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House Price Prediction Website

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Chapter : 1

Abstract

The project focuses on developing a user-friendly web platform that predicts house prices based on various factors like location, size and historical pricing trends.This project not only demonstrates technical skills but also addresses a real-world problem. This project shows us that the machine learning algorithm based on accuracy, consistency out performs the other in the performance of the housing price prediction.

Python is used for writing the Machine Learning Algorithms .We will implement a linear regression algorithm on our dataset. HTML,CSS and JS is used for designing the front end of the system. At last, House Price Prediction Website will be very helpful in detecting the prices of the houses and keeping the record of the high and low of the prices. Predicting the price of a house helps for determine the selling price of the house in a particular region and it help people to find the correct time to buy a home.

Chapter : 2

Motivation

In India, people buy properties which are too expensive but it's not worth it.In the housing market 2016 the house sold in India was about 80 lakh but the real price according locality and size was about 60 lakh. This project House Price Prediction helps the people who wanted to buy the house so they can know the price range in the future. We have used the linear regression and more algorithms with different tools to predict the house price.

Chapter : 3
Literature Survey
(Related to House Price Prediction Using Machine Learning)

	Paper Title	**Authors**	**Year**	**Name of Publisher**	**Technology**
1	House Price Prediction using Machine Learning	Shailendra Sharma,Deepti Arora	2023	IEEE	Machine Learning
2	House Price Prediction using Machine Learning	Ayushi Bhagat,Aditi Shaahsane	2023	SSRN(Research)	Machine Learning
3	Housing Price Prediction with Machine Learning	Amena Begum, Nishad Jahan Kheya	2022	International Journal of Innovative Technology (IJITEE)	Machine Learning
4	House Price Prediction Using Machine Learning	Akhilendra Pratap Singh; Kartikey Rastogi	2021	IEEE	Machine Learning

Chapter : 4

Literature review

House Price Prediction using Machine Learning [Authors: Shailendra Sharma,Deepti Arora]
This article we'll describe our solution for "House Prices: Advanced Regression Techniques" machine learning competition, which was persisted Kaggle platform. The goal is to predict house sale price by attributes like house area,year of building etc. This housing price prediction model acts as a hand for buyer and seller or a true realtor to form a better-informed decision**.(2023)**

Predicting Housing Market Trends Using Twitter Data
[Authors: Marlon Velthorst]

In this study, we attempt to predict the Dutch housing market trends using text mining and machine learning as an application of knowledge science methods in finance. However, Twitter, text mining (tokenization),machine learning (classification algorithms) have not been combined yet in order to predict the housing market trends in short term.Tweets including predefined search words are collected counting on domain knowledge, and therefore the corresponding text is grouped by month as document These values served as attributes to predict whether the housing market moves up or down,**(2019)**

EXISTING SYSTEM

Multi Linear Regression

It shows the relationship between two or more explanatory variables and scalar response variable .Independent variable value is associated with dependent variable value. **Limitations**

The dependent variable y must be continuous.. The independent variables can be of any type. The dependent variable is usually affected by the independent variables.

Proposed System

Linear Regression is a technique that helps to identify the relationship between a scalar response (or dependent variable) and one or more explanatory variables (or independent variables). The case of one explanatory variable is called simple linear regression.

Advantages

- Space complexity is very low it just needs to save the weights at the end of training.

hence it's a high latency algorithm.

- Its very simple to understand.
- Good interpretability.
- Feature importance is generated at the time model building. With the help of hyperparameter lamba, you can handle features selection hence we can achieve dimensionality reduction.

Chapter : 5

Problem formulation/Objectives

- Price of house/property is linked to our economy, Due to availablity of the huge data we do not have the accurate prices.

- Wanted to help the people to know the worth of their owned property in future.

Therefore, the goal of this project is to use machine learning and to predict the selling prices of the houses based on locality and many more economic factors. The objective is to predict the efficient house pricing for real estate customers with respect to their budgets and priorities. By analyzing previous market trends and price ranges, and also upcoming developments future prices will be predicted.

Chapter : 6
Planning of work

Phase 1: Collection of data

Data processing techniques and processes are numerous. We collected data from various websites. The data would be having attributes such as Location, carpet area, built-up area, age of the property, zip code, price, .We must collect the quantitative data which is structured and categorized.Dataset validity is a must otherwise there is no point in analyzing the data.

Phase 2: Data preprocessing

Data preprocessing is the process of cleaning our data set. There mightbe missing values or outliers in the dataset. These can be handled by data cleaning. If there are many missing values in a variable we will drop those values or substitute it with the average value.

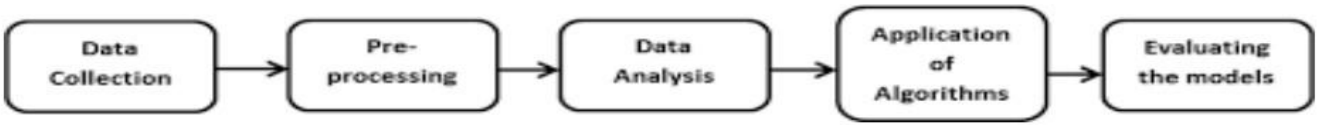
Phase 3: Training the model

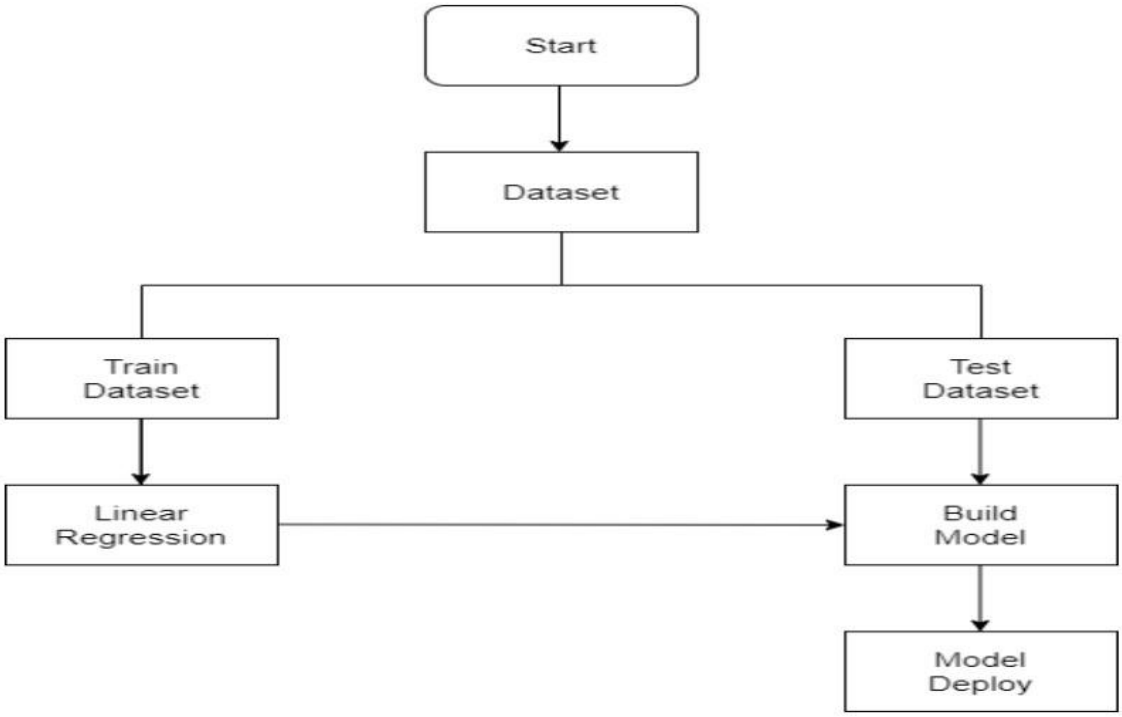
Since the data is broken down into two modules: a Training set and Testset, we must initially train the model. The training set includes the target variable. The decision tree regressor algorithm is applied to the training data set. The Decision tree builds a regression model in the form of a tree structure.

Phase 4: Testing and Integrating with UI

The trained model is applied to test dataset and house prices are predicted. The trained model is then integrated with the front end using Flask in python.

Methodology





Chapter : 7

Facilities required for proposed work

The main aim or focus of our project is to predict the accurate price of the real estate properties present in India for the next upcoming years through different Algorithms.

A.) Linear Regression

It is a supervised learning technique and responsible for predicting the value of a dependent variable (Y) based on the given independent variable (X).It is the relationship between the input(X) and output(Y) .

B.) Multiple correlation Analysis

It helps to take out the maximum degree of linear relationship that can be obtained between two or more independent variables and a single dependent variable.

C.) Classification Trees

Classification Trees are used to predict the object into classes of a categorial dependent variable based on the one or more predictor variables.
Technology used

A.) Machine Learning:-

The cleaned data is fed into the machine learning model, and we do some of the algorithms like linear regression , regression trees to test out our model.

B.) Front End (UI):-

The front end is basically the structure or a build up for a website. In this to receive an information for predicting the price .It takes the form data entered by the user and executes the function which employes the prediction model to calculate the predicted price for the house.
Hardware Requirements

- Processor – (minimum)i3
- Hard Disk – 2 GB

- Memory – 1GB RAM

Software Requirements

- Windows 7(ultimate, enterprise)
- Visual studio (Latest)
- Python
- Jupyter

CONCLUSION

The main aim of this project is to determine the prediction of prices. Price can be predicted through many factors like the surrounding, marketplaces and many related factors with the house. We have first cleaning and exploring of the input data. The predicted data can be stored in the database and app or website can be made for the people, as people can have the brief idea of the property. We have performed ensembles of regression trees, knearest neighbour , linear regression as we understand that parameterization of the can drive the significant result in the performance.

Chapter : 8

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