**Machine Learning API with Flask (Local & Heroku)**

**Objective:**

- **Deploy a machine learning model using Flask.**

- **Make predictions using an API locally and on Heroku.**

**Key Files:**

1. **app.py**:

   o Flask app that loads the trained model and serves an API.

   o **Route** /predict: Receives input and returns a prediction.

2. **run.py**:

   o Tests the Flask app running locally.

   o Sends a POST request to http://127.0.0.1:5000/predict with input data.

3. **run-heroku.py**:

   o Tests the Flask app deployed on Heroku.

   o Sends a POST request to https://run-iris-794bce0fc4df.herokuapp.com/predict with input data.

**Steps:**

**1. Running Flask Locally:**

Command: python app.py

Result: The Flask app runs at http://127.0.0.1:5000/.

**2. Testing Local API:**

Command: python run.py

Result: Sends input to the local API and gets a prediction

**3. Testing Heroku API:**

Command: python run-heroku.py

Result: The app is deployed to Heroku at [https://run-iris-794bce0fc4df.herokuapp.com/](https://run-iris-794bce0fc4df.herokuapp.com/)

Sends input to the Heroku API and gets a prediction

**HEROKU**

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Personal ◇ > run-iris

GitHub Thir13een/DG-week-5

Open app   More ◇

Overview   Resources   Deploy   Metrics   Activity   Access   Settings

**Add this app to a pipeline**

Create a new pipeline or choose an existing one and add this app to a stage in it.

Add this app to a stage in a pipeline to enable additional features

Pipelines let you connect multiple apps together and **promote code** between them. Learn more.

Pipelines connected to GitHub can enable **review apps**, and create apps for new pull requests. Learn more.

Choose a pipeline ◇

**Deployment method**

Heroku Git
Use Heroku CLI

GitHub
Connected ✓

Container Registry
Use Heroku CLI

**App connected to GitHub**

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

Connected to Thir13een/DG-week-5 by Thir13een

Disconnect...

⟳ Releases in the activity feed link to GitHub to view commit diffs

**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.

Enable automatic deploys from GitHub

Every push to the branch you specify here will deploy a new version of this app. **Deploys happen automatically:** be sure that this branch is always in a deployable state and any tests have passed before you push. Learn more

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Choose a branch to deploy

main ◇

☐ Wait for CI to pass before deploy

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

**Enable 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

main ◇   Deploy Branch

Receive code from GitHub ✓

Build main 1126d74f   •••

```
-----> Compressing...
       Done: 105.9M
-----> Launching...
       Released v3
       https://run-iris-794bce0fc4df.herokuapp.com/ deployed to Heroku
This app is using the Heroku-22 stack, however a newer stack is available.
```

HEROKU

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main    **Deploy Branch**

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Build main `1126d74f`

```
           Compressing...
           Done: 105.9M
-----> Launching...
           Released v3
           https://run-iris-794bce0fc4df.herokuapp.com/ deployed to Heroku
This app is using the Heroku-22 stack, however a newer stack is available.
To upgrade to Heroku-24, see:
https://devcenter.heroku.com/articles/upgrading-to-the-latest-stack
```

☑ Autoscroll with output    View build log

Release phase

Deploy to Heroku

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Receive code from GitHub    ✓

Build main `1126d74f`    ✓

Release phase    ✓

**Deploy to Heroku**    ✓

Your app was successfully deployed.

View

C: > Users > krish > Documents > DG > week5 > run-heroku.py > ...

```python
1    import requests
2
3    # URL for the prediction API on heroku
4    url = 'https://run-iris-794bce0fc4df.herokuapp.com/predict'
5
6    data = {
7        'input': [6.2, 3.4, 5.4, 2.3]
8    }
9
10   response = requests.post(url, json=data)
11
12   print(response.json())
13
```

PROBLEMS    OUTPUT    DEBUG CONSOLE    TERMINAL    PORTS

```
PS C:\Users\krish\Documents\DG\week5>  & 'c:\Users\krish\anaconda3\python.exe' 'c:\Users\krish\.vscode\extensions\ms-python.debugpy-2024.10.0-win32-x64\bundled\libs\debugpy\adapter/../..\debugpy\launcher' '60438' '--' 'c:\Users\krish\Documents\DG\week5\run.py'
{'prediction': 2}
PS C:\Users\krish\Documents\DG\week5> ^C
PS C:\Users\krish\Documents\DG\week5>
PS C:\Users\krish\Documents\DG\week5>  c:; cd 'c:\Users\krish\Documents\DG\week5'; & 'c:\Users\krish\anaconda3\python.exe'  'c:\Users\krish\.vscode\extensions\ms-python.debugpy-2024.10.0-win32-x64\bundled\libs\debugpy\adapter/../..\debugpy\launcher' '63126' '--' 'c:\Users\krish\Documents\DG\week5\run-heroku.py'
{'prediction': 2}
PS C:\Users\krish\Documents\DG\week5> []
```