

House Price Prediction Using Cloud Computing and Blockchain

Abstract

House price prediction is an essential application of data-driven decision-making in the real estate industry. Accurate forecasting enables buyers, sellers, and investors to make informed decisions based on various economic and property-related factors. Traditional machine learning models, while effective, require significant computational resources and often fail to incorporate real-time market trends. In this project, we propose a cloud-based AI-powered approach that integrates **Cloud Computing** and **Blockchain** to enhance the accuracy and security of property valuation.

The system leverages **AWS SageMaker, Google AI Platform, and Microsoft Azure ML** to train and deploy scalable predictive models. These cloud-based solutions allow the model to process large datasets, including property attributes (square footage, number of bedrooms, and neighborhood features) alongside economic indicators (interest rates, inflation, and crime rates). By integrating **Blockchain technology**, the project ensures transparency and security in real estate transactions. Blockchain's distributed ledger records each transaction, making property pricing data tamper-proof and reducing fraud.

Furthermore, the model incorporates **geospatial analysis** using satellite imagery to assess environmental factors such as flood risks and green spaces, which influence property values. A **deep learning-based image analysis module** is included to evaluate house conditions from real estate listing photos. AI-powered recommendation systems further personalize house searches based on user preferences and affordability scores.

By utilizing **Federated Learning**, different real estate agencies can collaboratively train models without sharing sensitive property data, ensuring privacy compliance. This project not only improves house price prediction accuracy but also enhances the **efficiency and security of real estate transactions**. Future enhancements include integrating IoT-based **smart home data** and AI-powered **real-time market forecasting tools** to further refine property value predictions.