**PREDICTING HOUSE PRICES USING ML**

**Phase 2-Problem** **Solving** **Innovation**

Feature Engineering:

Beyond the usual features like square footage, number of bedrooms, and bathrooms, consider incorporating innovative features.

For example; you could include data on proximity to public transportation, walkability scores, or even local crime rates.

Advanced Algorithms:

Explore state-of-the-art ML algorithms such as Gradient Boosting, Random Forest, or even neural networks. These algorithms can capture complex patterns in the data that traditional linear models might miss.

Geospatial Data:

Utilize geospatial data to factor in location-based information. Incorporate geographical features like distance to parks, schools, or popular landmarks.

Geospatial analysis can provide valuable insights into house pricing.

Time Series Analysis:

Consider analyzing historical pricing trends to incorporate time series data into your model. This can help predict future pricing trends, which is especially useful in dynamic real estate markets.

Natural Language Processing (NLP):

If you have access to property descriptions or listing data, apply NLP techniques to extract meaningful information. Sentiment analysis could help gauge the overall perception of a property, which can influence its price.

Ensemble Learning:

Combine multiple ML models into an ensemble.

Interactive Visualizations:

Create user-friendly tools that allow potential buyers or sellers to input their preferences and get estimated house prices instantly.

Interactive visualizations can help users understand how different features affect pricing.

Fairness and Bias Mitigation

Ensure your model is fair and unbiased by thoroughly assessing and mitigating any biases that might arise from historical data. Use techniques like reweighting, re-sampling, or fairness-aware algorithms.

Learning Continuous:

Implement a system for continuous learning and model updates. The real estate market is constantly changing, so your model should adapt to new trends and data.

Data Privacy and Security:

Given the sensitivity of real estate data, prioritize robust data privacy and security measures to protect user information.