Cloud and API deployment

Name: New York Housing Market App
Report date: 04/03/2024
Internship Batch: LISUM30
Version: 1.0
Data intake by: Konstantinos Soufleros
Data intake reviewer: Data Glacier
Data storage location: https://github.com/kostas696/DG_Intern

Tabular data details: NY-House-Dataset.csv

Total number of observations	4801
Total number of files	1
Total number of features	17
Base format of the file	.csv
Size of the data	1.27 MB

Step 1: Flask API

```
from flask import Flask, render_template, request
from flask import jsonify
import pickle
import numpy as np
import pandas as pd
import warnings
warnings.filterwarnings("ignore", category=UserWarning)


app = Flask(__name__)

# Set the static folder path
app.config['STATIC_FOLDER'] = 'static'

with open('xgb_model.pkl', 'rb') as model_file:
    xgb_model = pickle.load(model_file)

# Define the prediction route
@app.route('/', methods=['GET'])
def index():
    return render_template('index.html')

# Define the prediction route
@app.route('/predict', methods=['POST'])
def predict():
```

```
    # Get the JSON data from the request
    data = request.get_json()

    # Create a DataFrame from the JSON data
    df = pd.DataFrame({
        'TYPE': [data.get('property_type')],
        'SUBLOCALITY': [data.get('neighborhood')],
        'BEDS': [int(data.get('bedrooms'))],
        'BATH': [int(data.get('baths'))],
        'PROPERTYSQFT': [int(data.get('property_sqft'))]
    })

    # Make prediction
    predicted_log_price = xgb_model.predict(df)

    # Un-log the predicted price
    predicted_price = np.round(np.exp(predicted_log_price)[0], 2)

    # Return the predicted price as JSON response
    return jsonify({"prediction_text": "<b>House price should be
${:.2f}</b>".format(predicted_price)})

if __name__ == '__main__':
    app.run(port=5000, debug=False)
```

Step 2. Requirement.txt

Flask==2.2.5

gunicorn==21.2.0

itsdangerous==2.1.2

Jinja2==3.1.3

MarkupSafe==2.1.5

Werkzeug==3.0.1

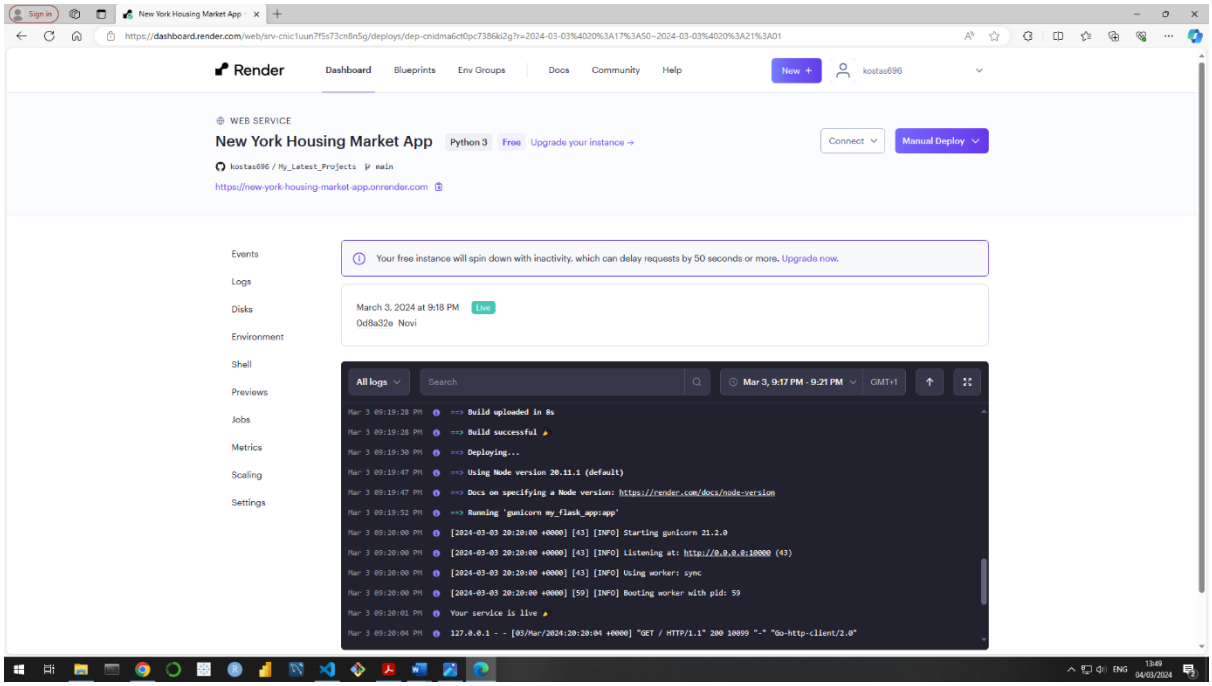
numpy==1.25.2

scipy==1.11.4

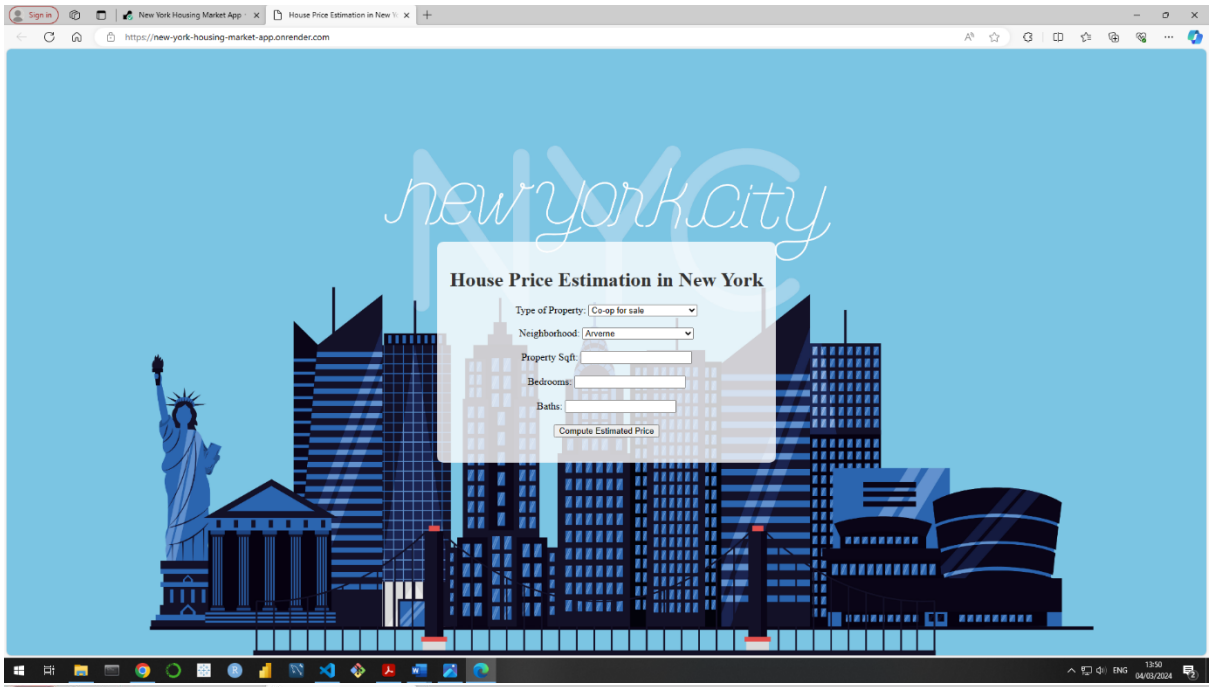
scikit-learn==1.2.2

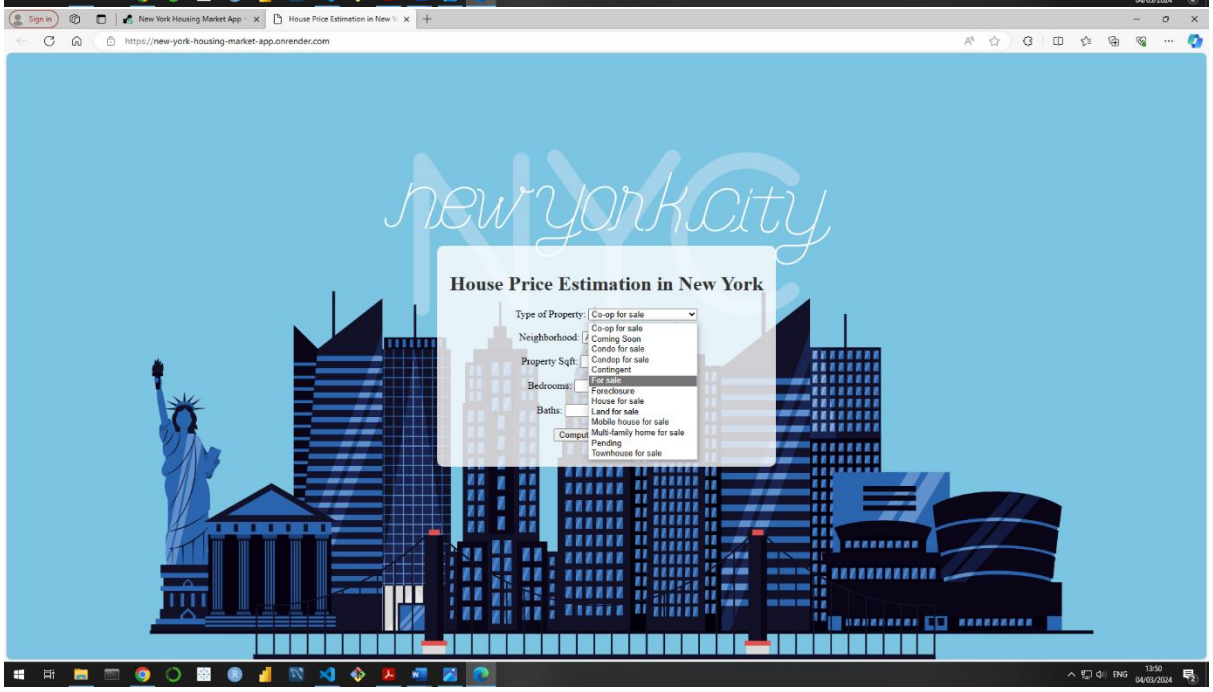
pandas==1.5.3

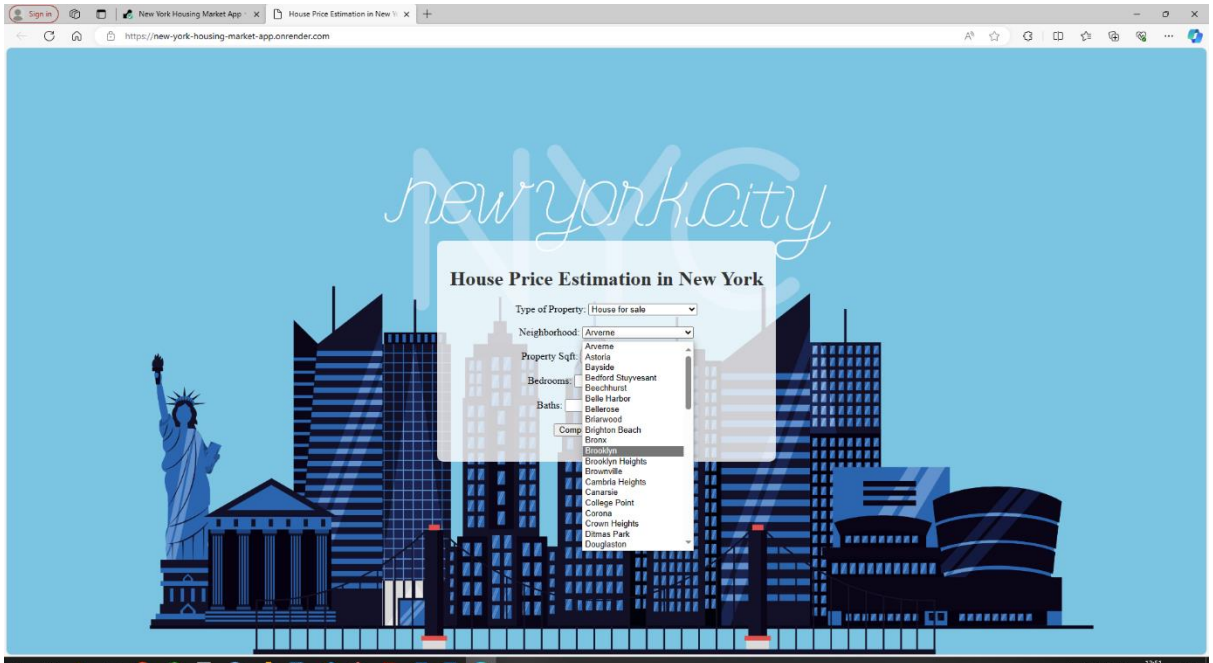
Step 3. Create a new app in Render

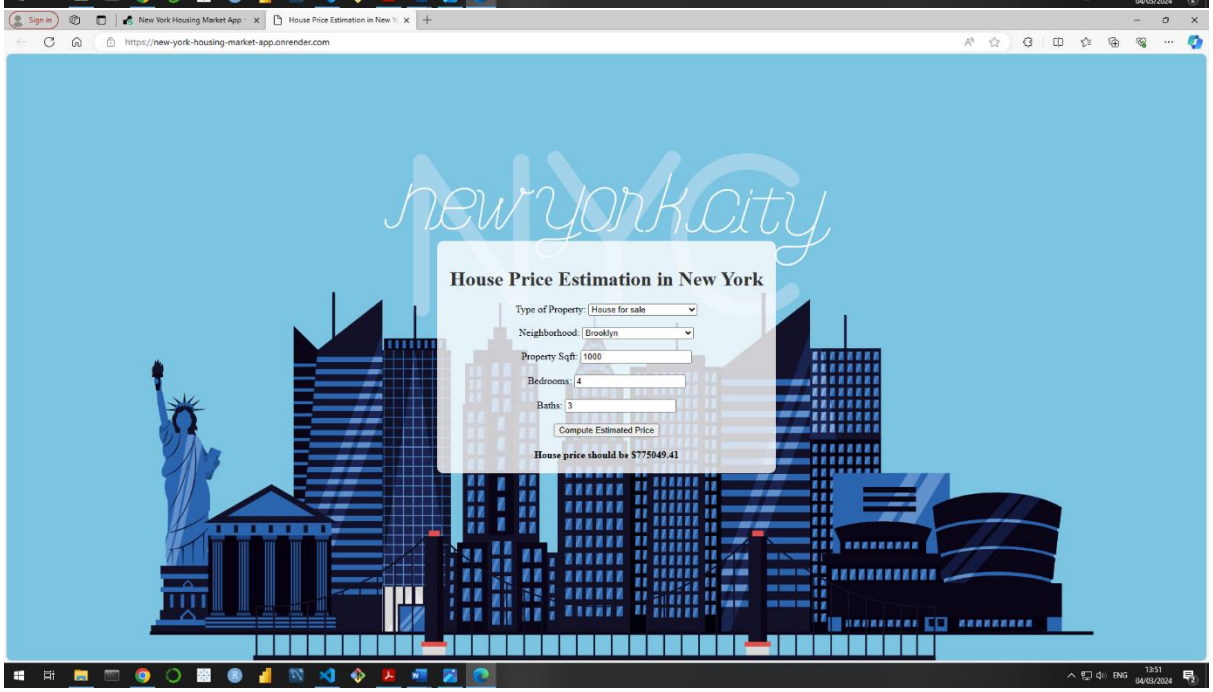


Step 4: Test the app (https://new-york-housing-market-app.onrender.com)






https://new-york-housing-market-app.onrender.com
newyorkcity
House Price Estimation in New York
Type of Property: House for sale
Neighborhood: Arverne
Property Sqft:
Bedrooms:
Baths:
Comp
Arverne
Astoria
Bayside
Bedford Stuyvesant
Beechhurst
Belle Harbor
Bellerose
Briarwood
Brighton Beach
Bronx
Brooklyn
Brooklyn Heights
Brownville
Cambria Heights
Canarsie
College Point
Corona
Crown Heights
Ditmas Park
Douglaston


https://new-york-housing-market-app.onrender.com
newyorkcity
House Price Estimation in New York
Type of Property: House for sale
Neighborhood: Brooklyn
Property Sqft: 1000
Bedrooms: 4
Baths: 3
Compute Estimated Price
House price should be $775049.41