

Deployment on Heroku

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- Batch code: LISP01
- Submitted to: Data Glacier Team
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1. Create new app on Heroku


Create New App

App name

dg-flask-app

dg-flask-app is available

Choose a region

 United States

Add to pipeline...

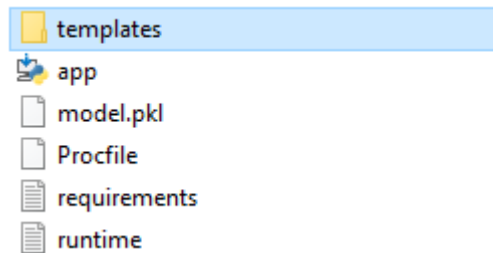
Create app

1. Create account on Heroku – Open source cloud –
2. Create our Heroku app, which we will track on git

1. Requirements:

(using flask app of week 4)

- 1.create our root folder:
- This is how the root folder looks like



- *Check carefully the types of the files from their properties*
- Procfile: *web: gunicorn app:app*

• Run:

```
$ pip freeze > requirements.txt
```

To lists the app dependencies together

```
$ pip install -r requirements.txt
```

This command will make Heroku reads the file and installs the appropriate Python dependencies

```
requirements - Notepad
File Edit Format View Help
click==7.1.2
Flask==1.1.2
gunicorn==20.1.0
itsdangerous==1.1.0
Jinja2==2.11.3
joblib==1.0.1
MarkupSafe==1.1.1
numpy==1.20.1
pandas==1.2.3
python-dateutil==2.8.1
pytz==2021.1
scikit-learn==0.24.1
scipy==1.6.1
six==1.15.0
sklearn==0.0
threadpoolctl==2.1.0
Werkzeug==1.0.1
```

- This is how the *requirements.txt* looks like

2. Create Heroku-hosted remote to our app

```
MINGW64:/c/Users/Fawzi/Desktop/week-5-assignment
Fawzi@DESKTOP-A30TQ1H MINGW64 ~/Desktop/week-5-assignment
$ git init
Initialized empty Git repository in C:/Users/Fawzi/Desktop/week-5-assignment/.git/

Fawzi@DESKTOP-A30TQ1H MINGW64 ~/Desktop/week-5-assignment (master)
$ git add .

Fawzi@DESKTOP-A30TQ1H MINGW64 ~/Desktop/week-5-assignment (master)
$ git commit -m "initial commit"
[master (root-commit) 5243a70] initial commit
5 files changed, 45 insertions(+)
create mode 100644 Procfile
create mode 100644 app.py
create mode 100644 model.pkl
create mode 100644 requirements.txt
create mode 100644 templates/index.html

Fawzi@DESKTOP-A30TQ1H MINGW64 ~/Desktop/week-5-assignment (master)
$ heroku git:remote -a "dg-flask-app"
» Warning: Our terms of service have changed:
» https://dashboard.heroku.com/terms-of-service
heroku: Press any key to open up the browser to login or q to exit:
Opening browser to https://cli-auth.heroku.com/auth/cli/browser/8011e7d4-b1fd-4804-9522-aaf6bbe8fee3?requestor=SFMyNTY.g2gDbQAAAA0xODUuOTcuOTIuMTIxbgYASAQshHgBYgABUYA.sMhuANFylrdJ_UiyMpJtXSM6s7C-LMo9fTTVYR2WXTM
heroku: Waiting for login...
Logging in... done
set git remote heroku to https://git.heroku.com/dg-flask-app.git
```

1. Initialize an empty git repo in our root folder that contains our app files
2. Track our app in the local git repository by adding and committing

3. Adding a remote to our local repo.

Here we have already created our Heroku app so we can easily add a remote using just the name of our Heroku app and the corresponding command.

➔ Heroku Git repo associated with our app.

We can create a Heroku remote in many ways. One of them is manually or use Heroku create...

Ps. I created a new folder name runtime.txt in order to tell Heroku which version of python should install. Because Heroku will install python-3.6 by default and it caused an error

3. Push the code to Heroku remote

```
Fawzi@DESKTOP-A30TQ1H MINGW64 ~/Desktop/week-5-assignment (master)
$ git push heroku master
Enumerating objects: 3, done.
Counting objects: 100% (3/3), done.
Delta compression using up to 4 threads
Compressing objects: 100% (2/2), done.
Writing objects: 100% (2/2), 233 bytes | 116.00 KiB/s, done.
Total 2 (delta 1), reused 0 (delta 0), pack-reused 0
remote: Compressing source files... done.
remote: Building source:
remote:
remote: -----> Building on the Heroku-20 stack
remote: -----> Using buildpack: heroku/python
remote: -----> Python app detected
remote: -----> No change in requirements detected, installing from cache
remote: -----> Installing pip 20.1.1, setuptools 47.1.1 and wheel 0.34.2
remote: -----> Installing SQLite3
remote: -----> Installing requirements with pip
remote: -----> Discovering process types
remote:      Procfile declares types -> web
remote:
remote: -----> Compressing...
remote:      Done: 137.5M
remote: -----> Launching...
remote:      Released v12
remote:      https://dg-flask-app.herokuapp.com/ deployed to Heroku
remote:
remote: Verifying deploy... done.
To https://git.heroku.com/dg-flask-app.git
   dba6525..b9748b4  master -> master
```

Our app is released in the web showing above

Now we deployed our app to Heroku by pushing the code from our local repository using:

```
$ git push heroku master
```

```
remote: -----> Installing requirements with pip
remote:      Collecting click==7.1.2
remote:      Downloading click-7.1.2-py2.py3-none-any.whl (82 kB)
remote:      Collecting Flask==1.1.2
remote:      Downloading Flask-1.1.2-py2.py3-none-any.whl (94 kB)
remote:      Collecting gunicorn==20.1.0
remote:      Downloading gunicorn-20.1.0.tar.gz (370 kB)
remote:      Collecting itsdangerous==1.1.0
remote:      Downloading itsdangerous-1.1.0-py2.py3-none-any.whl (16 kB)
remote:      Collecting Jinja2==2.11.3
remote:      Downloading Jinja2-2.11.3-py2.py3-none-any.whl (125 kB)
remote:      Collecting joblib==1.0.1
remote:      Downloading joblib-1.0.1-py3-none-any.whl (303 kB)
remote:      Collecting MarkupSafe==1.1.1
remote:      Downloading MarkupSafe-1.1.1-cp39-cp39-manylinux2010_x86_64.whl (32 kB)
remote:      Collecting numpy==1.20.1
remote:      Downloading numpy-1.20.1-cp39-cp39-manylinux2010_x86_64.whl (15.4 MB)
remote:      Collecting pandas==1.2.3
remote:      Downloading pandas-1.2.3-cp39-cp39-manylinux1_x86_64.whl (9.7 MB)
remote:      Collecting python-dateutil==2.8.1
remote:      Downloading python-dateutil-2.8.1-py2.py3-none-any.whl (227 kB)
remote:      Collecting pytz==2021.1
remote:      Downloading pytz-2021.1-py2.py3-none-any.whl (510 kB)
remote:      Collecting scikit-learn==0.24.1
remote:      Downloading scikit-learn-0.24.1-cp39-cp39-manylinux2010_x86_64.whl (23.8 MB)
remote:      Collecting scipy==1.6.1
remote:      Downloading scipy-1.6.1-cp39-cp39-manylinux1_x86_64.whl (27.3 MB)
remote:      Collecting six==1.15.0
remote:      Downloading six-1.15.0-py2.py3-none-any.whl (10 kB)
remote:      Collecting sklearn==0.0
remote:      Downloading sklearn-0.0.tar.gz (1.1 kB)
remote:      Collecting threadpoolctl==2.1.0
remote:      Downloading threadpoolctl-2.1.0-py3-none-any.whl (12 kB)
remote:      Collecting Werkzeug==1.0.1
remote:      Downloading Werkzeug-1.0.1-py2.py3-none-any.whl (298 kB)
remote:      Building wheels for collected packages: gunicorn, sklearn
remote:      Building wheel for gunicorn (setup.py): started
remote:      Building wheel for gunicorn (setup.py): finished with status 'done'
remote:      Created wheel for gunicorn: filename=gunicorn-20.1.0-py3-none-any.whl size=78918 sha256=df4f7d9b
remote:      Stored in directory: /tmp/pip-ephem-wheel-cache-lpgifkgw/wheels/ee/ca/72/3e9be403d3993d4d78e2f4
remote:      Building wheel for sklearn (setup.py): started
remote:      Building wheel for sklearn (setup.py): finished with status 'done'
remote:      Created wheel for sklearn: filename=sklearn-0.0-py2.py3-none-any.whl size=1315 sha256=ec1c680e78
remote:      Stored in directory: /tmp/pip-ephem-wheel-cache-lpgifkgw/wheels/e4/7b/98/b6466d71b8d738a0c547008
remote:      Successfully built gunicorn sklearn
remote:      Installing collected packages: click, MarkupSafe, Jinja2, itsdangerous, Werkzeug, Flask, gunicorn,
remote:      Successfully installed Flask-1.1.2 Jinja2-2.11.3 MarkupSafe-1.1.1 Werkzeug-1.0.1 click-7.1.2 gunic
threadpoolctl-2.1.0
```

Successfully installed the requirements

4. Check the logs to confirm that everything is running without errors

We can check the logs in our app in Heroku or by typing `$ heroku logs --tail`

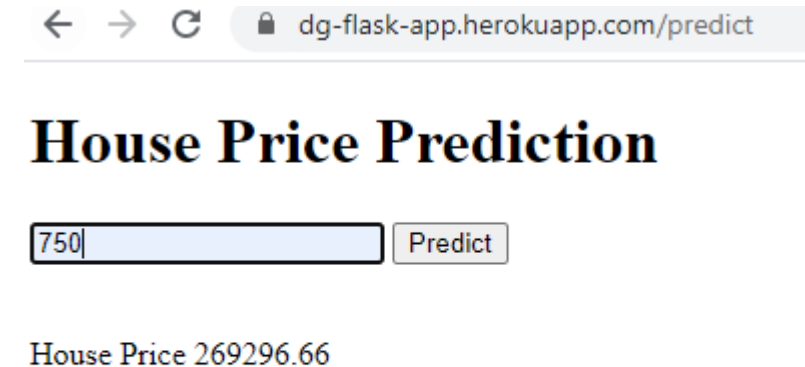
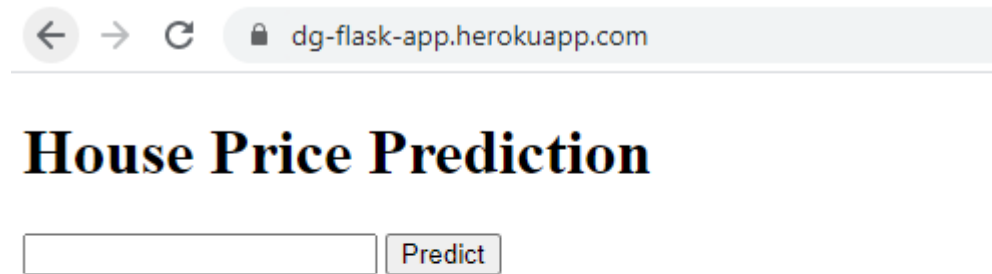
Application Logs

ALL PROCESSES ↕

```
2021-03-31T20:45:26.701731+00:00 app[web.1]: [2021-03-31 20:45:26 +0000] [4] [INFO] Listening at: http://0.0.0.0:29858 (4)
2021-03-31T20:45:26.701907+00:00 app[web.1]: [2021-03-31 20:45:26 +0000] [4] [INFO] Using worker: sync
2021-03-31T20:45:26.711486+00:00 app[web.1]: [2021-03-31 20:45:26 +0000] [7] [INFO] Booting worker with pid: 7
2021-03-31T20:45:26.826568+00:00 app[web.1]: [2021-03-31 20:45:26 +0000] [15] [INFO] Booting worker with pid: 15
2021-03-31T20:45:27.581221+00:00 heroku[web.1]: State changed from starting to up
2021-03-31T20:45:36.000000+00:00 app[api]: Build succeeded
2021-03-31T20:45:36.656356+00:00 app[web.1]: /app/.heroku/python/lib/python3.9/site-packages/sklearn/base.py:310: UserWarning: Trying to unpickle estimator LinearRegression from version 0.22.1 when using version 0.24.1. This might lead to breaking code or invalid results. Use at your own risk.
2021-03-31T20:45:36.656407+00:00 app[web.1]: warnings.warn(
2021-03-31T20:45:36.685913+00:00 app[web.1]: /app/.heroku/python/lib/python3.9/site-packages/sklearn/base.py:310: UserWarning: Trying to unpickle estimator LinearRegression from version 0.22.1 when using version 0.24.1. This might lead to breaking code or invalid results. Use at your own risk.
2021-03-31T20:45:36.685915+00:00 app[web.1]: warnings.warn(
```

Our Heroku app has been successfully built.

5. Clone the link we got in chrome



Testing the app for a house of 750 sq.ft.

Finally our app is running smoothly.

Ps. We can shut down the app by typing:
\$ heroku ps:scale web=0

These are the steps to deploy our python model and publish it on open source cloud -Heroku—

We can follow the same logic in order to deploy our model in an open source cloud with considering changes needed upon your model requirements, coding language,...