**House Price Prediction Project**

**Introduction** The House Price Prediction project aims to develop a machine learning model capable of estimating the price of a house based on various factors such as location, number of rooms, square footage, and other relevant features. This project demonstrates the application of data science techniques in the real estate sector.

**Data Collection and Processing** The dataset used in this project consists of historical house sale records with features such as lot size, number of bedrooms, number of bathrooms, and overall house condition. The data was loaded using pandas, cleaned to remove missing values, and preprocessed through feature scaling and encoding categorical variables. Exploratory Data Analysis (EDA) was conducted to identify trends and relationships between variables.

**Model Development** A regression model was developed using machine learning algorithms such as Linear Regression, Decision Tree, and XGBoost. The dataset was split into training and testing sets, and the model was trained to predict house prices based on input features. Model performance was evaluated using metrics such as Mean Absolute Error (MAE) and Root Mean Squared Error (RMSE).

**Results and Conclusion** The trained model demonstrated strong predictive accuracy, effectively estimating house prices based on key attributes. The project highlights the usefulness of machine learning in real estate valuation. Future improvements could include integrating additional economic indicators and experimenting with deep learning models for enhanced prediction accuracy.

This project serves as a foundation for developing intelligent pricing tools in the real estate industry and can be extended for automated property valuation applications.