

MACHINE LEARNING PROJECT

Unit - 2

Scenario

House Price Prediction using Multiple Linear Regression

1 Short Description

This project focuses on predicting house prices using machine learning techniques.

The final house price depends on multiple factors such as the area of the house, number of bedrooms, and location rating.

Since several independent variables influence a single output, **Multiple Linear Regression** is used to build the prediction model.

2 Objective of the Project

The main objective of this project is to accurately predict house prices based on various housing features using a supervised machine learning regression model.

3 Problem Type

This is a **Regression Problem** because the output (house price) is a **continuous numerical value**.

4 Prediction Type

- Supervised Learning

- Continuous Value Prediction

5 Model Used

Multiple Linear Regression

Multiple Linear Regression is used when more than one independent variable influences a dependent variable.

In this project, house price depends on multiple factors such as area, bedrooms, and location rating, making this model suitable.

6 Dataset Used (CSV)

The dataset is created in **CSV format (.csv)** and contains the following columns:

Column Name – Description

- **Area** – Size of the house in square feet
- **Bedrooms** – Number of bedrooms
- **Location** – Location rating (1 = Poor, 5 = Excellent)
- **Price** – Final house price in Lakhs (Target variable)

7 Workflow of the Project

1. Import required Python libraries
2. Load the dataset from CSV file
3. Separate input features and target variable
4. Perform data preprocessing using StandardScaler

5. Train the Multiple Linear Regression model
6. Accept user input through Streamlit interface
7. Predict the house price
8. Display the predicted result

8 Sample Code Snippet (Short)

```
import pandas as pd
from sklearn.linear_model import LinearRegression

data = pd.read_csv("house_data.csv")

X = data[['Area', 'Bedrooms', 'Location']]
y = data['Price']

model = LinearRegression()
model.fit(X, y)

predicted_price = model.predict(X)
```

9 Output Expected

- The system predicts house prices based on user input
- Predicted values are close to actual prices
- The application provides real-time price prediction

The small difference between actual and predicted values shows that the model performance is reliable.



House Price Prediction

Enter house details and click **Predict Price**

1234 Enter House Details

Area (sq.ft)

1215

- +

Number of Bedrooms

3

1 10

Location Rating

Good

▼

Predict House Price

Prediction Result

Estimated House Price

₹ 80.28 Lakhs

Average Market Price: ₹ 127.4 Lakhs

Price Difference: -36.98%

Affordable Area

10 Conclusion

Thus, the **House Price Prediction System** was successfully implemented using **Multiple Linear Regression**.

The model efficiently predicts house prices based on multiple housing features and produces accurate results through a single-page Streamlit application.