using multiple machine learning techniques. We're trying to forecast petrol price.

Data Preprocessing

In data preprocessing step, we check if there missing data, duplicate values.

# **Model Development**

### Model implementation

After train and test splitting, pipeline containing Standard Scaler and Ordinal Encoder was fitted to several models such as Linear Regression, Lasso, Ridge, Elastic net, AdaBoost Regressor, Gradient Boosting Regressor, RandomForest Regressor, Their R2 score were obtained. And it was determined that Gradient Boosting performs better than other models.

### Model Evaluation

Test dataset is used to evaluate the model. 30% of dataset was separated for testing. Predicted results of the model are compared with the actual data to check the amount of error.