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Land Property Price Prediction using Machine Learning Algorithms

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Abstract: *Land Property Price Prediction systems hold the promise of providing a proper estimation for Real Properties. The traditional method to land price detection involved manual appraisals by experts in the field. This method relied on subjective assessments based on personal experience and market knowledge, and it was time- consuming and expensive. It was also prone to errors and biases, particularly when dealing with complex properties or in areas with limited market data. In past few years, the emergence of machine/deep learning techniques has revolutionized the field of land price detection. These techniques allow for the automatic analysis of large amounts of data and the identification of patterns that would be difficult for human appraisers to discern. Regression analysis is a traditional statistical technique that has been used for land price detection for many years. It involves analyzing the relationship between various features of an asset and its market value. However, traditional regression models often suffer from limitations such as overfitting, multicollinearity, and heteroscedasticity. Decision trees are another traditional technique that has been used for land price detection. This document analyses an innovative solution proposed to facilitate Land value estimation based on geographic position, locality, purpose of land use and, also the effect of proposed development work in the area real-estate customers and owners of real estate companies can be benefitted and make smarter property related decisions. Machine learning and optimization are the main research components of this system. The system utilizes the SVM (Support Vector Machine) algorithm as well as RF (Random Forest) algorithm for predicting the cost estimation of the Land Property. This research focuses on predicting land property prices in Pune using advanced machine learning techniques. A dataset comprising spatial and structural land features was collected and analyzed. The goal is to provide accurate land valuation to assist real estate stakeholders in decision-making. A preprocessing pipeline was developed to encode and scale data, followed by the application of XGBoost and Random Forest regression models*

Keywords: Machine Learning (ML), Land Property Price, Prediction System, Valuation

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