

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

The screenshot displays the Render dashboard for a user named 'kostas696'. The main heading is 'New York Housing Market App' with a 'Python 3' tag and a 'Free' tier label. A 'Connect' button and a 'Manual Deploy' button are visible. Below this, a message states: 'Your free instance will spin down with inactivity, which can delay requests by 50 seconds or more. Upgrade now.' The deployment details show 'March 3, 2024 at 9:18 PM' and '0d8a32e Nov'. A sidebar on the left lists various management options: Events, Logs, Disks, Environment, Shell, Previews, Jobs, Metrics, Scaling, and Settings. The 'Logs' section is expanded, showing a terminal view of the deployment process. The logs include the following entries:

```
Mar 3 09:19:28 PM [INFO] Build uploaded in 8s
Mar 3 09:19:28 PM [INFO] Build successful
Mar 3 09:19:30 PM [INFO] Deploying...
Mar 3 09:19:47 PM [INFO] Using Node version 20.11.1 (default)
Mar 3 09:19:47 PM [INFO] Docs on specifying a Node version: https://render.com/docs/node-version
Mar 3 09:19:52 PM [INFO] Running 'gunicorn my_flask_app:'
Mar 3 09:20:00 PM [2024-03-03 20:20:00 +0000] [43] [INFO] Starting gunicorn 21.2.0
Mar 3 09:20:00 PM [2024-03-03 20:20:00 +0000] [43] [INFO] Listening at: http://0.0.0.0:8000 (43)
Mar 3 09:20:00 PM [2024-03-03 20:20:00 +0000] [43] [INFO] Using worker: sync
Mar 3 09:20:00 PM [2024-03-03 20:20:00 +0000] [59] [INFO] Booting worker with pid: 59
Mar 3 09:20:01 PM [INFO] Your service is live
Mar 3 09:20:04 PM [227.0.0.1 - - [03/Mar/2024:20:20:04 +0000] "GET / HTTP/1.1" 200 10000 "-" "Go-http-client/2.0"]
```

The bottom of the screen shows a Windows taskbar with various application icons and a system clock indicating 13:49 on 04/03/2024.

The image displays two sequential screenshots of a web application titled "new york city" and "House Price Estimation in New York". The background features a stylized illustration of the New York City skyline, including the Statue of Liberty and various skyscrapers. The application form is centered on the page. In the top screenshot, the form fields are: "Type of Property" (dropdown menu), "Neighborhood" (dropdown menu), "Property Sqft" (text input), "Bedrooms" (text input), and "Baths" (text input). A "Compute Estimated Price" button is located below the inputs. The bottom screenshot shows the "Neighborhood" dropdown menu expanded, revealing a list of property types and locations, including "Co-op for sale", "Condo for sale", "Foreclosure", "House for sale", "Land for sale", "Mobile home for sale", "Multi-family home for sale", "Ponding", and "Townhouse for sale". The browser's address bar shows the URL "https://new-york-housing-market-app.onrender.com". The system tray at the bottom of the browser window indicates the time as 13:50 on 04/05/2024.

