

# Flat Price Prediction using Linear and Random Forest Regression based on Machine Learning Techniques

Julakha Jahan Jui<sup>1</sup>, M.M. Imran Molla<sup>2</sup>, Bifta Sama Bari<sup>1</sup>, Mamunur Rashid<sup>1</sup> and Md Jahid Hasan<sup>3</sup>

<sup>1</sup> Faculty of Electrical & Electronics Engineering, Universiti Malaysia Pahang, 26600 Pekan, Pahang, Malaysia.

<sup>2</sup> Faculty of Computer Science and Engineering, Khwaja Yunus Ali University, Bangladesh.

<sup>3</sup> Faculty of Mechanical & Manufacturing Engineering, Universiti Malaysia Pahang, 26600 Pekan, Pahang, Malaysia.

julakha.ump@gmail.com, mmimranmolla@gmail.com,  
biftasama\_120@yahoo.com, mamun110218@gmail.com,  
sawikot@gmail.com

**Abstract.** Flat price prediction is an important topic of real estate. Flat price in a city depends on different criteria such as, the crime rate of that location, total populations on that area, number of bedrooms, bathrooms, the total size of the flat, location of the flat, etc. People feel confused and face different harassments with unreliable information during purchasing a flat in a city. By taking consideration of this scenario, we have proposed here flat price prediction framework. In this study, we have used our own data set that we have collected from Dhaka, Bangladesh. Two regression algorithms namely the linear regression and the regression tree/random forest regression have been used for building the prediction model. We have also checked the validity of the model using boxplot analysis, residual analysis, error checking and cross-validation. Finally, the performance of two methods has been compared which shows that the random forest regression model gives the best prediction result than the linear regression model.

**Keywords:** Flat Price Prediction, Machine Learning, Linear Regression, Random Forest Regression.

## 1 Introduction

Buying a house (flat) is undoubtedly one of the most important decisions that one makes in his life. The price of a house may depend on a wide variety of factors ranging from the house's location, its features, as well as the property demand and supply in the real estate market. The housing market is also one crucial element of the national economy. Therefore, forecasting housing values is not only beneficial for buyers, but also real estate agents and economic professionals. A proper prediction of the flat price is significant for expected flat owners, developers, investors, tax assessors and other real estate market sharers, such as mortgage lenders and insurers. Therefore,

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