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Project Guide

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Topic : House Price Prediction

- Mini Project (2B)

Contents

1. Introduction

- **Problem Identified:**
  - **Incorrect House Prices**
  - **Property Condition**
  - **Neighborhood Factors**
  - **Illegal Documents**

- **Solution Proposed:**
  - **The convenience**
  - **Access anytime (24/7)**
  - **Genuine House Prices**
  - **Cost Saving**
  - **Legal Documentation**

2. Objectives

- To provide a better and fast way of performing operations regarding house price
- To provide proper house price to the customers
- To eliminate need of real estate agent to gain information regarding house prices
- To provide best price to user without getting cheated
- To enable user to search home as per the budget

3. Scope

- The website will collect real-time data related to house prices in given area
- The data would be obtained from local government, property agents and other relevant sources
- The website will analyze the collected data and use it to predict house prices in given areas
- The website should have a friendly user interface that allows users to easily search for house prices
- Collecting user feedback and incorporating it into the house price prediction model for more accurate results

4. Literature Survey

Sr.no	Title	Author(s)	Year	Outcomes	Methodology	Result
1	A Review of House Price Prediction Models	Luo et al.	2020	ML models are effective in predicting house prices, with neural networks outperforming other models. Factors such as location, size, and the number of rooms are the most important features for predicting house prices.	Review and analysis of research papers and articles related to house price prediction models. Comparison of machine learning models based on various metrics.	Neural networks are the most effective model for predicting house prices.
2	A Comparative Study of Regression Techniques for House Price Prediction	Kumar and Kumar	2018	Random forests outperform other regression techniques in predicting house prices.	Collection of house prices and features dataset from a real estate website. Comparison of various regression techniques	Random forests are the most effective regression technique for predicting house prices.
3	House Price Prediction Using Machine Learning: A Comparative Study	Deshmukh et al	2019	The k-nearest neighbors algorithm outperforms other ML algorithms in predicting house prices. Feature selection and feature engineering significantly improve the accuracy of the models.	Comparison of various machine learning algorithms on the dataset. Feature selection and feature engineering performed to improve model accuracy.	The k-nearest neighbors algorithm is the most effective machine learning algorithm for predicting house prices.

5. Proposed System

- **Help or Feedback Column**

  -If any customer has issue regarding quality of service etc. can contact us on help or feedback Column

- **Neighborhood analysis**

  -Analyze the surrounding neighborhood to determine its impact on a property's value

- **Property Comparison**

  -It allows buyers to compare prices, features, and locations of different properties, making it easier to find the one that best fits their needs and budget

6. Outcome of Project

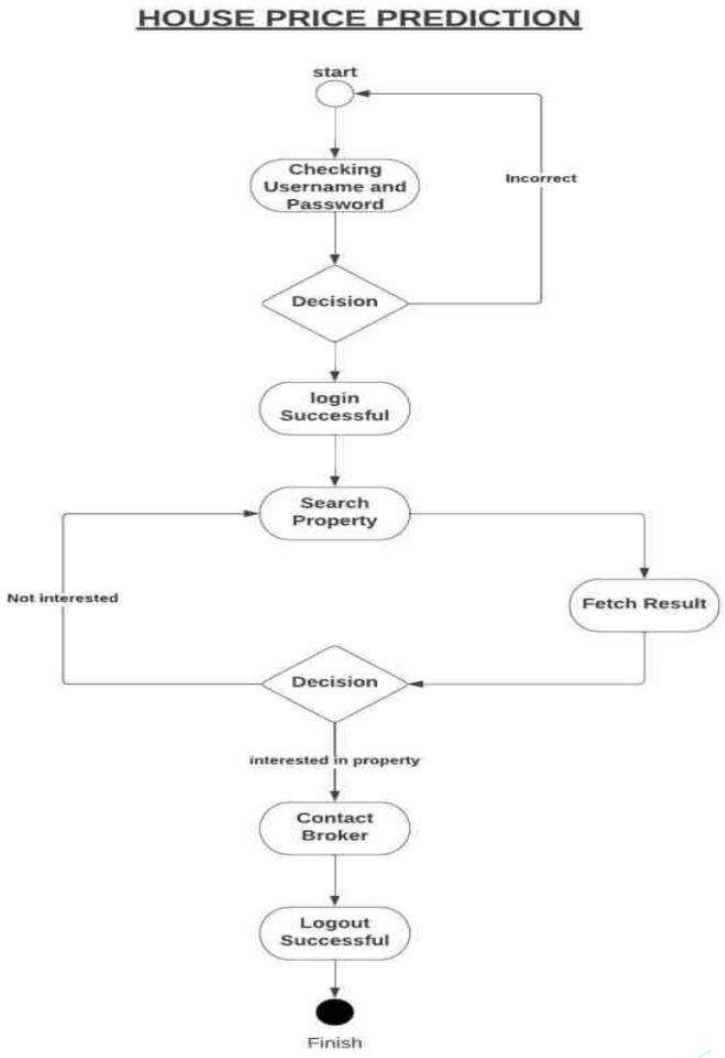
- Users can login/register
- User will be able to file a Complaint and can give a feedback
- User can find out costs of various properties and areas
- User can compare multiple properties to find the best property which fits in their needs and budget
- Users will be aware of overall development of the surrounding areas and properties that they are interested

7. Algorithm Used

Linear Regression in Machine Learning

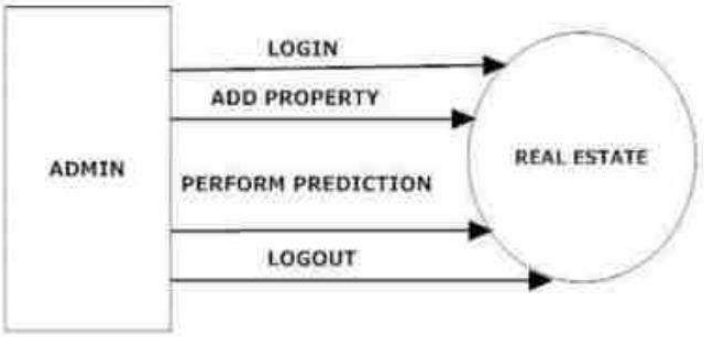
1. **Linear regression is a statistical method used to model the relationship between one or more independent variables and a dependent variable.**
2. **The objective of linear regression is to find the line of best fit that describes the relationship between the variables. This line can be used to make predictions about the dependent variable based on the independent variables.**
3. **Linear regression assumes that there is a linear relationship between the dependent variable and the independent variables. If the relationship is nonlinear, other regression models may be more appropriate.**
4. **Linear regression can be used for both simple regression (one independent variable) and multiple regression (two or more independent variables).**
5. **Linear regression can be used in a wide range of applications, including business, finance, social sciences, and engineering. Some common use cases include predicting sales, estimating stock prices, and analyzing the impact of marketing campaigns.**

8. Block Diagriam



9. Use Case Diagram

9b. Dataflow Diagram



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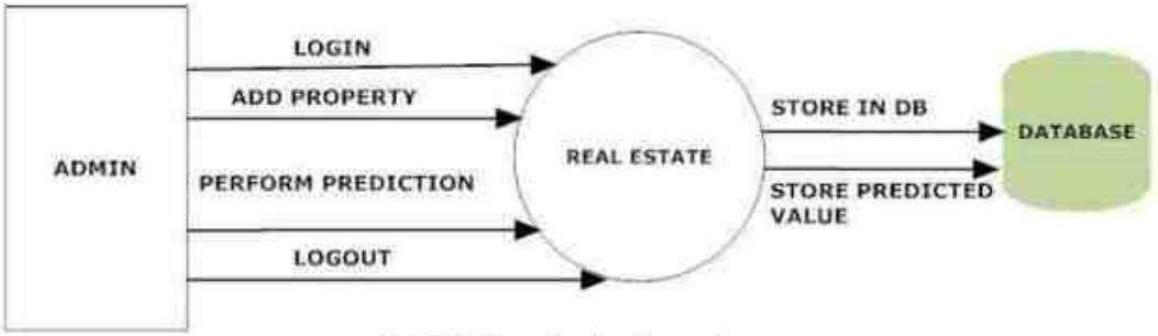

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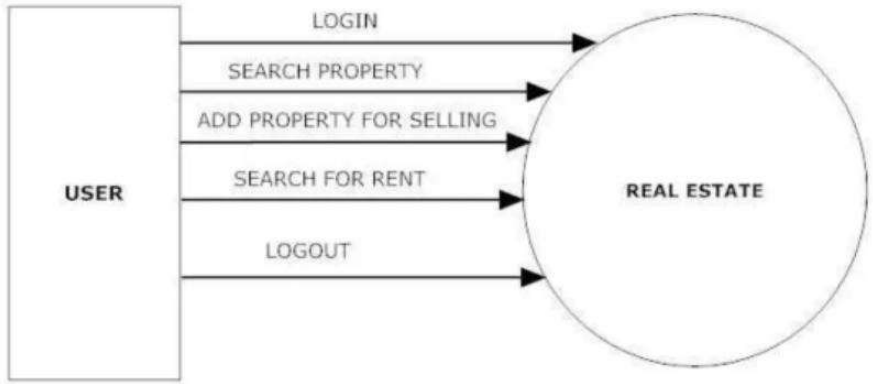
9c. Dataflow Diagram



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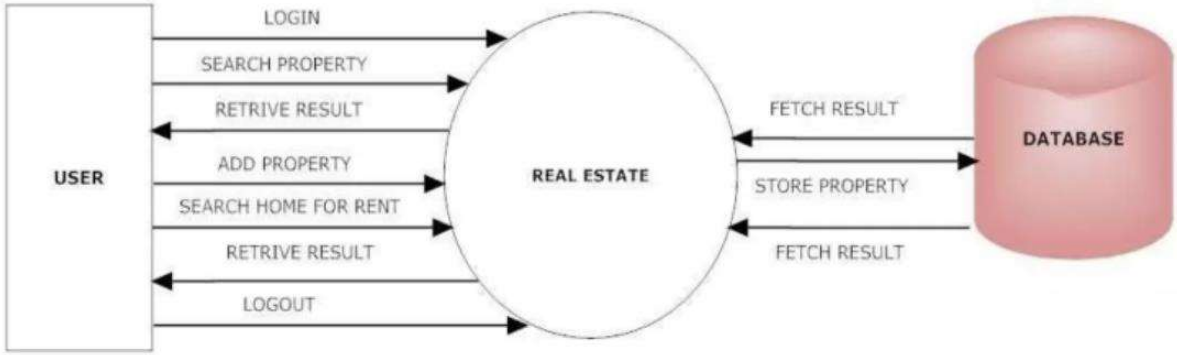


DFD level 1(user)

10. Technology Stack

- **Web application built on**

HTML CSS

Pandas

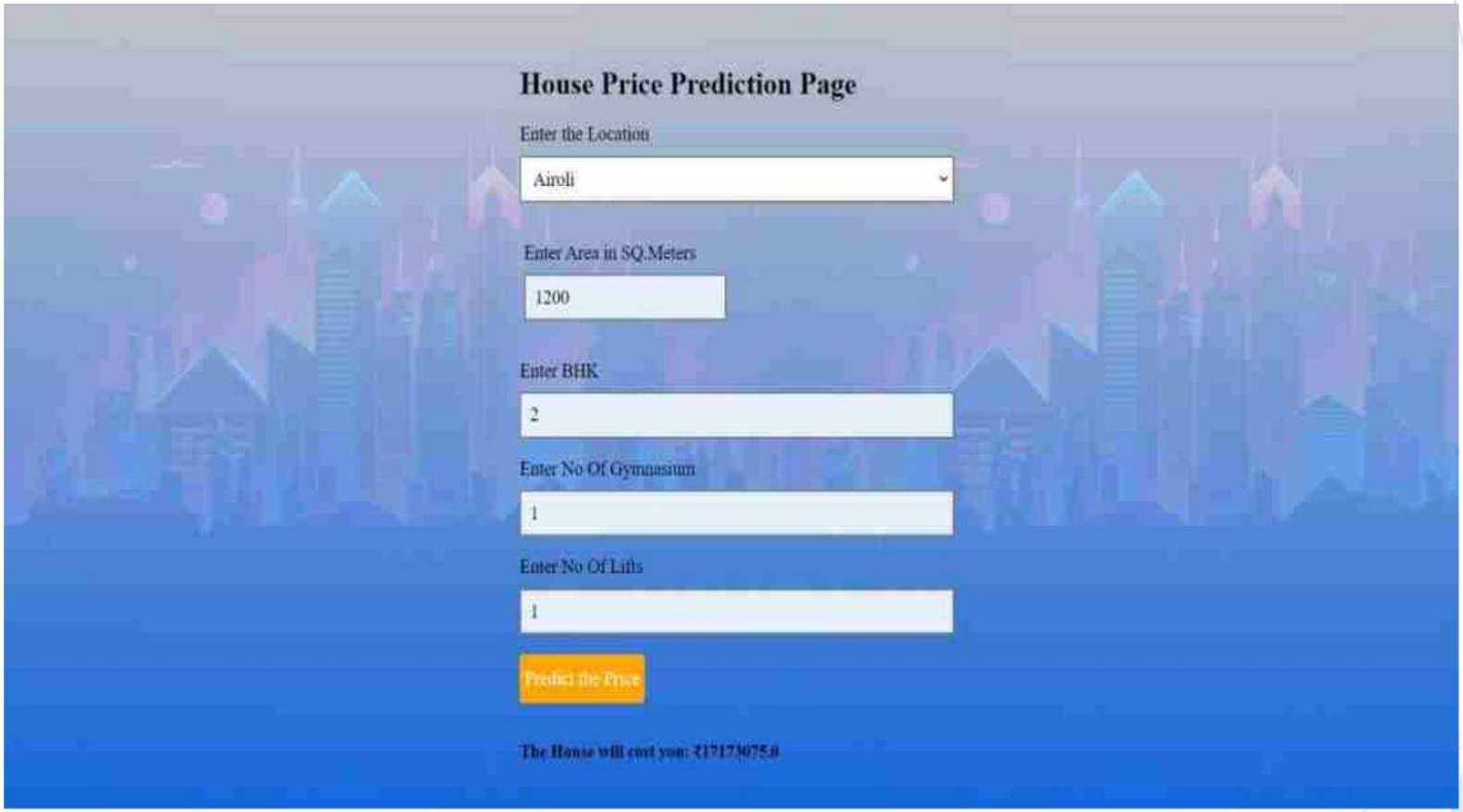
NumPy

XAMPP

11. Suggestion in Review - 1

- **To Add different parameters for predicting the house price**
- **Change in The Literature Review**
- **Change in GUI**

12. Result and Discussion


House Price Prediction Page
Enter the Location
Airoli
Enter Area in SQ.Meters
1200
Enter BHK
2
Enter No Of Gymnasium
1
Enter No Of Lifts
1
Predict the Price
The House will cost you: ₹17173075.0

13. Conclusion and Future Scope

- **The house price prediction app has the potential to be a useful tool for both buyers and sellers in the real estate market.**
- **It could provide accurate estimates of house prices based on relevant features, helping buyers make informed decisions and sellers set appropriate prices.**
- **In terms of future scope, there are several areas where the app could be improved and expanded.**
- **Area for improvement could be to expand the app to include additional data sources and features, such as crime rates or school district information, to provide a more comprehensive view of the factors that impact house prices.**

References

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- [5] Y. Zhang, J. Ma, J. Wei, and Y. Wang, "Research on House Price Prediction Based on Improved Random Forest Algorithm," in 2020 3rd International Conference on Artificial Intelligence and Big Data (ICAIBD), 2020, pp. 316-319.


THANK YOU