**1. Understand the Problem:-**Clearly define the problem and the goals.Identify the features that are available for prediction.

**2. Data Collection:-**Gather a dataset with relevant features and corresponding house prices .Ensure the dataset is representative and diverse.

**3. Data Exploration and Analysis:-**Understand the distribution of house prices and features .Check for missing values, outliers, and anomalies. Visualize relationships between features and the target variable.

**4. Data Preprocessing:-**Handle missing values (imputation or removal).Address outliers appropriately. Encode categorical variables (e.g., one-hot encoding).Scale numerical features if needed.

**5. Feature Engineering:-**Create new features if relevant (e.g., total square footage, price per square foot).Consider feature interactions .Remove irrelevant features.

**6. Data Splitting:-**Split the dataset into training and testing sets.

**7. Model Selection:-**Choose appropriate algorithms for regression (e.g., Linear Regression, Decision Trees, Random Forest, Gradient Boosting).Experiment with multiple models to find the best performer.

**8. Model Training:-**Train the chosen models on the training set. Tune hyper parameters using techniques like grid search or random search.

**9. Model Evaluation:-**Evaluate the models on the testing set using appropriate metrics (e.g., Mean Squared Error, R-squared).Compare the performance of different models.

**10. Fine-Tuning:-**If needed, fine-tune the models based on the evaluation results. Consider ensemble methods for improved performance.

**11. Interpretability:-**Understand the importance of different features in the model. Use techniques like feature importance or SHAP (SHapley Additive ExPlanations).

**12. Deployment (Optional):-**If the model meets your requirements, deploy it for real-world use.Implement monitoring to ensure the model's performance over time.

**13. Documentation:-**Document the entire process, including preprocessing steps, feature engineering, model selection, and evaluation.

**14. Continuous Improvement:-**Periodically revisit and retrain the model with new data for continuous improvement.

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