

**Shipment Pricing Prediction**

Project Architecture

Domain: Machine Learning

Creator: Vaibhav Joshi

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# **Architecture**

**Data Preparation**

**Model**

**Development**

**Deployment**

**Deployment**

# **Architecture Description**

## Data Preparation

### Data Description

### The shipment price data from the Shipment company. The primary objective of the Shipment Pricing Prediction project is to develop a predictive model that can accurately estimate the cost of shipping based on various influencing factors. By analyzing historical data and incorporating real-time variables, the model aims to offer reliable predictions, enabling businesses to make informed decisions regarding pricing and resource allocation.

### Data Preprocessing

In data preprocessing step, we check if there missing data, duplicate values, and data types of each feature. In our dataset, there was not any null and 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, , Gradient Boosting Regressor, RandomForest Regressor, Their R2 score were obtained. And it was determined that RandomForest 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.

## **Deployment**

### Designing Form with HTML

For this project, a form is built on HTML.

### Designing a server

A server should be created to run the application continuously. Flask server is built.

### Code deployment on cloud

The codes for this machine learning model should be deployed to the cloud, so that when data is entered into the application, our code runs, and a user gets the result online.

## **Deployment Process**

The code was first committed on Git hub. The pipeline was created between Git and AWS. Then the code was deployed to the AWS.