A COURSE PROJECT REPORT

[18CSC305J-ARTIFICIAL INTELLIGENCE]

HOUSE PRICE PREDICTION

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BONAFIDE CERTIFICATE

Certified that this project report "House Price Prediction" System is the bonafide work of **" S.HARSHADH(RA2011030010182), M.VIJAY KIRAN REDDY(RA2011030010187), M.RUSHISHWAR REDDY(RA2011030010195)"** of III Year/VI Sem B.tech(CSE),who carried out the mini project work under my supervision for the course 18CSC305J- Artificial Intelligence in SRM Institute of Science and Technology during the academic year 2022-2023(Even sem).

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ABSTRACT

The sales of the houses are determined on various factors like the location, area, population and some of the information to predict the indiviual housing price. In addition to these housing prices, the prediction of the housing prices can greatly assist in the prediction of the future housing prices of the real estate.This study uses the machine learning algorithms and technology as a research methodology to develop a housing price prediction. Many algorithms are used here to effectively increase the precentage of the prediction which is considered as the best models in the price prediction. This project shows us that the machine learning algorithm based on accuracy,consistency out performs the other in the performance of the housing price prediction.

The project can be created using python(AI/ML),HTML,CSS,JSS.Python is used for writing the Machine Learing Algorithms .HTML,CSS and JS is used for designing the front end of the system.

At last,I can conclude y saying that House Price Prediction system will be very helpful in detecting the prices of the houses and keeping the record of the high and low of the prices.So it will help the user to know the real price of the property,it could not be used for any fraud means.

CHAPTER 1

INTRODUCTION

Earlier, it's a very popular and common practice to price the property without the proper evaluation of the land, infrastructure etc. We need a proper prediction on the real estate and the houses in housing market we can see a mechanism that runs throughout the properties buying and selling buying a house will be a life time goal for most of the individual but, There are lot of people making mistake in india as most of the people are buying properties from the people they don't know by seeing the news all around them.
In India, people buy properties which are too expensive but it's not worth it.
In the housing market 2016 the house sold in India was about 80 lakh but the real price according locality and size was about 60 lakh.

In earlier year, there was an economic collapse that give the clue to the impending disaster,this situation is currently happening and the prices of houses are getting higher compared to current economic situation of our country, the indian government fails to produce the data about the houses so it was very difficult for peoples to buy the properties. Therefore, the people searched on internet for the evidence for house price.

Many methods have been used in the price prediction like advance regression in this I am trying to predict the real estate price for the future using the machine learning techniques with the help of the previous works. I have used the multiple regression and more algorithms with different tools to predict the house price. The purpose of this paper is to establish the proper data prepocessing practices in order to increase the accuracy of machine learning algorithms.

Fig 1. Proposed Methodology

CHAPTER 2

LITERATURE SURVEY

The real estate market is one of the most competitive in terms of pricing and same tends to be vary significantly based on lots of factor, forecasting property price is an important modules in decision making for both the buyers and investors in supporting budget allocation, finding property finding stratagems and determining suitable policies hence it becomes one of the prime fields to apply the concepts of machine learning to optimize and predict the prices with high accuracy.

The literature review give the clear idea and it will serve as the support for the future projects.most of the authors have concluded that artificial neural network have more influence in predicting the but in real world there are other algorithms which should have taken into the consideration. Investors decisions are based on the market trends to reap maximum returns. Developers are interested to know the future trends for their decision making, this helps to know about the pros and cons and also help to build the

project. To accurately estimate property prices and future trends, large amount of data that influences land price is required for analysis, modelling and

forecasting. The factors that affect the land price have to be studied and their impact on price has also to be modelled. It is inferred that establishing a simple Regression linear mathematical relationship for these time-series data is found not viable for prediction. Hence it became imperative to establish a non-linear model which can well fit the data characteristic to analyse and predict future trends. As the real estate is fast developing sector, the analysis and prediction of land prices using mathematical modelling and other techniques is an immediate urgent need for decision making by all those concerned.

Fig. 1. Factors affecting real estate

CHAPTER 3

SYSTEM ANALYSIS

3.1 REQUIRED TOOLS

- **3.1.1 Hardware Requirements**

  - Processor – (minmum)i3
  - Hard Disk – 2 GB
  - Memory – 1GB RAM

- **3.1.2 Software Requirements**

  - Windows 7(ultimate, enterprise)
  - Visual studio (Latest)
  - Python
  - Jupyter

IMPLEMENTATION

The main goal of the project is to find out the accurate predictions of the houses/ properties present in the Bengluru for the next upcoming years.Here are the step by step process involved

1. Requirement Gathering – We have to gather the information extract the main information from it.
2. Normalizing the data
3. Detecting Outliners in the data
4. Analysis ad visualualisation using the data

The Extracted Data is :-

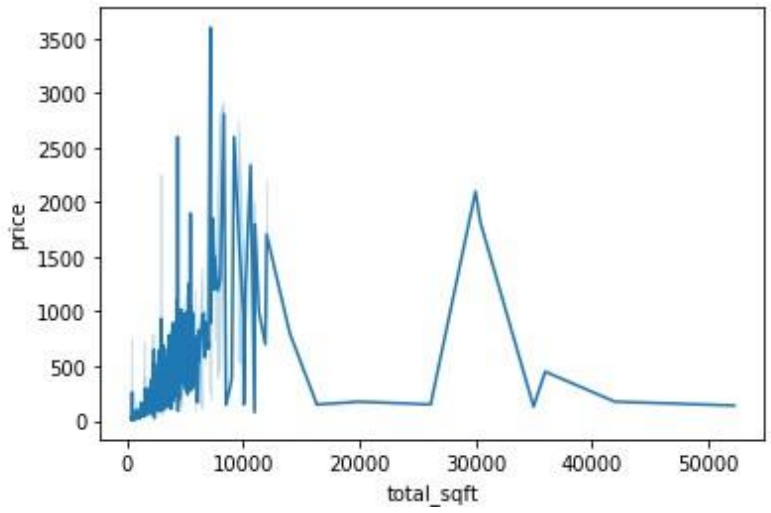
In [42]:
```
data.head()
```

Out[42]:

	location	size	total_sqft	bath	price	bhk	price_per_sqft
0	Electronic City Phase II	2 BHK	1056.0	2.0	39.07	2	3699.810606
1	Chikka Tirupathi	4 Bedroom	2600.0	5.0	120.00	4	4615.384615
2	Uttarahalli	3 BHK	1440.0	2.0	62.00	3	4305.555556
3	Lingadheeranahalli	3 BHK	1521.0	3.0	95.00	3	6245.890861
4	Kothanur	2 BHK	1200.0	2.0	51.00	2	4250.000000

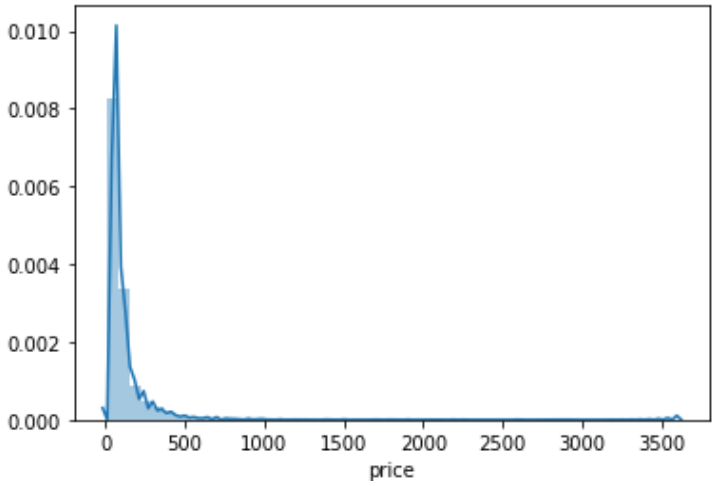
Project Graph-

In [81]:
```
sns.lineplot(x="total_sqft",y="price",data= data)
plt.show()
```



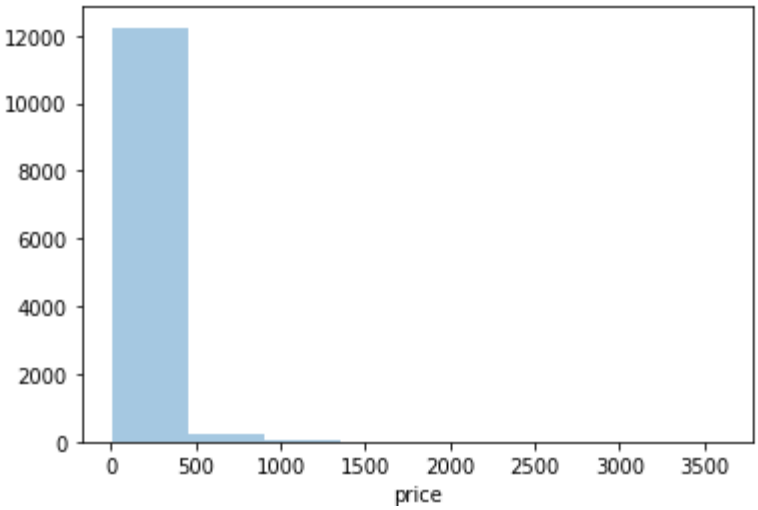
In [51]:
```
sns.distplot(data['price'])
```

Out[51]:
```
<matplotlib.axes._subplots.AxesSubplot at 0x1509399cd08>
```

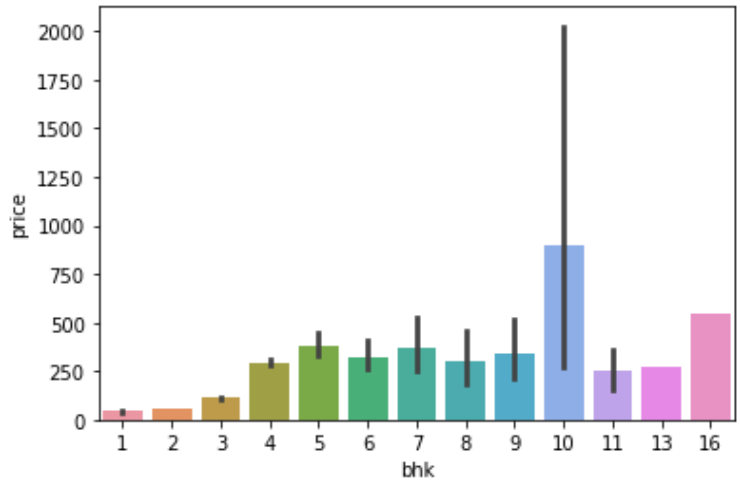


In [85]:
```
sns.distplot(data['price'], kde=False, bins=8)
```

Out[85]:
```
<matplotlib.axes._subplots.AxesSubplot at 0x1de78cb4108>
```



```
In [80]: sns.barplot(x="bhk", y="price", data=data)
Out[80]: <matplotlib.axes._subplots.AxesSubplot at 0x1de77c58748>
```



3.2 EXISTING SYSTEM

There are many existing approaches that can be used to determine the prices of the house,one of them is prediction analysis.

The first approach looks for the time-series data.The time-series approach is to look for the relationship between current prices and prevaling prices.The existing system calculates the price of the house without knowing the information for the future and necessary prediction.This project House Price Prediction helps the people who wanted to buy the house so they can know the price range in the future.

House price prediction also helps the property dealer to know the worth of the property in future.

3.3 PROBLEM FORMULATION

- Price of house/property is linked to our economy,Due to availablity of the huge data we do not have the accurate prices.

- Wanted to help the people to know the worth of their owned property in future.

Therefore, the goal of this project is to use machine learning and to predict the selling prices of the houses based on locality and many more economic factors.

3.4 PROPOSED SYSTEM

The main aim or focus of our project is to predict the accurate price of the real estate properties present in India for the next upcoming years through different Algorithms.

A.) Linear Regression

It is a supervised learning technique and responsible for predicting the value of a dependant variable (Y) based on the given independent variable (X).It is the relationship between the input(X) and output(Y) .

B.) Multiple correlation Analyis

It helps to take out the maximum degree of linear relationship that can be obtained between two or more independent variables and a single dependant variable

C.) Clasiification Trees

Classification Trees are used to predict the objec into classes of a categorial dependant variable based on the one or more predictor variables.

Technology used

A.) Data Science :-

Data science is the first stage in which we take the dataset and will do the data cleaning on it.We will do the data cleaning to make sure that it provides the reliable predictions.

B.) Machine Learning:-

The cleaned data is fed into the machine learning model, and we do some of the algorithms like linear regression , regression trees to test out our model.

C.) Front End (UI)

The front end is basically the structure or a build up for a website. In this to receive an information for predicting the price .

It takes the form data entered by the user and executes the function which employes the prediction model to calculate the predicted price for the house.

Chapter: -4

Conclusion: -

The main aim of this project is to determine the prediction of prices.In this paper, we have discovered many algorithms and application of machine learning techniques with the objective of buying the real estate properties and to predict the woth in the future of the owned real estate properties.

Price can be predicted through many factors like the surrounding, marketplaces and many related factors with the house.We have first cleaning and exploring of the input data. The predicted data can be stored in the database and app or website can be made for the people, as people can have the brief idea of the property.

We have performed ensembles of regression trees,k-nearest neighbors ,multi-linear regression as we understand that parameterization of the can drive the significant result in the performance.

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