Data Glacier
Your Deep Learning Partner

Deployment of a ML Model on Heroku (Web/API Based)

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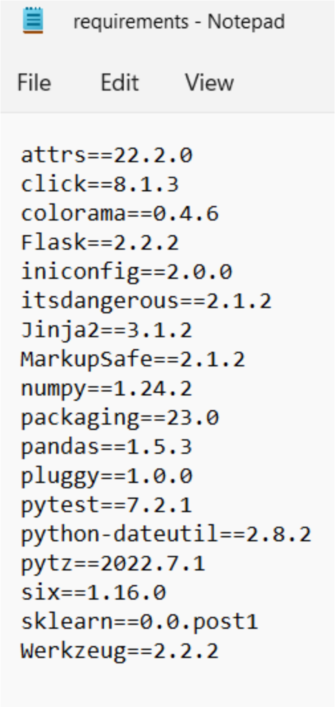
1. Introduction

There is a pre-existing Machine Learning model that uses Flask to be hosted as a web app. The goal is to take this model and host it in a cloud-based service called Heroku.

This process is fairly simple, as most of the work has been already done by deploying the model with Flask.

2. Requirements File

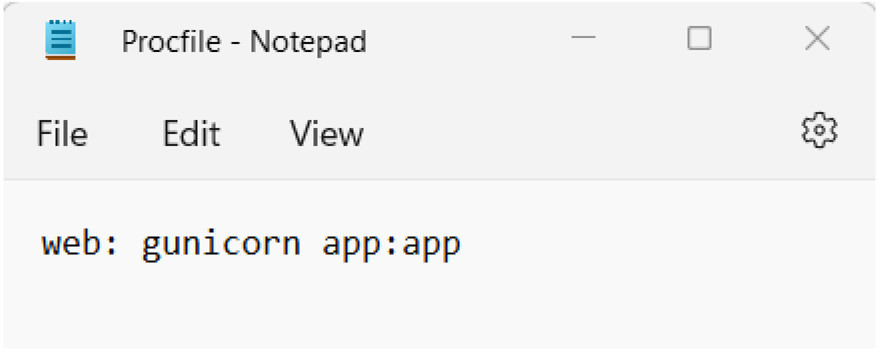
A requirements file is needed for Heroku to make the build. This is done by running `pip freeze > requirements.txt` in the directory with the rest of the files. This creates a text file with all the module requirements.



```
attrs==22.2.0
click==8.1.3
colorama==0.4.6
Flask==2.2.2
iniconfig==2.0.0
itsdangerous==2.1.2
Jinja2==3.1.2
MarkupSafe==2.1.2
numpy==1.24.2
packaging==23.0
pandas==1.5.3
pluggy==1.0.0
pytest==7.2.1
python-dateutil==2.8.2
pytz==2022.7.1
six==1.16.0
sklearn==0.0.post1
Werkzeug==2.2.2
```

3. Procfile

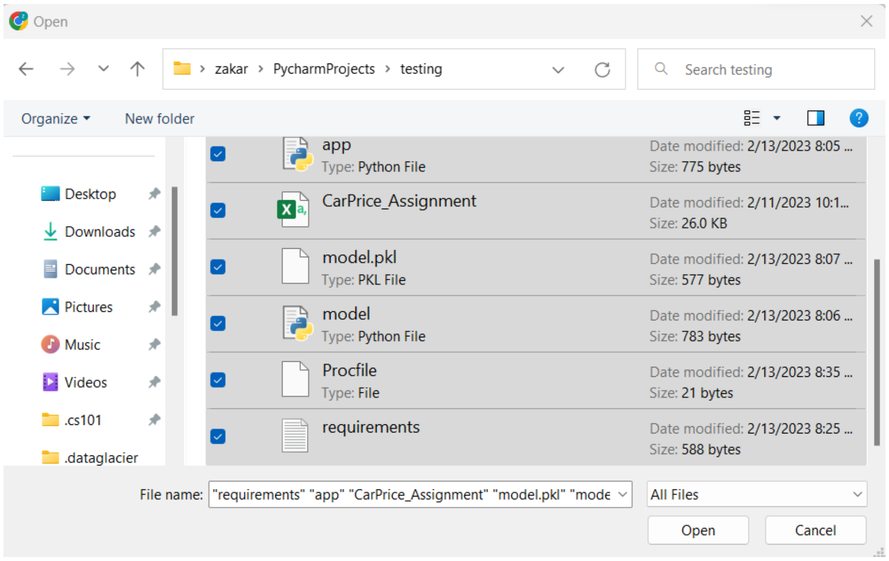
A profile is necessary to run the app. It contains all the process types in an application. In this case, a gunicorn procfile is necessary to enable the gunicorn web server.



```
web: gunicorn app:app
```

4. Github Repo Upload

All of the files, which include app.py (containing the Flask app code), model.py (containing the model code), index.html (containing both css and html code for the app), requirements.txt, and procfile, must be uploaded to a Github repository. This is so the repository can be linked the Heroku to deploy the app.

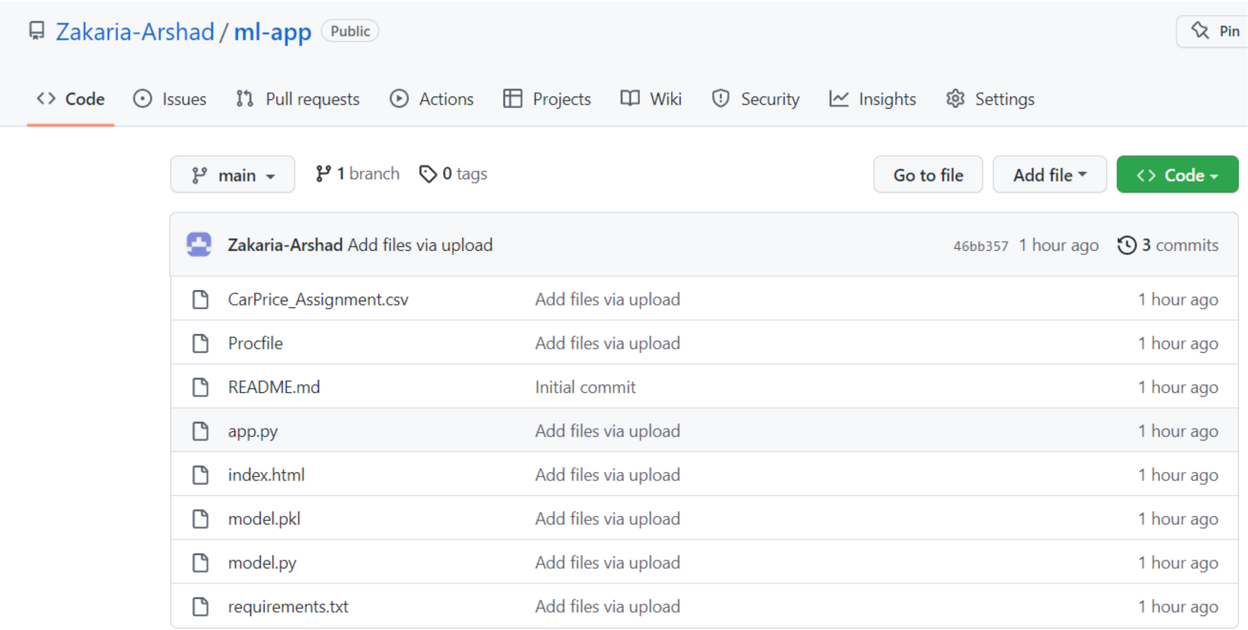


	Name	Type	Date modified	Size
☑	app	Type: Python File	Date modified: 2/13/2023 8:05 ...	Size: 775 bytes
☑	CarPrice_Assignment		Date modified: 2/11/2023 10:1...	Size: 26.0 KB
☑	model.pkl	Type: PKL File	Date modified: 2/13/2023 8:07 ...	Size: 577 bytes
☑	model	Type: Python File	Date modified: 2/13/2023 8:06 ...	Size: 783 bytes
☑	Procfile	Type: File	Date modified: 2/13/2023 8:35 ...	Size: 21 bytes
☑	requirements		Date modified: 2/13/2023 8:25 ...	Size: 588 bytes

File name: "requirements" "app" "CarPrice_Assignment" "model.pkl" "mode

All Files

Open   Cancel

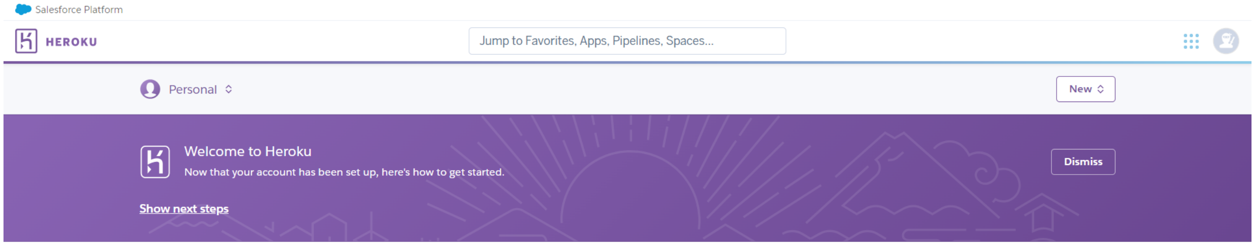


Zakaria-Arshad Add files via upload   46bb357 1 hour ago   3 commits

CarPrice_Assignment.csv	Add files via upload	1 hour ago
Procfile	Add files via upload	1 hour ago
README.md	Initial commit	1 hour ago
app.py	Add files via upload	1 hour ago
index.html	Add files via upload	1 hour ago
model.pkl	Add files via upload	1 hour ago
model.py	Add files via upload	1 hour ago
requirements.txt	Add files via upload	1 hour ago

5. Heroku Account Creation

A heroku account is created in order to deploy the web application.

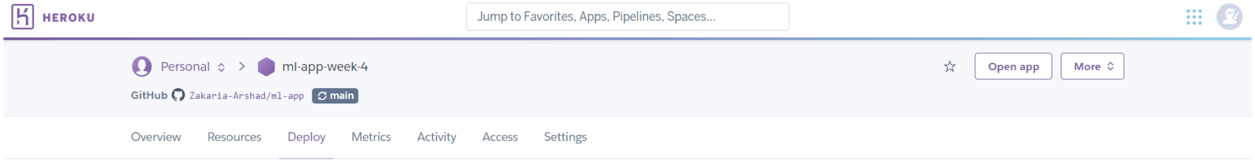


Welcome to Heroku

Now that your account has been set up, here's how to get started.

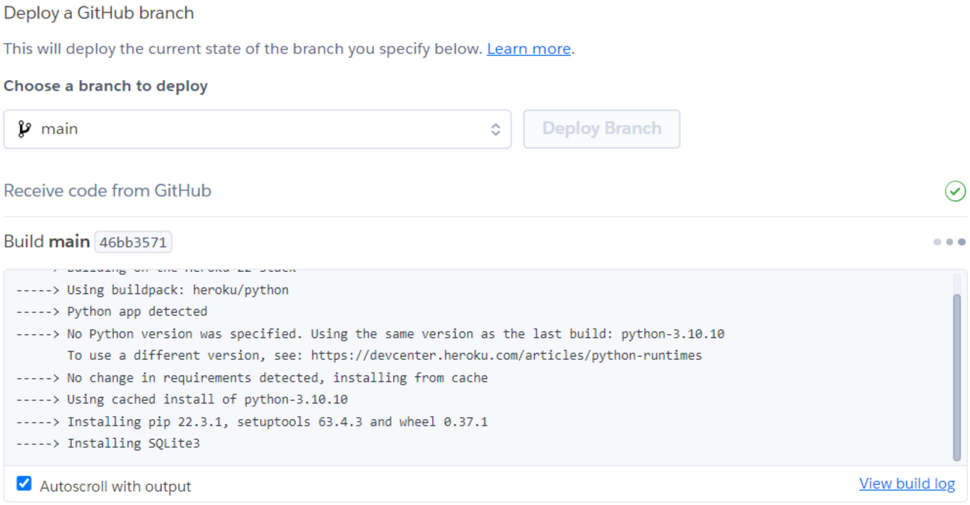
6. Create app and link Github

The app is then created through Heroku, and Github account is linked to access the repository. The app is called "ml-app-week-4".



7. Manually deploy app

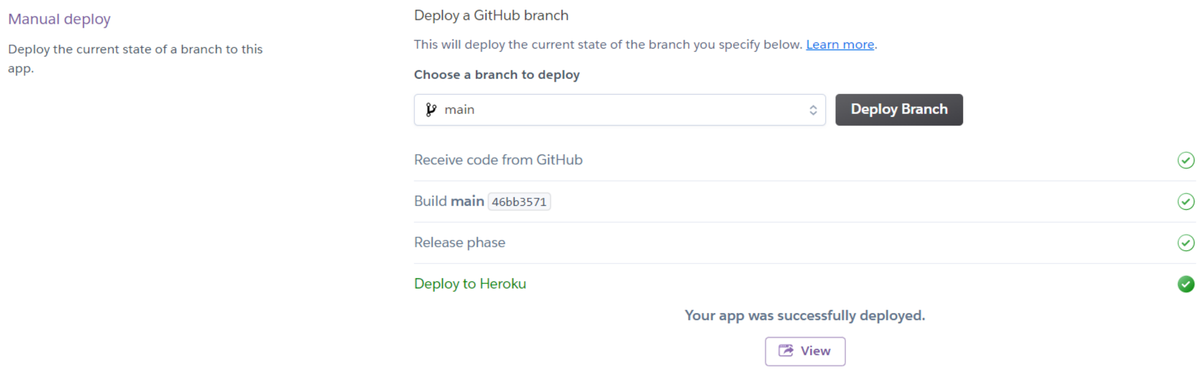
Finally, deploy the app. Manual deployment is used.



This will deploy the current state of the branch you specify below. Learn more.

```
-----> Building on the heroku-22 stack
-----> Using buildpack: heroku/python
-----> Python app detected
-----> No Python version was specified. Using the same version as the last build: python-3.10.10
       To use a different version, see: https://devcenter.heroku.com/articles/python-runtimes
-----> No change in requirements detected, installing from cache
-----> Using cached install of python-3.10.10
-----> Installing pip 22.3.1, setuptools 63.4.3 and wheel 0.37.1
-----> Installing SQLite3
```

☑ Autoscroll with output



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

main

Deploy Branch

Receive code from GitHub ✓

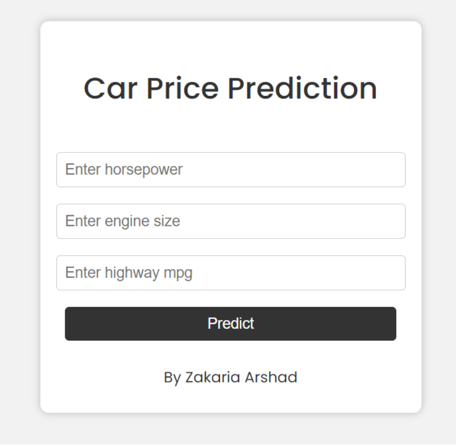
Build main 46bb3571 ✓

Release phase ✓

Deploy to Heroku ✓

Your app was successfully deployed.

View



Car Price Prediction

Enter horsepower

Enter engine size

Enter highway mpg

Predict

By Zakaria Arshad

Final.