SOFTWARE GROUP PROJECT-II

CE255

House Price Predictor

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Project Description

- In this project we will create a machine learning model with the decision tree algorithm on train.csv dataset.
- This model will aid us in making better real estate decisions by making house price predictions in that area.
- For this we will carryout data exploration for better understanding of data and will require preprocessing to improve the model accuracy.

Current System vs Proposed System

Current System

Prices of real estate properties are sophisticatedly linked with our economy. Despite this, we do not have accurate measures of housing prices based on the vast amount of data available. Hence real estate agents are trusted with the communication between buyers and sellers.

Limitations of Current System

High Commissions When sellers sell their homes, margins are imposed, and customers are charged to engage a broker. This adds a layer of complexity to the process and raises the expense of housing.

Proposed System

By predicting property prices in that location, this model will help us make better real estate selections. This will reduce commissions and save time because it can estimate pricing in a matter of seconds!

GOALS

Our First Goal

Identify the important house price attributes which feed the model’s predictive power.

Our Second Goal

Create an effective price prediction model.

Our Third Goal

Validate the model’s prediction accuracy.

TECHNOLOGIES USED

Hardware and Software Requirements

- HDD : 512GB
- Processor : i3
- RAM : 4GB or more
- Device: Mobile , Laptop, Tablet
- Visual Studio Code
- Anaconda
- Sublime Text

Gantt Chart

		DEC - JAN	FEBRUARY	MARCH	APRIL
MIRAL	Creating Model				
MAHARSHI	UI/UX Design				
ANISH	Connecting UI with Model				
MAHARSHI ANISH	Documentation				

Implementation Details

```
from sklearn.ensemble import RandomForestRegressor
# from sklearn.metrics import r2_score

rf_model = RandomForestRegressor(n_estimators=100, random_state=42)

rf_model.fit(X_train, y_train)

preds = rf_model.predict(X_valid)

print('Random Forest: ', r2_score(y_valid, preds))
```

```
Random Forest:  0.7949180696615127
```

```
dt = DecisionTreeRegressor()
dt.fit(X_train, y_train)

preds = dt.predict(X_train)

r2_score(y_train, preds)
```

```
0.9999711666333725
```

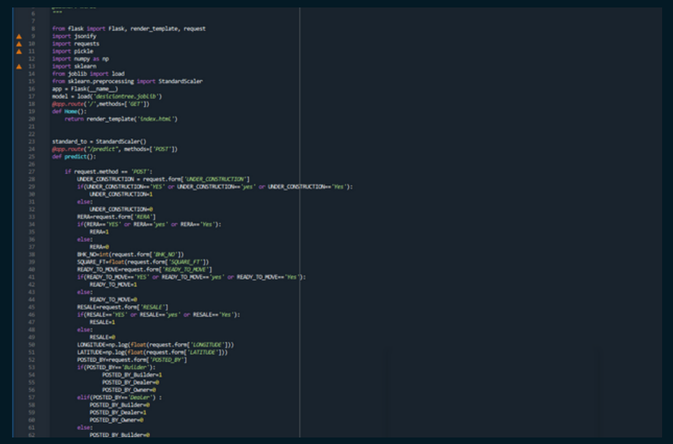
```
from joblib import dump,load
dump(dt, 'desiciontree.joblib')
```

```
['desiciontree.joblib']
```

```
# from joblib import dump,load
# import numpy as np
model = load('desiciontree.joblib')
features = np.array([[0,0,2,1275.000000,1,1,2.507527,4.339179,0,1,0,1,0,0,1,0]])
model.predict(features)
```

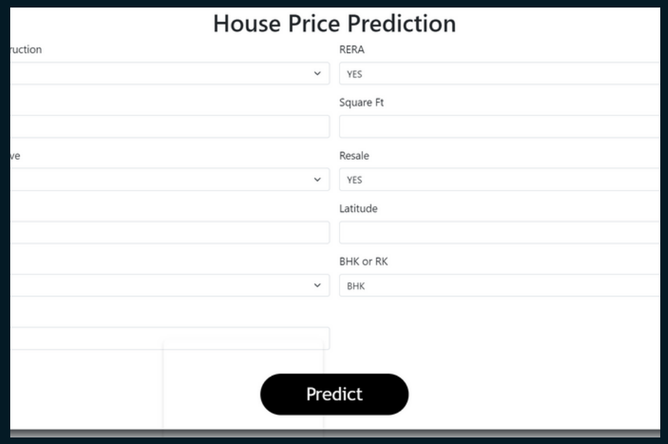
Prediction Model

- Data set : train.csv from kaggle
- Model : Decision tree regressor



Flask Implemention

- Frontend : Html , CSS
- Framework : Flask



Final Project

Input fields : 11

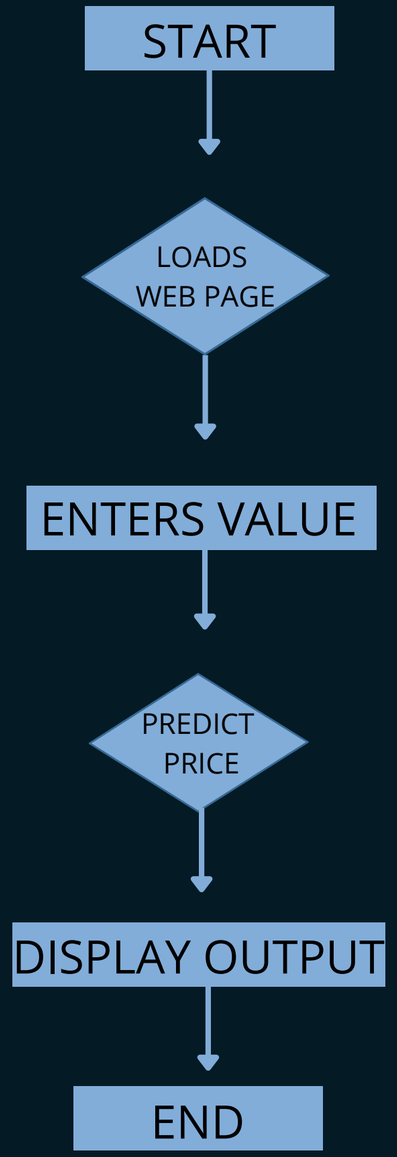
System Flowchart

On user end

1. User loads the webpage by clicking on the url.
2. Enters values for the pre defined features.
3. Click on predict button.
4. The webpage displays output for the same.

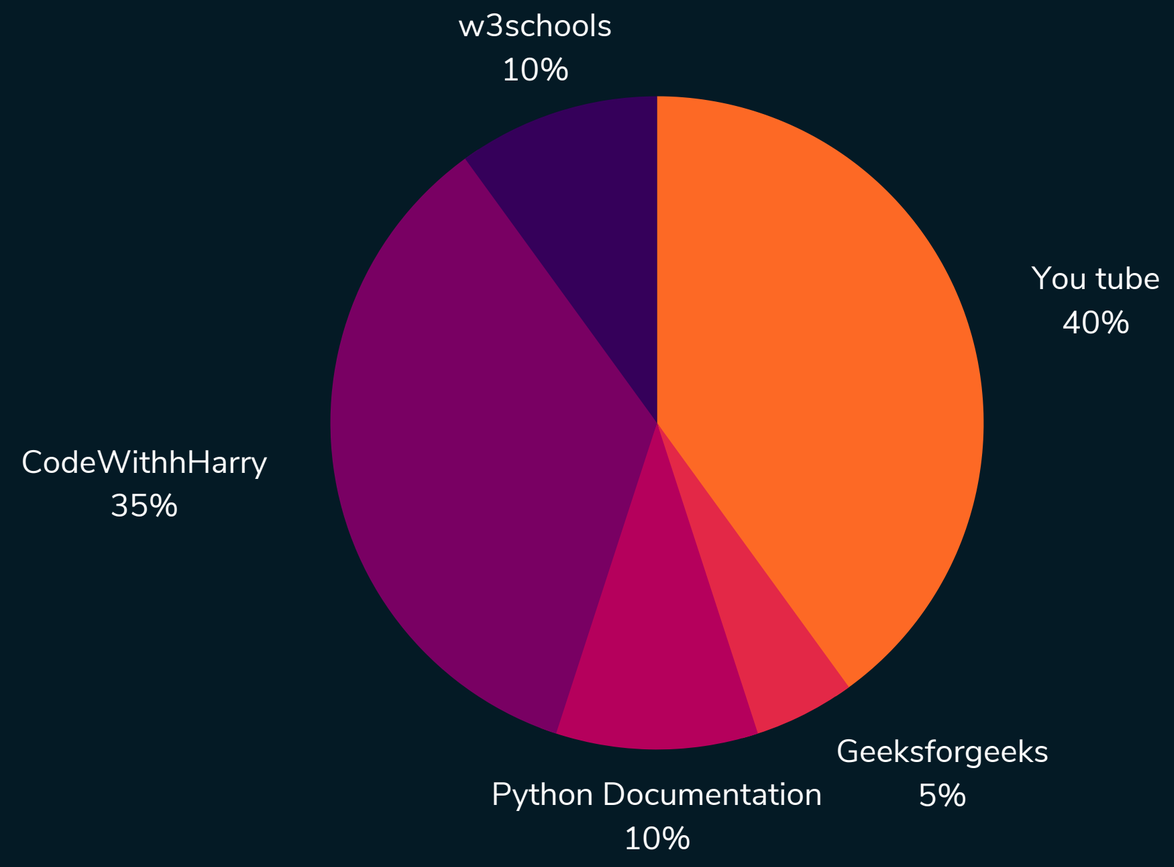
On our end

1. User entered values are fetched to app.py and processed according to the logic.
2. Values are send to predict() function that goes through the model and predicts price.
3. The output is fetched by the app.py and get displayed on webpage.



LIMITATIONS and FUTURE SCOPE

- This system cannot be used all over India because we did not use a data set that contains data from all cities.
- Based on the results, it can be concluded that such ML-driven predictions are easily comprehendible and significant from a data-analytics point of view.



References

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THANK YOU!