**Big Data Analyzing Techniques in Mathematical House Price Prediction Model**

**Alternative Title:**

House price prediction with the help of mathematical techniques analyzing a big data.

**Aim:**

To design and develop machine learning algorithm to predict house price

**Abstract:**

 The Chinese house market has been flourishing in the past three decades as an increasingly bigger population moves into cities.It is of great significance to study the change of house price considering all the related factors. Some scientists prefer machine learning. Machine learning is a subject which involves many subjects such as probability theory, statistics, approximation theory, convex analysis, and algorithm complexity theory. In this paper, we will discuss the details of the machine learning algorithms and their strengths and weaknesses.

**Synopsis:**

 In this projects, we will discuss the details of the machine learning algorithms, three typical models (i.e., **Gradient Boosting Regressor**, **Linear Regression** and **Random Forest Regressor**) and their strengths and weaknesses. Another question is that machine learning models are constraint to math progresses. Therefore, without a better algorithm model with the focus on the key factors which impact the real price, it’s difficult to make improvement in the price predictions.

**Existing System:**

Predicting house price is a complex and challenging issue. There are lots of factors that may influence the house price, including the location, orientation of rooms, stores, decoration, neighborhoods, schools, traffic conditions, and security issues, etc. It is impossible to take into consideration all the factors concerned in predicting the price. Moreover, rental housing price is vulnerable to the economic condition both in China and worldwide.While this condition is changing all the time, it is challenging research for scientists to get the exact data and predict the price change.

**Problem Defintion :**

House price within a proper range and acceptable to the public, the government has adopted various approaches to bring the price under control. After intermittent fluctuations, house purchasing has become a hot topic for both the media and the public. It is of great significance to study the change of house price considering all the related factor.

**Proposed System:**

Machine learning models are constraint to math progresses. Therefore, with a better algorithm model with the focus on the key factors which impact the real price, it’s difficult to make improvement in the price prediction. The analysis includes the strength and weakness of different models and their usage in some real-life research.The machine-learning strategies are of three main approaches which are popular in this field to predict prices are **Gradient Boosting Regressor, Linear Regression** and **Random Forest Regressor**. Because the price is susceptible to multiple factors, it is very challenging to obtain the accurate number.

**Advantage:**

With Help of Machince learning Algorithms we can predict the actual price for House with their own parameters.

**Algorithm:**

 **Gradient boosting Regressor** is a machine learning technique used in regression tasks among others. It gives a prediction model in the form of an ensemble of weak prediction models, which are typically decision trees.

 **Linear Regression** is a statistical analysis method that uses regression analysis to determine the interdependent quantitative relationship between several variables. It is also widely used in predicting house price because it is easier to understand and runs fast when testing the data. Linear regression is widely used in machine learning fields

 **Random Forest Regression** is a supervised learning algorithm that uses ensemble learning method for regression. Ensemble learning method is a technique that combines predictions from multiple machine learning algorithms to make a more accurate prediction than a single model.

**Modules:**

* Dataset Collection
* Model Creation
* Prediction

**Dataset Collection:**

Dataset collection from Kaggle.com,

**Model Creation:**

Get raw dataset and we will preprocess the dataset and then implement in to various algorithms.

**Detection:**

This paper will analyze the models in machine learning which are frequently used in predicting house price. Then I pick three typical examples to discuss in detail. The analysis includes the strength and weakness of different models and their usage in some real-life research. and then predict the house price with the developed model

**Hardware Requirements:**

* Hard Disk : 500GB and Above
* RAM : 4GB and Above
* Processor : I3 and Above

**Software Requirements:**

* Operating System : Windows 10 (64 bit)
* Software : Python
* Tools : Anaconda

**ArchitectureDiagram:**

Dataset Creation

Dataset preprocess

Machine learning algorithm

Model creation

 Result

**Conclusion:**

In conclusion, learning strategy of machine learning, can easily obtain the various data in a proper formand perform prediction at any given time. As for the accuracy,we can see from above that basically the models can satisfy the level of scientific research including house price prediction. the result is supportive enough to meet the basic requirements of the ordinary people.

**Future Enchacements:**

In the future, house price problems will be more and more complex, susceptible to much more factors. To achieve high accuracy, scientists need to know exactly how the factors interact with each other and influence the house price. They also need to pick the proper mode. to predict. But on the other hand, scientists will produce more powerful and convenient models which can be used in considering all the factors and predicting the prices.