

Week 5: Cloud Deployment on Heroku

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Batch Code: **LISP01**

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Step 1: Flask API

```
Welcome  app.py  x  # style.css  < index.html
app.py > predict
1  import numpy as np
2  import pickle
3  from flask import Flask, request, render_template
4
5  app = Flask(__name__)
6  model = pickle.load(open('model/model.sav', 'rb'))
7
8  @app.route('/')
9  def home():
10     return render_template('index.html')
11
12  @app.route('/predict', methods=['POST'])
13  def predict():
14     flag = False
15     if request.method == "POST":
16         bedroom = int(request.form.get('bedroom'))
17         bathroom = int(request.form.get('bathroom'))
18         surface = float(request.form.get('surface'))
19         longitude = float(request.form.get('longitude'))
20         latitude = float(request.form.get('latitude'))
21         ptype = int(request.form.get('ptype'))
22
23         raw_features = [bathroom, bedroom, surface, longitude, latitude, ptype]
24         features = [np.array(raw_features)]
25
26         prediction = model.predict(features)
27         output = round(prediction[0], 2)
28         return render_template('index.html', flag=True, prediction_text=f'House price should be €{output}.')
29
```

Step 2: Added requirements.txt

```
aman@PC: ~/Documents/AMAN/COURSES/Data Glacier Internship/GITHUB/Data-Science-Internship2021/Week 5/mldeploy$ pip freeze > requirements.txt
WARNING: Could not generate requirement for distribution -ip 21.0 (/usr/local/lib/python3.8/dist-packages): Parse error at "'-ip==21.'" : Expected W:(abcd...)
aman@PC:~/Documents/AMAN/COURSES/Data Glacier Internship/GITHUB/Data-Science-Internship2021/Week 5/mldeploy$ less requirements.txt
aman@PC:~/Documents/AMAN/COURSES/Data Glacier Internship/GITHUB/Data-Science-Internship2021/Week 5/mldeploy$ git add .
aman@PC:~/Documents/AMAN/COURSES/Data Glacier Internship/GITHUB/Data-Science-Internship2021/Week 5/mldeploy$ cd ..
aman@PC:~/Documents/AMAN/COURSES/Data Glacier Internship/GITHUB/Data-Science-Internship2021/Week 5$ cd ..
aman@PC:~/Documents/AMAN/COURSES/Data Glacier Internship/GITHUB/Data-Science-Internship2021$ git add .
aman@PC:~/Documents/AMAN/COURSES/Data Glacier Internship/GITHUB/Data-Science-Internship2021$ git commit -m "Week 5 files added"
[main 15b017f] Week 5 files added
103 files changed, 47376 insertions(+)
create mode 100644 Week 5/mldeploy/.gitignore
create mode 100644 Week 5/mldeploy/Procfile
create mode 100644 Week 5/mldeploy/app.py
create mode 100644 Week 5/mldeploy/model/model.sav
create mode 100644 Week 5/mldeploy/requirements.txt
create mode 100755 Week 5/mldeploy/static/css/main.css
```

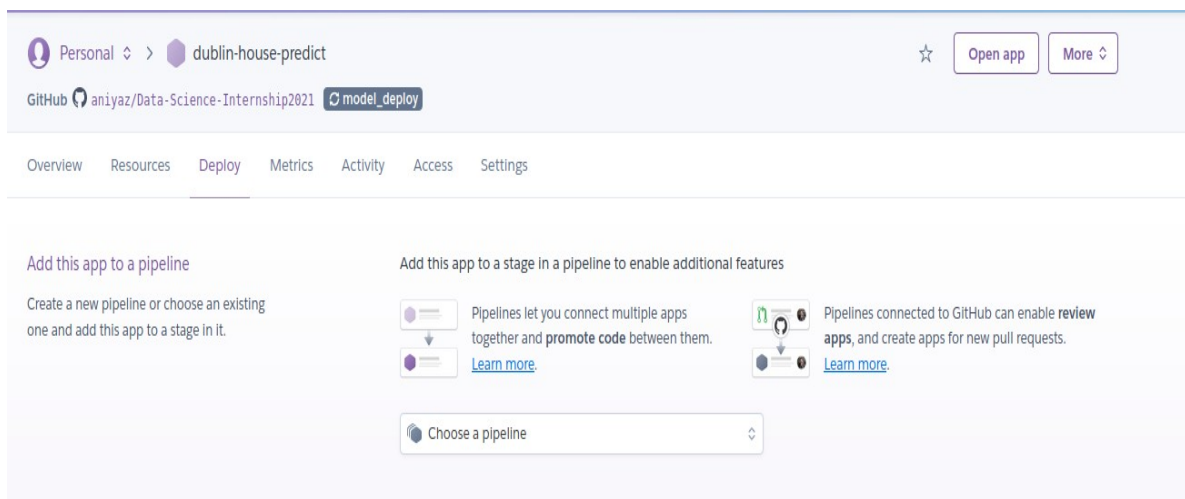
Step 3: Create another branch for Heroku deployment

```
aman@PC: ~/Documents/AMAN/COURSES/Data Glacier Inter...  
15b017f..9f52ac0  main -> main  
aman@PC:~/Documents/AMAN/COURSES/Data Glacier Internship/GITHUB/Data-Science-Int  
ernship2021$ git checkout -b model_deploy  
Switched to a new branch 'model_deploy'
```

Step 4: Create Procfile for Heroku

```
Procfile  
Week5 > mldeploy > Procfile  
1 web: gunicorn app:app
```

Step 5: Create a new app in Heroku: *dublin-house-predict*



Step 6: Select the repo from Github and select a branch in which application is written and then deploy

App connected to GitHub

Code diffs, manual and auto deploys are available for this app.

Connected to [anlyaz/Data-Science-Internship2021](#) by anlyaz

Disconnect...

- Releases in the [activity feed](#) link to GitHub to view commit diffs
- Automatically deploys from model_deploy

Automatic deploys

Enables a chosen branch to be automatically deployed to this app.

You can now change your main deploy branch from "master" to "main" for both manual and automatic deploys, please follow the instructions [here](#).

Automatic deploys from model_deploy are enabled

Every push to model_deploy will deploy a new version of this app. **Deploys happen automatically:** be sure that this branch in GitHub is always in a deployable state and any tests have passed before you push. [Learn more](#).

☐ Wait for CI to pass before deploy

Only enable this option if you have a Continuous Integration service configured on your repo.

Disable Automatic Deploys

Manual deploy

Deploy the current state of a branch to this app.

Deploy a GitHub branch

This will deploy the current state of the branch you specify below. [Learn more](#).

Choose a branch to deploy

model_deploy

Deploy Branch

Step 7: Heroku install the necessary requirements and then finishes the build and deploy it.

```
Downloading typed_ast-1.4.2-cp36-cp36m-manylinux1_x86_64.whl (743 kB)
Collecting decorator>=4.3.0
Downloading decorator-4.4.2-py2.py3-none-any.whl (9.2 kB)
Building wheels for collected packages: sklearn, gunicorn, wrapt
Building wheel for sklearn (setup.py): started
Building wheel for sklearn (setup.py): finished with status 'done'
Created wheel for sklearn: filename=sklearn-0.0-py2.py3-none-any.whl size=1315 sha256=a63112d097b0638e35043a96c343f783dc196d3e507cf355417fc126f10213a1
Stored in directory: /tmp/pip-ephem-wheel-cache-b9amznpt/wheels/23/9d/42/5ec745cbb1751700a53cecc49d6a865450d1f5cb16dc8a9c
Building wheel for gunicorn (setup.py): started
Building wheel for gunicorn (setup.py): finished with status 'done'
Created wheel for gunicorn: filename=gunicorn-20.1.0-py3-none-any.whl size=78918 sha256=00e47bee94e04f0fd67c8ec79b78eb8937f76fe5e32527ab669737d971275d92
Stored in directory: /tmp/pip-ephem-wheel-cache-b9amznpt/wheels/9a/86/37/cad4bc71746b420e17c4eb0f5c41cf7b5e653c1fdbda27d198
Building wheel for wrapt (setup.py): started
Building wheel for wrapt (setup.py): finished with status 'done'
Created wheel for wrapt: filename=wrapt-1.12.1-cp36-cp36m-linux_x86_64.whl size=75946
sha256=027fecel1325c30bd39b17e32a157736abdb970258805bb53a378ede13552c3e
Stored in directory: /tmp/pip-ephem-wheel-cache-b9amznpt/wheels/32/42/7f/23cae9ff6ef66798d00dc5d659088e57dbba01566f6c60db63
Successfully built sklearn gunicorn wrapt
Installing collected packages: certifi, Click, Werkzeug, itsdangerous, MarkupSafe, Jinja2, Flask, six, cyclical, python-dateutil, kiwisolver, pyparsing,
numpy, pillow, matplotlib, pytz, pandas, isort, toml, mccabe, lazy-object-proxy, wrapt, typed-ast, astroid, pylint, regex, tiffle, decorator, networkx, scipy,
PyWavelets, imageio, scikit-image, threadpoolctl, joblib, scikit-learn, seaborn, sklearn, xgboost, gunicorn
Successfully installed Click-7.0 Flask-1.1.1 Jinja2-2.10.1 MarkupSafe-1.1.1 PyWavelets-1.1.1 Werkzeug-1.0.1 astroid-2.5 certifi-2020.6.20 cyclical-0.10.0
decorator-4.4.2 gunicorn-20.1.0 imageio-2.9.0 isort-4.3.21 itsdangerous-1.1.0 joblib-1.0.1 kiwisolver-1.3.1 lazy-object-proxy-1.6.0 matplotlib-3.3.2 mccabe-0.6.1
networkx-2.5 numpy-1.18.5 pandas-1.0.4 pillow-8.1.2 pylint-2.5.3 pyparsing-2.4.7 python-dateutil-2.8.1 pytz-2021.1 regex-2020.11.13 scikit-image-0.17.2 scikit-
learn-0.24.1 scipy-1.5.3 seaborn-0.11.0 six-1.15.0 sklearn-0.0 threadpoolctl-2.1.0 tiffle-2020.9.3 toml-0.10.2 typed-ast-1.4.2 wrapt-1.12.1 xgboost-1.2.1
-----> Discovering process types
Procfile declares types -> web
-----> Compressing...
Done: 327.8M
-----> Launching...
! Warning: Your slug size (327 MB) exceeds our soft limit (300 MB) which may affect boot time.
Released v3
https://dublin-house-predict.herokuapp.com/ deployed to Heroku
```

Step 8: Our application is successfully deployed and can be accessed at

<https://dublin-house-predict.herokuapp.com/>