

**REAL ESTATE PRICE PREDICTION**  
**PROJECT SYNOPSIS**  
**Mini Project (KCA 353)**  
**Degree**  
**MASTER OF COMPUTER APPLICATION**

**PROJECT GUIDE:**

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## **1 Project Title**

Real Estate Price Prediction

## **2 Domain**

Artificial Intelligence/Machine Learning

## **3 Problem Statement**

In the world of buying and selling homes, it's tough to know exactly how much a property is worth. This makes it hard for people who want to buy, sell, or help others with their properties. The problem is that there's not enough good information available about how much homes should cost.

For instance, when someone wants to buy a house, they might not know if the price they're paying is fair because they don't have all the right information. The same goes for someone trying to sell—they might not be sure how much their house is worth. Even the people who work in real estate, like agents, can struggle because they don't always have all the info they need.

To fix this, we need a smart system that can predict how much a house is worth. This system would look at lots of things like where the house is, how big it is, what special features it has, and what the market is like. By using this system, buyers, sellers, and agents could have a better idea of what a fair price for a house should be. This way, everyone involved can make smarter decisions about buying and selling homes.

## **4 Project Description**

Food, clothing, and shelter are fundamental for human sustenance and productivity. Housing, particularly, plays a pivotal role in fostering human resource development within an economy. It stands as a cornerstone of essential needs, impacting the physical well-being and efficiency of individuals. The housing dilemma is a universal experience, with many considering it a significant life investment, often aspiring for their dream homes at substantial costs.

Predictive models, particularly driven by machine learning, have revolutionized various sectors. By leveraging valid datasets, machine learning models decipher

the significance of specific events within systems, thus predicting outcomes based on learned patterns. From stock price forecasts to seismic activity predictions and sales projections, the applications are limitless.

Our research project focuses on harnessing machine learning techniques to predict real-time house prices in various cities across Karnataka. By considering essential parameters like square footage, bedroom and bathroom counts, flooring type, and location specifics, our model aims to offer accurate predictions. The dataset used in our analysis encompasses diverse scenarios to ensure reliable outcomes across different conditions.

Through this project, we aim to provide a robust predictive tool that aids individuals and stakeholders in making informed decisions within the real estate market, ultimately empowering them to navigate the housing landscape with greater clarity and confidence.

## **4.1 Scope of the Work**

The Real Estate Price Prediction model helps buyers to choose a house based on their financial status and saves the time of searching for the house. This helps the seller to know the value of their property better and avoids the brokers.

## **5 Implementation Methodology**

### **Phase 1 - Data Collection and Cleaning:**

- Gather data from multiple real estate websites, focusing on attributes like location, carpet area, built-up area, age of property, zip code, etc.
- Check for inconsistencies, missing values, outliers, or duplicates in the collected data.
- Cleanse the data by handling missing values (imputation), removing duplicates, and correcting inconsistencies.

### **Phase 2 - Quantitative Data Collection:**

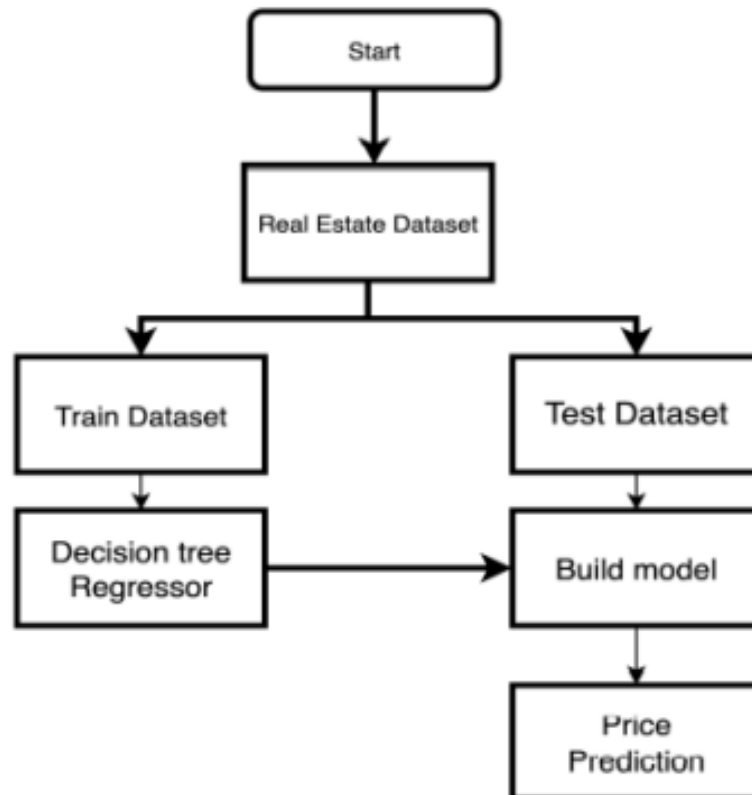
- Focus on collecting structured and numerical data for quantitative analysis.
- Ensure attributes are categorized correctly and represented in a structured format suitable for analysis.

### **Phase 3 - Feature Engineering and Selection:**

- Perform feature engineering to transform or derive new features from existing ones that could enhance the model's predictive power.
- Select pertinent features for the predictive model based on their relevance to property prices.

#### Phase 4 – Training The Model, Data Splitting and Validation:

- Split the dataset into training and validation sets to train the model on one subset and evaluate its performance on another.
- Validate the model's predictions against the validation set to assess its accuracy and generalizability.



## 6 Technologies to be used

**6.1 Software Platform** – Python Libraries Like Numpy and Pandas for Data Cleaning, Matplotlib for Data Visualization, Sklearn for Model Building, Anaconda, Jupyter Notebook, Chrome.

### 6.2 Hardware Platform

RAM – 4GB

OS – Windows 8 or Above

Hard Disk - 10MB

Processor – Core i5, Gen 10<sup>th</sup>

### 6.3 Tools

- **Pandas:** For data manipulation, handling datasets, and performing data analysis tasks.
- **NumPy:** For numerical computations and operations on arrays and matrices.
- **Matplotlib and Seaborn:** For data visualization, creating plots, charts, and heatmaps.
- **Scikit-learn:** For machine learning algorithms, including regression models, data preprocessing, and model evaluation.

## 7 Advantage / Impact of this Project

### Benefits of a House Price Prediction Model for Buyers and Sellers

For Buyers:

- **Informed Decision-Making:** The model assists buyers by estimating house prices based on their financial capabilities, aiding in making informed choices aligned with their budget.
- **Time Efficiency:** By providing price estimates for various properties, the model saves time that would otherwise be spent searching for houses that may not fit the buyer's financial criteria.
- **Streamlined Search:** Buyers can focus on properties within their predicted price range, narrowing down options and enhancing the efficiency of their house search process.

For Sellers:

- **Accurate Valuation:** Sellers gain a better understanding of their property's value through the model's predictions, ensuring they price their house competitively and fairly in the market.
- **Reduced Dependence on Brokers:** Access to accurate price estimations decreases reliance on intermediaries like brokers, allowing sellers to negotiate confidently and directly with potential buyers.
- **Improved Marketing:** Sellers can leverage predicted prices to tailor marketing strategies, highlighting the value of their property more effectively to potential buyers.

Overall Impact:

- **Transparency:** The model fosters transparency in real estate transactions by providing both buyers and sellers with reliable and data-driven insights into property values.
- **Efficiency:** By matching buyers with properties within their financial scope and aiding sellers in setting appropriate prices, the model streamlines the entire buying and selling process.
- **Empowerment:** Buyers and sellers alike are empowered with better knowledge, enabling more confident decisions and transactions while minimizing unnecessary intermediary involvement.

## 8 Future Scope and further enhancement of the Project

The system's accuracy can be enhanced by increasing its computational power and size, allowing the inclusion of more cities. Introducing a different user interface for better visualization, utilizing Augmented Reality, will make the results more interactive and easier to understand. Creating a learning system to gather user feedback and preferences will personalize results for each user. Future includes comparing the system's predicted prices with real estate websites like MagicBricks.com to ensure reliability. To simplify things, the system will recommend real estate properties based on predicted prices. Adding G-map functionality to display nearby amenities like hospitals and schools within a 1 km radius will not only enhance user-friendliness but can also improve predictions, as these factors influence property values. These enhancements aim to make the system smarter, more user-friendly, and ultimately more helpful in finding the perfect real estate match.

## 9 Team Details

Project Name	Course Name	Student ID	Student Name	Role
		2212000140016	Anshika Purwar	Developer / Testing

Real Estate Price Prediction	Mini Project	2201920140214	Sanjana Gupta	Developer / Testing
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## 10 Conclusion

In summary, this project aims to transform real estate experience through advanced technology and data-driven solutions. The primary objective is to develop a highly accurate predictive model for house prices, offering users tailored recommendations and valuable insights. With an emphasis on scalability and user-centric interfaces, the system aims to expand its coverage across multiple cities while ensuring ease of use and personalized experiences. By enabling informed decision-making and simplifying the complexities of real estate transactions, this project aspires to empower users in navigating the market with greater confidence and efficiency.

## 11 References

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