

Week 5: Cloud and API Deployment

Name: Cloud and API deployment

Report date: 04-June-2023

Internship Batch: LISUM21

Version:1.0

Data intake by: Ece Yavuzylmaz

Data intake reviewer : Data Glacier

Data storage location:

https://github.com/eceyy/Data_Glacier_Intership_2023/tree/main/Week%205/workflows

Tabular data details:

Total number of observations	5000
Total number of files	1
Total number of features	7
Base format of the file	csv
Size of the data	709 KB

Step 1: Flask API

```
!pip install flask --quiet
!pip install flask-ngrok --quiet

[29] !wget https://bin.equinox.io/c/4VmDzA7iaHb/ngrok-stable-linux-amd64.tgz

--2023-05-28 13:56:54-- https://bin.equinox.io/c/4VmDzA7iaHb/ngrok-stable-linux-amd64.tgz
Resolving bin.equinox.io (bin.equinox.io)... 52.202.168.65, 18.205.222.128, 54.161.241.46, ...
Connecting to bin.equinox.io (bin.equinox.io)|52.202.168.65|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 13856790 (13M) [application/octet-stream]
Saving to: 'ngrok-stable-linux-amd64.tgz'

ngrok-stable-linux- 100%[=====] 13.21M 12.7MB/s in 1.0s

2023-05-28 13:56:55 (12.7 MB/s) - 'ngrok-stable-linux-amd64.tgz' saved [13856790/13856790]

[30] !tar -xvf /content/ngrok-stable-linux-amd64.tgz

ngrok

[31] !./ngrok authtoken 23H0IY10fqeKMIW7kG05JhKZMae_3Zabr21qkU9AUcZ7CrRTP
```

✓
25
sn.



```
# import Flask from flask module
from flask import Flask

# import run_with_ngrok from flask_ngrok to run the app using ngrok
from flask_ngrok import run_with_ngrok
from flask import Flask, request, render_template
app = Flask(__name__) #app name
run_with_ngrok(app)

model = pickle.load(open('model.pkl','rb'))

@app.route('/')
def home():
    return render_template('index.html')

#Set a post method to yield predictions on page
@app.route('/', methods = ['POST'])
def predict():

    #obtain all form values and place them in an array, convert into integers
    int_features = [int(x) for x in request.form.values()]
    #Combine them all into a final numpy array
    final_features = [np.array(int_features)]
    #predict the price given the values inputted by user
    prediction = model.predict(final_features)
```

✓
25
sn.

[37]

```
#Round the output to 2 decimal places
output = round(prediction[0], 2)

#If the output is negative, the values entered are unreasonable to the context of the application
#If the output is greater than 0, return prediction
if output < 0:
    return render_template('index.html', prediction_text = "Predicted Price is negative, values entered not reasonable")
elif output >= 0:
    return render_template('index.html', prediction_text = 'Predicted Price of the house is: {}'.format(output))

#Run app
if __name__ == "__main__":
    app.run()

* Serving Flask app '__main__'
* Debug mode: off
INFO:werkzeug:WARNING: This is a development server. Do not use it in a production deployment. Use a production WSGI server
* Running on http://127.0.0.1:5000
INFO:werkzeug:Press CTRL+C to quit
* Running on http://ce5d-34-147-48-184.ngrok-free.app
* Traffic stats available on http://127.0.0.1:4040
INFO:werkzeug:127.0.0.1 - - [28/May/2023 13:57:33] "GET / HTTP/1.1" 200 -
INFO:werkzeug:127.0.0.1 - - [28/May/2023 13:57:37] "GET /favicon.ico HTTP/1.1" 404 -
```

Step 2. Requirement.txt

```
[ ] !pip install pipreqs
```

```
Looking in indexes: https://pypi.org/simple, https://us-python.pkg.dev/colab-wheels/public/simple/
Collecting pipreqs
  Downloading pipreqs-0.4.13-py2.py3-none-any.whl (33 kB)
Collecting docopt (from pipreqs)
  Downloading docopt-0.6.2.tar.gz (25 kB)
  Preparing metadata (setup.py) ... done
Collecting yarg (from pipreqs)
  Downloading yarg-0.1.9-py2.py3-none-any.whl (19 kB)
Requirement already satisfied: requests in /usr/local/lib/python3.10/dist-packages (from yarg->pipreqs) (2.27.1)
Requirement already satisfied: urllib3<1.27,>=1.21.1 in /usr/local/lib/python3.10/dist-packages (from requests->yarg->pipreqs) (1.26.15)
Requirement already satisfied: certifi>=2017.4.17 in /usr/local/lib/python3.10/dist-packages (from requests->yarg->pipreqs) (2022.12.7)
Requirement already satisfied: charset-normalizer~=2.0.0 in /usr/local/lib/python3.10/dist-packages (from requests->yarg->pipreqs) (2.0.12)
Requirement already satisfied: idna<4,>=2.5 in /usr/local/lib/python3.10/dist-packages (from requests->yarg->pipreqs) (3.4)
Building wheels for collected packages: docopt
  Building wheel for docopt (setup.py) ... done
  Created wheel for docopt: filename=docopt-0.6.2-py2.py3-none-any.whl size=13707 sha256=60d77673781f9dd856ab0e05517f4c9114b674c04ec28610917dbf023a4dd349
  Stored in directory: /root/.cache/pip/wheels/fc/ab/d4/5da2067ac95b36618c629a5f93f809425700506f72c9732fac
Successfully built docopt
Installing collected packages: docopt, yarg, pipreqs
Successfully installed docopt-0.6.2 pipreqs-0.4.13 yarg-0.1.9
```

```
[ ] !pipreqs .
```

```
INFO: Successfully saved requirements file in ./requirements.txt
```

Step 3. Create a new app in Azure

[Giriş](#) > [Kaynak oluşturun](#)

Web Uygulaması Oluştur ...

[Daha fazla bilgi edinin](#)

Proje Ayrıntıları

Dağıtılan kaynakları ve maliyetleri yönetmek için bir abonelik seçin. Tüm kaynakları düzenlemek ve yönetmek için klasörler gibi kaynak gruplarını kullanın.

Abonelik * ⓘ

Azure for Students

—

Kaynak Grubu * ⓘ

(Yeni) predict-house_group

[Yeni oluşturun](#)

Örnek Ayrıntıları

Veritabanı mı gerekiyor? [Yeni Web + Veritabanı deneyimini deneyin.](#) ⓘ

Ad *

predict-house

.azurewebsites.net

Yayımla *

☒

Kod

☐

Docker Kapsayıcısı

☐

Statik Web Uygulaması

Çalışma zamanı yığını *

Python 3.10

[Gözet](#) [Başlat](#) [Değiştir](#) [Yeniden Başlat](#) [Sil](#) | [Yenile](#) [Yayımlama profili indir](#) [Yayımlama profilini sıfırla](#) [Mobil cihazlarda paylaş](#)

^ Temel Parçalar

[JSON Görünümü](#)

Kaynak grubu ([taşı](#)) : [predict-deneme_group](#) Varsayılan etki alanı : [predict-deneme.azurewebsites.net](#)
Durum : Durdu App Service Planı : [ASP-deneme2-88a5 \(F1: 1\)](#)
Konum ([taşı](#)) : East US İşletim Sistemi : Linux
Abonelik ([taşı](#)) : [Azure for Students](#) Sistem Durumu Denetimi : [Yapılandırılmadı](#)
Abonelik Kimliği : 628e63fa-65f7-4ee6-8e3b-4d09dce082bc GitHub Proje : [https://github.com/eceyy/deneme2](#)
Etiketler ([düzenle](#)) : [Etiket eklemek için buraya tıklayın](#)

[Özellikler](#) [İzleme](#) [Günlükler](#) [Özellikler](#) [Bildirimler](#) [Öneriler](#)



Web uygulaması

Ad : predict-deneme
Yayımlama modeli : Kod
Çalışma Zamanı Yığını : Python - 3.10

Step 4. Finish the build and deploy it

main_predict-deneme.yml

on: push

✓ build

45s

✓ deploy

32s

[https://predict-deneme.azurewebsites.net](#)



Artifacts

Produced during runtime

Name

Size



python-app

53.9 MB



[Code](#)[Blame](#)

63 lines (50 loc) · 1.71 KB

[Raw](#)

```
7   on:
8     push:
9       branches:
10        - main
11     workflow_dispatch:
12
13   jobs:
14     build:
15       runs-on: ubuntu-latest
16
17       steps:
18         - uses: actions/checkout@v3
19
20         - name: Set up Python version
21           uses: actions/setup-python@v3
22           with:
23             python-version: '3.10'
24
25         - name: Create and start virtual environment
26           run: |
27             python -m venv venv
28             source venv/bin/activate
29
30         - name: Install dependencies
31           run: pip install -r requirements.txt
32
33
34
35     - name: Upload artifact for deployment jobs
36       uses: actions/upload-artifact@v3
37       with:
38         name: python-app
39         path: |
40           .
41           !venv/
42
43     deploy:
44       runs-on: ubuntu-latest
45       needs: build
46       environment:
47         name: 'Production'
48         url: ${ steps.deploy-to-webapp.outputs.webapp-url }
49
50       steps:
51         - name: Download artifact from build job
52           uses: actions/download-artifact@v3
53           with:
54             name: python-app
55             path: .
56
57         - name: 'Deploy to Azure Web App'
58           uses: azure/webapps-deploy@v2
59           id: deploy-to-webapp
60           with:
```

Step 5. Testing the model

Average Area Income

Average House Age

Average Number of Rooms

Average Number of Bedrooms

Average Area Population

Predict

Average Area Income

Average House Age

Average Number of Rooms

Average Number of Bedrooms

Average Area Population

Predict

Predicted Price of the house is: \$145641.47