A Review On Prediction of House Price

Prof. Pallavi Sambhare
Asst. Prof Dept. of Information Technology
G.H. Raisoni College of Engineering, Nagpur.

Akash Sontakke	**Kapil Waghmare**	**Tushar Bhade**
Department of IT	Department of IT	Department of IT
GHRCE	GHRCE	GHRCE
Nagpur	Nagpur	Nagpur

Abstract - This study uses a variety of machine learning approaches to create a forecast model for home prices. The dataset used in this study contains a variety of characteristics, including the house's location, size, age, number of rooms, and amenities. The study looks at how well various regression techniques, including decision trees, random forests, and linear regression, forecast the price of homes.

The location and size of the home are the two most important criteria, according to the study's examination of the significance of several features in determining house values. In order to make educated judgements on property prices, homeowners, real estate agents, and legislators can benefit from understanding the study's findings. In order to make educated judgements on property prices, homeowners, real estate agents, and legislators can benefit from understanding the study's findings

Keywords: Collaborator, online compilers, Python programming etc.

Introduction

One of the biggest contributors to the world economy has been the real estate sector. As the housing market is always shifting, it has proven difficult for real estate brokers, property speculators, and even prospective buyers to estimate house prices with any degree of accuracy. But, with the development of technology, home price forecasting has never been easier or more precise. We will talk about how Python can be used to forecast home prices in this research article. Python is a well-liked programming language that has attracted a lot of notice lately because of how straightforward and adaptable it is. Python is a great option for price prediction since it has several libraries that offer strong capabilities for data analysis and machine learning.

The main goal of this research work is to create a Python model to forecast house values based on a variety of variables, including location, size, and other amenities. To create our model, we will use a real estate dataset that includes details on property costs, locations, square footage, the number of bedrooms and bathrooms, and other factors. The dataset will be cleaned up using a variety of data preparation techniques before being ready for analysis. The prediction model will then be constructed using machine learning techniques including linear regression, decision trees, and random forests. Using a variety of performance indicators, including mean absolute error, mean squared error, and R-squared, we will assess the precision of our model. The importance of this study rests in the possibility that real estate agents, buyers, sellers, and investors can all gain from precise predictions of house prices.

Real estate agents, property investors, and potential homebuyers can all benefit This study uses a variety of machine learning approaches to create a forecast model for home prices. The dataset used in this study contains a variety of characteristics, including the house's location, size, age, number of rooms, and amenities. The study looks at how well various regression techniques, including decision trees, random forests, and linear regression, forecast the price of homes. The location and size of the home are the two most important criteria, according to the study's examination of the significance of several features in determining house values. In order to make educated judgements on property prices, homeowners, real estate agents, and legislators can benefit from understanding the study's findings. In order to make educated judgements on property prices, homeowners, real estate agents, and legislators can benefit from understanding the study's findings from accurate house price prediction when making investment decisions, as well as when choosing which properties to buy. Real estate experts, property

investors, and potential purchasers will find the research findings useful.

Collaborator:

We must specify our goals, the datasets we plan to use, and the libraries we intend to employ.

We may take information from a real estate website or publicly accessible datasets from websites like Kaggle.The specific machine learning algorithm we'll employ should also be chosen.

The project might be divided into many components, and roles could be assigned based on individual strengths.

For instance, one person could concentrate on data preparation and cleaning, another person could concentrate on developing the machine learning model, and still another person could concentrate on developing a web application to present the outcomes.

This will make it simple for us to cooperate on the project and monitor developments.

We might arrange regular meetings to review the project's status and go over any emerging problems.
The project will advance and everyone will be on the same page as a result of this.

PROPOSED METHODOLOGY :

House price prediction is a popular application of machine learning, and Python provides a range of powerful libraries and tools for building predictive models. Here is a proposed methodology for a House price prediction project using Python

Collecting data is the first and most crucial step in any machine learning project. You can gather data from various sources like Kaggle, APIs, or scraping websites. A popular dataset for house price prediction is the Boston Housing dataset, which is available in scikit-learn.

Once you have the data, you need to preprocess it to make it usable for machine learning algorithms. This involves cleaning and transforming the data, handling missing values, and converting categorical variables into numerical values using techniques like one-hot encoding.
There are many machine learning algorithms that you can use for house price prediction, such as Linear

Regression, Random Forest, and XGBoost. You need to evaluate different models based on their performance metrics, such as Mean Squared Error (MSE), Root Mean Squared Error (RMSE), and R-squared score.

Once you have trained and tuned your model, you need to evaluate its performance on the test data. You can use various evaluation metrics like Mean Absolute Error (MAE), Mean Squared Error (MSE), Root Mean Squared Error (RMSE), and R-squared score.

Once you have a model that meets the desired performance, you can deploy it to a web application or mobile app. You can use Flask, Django, or FastAPI to create a web API that can serve predictions to users.
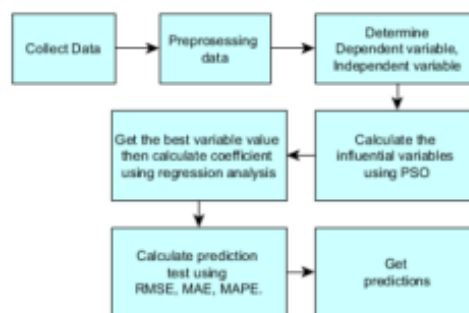
Overall, this proposed methodology provides a general framework for building a house price prediction model using Python. However, the specifics of the implementation may vary depending on the dataset, the features, and the chosen machine learning algorithm.

SYSTEM FRAMEWORK :

A system framework for a House price prediction project using Python typically includes the following components:

Data Collection: This component involves collecting data from various sources like APIs, databases, or web scraping. The data can be stored in a database or a file format like CSV, JSON, or Excel.

Model Training: This component involves selecting a suitable machine learning algorithm, tuning its hyperparameters, and training it on the training data. Some popular machine learning algorithms for house price prediction include Linear Regression.

Model Deployment: This component involves deploying the trained model to a production environment where it can serve predictions to end-users. This can be done using various frameworks like Flask, Django.

User Interface: This component involves creating a user interface where users can input the relevant features of the house and get a predicted price. The user interface can be a web application or a mobile app.

Monitoring: This component involves monitoring the performance of the deployed model and updating it with new data as it becomes available. It also involves logging errors and exceptions to identify issues that may arise during runtime.

Overall, this system framework provides a general outline of the components involved in building a house price prediction project using Python. However, the specifics of the implementation may vary depending on the project requirements and the chosen technologies.

CONCLUSION :

Using Python to evaluate the real estate market and deliver insightful data for buyers, sellers, and investors is a powerful strategy. It is feasible to develop precise and trustworthy models that can forecast property prices based on a variety of factors such as location, size amenities, and market trends with the aid of machine learning algorithms and statistical approaches.

REFERENCES

[1] W. T. Lim, L. Wang, and Y. Wang, ―Singapore Housing Price Prediction Using Neural Networks,‖ Int. Conf. Nat. Comput. Fuzzy Syst. Knowl. Discov., vol. 12, pp. 518–522, 2016.

[2] Y. Feng and K. Jones, ―Comparing multilevel modelling and artificial neural networks in house price prediction,‖ 2015 2nd IEEE Int. Conf. Spat. Data Min. Geogr. Knowl. Serv., pp. 108–114, 2015.

[3] H.-I. Hsieh, T.-P. Lee, and T.-S. Lee, ―A Hybrid Particle Swarm Optimization and Support Vector Regression Model for Financial Time Series Forecasting,‖ Int. J. Bus. Adm., vol. 2, no. 2, pp. 48–56, 2011.

[4]https://ieeexplore.ieee.org/document/9725552

[5]https://ieeexplore.ieee.org/document/8473231

[6]https://www.researchgate.net/publication/349477129_House_Price_Prediction