M.L.S.N.D.PRABHAS

**Final Project**



3/21/2024 **Annual Review**

## **HOUSE PRICE PREDICTION USING MACHINE LEARNING**



3/21/2024 **Annual Review**

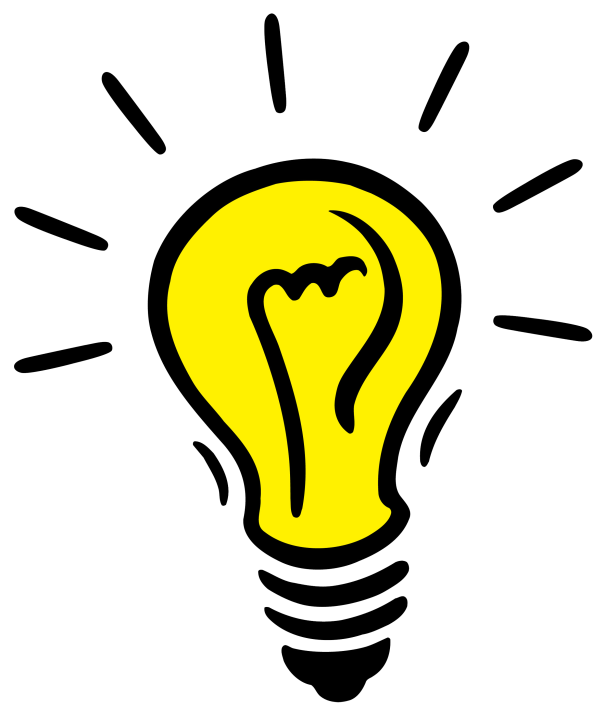
# AGENDA

* PROBLEM STATEMENT
* PROJECT OVERVIEW
* WHO ARE THE END USERS?
* YOUR SOLUTION AND ITS VALUE PROPOSITION
* THE WOW IN YOUR SOLUTION
* MODELLING
* RESULTS

PROBLEM STATEMENT

The task is to develop a machine learning model capable of accurately predicting house prices based on various features. This prediction can aid homebuyers, sellers, and real estate agents in

making informed decisions about property transactions. 4



PROJECT OVERVIEW

Overview:

* Introduction
* Data Collection and Preprocessing
* Feature Engineering
* Model Selection and Training
* Model Evaluation
* Hyperparameter Tuning
* Deployment and Future Considerations
* conclusion

**WHO ARE THE END USERS?**

* **Homebuyers**
* **Real Estate Agents**
* **Property Investors**
* **Financial Institutions**
* **Government Agencies**
* **Homeowners Associations**



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**YOUR SOLUTION AND ITS VALUE PROPOSITION**

1. **Accurate Predictions:** By analyzing historical sales data, market trends, and property features, the model provides accurate predictions of house prices.
2. **Time and Cost Savings:** The model automates the process of estimating house prices, saving time and effort for real estate professionals, homeowners, and buyers.
3. **Customization:** The model can be customized to suit specific user requirements and preferences.
4. **Insights into Market Trends:** By analyzing historical data and market indicators, the model offers valuable insights into housing market trends.
5. **Scalability:** The model can scale to handle large datasets and accommodate diverse real estate markets
6. **Continuous Improvement:** Through ongoing model training and validation, the solution can continuously learn and improve over time.

THE WOW IN YOUR SOLUTION

* AI-Powered Precision: Our solution harnesses the power of artificial intelligence and machine learning to deliver pinpoint accuracy in predicting house prices. By analyzing vast amounts of data, including property features, market trends, and historical sales data, our model produces highly precise price estimates that outperform traditional methods
* Instantaneous Insights: With our solution, users can obtain instant insights into the complex dynamics of the real estate market. Whether you're a homebuyer, seller, or investor, our model provides real-time information on pricing trends, neighborhood dynamics, and market sentiment, empowering you to make informed decisions with confidence.
* Tailored Recommendations: Unlike one-size-fits-all approaches, our solution offers personalized recommendations tailored to your unique preferences and objectives. By customizing the model parameters and features, we ensure that our predictions align perfectly with your specific needs, giving you the competitive edge in any real estate transaction.
* Seamless User Experience: We prioritize user experience, offering a seamless interface that is intuitive, user-friendly, and accessible to all. Whether you're a seasoned real estate professional or a first-time homebuyer, our solution guides you through the process with ease, making complex data analysis feel effortless and enjoyable.
* Continuous Innovation: Our commitment to innovation means that our solution is constantly evolving to meet the ever-changing demands of the real estate market. Through ongoing research, development, and refinement, we stay ahead of the curve, delivering state-of-the-art features and functionalities that set new standards for excellence in house price prediction.

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# MODELLING

Certainly! Here are the steps involved in House price Prediction:

1. Data Preparation.
2. Feature Selection/Engineering.
3. Model Selection
4. Model Training.
5. Model Evaluation
6. Hyperparameter Tuning.
7. Model Deployment.
8. Monitoring and Maintenance.
9. Final model evaluation.

RESULTS

* Model Performance Metrics: Similar to house price prediction, metrics such as Mean Absolute Error (MAE), Mean Squared Error (MSE), and Root Mean Squared Error (RMSE) would quantify the performance of the trained model in predicting rental prices accurately.
* Validation Results: Performance metrics computed on the validation set or through cross-validation would demonstrate how well the model generalizes to unseen rental properties. These results indicate the model's effectiveness in making accurate predictions on new rental listings.
* Feature Importance Analysis of feature importance would reveal which factors (e.g., location, number of bedrooms, amenities) have the greatest impact on rental prices. Understanding feature importance helps users identify the most influential factors affecting rent and make informed decisions accordingly
* Visualization of Predictions****:**** Visualizations of predicted rental prices against actual rental prices provide a clear understanding of the model's performance across different rental properties. Scatter plots or regression plots can visually represent the relationship between predicted and actual rental values.