Smart Real Estate Market Analysis and Housing Recommendation System

A Data-Driven Platform for Intelligent Housing Insights

Project Report Summary

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2025

Project Summary

This project presents a data-driven web system that analyzes USA real estate markets and recommends optimal housing locations for users based on affordability, quality of services, and safety levels. The platform integrates heterogeneous datasets, including real estate listings, city infrastructure, and public safety data, to produce unified analytical insights.

The system introduces the **Housing Quality Score (HQS)**, a composite index (0–100) that reflects each area's livability by evaluating service availability, transportation quality, cost of living, and safety. Machine learning models are used to forecast housing price trends and identify emerging opportunities in the market.

Through an interactive website, users can:

- Explore city- and district-level real estate data via interactive maps.
- Compare housing affordability and livability indicators.
- Receive personalized recommendations based on preferences and budget.
- Monitor price trends and safety metrics over time.

Technologies Used: Python (Pandas, NumPy, scikit-learn, Prophet), PostgreSQL with PostGIS, and a web interface built using React and Node.js.

Impact: This project enhances data transparency in the real estate market, assisting citizens, investors, and policymakers in making informed housing decisions supported by analytics and predictive modeling.