

# **House Price Prediction using Linear Regression**

The real estate market is a dynamic and complex ecosystem influenced by various factors such as location, size, amenities, and economic conditions. Predicting housing prices accurately is crucial for both buyers and sellers to make informed decisions. In recent years, machine learning techniques have gained popularity in addressing this challenge.

Linear regression is a fundamental and widely-used machine learning algorithm for predicting numeric values based on input features. In the context of house price prediction, linear regression models establish a relationship between independent variables (features like square footage, number of bedrooms, etc.) and the dependent variable (house price). The fundamental assumption of linear regression is that there exists a linear relationship between the features and the target variable.

The objective of this project is to develop a robust linear regression model that can effectively predict house prices. The dataset used for training the model typically comprises historical housing data with corresponding features and actual sale prices. The model learns the patterns and correlations within the data to make predictions on new, unseen data.

The linear regression model aims to find the best-fit line that minimizes the difference between predicted and actual prices. This line represents the relationship between the input features and the target variable. The model's performance is evaluated using metrics such as Mean Squared Error (MSE) or Root Mean Squared Error (RMSE), which quantify the accuracy of predictions.

This project explores the application of linear regression in the context of house price prediction, emphasizing the importance of feature selection, data preprocessing, and model evaluation. By understanding and implementing linear regression techniques, stakeholders in the real estate industry can enhance their decision-making processes and gain valuable insights into the factors influencing housing prices.