



BMS COLLEGE OF ENGINEERING

(Autonomous Institute, Affiliated to VTU, Belagavi)

DEPARTMENT OF MACHINE LEARNING

(UG Program: B.E. in Artificial Intelligence and Machine Learning)

Course : Python Programming

Course Code: 22AM4AEPPM

HOUSE PRICE PREDICTION

Semester End Examination

Date: October 11, 2023

Presented By,

Student Name & USN :

Archit Subudhi (1BM21AI026)

Aryaman Sharma (1BM21AI027)

Ayush Kumar Dubey (1BM21AI028)

Chetna Mundra (1BM21AI036)

Semester & Section: 4A

Batch Number: B1

Faculty In-Charge:

Prof. Arun Kumar

Assistant Professor

Department of Machine Learning

BMS College of Engineering

Agenda

- Problem Statement
- Literature Review
- Proposed Architecture
- Methodology
- Graphical Representation of Data
- Testing and Validation
- About the app
- Conclusion
- References

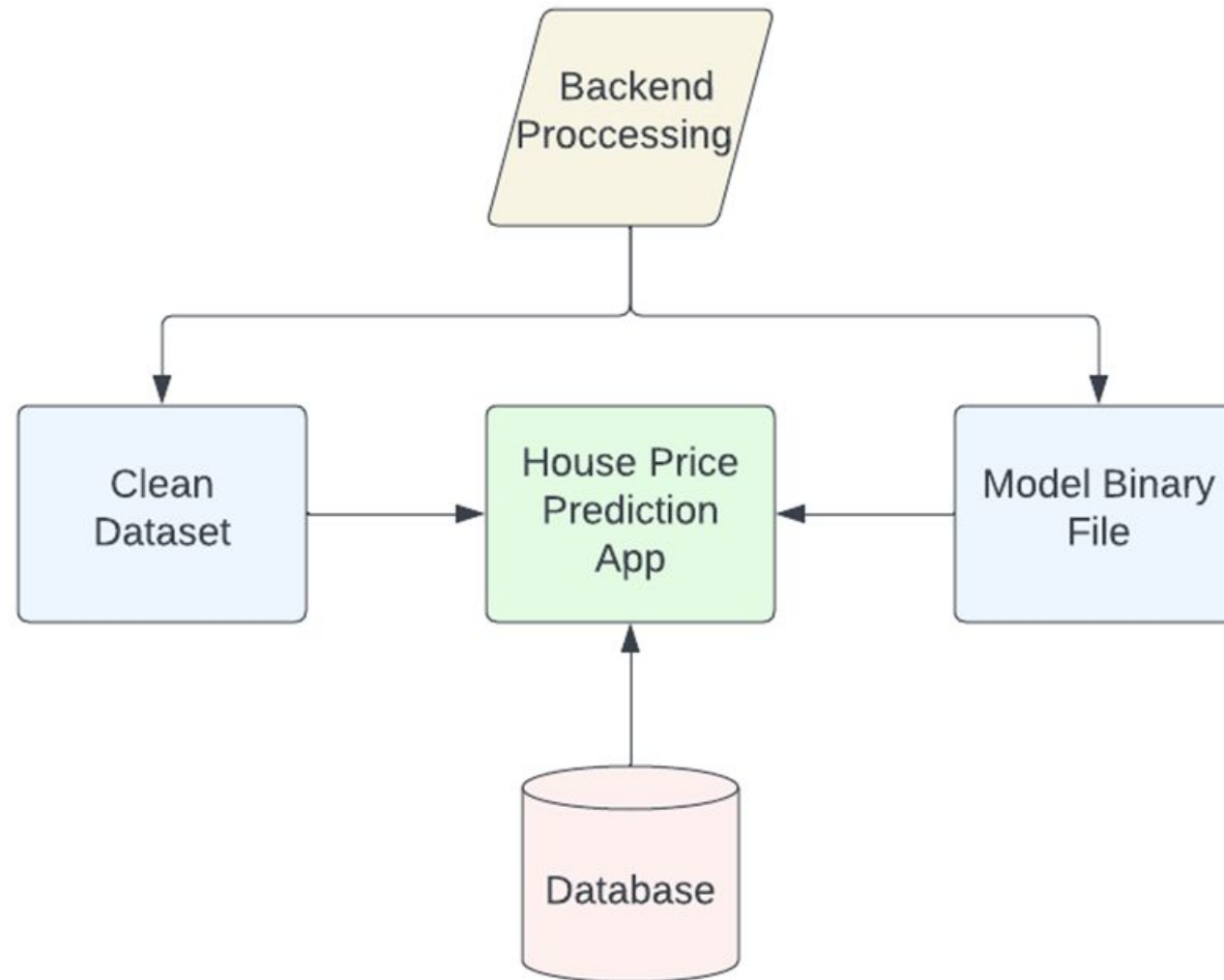
Open Issues & Problem Statement

- Existing Real-Estate Websites/Applications
- Data Visualization
- Data Interpretability
- User Experience and Accessibility
- Reliable Predictor
- Planning Financial Dependencies

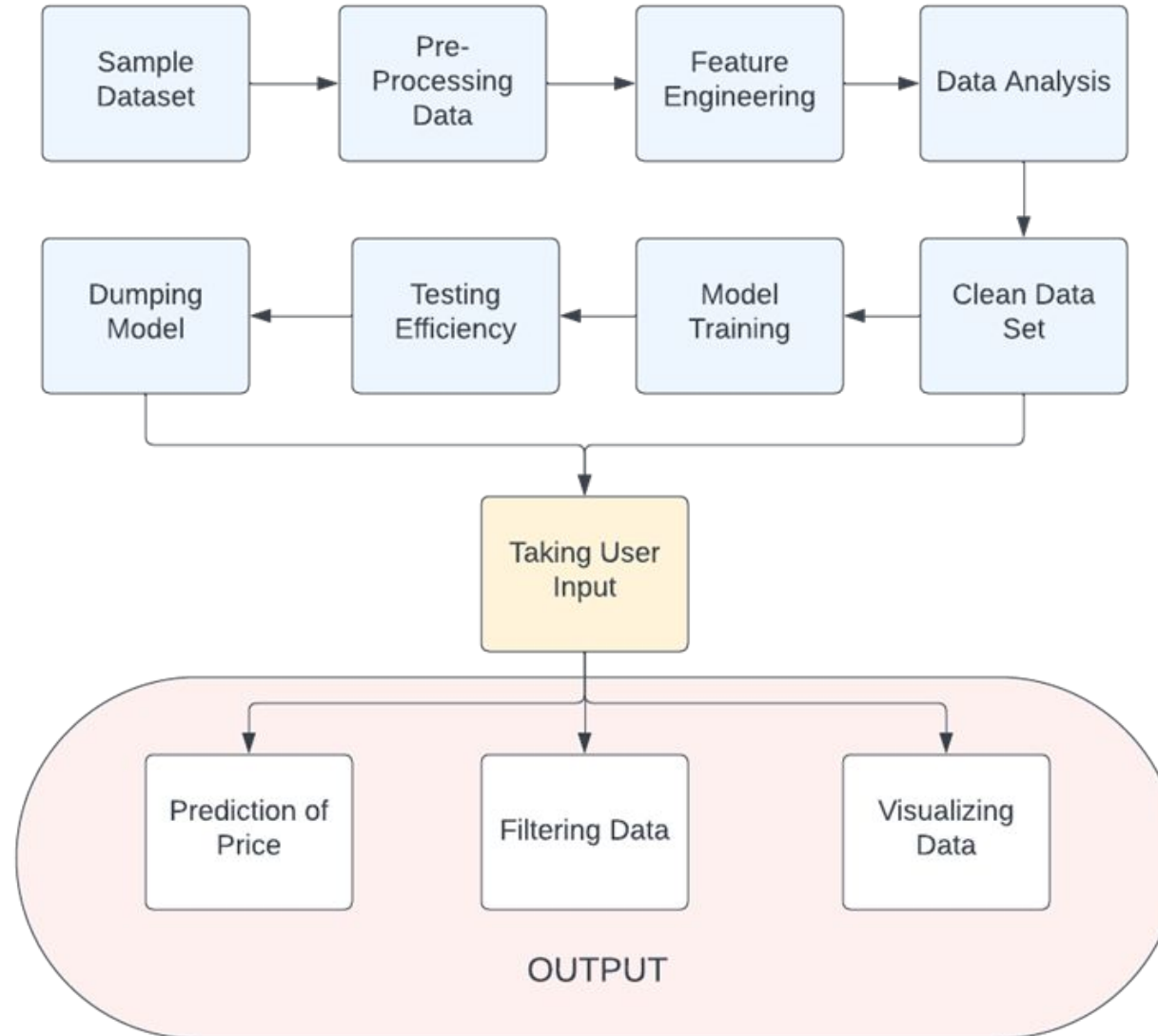
Literature Review

AUTHOR / TITLE / YEAR	APPLIED METHODOLOGY / ALGORITHM USED	FINDINGS	RESULTS	LIMITATIONS
Title: House Price Prediction Using Machine Learning Authors: MS. A. Vidhyavani O. Bhargav Sathwik Year: November 2021	Linear Regression	The research paper focuses on using linear regression in machine learning to predict house prices.	The research paper focuses on predicting house prices using machine learning, particular linear regression.	Data Quality: The accuracy of predictions heavily depends on the quality of the data. Inaccurate or incomplete data can lead to unreliable predictions.
Title: Housing Price Prediction via Improved Machine Learning Techniques Authors: Quang Truong et al. Year: 2020	Random Forest XGBoost LightGBM	They preprocess the data, analyze features, and compare the results of these models.	The study found that Random Forest had the lowest training set error but was prone to overfitting.	The limitation of this study is that it doesn't delve into the explanations behind model performance differences.
Title: Prediction of House Pricing using Machine Learning with Python Authors: Mansi Jain Himani Rajput Year: July 2020	Random Forest	The findings of the IEEE research paper on house prediction system include the comparative evaluation of machine learning models.	The results of the IEEE research paper on house prediction system indicate that Random Forest achieved the lowest training error	The limitations of the IEEE research paper on house prediction system include potential overfitting in Random Forest, longer training times for complex models

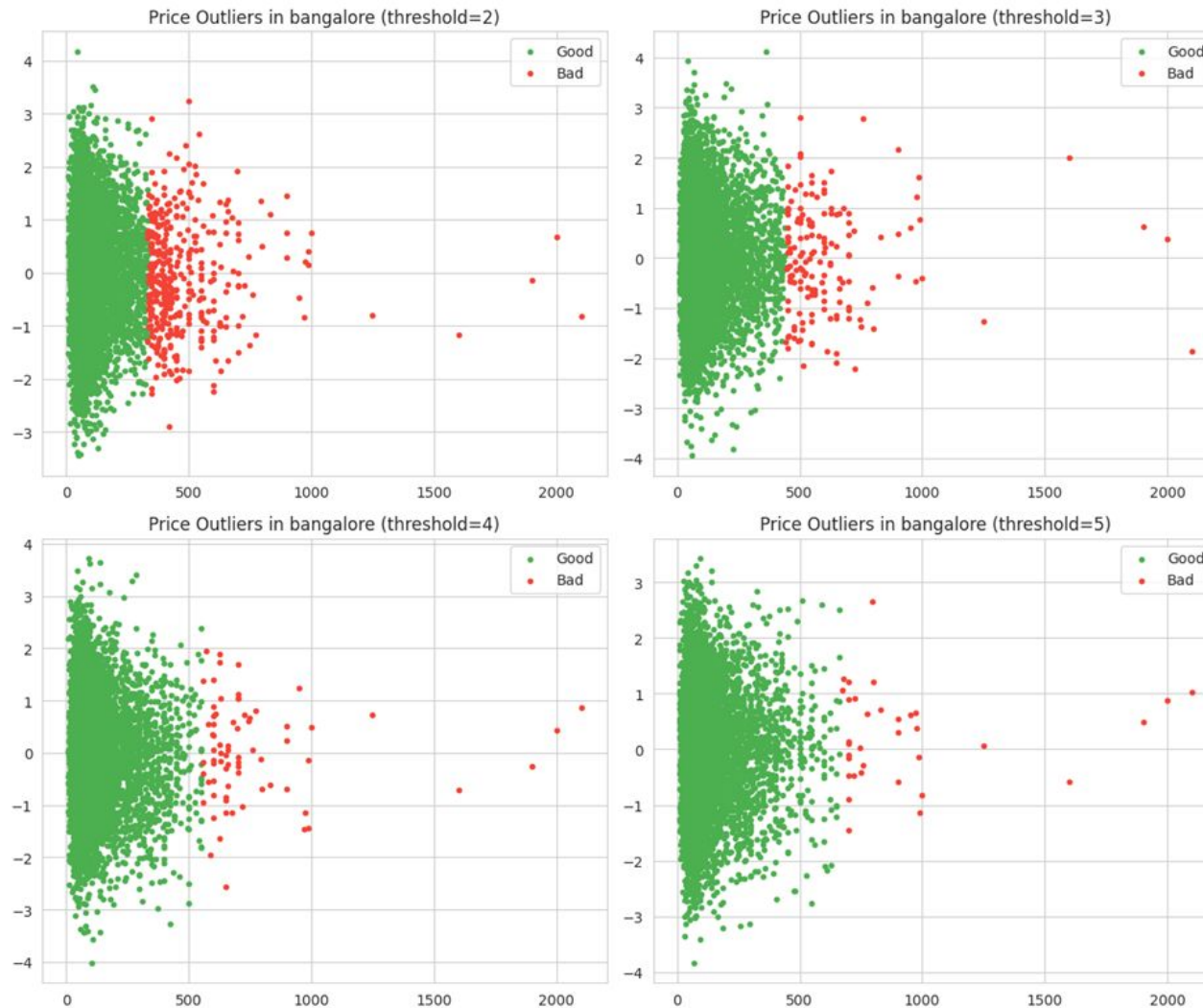
Proposed Architecture



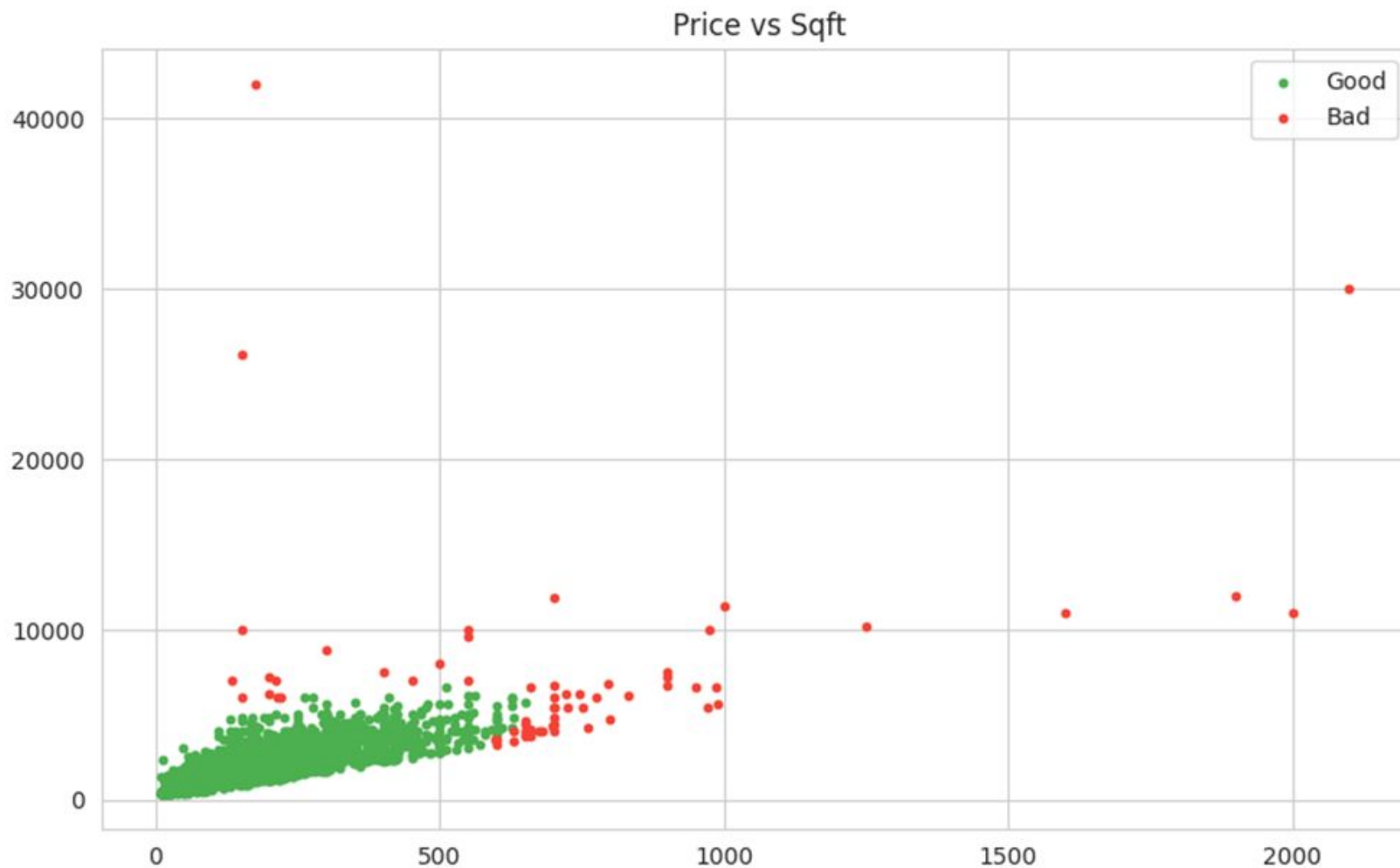
Methodology



Graphical Representation of Data



Graphical Representation of Data






Testing and Validation

Test Case	Location	BHK	Bathroom	Balcony	Total Square feet	Prediction (in lacs)	True Value (in lacs)
1	Sarjapur Road	3	2	2	1950	135	141
2	7 th Phase JP Nagar	3	2	1	1635	114.17	109
3	Vijayanagar	2	2	1	1200	68.3	68.5
4	Prashant Nagar, T.Dasarahalli	2	2	0	1080	65.12	68

Expected Value Example

₹1.09 Cr EMI - ₹ 49k | Can I afford it? PREMIUM PROJECT

3 BHK Flat For Sale in Elita Promenade, **Elita Promenade, Bangalore**



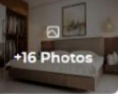



+15 Photos

3 Beds 2 Baths Furnished

Super Built-Up Area 1635 sqft ₹ 6,667/sqft	Developer Elite Homes	Project Elita Promenade
Transaction Type Resale	Status Ready to Move	Furnished Status Furnished

₹68.5 Lac EMI - ₹ 31k | Can I afford it?

2 BHK 1200 Sq-ft Flat For Sale **Govindaraja Nagar Ward, Bangalore**








+16 Photos

2 Beds 2 Baths 1 Balcony 1 Covered Parking

Carpet Area 1200 sqft ₹ 6,549/sqft	Developer Sattva	Project Salarpuria Sattva Anugraha
Floor 7 (Out of 14 Floors)	Transaction Type New Property	Facing West
Lifts 2	Furnished Status Semi-Furnished	Car Parking 1 Covered, 1 Open

₹1.41 Cr EMI - ₹ 75k | Can I afford it? ZERO BROKERAGE PREMIUM PROJECT

3 BHK For Sale in Mahidhara Harmony, **Sarjapur Road, Bangalore**







+20 Photos

3 Beds 2 Baths Unfurnished

Super Built-Up Area 1950 sqft ₹ 7,250/sqft	Transaction Type New Property	Status Under Construction	Furnished Status Unfurnished
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₹68.0 Lac EMI - ₹ 31k | Get Loan offers from 34+ banks

2 BHK 905 Sq-ft Flat For Sale **Jalahalli, Bangalore**

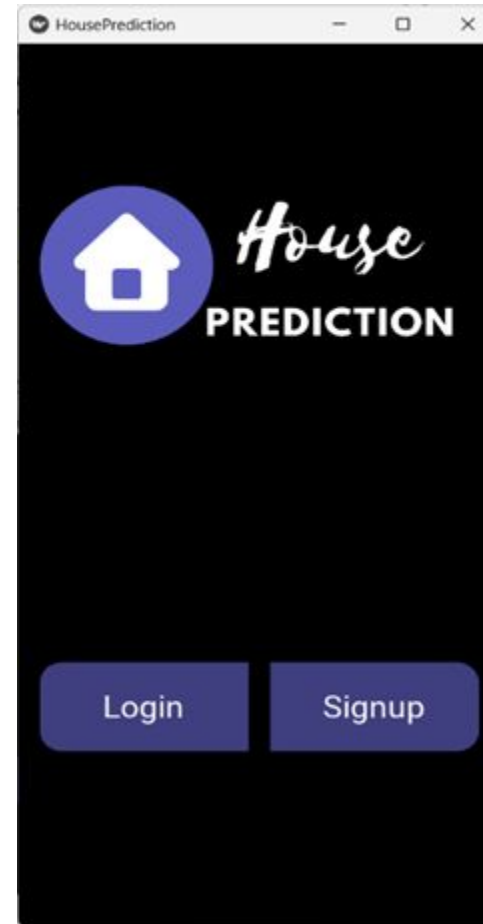
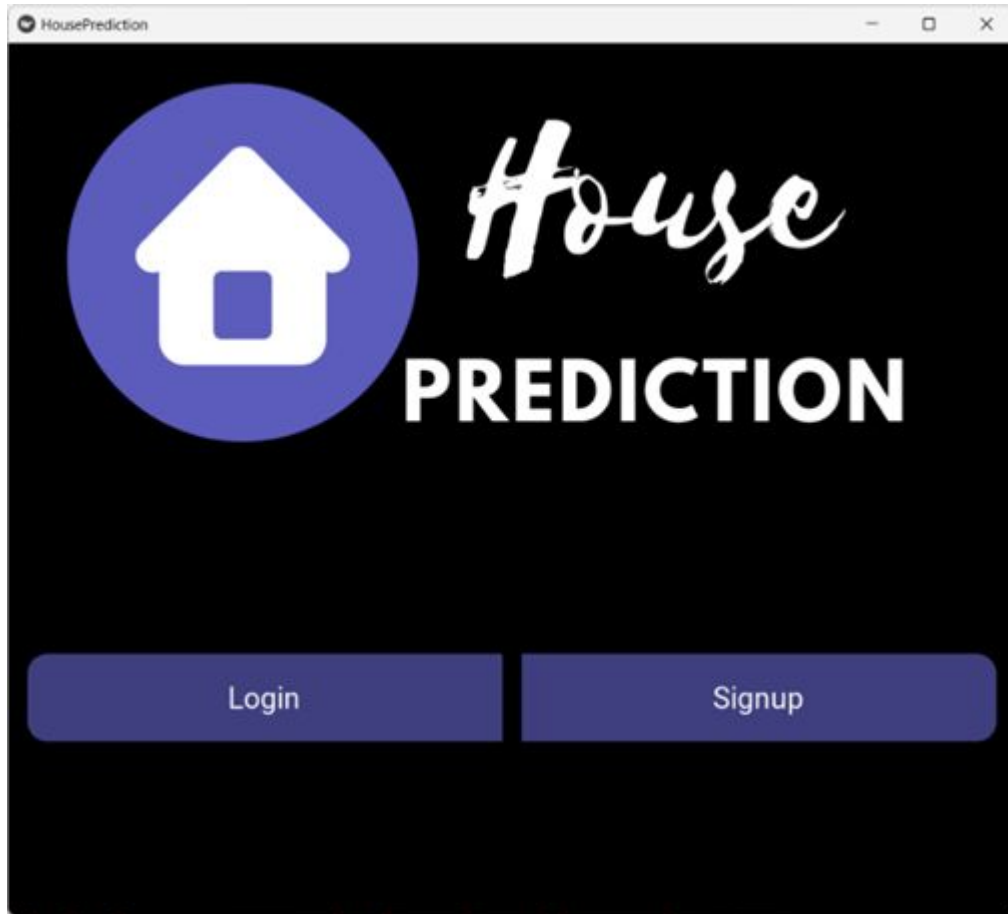


+19 Photos

2 Beds 2 Baths 0 Balconies 189 Covered Parking

Carpet Area 1080 sqft ₹ 9,577/sqft	Developer Kumar Properties	Project Kumar Princetown
Floor 8 (Out of 16 Floors)	Transaction Type Resale	Status Ready to Move
Facing North - East	Lifts 2	Furnished Status Furnished

About App

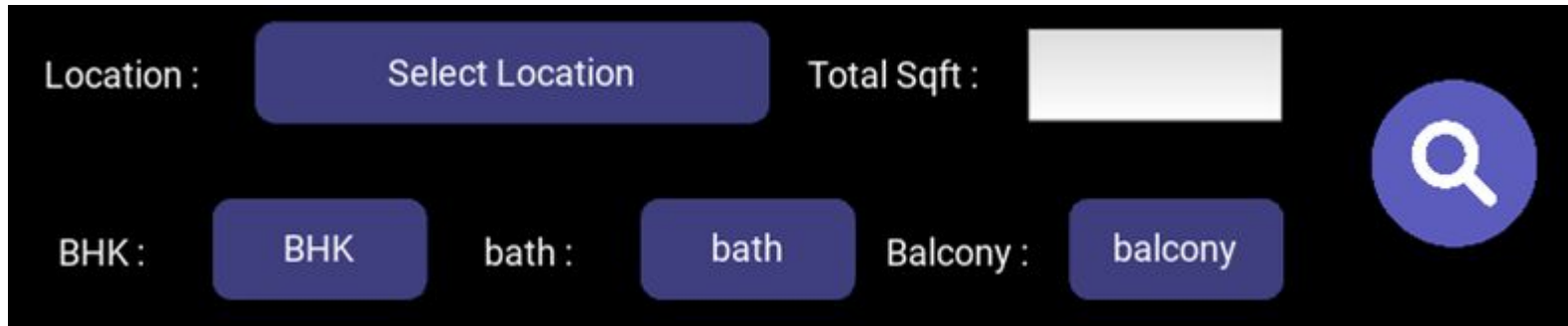


Login Page (Wide Screen & Phone Screen)



About Us

About App

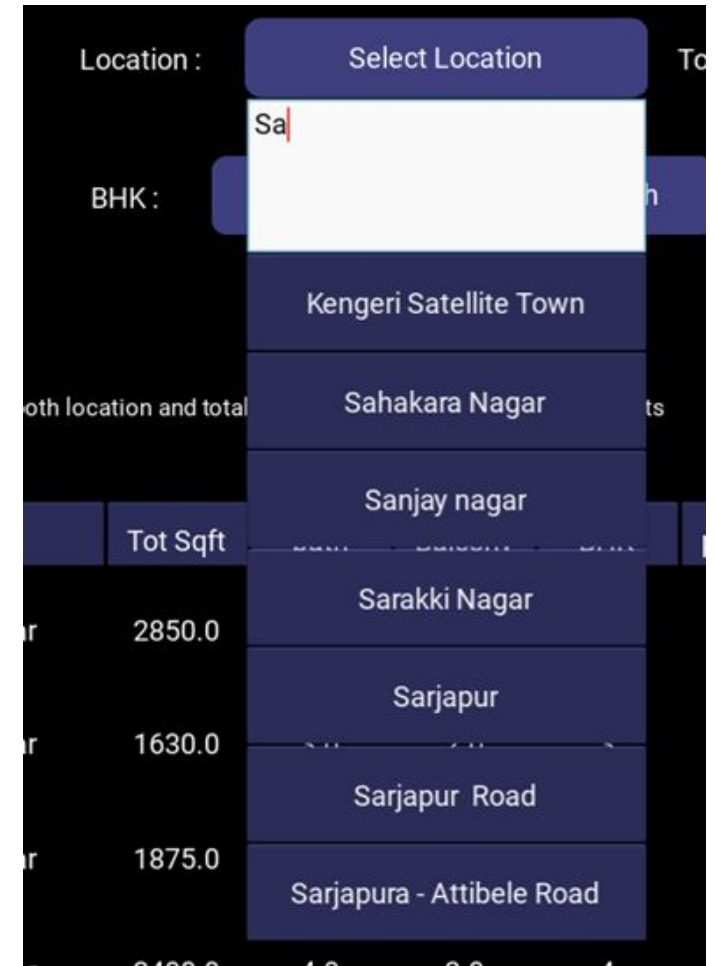


The search layout features a dark blue background. At the top left, the label 'Location :' is followed by a light blue button labeled 'Select Location'. To the right, the label 'Total Sqft :' is followed by a white input field. On the far right is a circular blue button with a white magnifying glass icon. Below these, the label 'BHK :' is followed by a light blue button labeled 'BHK'. To its right, the label 'bath :' is followed by a light blue button labeled 'bath'. Further right, the label 'Balcony :' is followed by a light blue button labeled 'balcony'.

Search Layout

PREDICTION : 48.19 Lakhs

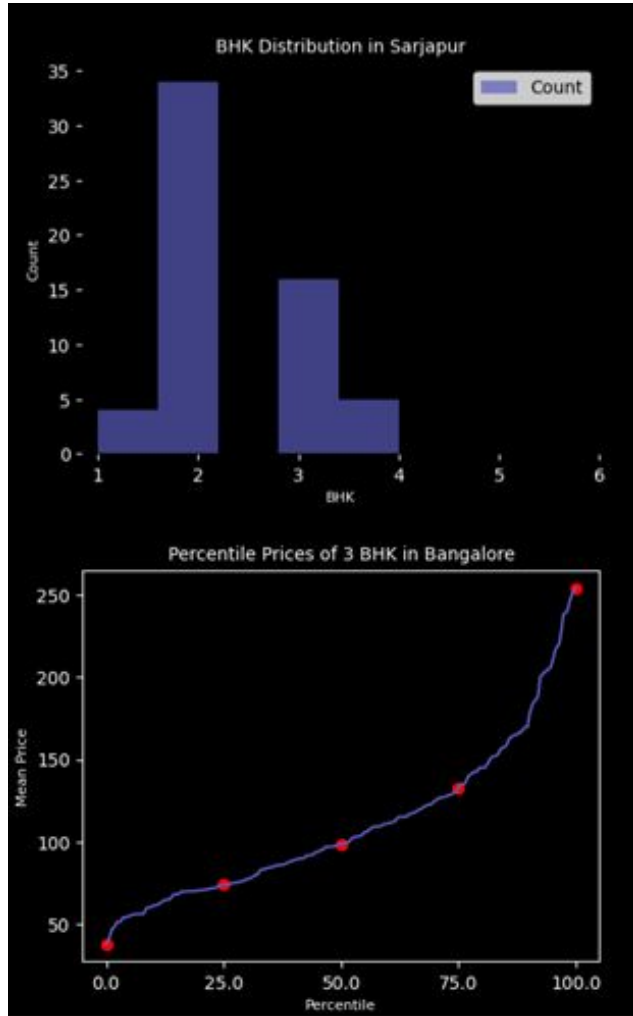
Prediction Layout



The searchable dropdown is shown as a vertical list of location options. The top section has a 'Location :' label and a light blue 'Select Location' button. Below this is a white input field containing the text 'Sa'. A dropdown menu is open, displaying a list of locations: 'Kengeri Satellite Town', 'Sahakara Nagar', 'Sanjay nagar', 'Sarakki Nagar', 'Sarjapur', 'Sarjapur Road', and 'Sarjapura - Attibele Road'. The background of the app is visible behind the dropdown, showing a table with columns for 'Tot Sqft' and 'Price'.

Searchable Dropdown

About App



Personalized Graphical Analysis

Location	Tot Sqft	bath	Balcony	BHK	per Sqft
1st Block Jayanagar	2850.0	4.0	1.0	4	428.0
1st Block Jayanagar	1630.0	3.0	2.0	3	194.0
1st Block Jayanagar	1875.0	2.0	3.0	3	235.0
1st Block Jayanagar	2400.0	4.0	2.0	4	450.0
1st Block Jayanagar	1000.0	3.0	2.0	2	60.0
1st Block Jayanagar	1200.0	2.0	0.0	3	130.0
1st Block Jayanagar	1235.0	2.0	2.0	2	148.0

Table Layout

Conclusion

In conclusion, our presentation has showcased a remarkable achievement - a model that boasts an impressive 93% accuracy rate. This accomplishment demonstrates the power of data-driven decision-making and the potential it holds for improving various aspects of our lives. Additionally, our analysis has provided invaluable insights into personal betterment, emphasizing the importance of data-driven approaches in self-improvement journeys. As we move forward, let's harness the potential of accurate models and personalized analysis to continue enhancing our lives, making informed choices, and striving for excellence.

References

- [1] Model “BANGALORE HOUSE PRICE PREDICTION MODEL” -
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- [2] Pickle “Documentation” [3] M. Jain, H. Rajput, N. Garg and P. Chawla, "Prediction of House Pricing using Machine Learning with Python," 2020 International Conference on Electronics and Sustainable Communication Systems (ICESC), Coimbatore, India, 2020, pp. 570-574, doi: 10.1109/ICESC48915.2020.9155839.
- [4] Quang Truong, Minh Nguyen, Hy Dang, Bo Mei, Housing Price Prediction via Improved Machine Learning Techniques, Procedia Computer Science, Volume 174, 2020.
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Questions Please ...

Thank you !