VEMANA INSTITUE OF TECHNOLOGY

(Affiliated to VTU and approved by AICTE)

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Internship Seminar Presentation

On

"House Price Prediction"

Presented By:

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VIII Sem 'A' Section

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Contents

Abstract

- House price prediction is crucial for the establishment of real estate policies..
- It can help real estate owners and agents make informative decisions.
- The aim of this project is to employ actual transaction data and advanced machine learning models to predict real estate prices more accurately.
- Machine learning-based models offer a substantial and feasible approach to forecast real estate prices, leveraging their ability to analyze large datasets, identify complex patterns, and make accurate predictions.
- By analyzing features such as location, area type and property size, the models can capture the underlying factors that influence house prices in Bangalore.

Organization overview

- Vivarttana is formed by indigenous & innovative Team of Corporate and Educationists.
- It firmly believes in setting a benchmark in Software Applications & Product Development and transforming individuals to build their passionate dream career.
- Their motto is to explore & address various Socio-Economic Business Problems with their unique solutions & in Education wing to connect “Right talent” to the “Ample Opportunities”.

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Introduction

- A platform where house buyer can get proper information regarding the house price.
- House price depends on many factors like age of the house, number of bedrooms, area population etc.
- Data can be extracted from the web or any application and saved to a database or CSV file.
- Converting the raw data into a clean data set which meant as Data Cleaning.
- Various algorithms like linear regression , support vector regression and decision tree are applied to predict the accuracy of house prices.

Results

In [2]:
```
df1 = pd.read_csv("bengaluru_house_prices.csv")
df1.head()
```

Out[2]:

	area_type	availability	location	size	society	total_sqft	bath	balcony	price
0	Super built-up Area	19-Dec	Electronic City Phase II	2 BHK	Coomee	1056	2.0	1.0	39.07
1	Plot Area	Ready To Move	Chikka Tirupathi	4 Bedroom	Theanmp	2600	5.0	3.0	120.00
2	Built-up Area	Ready To Move	Uttarahalli	3 BHK	NaN	1440	2.0	3.0	62.00
3	Super built-up Area	Ready To Move	Lingadheeranahalli	3 BHK	Soiewre	1521	3.0	1.0	95.00
4	Super built-up Area	Ready To Move	Kothanur	2 BHK	NaN	1200	2.0	1.0	51.00

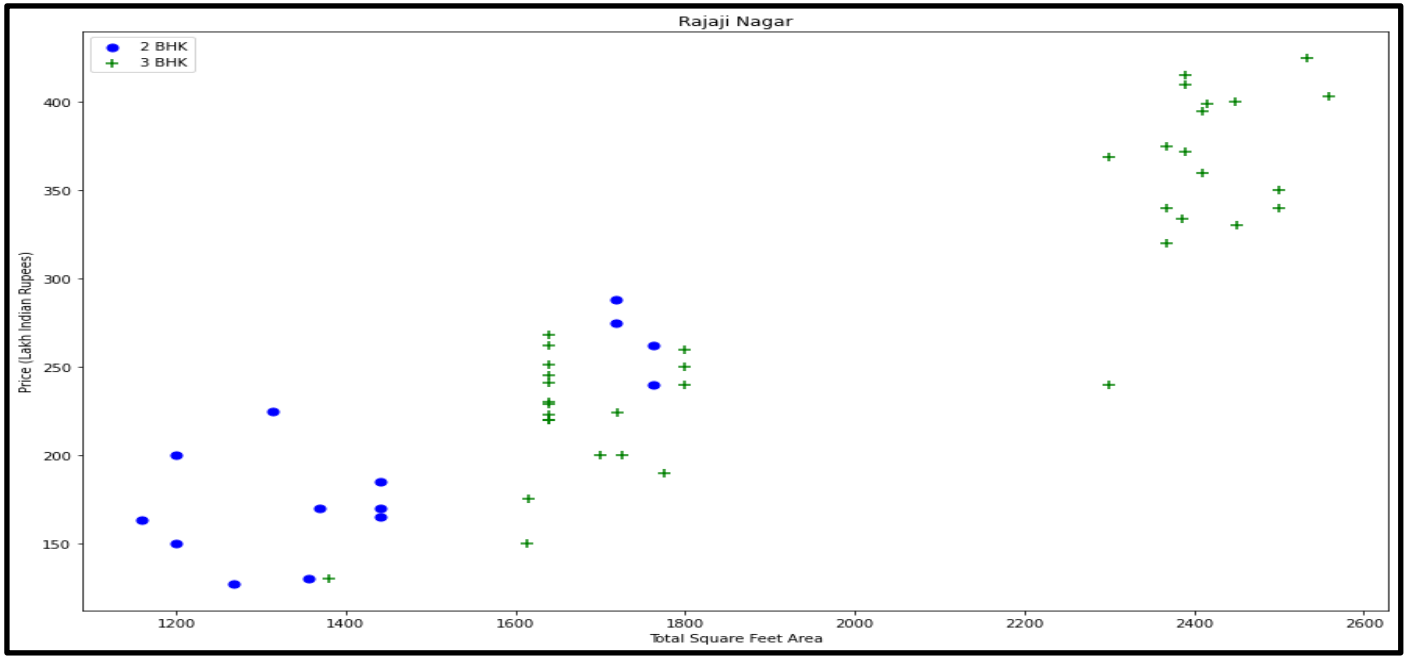
In this, **read_csv** is used to read CSV files and **head()** function is used to obtain the first n rows. This function retrieves the object's first n rows based on location.

Results

```
In [8]:  df2.isnull().sum()
Out[8]:  location     1
         size        16
         total_sqft   0
         bath        73
         price        0
         dtype: int64

In [9]:  df2.shape
Out[9]:  (13320, 5)

In [10]: df3 = df2.dropna()
         df3.isnull().sum()
Out[10]: location     0
         size         0
         total_sqft   0
         bath         0
         price        0
         dtype: int64

In [11]: df3.shape
Out[11]: (13246, 5)
```

Data cleaning is performed where isnull and dropna functions are used to check and remove the missing values respectively.

Results



Data visualizing for a given location to show, how the 2 BHK and 3 BHK property prices look like

Results

Out[61]:

	model	best_score	best_params
0	linear_regression	0.847796	{'normalize': False}
1	lasso	0.726741	{'alpha': 2, 'selection': 'random'}
2	decision_tree	0.742035	{'criterion': 'mse', 'splitter': 'random'}

Finding best model using gridsearchCV. As in the output ,linear regression is considered as best model to price of house.

Conclusion

- With several characteristics, the suggested method predicts the property price in Bangalore.
- We experimented with different Machine Learning algorithms to get the best model.
- When compared to all other algorithms, Linear Regression achieved the greatest performance in terms of predictive accuracy.
- Most of the organizations are already implementing machine learning technology as it generates more accurate and consistent processes that are less prone to errors.

Bibliography

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- https://www.dataquest.io/blog/top-10-machine-learning-algorithms-for-beginners/

THANK YOU