House Price Prediction System

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ABSTRACT

The housing sector has hike as it is the one of the basic need. Housing the main domain of real estate. In the major metropolitan cities and the cities with many prestigious Educational institutions and IT Parks have reasonable price increase in housing. Home buying plans can derails the family's financial planning and other goals. Now a day's house price changing rapidly according to various parameters. The buyer gets confused in choosing his dream home as difference in price making it challenging. Both the buyer and seller should satisfy so they do not overestimate or underestimate price. So to build the platform where buyer can find home according to its needs and friendly to its financial condition. House price prediction on different parameters is our goal. Doing that we are going to use regression algorithms using machine learning on dataset so it can extract features from dataset. Result of this approach provide maximum efficiency and minimum errors.

Keywords: House price prediction, Regression algorithm, Machine learning, Feature extraction.

I. INTRODUCTION

The real estate's is not only the living requirement; it also represents the personal wealth and glory. In addition, the real estate's price fluctuation may impact the households 'investment and consumption situation. It is also an important impact factor for investing company, real estate's developer, banker and policy makers. Hence, it can be concerned as an important economic index. How to establish the real estate's price variation prediction model is an interesting research topic.

Studies on housing market forecasting investigate the house values, growth trend, and its relationships with various factors. The improvement of machine learning techniques and the proliferation of data or big data available have paved the way for real estate studies in recent years. There is a variety of research leveraging statistical learning methods to investigate the housing market

In India, the property is sold as per the wish of seller. Thus, it is a biased procedure to buy a house in India since there is no standard way to list the selling price of the property. Very less work on real estate valuation is done in India. People in India believe on what is shown on the mass media. But mass media can manipulate the content as per their convenience and profits. So we require a trusted medium which can predict the house prices with noteworthy precision and least mistake. Here we are proposing a model which predicts house prices based on various factors affecting on house price using machine learning.

Problem Statement:

To design and implement a web based application which predicts price of houses by considering many factors effecting on price and suggest basic architectural plan for houses

II. METHODS AND MATERIALS

This paper seeks useful models for house price prediction. It also provides insights into the Cities Housing Market. Preparation of original data is the first step and then it transformed into a cleaned dataset ready for analysis. Stepwise and PCA techniques are used for data reduction and transformation. Data reduction is done to minimize data by eliminating the useless, noisy data. Transformation transform the data into single format so the operation can be done on it. Different methods are then implemented and evaluated to achieve an optimal solution. The evaluation phase is the combination of Step-wise and Support Vector Machine (SVM) model and it's a competitive approach. Therefore, it could be used for further deployment. This research can also be applied for transactional datasets of the housing market from different locations across country. [1].

A system is developed which can predict the actual price of house using regression algorithm. The system makes use of Linear Regression, Forest regression, and Boosted regression algorithms. For increasing the efficiency of algorithms the neural network is used. The system will satisfy customers by providing accurate output by considering the input given by customer and preventing the risk of investing in the wrong house. Without disturbing the core functionality of the system additional features can be added to the system. Additional features are added accordingly to the need of customer .A major future update could be the addition of larger cities to the database, which will allow our users to explore more houses in order to get maximum profit, get more

accuracy, minimize errors and risk thus come to a proper decision. [2].

The Radial Basis Neural Network (RBF) and Back Propagation Neural Network (BPF) neural networks are introduced to model the complicated correlation function between macro-economic parameters variation and house price index variation. 40 seasons leading data sets are used to employed on training the neural network. Then, the less 13 season's data sets are used to evaluate the prediction accuracy between Neural Network (NN) model output and the Cathay or Sinai house price index. The results of data analysis show that the house price variation prediction results is not accurate enough. However, for establishment of investor, developer and government reference house price prediction trend is used. [3].

The large set of data can be analyzed by series analysis. In addition to the parameters mentioned in the research paper, we could use dynamic parameters like inflation rate, GDP which has a huge impact on the real estate prices. This study can be extended in several ways. First, it could be desirable to investigate other problem domains like real estate market prediction, interest rate, economic growth rate and stock price index forecasting to generalize and improve the results. This system will be helpful to many people once it gets deployed. However, practical implementation of this system comes with a various challenges. The dataset used is bound to get outdated after sometime due to various reasons like changes in government policies, geographical changes in that area and therefore needs to be constantly updated which is hard to do. Graphical User Interface of the system uses the English language. Those who are not familiar with this language would find it difficult to interact and use the system effectively and unable to understand the system and may be not able to used its full functionality. Including the all languages for the Graphical User Interface (GUI) can be hard. [4]

System Feature 1

The system will help non-technical people in learning sql queries using voice and text.

System Feature 2

User can fire their own queries for demo database using voice or text.

System Feature 3

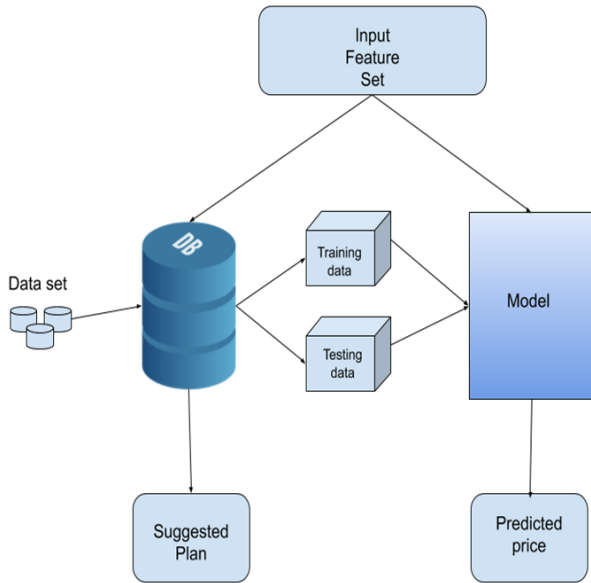User can also search their query in Wikipedia.

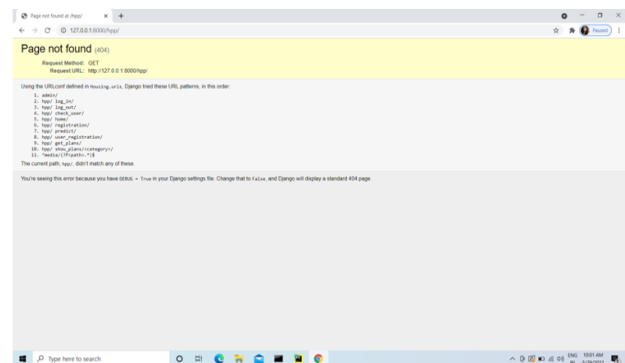Fig 1. System architecture

III. RESULTS AND DISCUSSION

Fig 2.

There are two parts in our project the admin and the user part as shown in above picture.
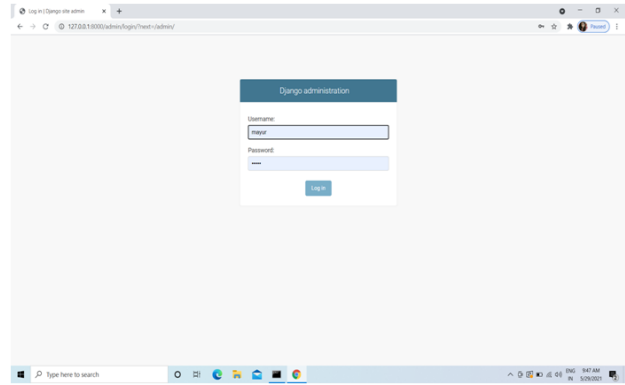
Now we can see the admin part

Fig 3.

This is the admin log in page.
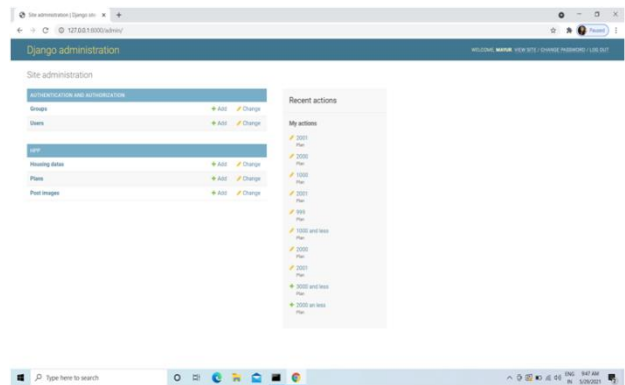
Fig 4.

In this picture we can see the admin authorities i.e. admin can control the whole project and access the databases, make changes, add and remove users, watch the datasets seen by the users, add plans etc.
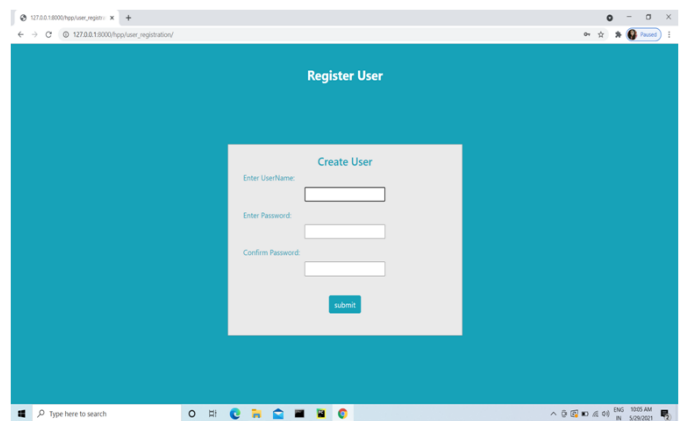
Fig 5.

On this step system ask the user to register himself for accessing the further data. Once the user finish

registration he will be asked to log in again using registration id and password. In the below photo shows log in page for user.
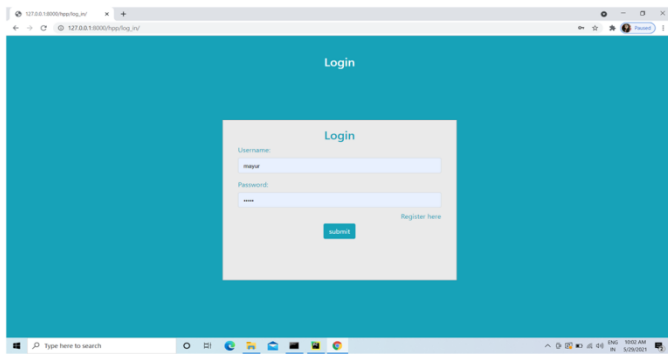

Fig 6.

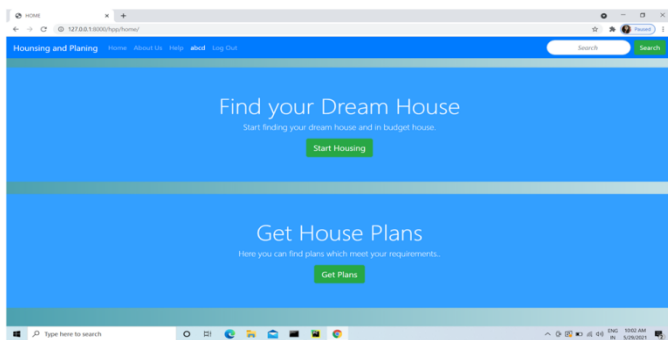Now the next part is selecting the criteria.

Fig 7.

After log in of user he will see the 2 options "Find your Dream House" and "Get house plans".
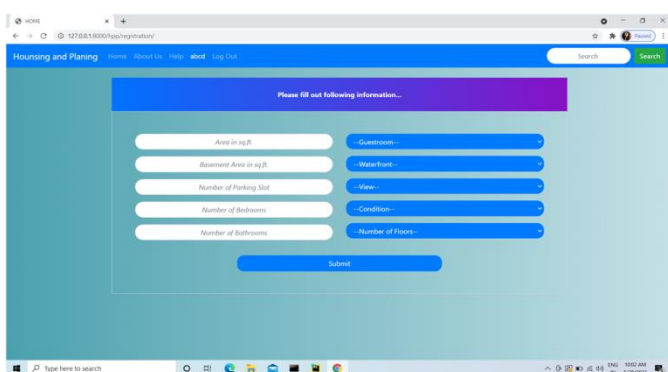Lets see the first part.

Fig 8.

On this step the software asks   user his requirements like how much area of house he wants, Area of
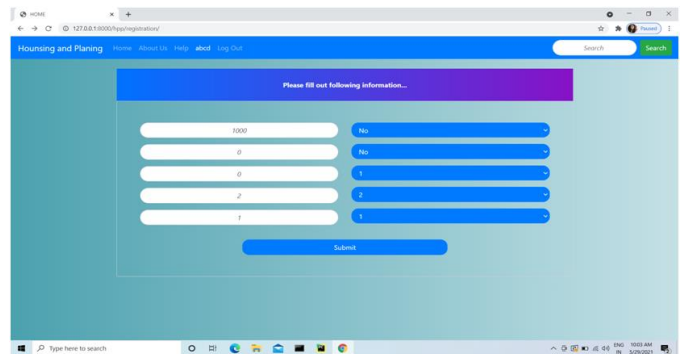
basement, number of bathrooms, guestrooms, parking lots etc.

E g.

Fig 9.

This is the data filled by user.

On the next step it will predicts the approximate price of house as per given requirements of user.
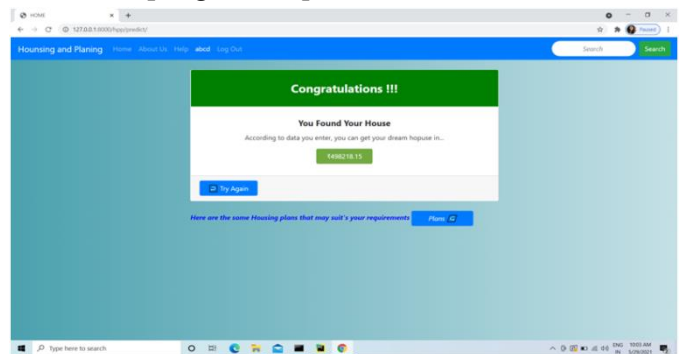

Fig 10.

From this step user can go back and do another search or get the plans for his house as per the area he gave in the requirements. Below image shows that
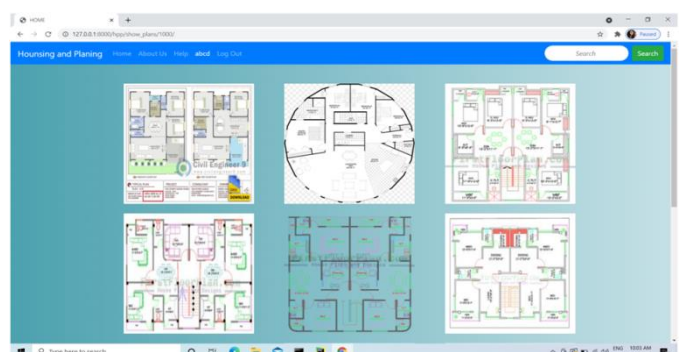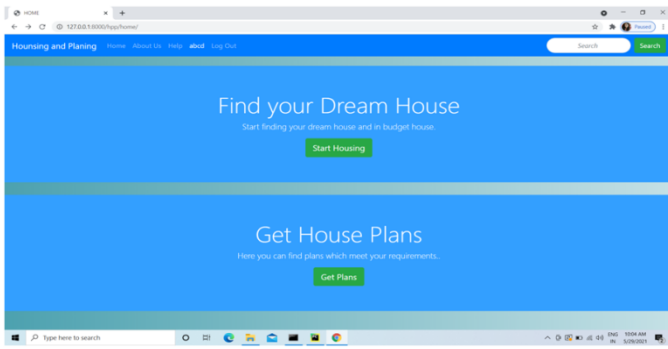

Fig 11.

Now the second part '"get plans"

Fig 12.

It shows the various category plans added in the database
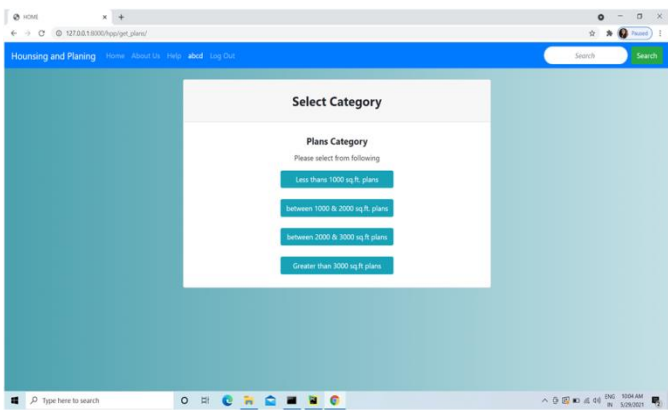

Fig 13.

It has four types less than 1000 sq. ft. 1000 to 2000 sq. ft. 2000 to 3000 sq. ft. and the last more than 3000 sq. ft.

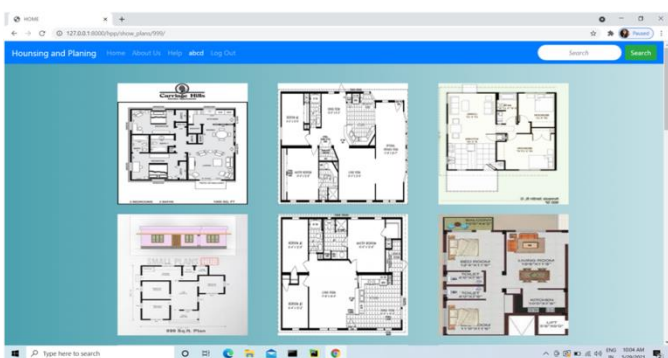Below images shows the plans for types.
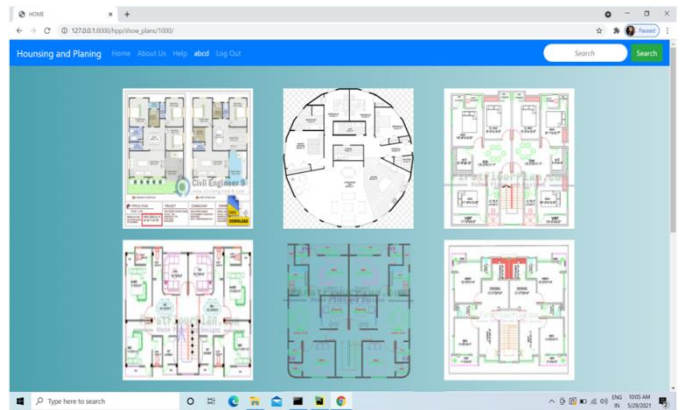

Fig 14. 1000sqft plans
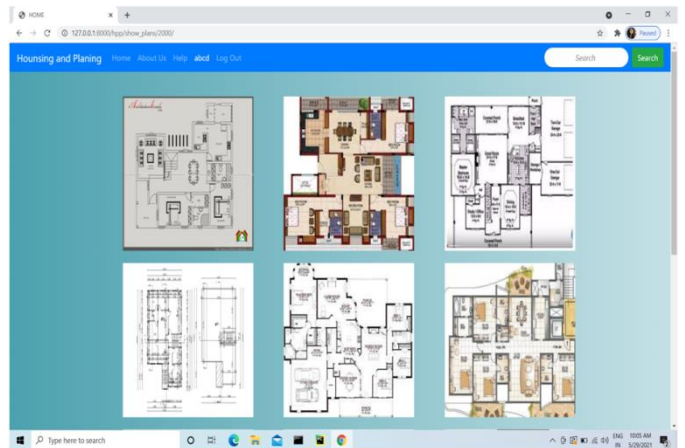

Fig 15.1000 to 2000 sq. ft. plans

Fig 16. 2000 to 3000 sq. ft. plans

IV.CONCLUSION

Machine learning is very useful for finding the relation between the attributes and building the model according to the relation that attributes contain. By using regression algorithm which is part of machine learning the house price prediction can be done. House price prediction helps the customer to buy its dream house among the different price variation, attributes and needs. Algorithm find relation among the training data and the result is applied on test data which will be users input. According to attributes specified the plans gets provided.

V. REFERENCES

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