

SUPERIOR UNIVERSITY

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Section:AI(4A)

SUBJECT:PAI-Lab

SUBMITTED TO :Rasikh Ali

Lab task 1:

house_price:

Introduction :

This report explains the process of predicting house prices using machine learning. The dataset used for this project is from Kaggle's house price prediction competition. The goal is to build a model that accurately estimates house prices based on various features.

Data Collection and Preprocessing:

The dataset was loaded using pandas. It contained many features, some of which were not useful for prediction. These unnecessary features, such as Alley, PoolQC, and MiscFeature, were removed to improve model performance.

Missing values were handled carefully. For example, the LotFrontage column had missing values, which were filled with the mean of that column. This ensures that missing values do not negatively impact model training.

Exploratory Data Analysis (EDA):

Some basic data analysis was done to understand the dataset. This included:

Checking missing values

Viewing statistical summaries

Understanding data distributions

Model Selection:

Two machine learning models were used:

Linear Regression: A simple model that predicts prices based on relationships between features.

Bagging Regressor: An ensemble method that improves accuracy by combining multiple weak models.


Model Training and Testing

The dataset was split into training and testing parts. The models were trained using the training dataset and evaluated using test data. Performance was measured using metrics such as accuracy and error rates.

Results and Conclusion

The models successfully predicted house prices. The Bagging Regressor performed better than Linear Regression due to its ability to reduce overfitting and handle complex relationships.

In conclusion, machine learning can effectively predict house prices if data is cleaned and the right model is selected.

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