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Batch Code: LISUM11

Week 5: Heroku Deployment

Submission Date: 8/4/22

1. Data from Kaggle for Data Scientist Salaries -
'<https://www.kaggle.com/datasets/ruchi798/data-science-job-salaries>'
2. Model developed on Colab - Simple Multiple Linear regression model to predict housing prices based on number of bathrooms, bedrooms, square footage, and year built.
3. Heroku website: <https://housing-model-pred.herokuapp.com/>
4. Snapshots:
 - a. Model Build

```
[ ] import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
```

```
[ ] data = pd.read_csv('/content/data.csv')
data.head()
```

	date	price	bedrooms	bathrooms	sqft_living	sqft_lot	floors	waterfront	view	condition	sqft_above	sqft_basement	yr_built	yr_renovated	street	city	state	zip	country
0	2014-05-02 00:00:00	313000.0	3.0	1.50	1340	7912	1.5	0	0	3	1340	0	1955	2005	18810 Densmore Ave N	Shoreline	WA	98133	USA
1	2014-05-02 00:00:00	2384000.0	5.0	2.50	3650	9050	2.0	0	4	5	3370	280	1921	0	709 W Blaine St	Seattle	WA	98119	USA
2	2014-05-02 00:00:00	342000.0	3.0	2.00	1930	11947	1.0	0	0	4	1930	0	1966	0	26206-26214 143rd Ave SE	Kent	WA	98042	USA
3	2014-05-02 00:00:00	420000.0	3.0	2.25	2000	8030	1.0	0	0	4	1000	1000	1963	0	857 170th PI NE	Bellevue	WA	98008	USA
4	2014-05-02 00:00:00	550000.0	4.0	2.50	1940	10500	1.0	0	0	4	1140	800	1976	1992	9105 170th Ave NE	Redmond	WA	98052	USA

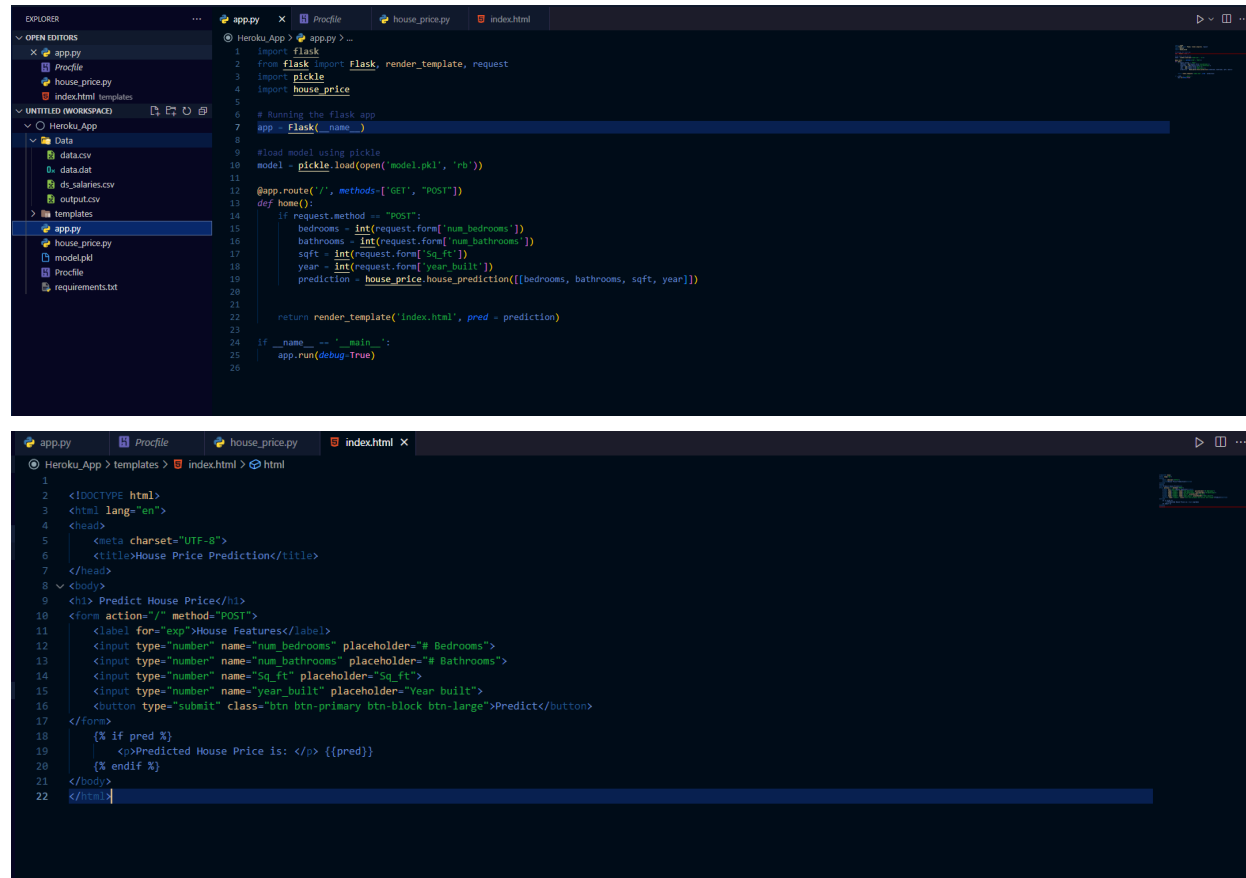


```
[ ] X= data[['bedrooms', 'bathrooms', 'sqft_living', 'yr_built']]
y = data['price']
```

```
[ ] from sklearn.model_selection import train_test_split
X_train, X_test, y_train, y_test = train_test_split(X,y, test_size = .2, random_state = 0)
```

```
[ ] from sklearn.linear_model import LinearRegression
regressor = LinearRegression()
regressor.fit(X_train.values, y_train)
```

b. Flask Build:



The first screenshot shows the Python code for the Flask application in `app.py`. It imports `Flask`, `render_template`, and `request` from `flask`, and `pickle` from the `pickle` module. It then loads a pre-trained model from `model.pkl`. The application has a single route `/` that handles both GET and POST requests. For POST requests, it extracts the number of bedrooms, number of bathrooms, square feet, and year built from the request form, and uses the `house_price` model to make a prediction. The prediction is then passed to the `index.html` template. The code also includes a `__main__` block to run the application in debug mode.

```
1 import flask
2 from flask import Flask, render_template, request
3 import pickle
4 import house_price
5
6 # Running the flask app
7 app = Flask(__name__)
8
9 #load model using pickle
10 model = pickle.load(open('model.pkl', 'rb'))
11
12 @app.route('/', methods=['GET', 'POST'])
13 def home():
14     if request.method == "POST":
15         bedrooms = int(request.form['num_bedrooms'])
16         bathrooms = int(request.form['num_bathrooms'])
17         sqft = int(request.form['sq_ft'])
18         year = int(request.form['year_built'])
19         prediction = house_price.house_prediction([bedrooms, bathrooms, sqft, year])
20
21     return render_template('index.html', pred = prediction)
22
23
24 if __name__ == '__main__':
25     app.run(debug=True)
26
```

The second screenshot shows the HTML template `index.html`. It is a simple web page with a title "House Price Prediction" and a form to input house features. The form has four input fields: "num_bedrooms", "num_bathrooms", "sq_ft", and "year_built". A "Predict" button is at the bottom of the form. Below the form, there is a conditional statement that checks if a prediction is available and displays it.

```
1
2 <!DOCTYPE html>
3 <html lang="en">
4 <head>
5     <meta charset="UTF-8">
6     <title>House Price Prediction</title>
7 </head>
8 <body>
9     <h1> Predict House Price</h1>
10    <form action="/" method="POST">
11        <label for="exp">House Features</label>
12        <input type="number" name="num_bedrooms" placeholder="# Bedrooms">
13        <input type="number" name="num_bathrooms" placeholder="# Bathrooms">
14        <input type="number" name="sq_ft" placeholder="Sq ft">
15        <input type="number" name="year_built" placeholder="Year built">
16        <button type="submit" class="btn btn-primary btn-block btn-large">Predict</button>
17    </form>
18    {% if pred %}
19        <div>Predicted House Price is: </div> {{pred}}
20    {% endif %}
21 </body>
22 </html>
```

c. Heroku Deployment: Website - <https://housing-model-pred.herokuapp.com/>