

# House Rent Prediction using polynomial and linear regression

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## I. INTRODUCTION

### A. 1.1 Objectives

With the mass growth of population around the world, it has become a challenge to provide accommodation for the people. As well as the growth of population the housing prices are also becoming high. For this reason, people opting for house renting as, owning a house seem like a dream like to some people. In this project our aim is to find house rent for a certain area in different cities. We are using a combination of linear regression and polynomial regression to predict house rent prices.

### B. 1.2 Motivation

As we live in a third world country, also a over populated one, finding a good place to live a life peacefully is not easy. Along with ourselves, we want to secure a good future for our next generations. But money is always a problem. So, in this project we are motivated by this idea and tried to do a better approach, so that, it can help us by predicting the rental price to make us learn, on which area has better facilities in our suited budget. If anyone wants to further invest on real estates, this approach can help them. Also, it can be the parameter to signify one area's demand.

### 1.3 Existing works

Several machine learning algorithms have been used in the past years in this field. A study has been done in Fairfax County, Virginia using several machine learning algorithms like Naïve Bayes, Ripper, Decision Tree, Adaboost etc. to predict the house prices.<sup>1</sup> Ridge and Lasso Linear regression is being used in the area of Ames and Iowa. <sup>2</sup> Also, Hybrid Linear Regression is being used by combining Ridge and Lasso along with Gradient Boosting combination to find more accurate predicted values with higher accuracy. <sup>3</sup> By all these studies, what we have done till now, we have seen using hybrid machine learning algorithms gives better result than only one algorithm. Also, regression is a common classifier in that field. So, we have chosen to work on this part in our project.

### 1.4 Necessity

As we have discussed in the motivation part, house rent prediction work can be used in daily basis to predict rental

prices. In house rental dataset there can be several fractional values as well as non-numerical values.

## II. METHODOLOGY

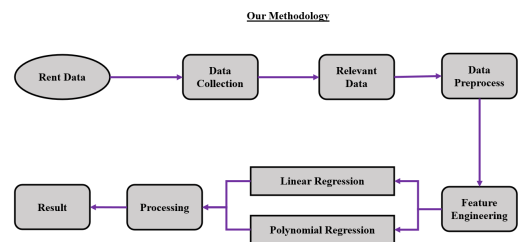


Fig. 1. Diagram of our proposed model