Cloud and API deployment

Batch code: LISP01

Submission date: 28 March, 2021

Submission to: Data Glacier

Agenda

Environment creation
Configuring Heroku
Deployment into Heroku
Deployment Test
API Code
API Deployment
API Deployment Test

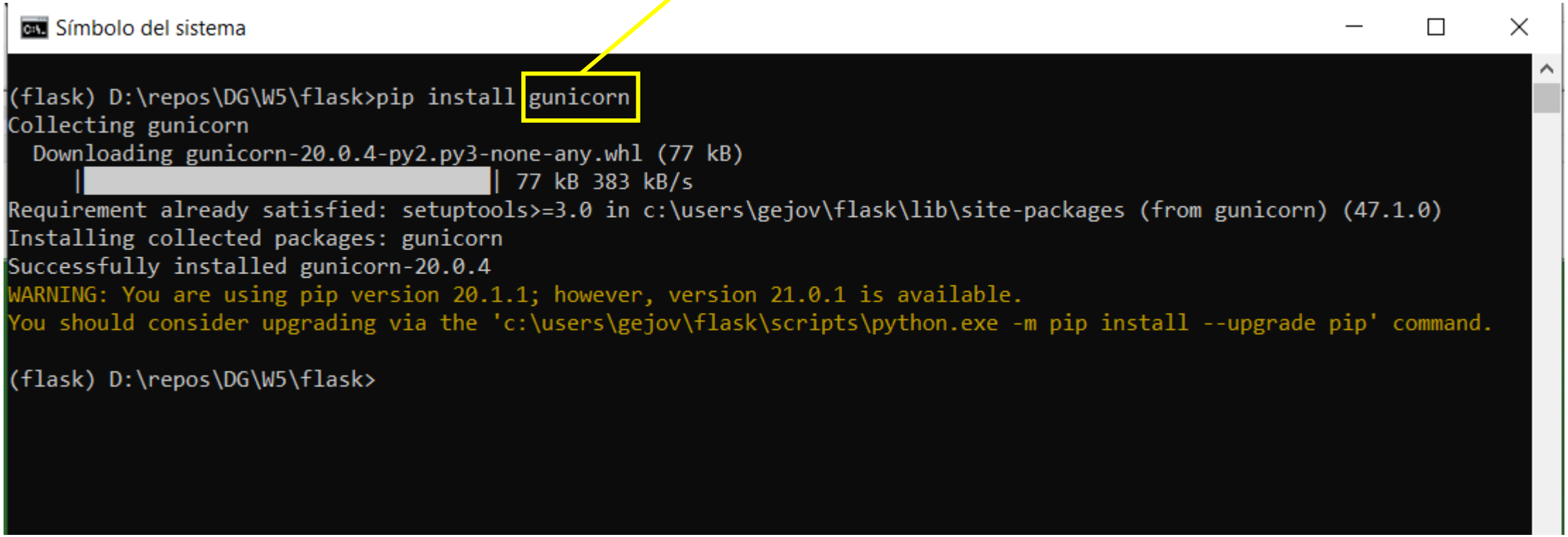
Environment creation

Environment created

Environment creation

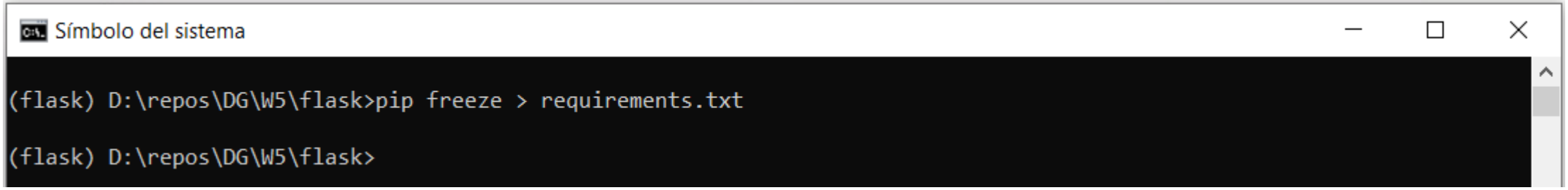
Installing libraries

HTTP Server



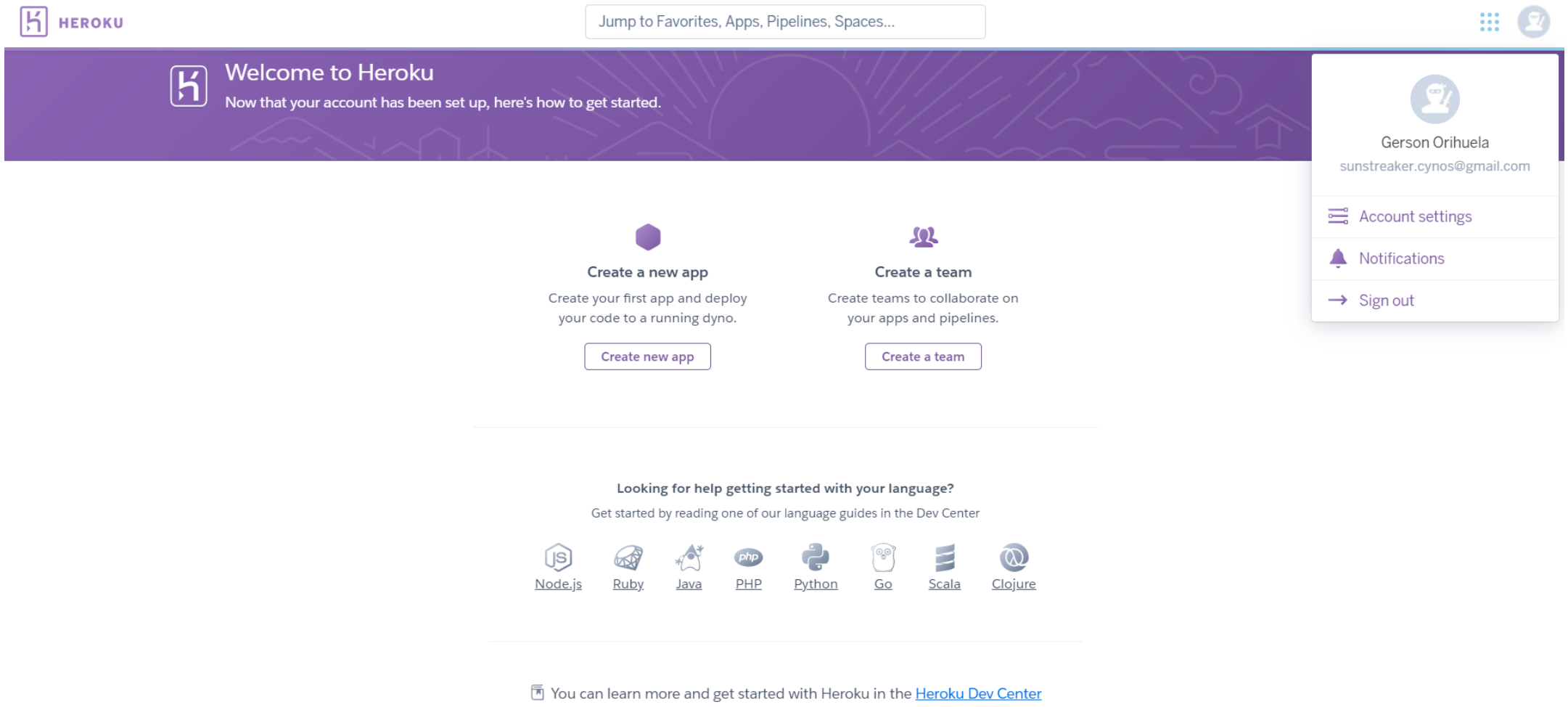
Environment creation

Saving libraries version to deployment



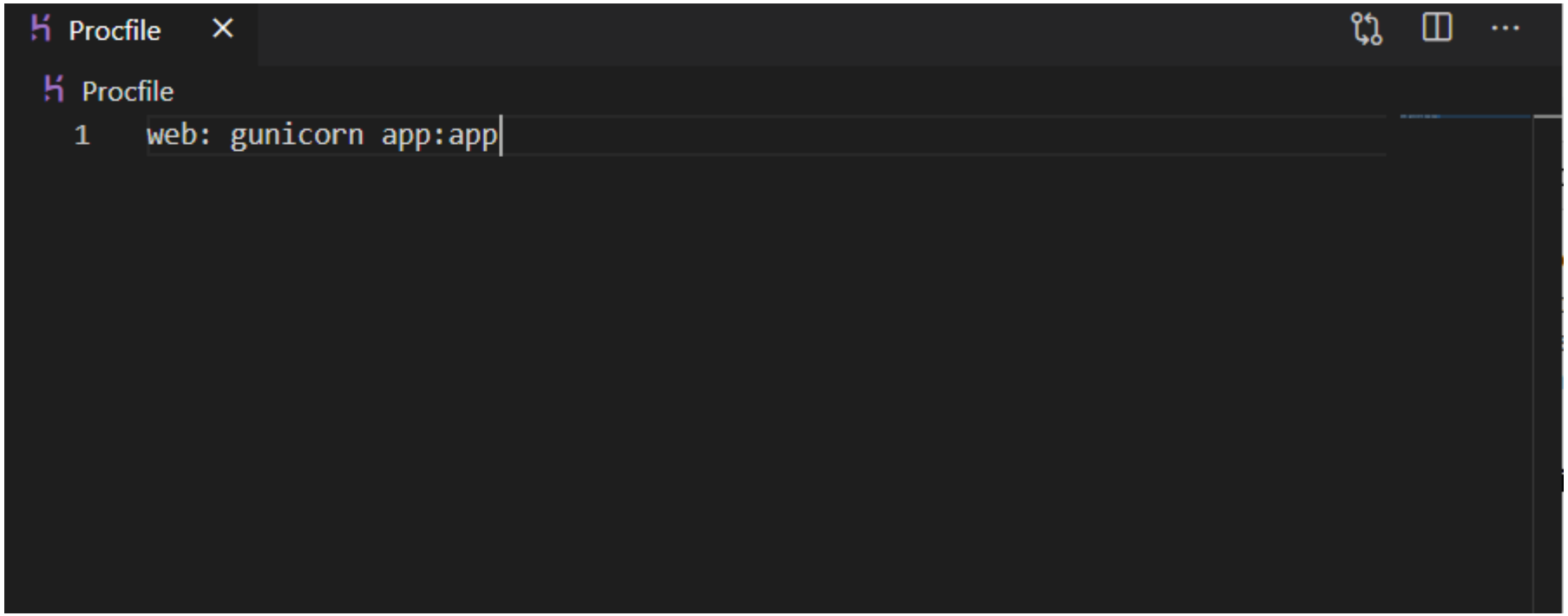
Configuring Heroku

Creating User



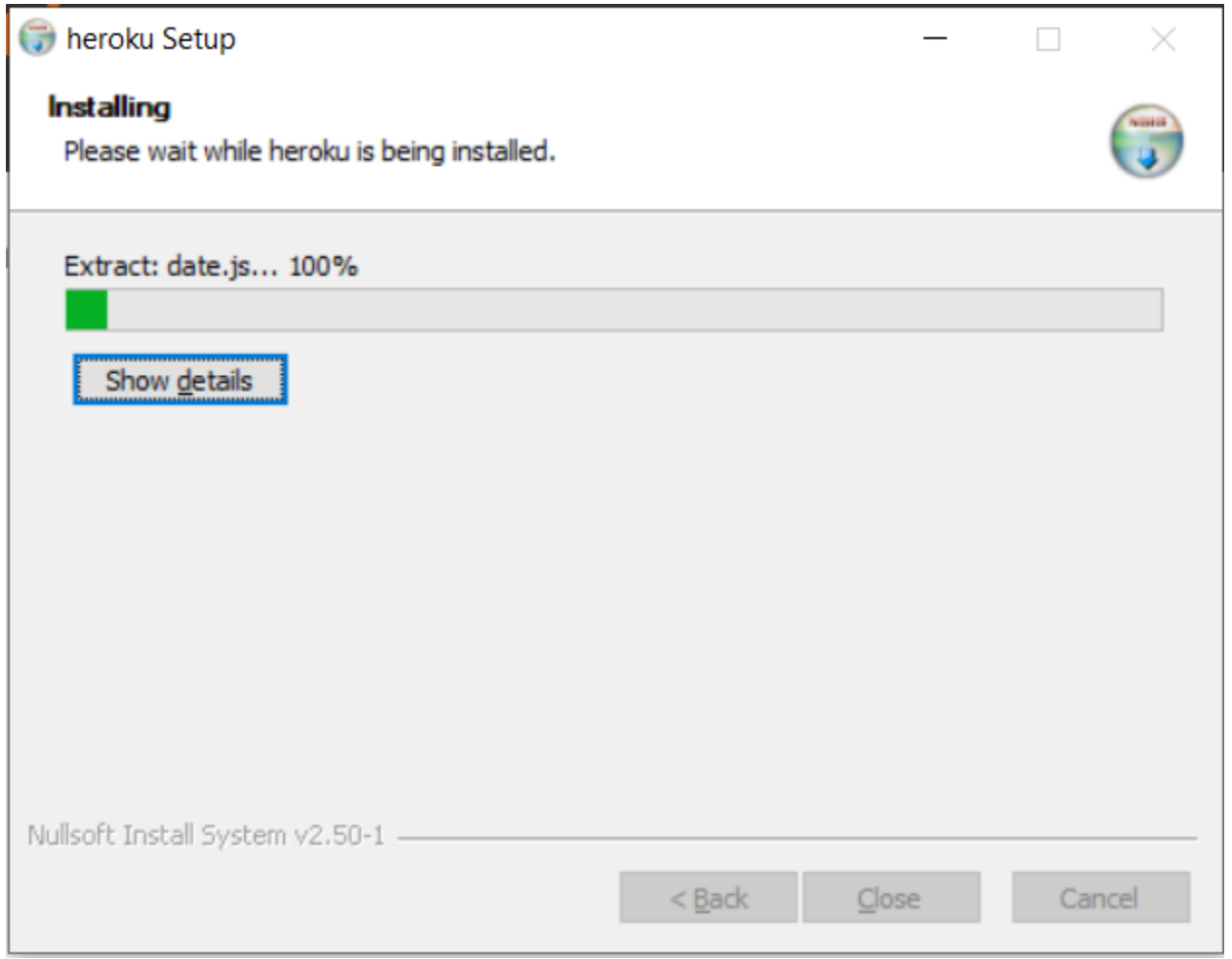
Configuring Heroku

Saving file for gunicorn



Configuring Heroku

Installing Heroku CLI



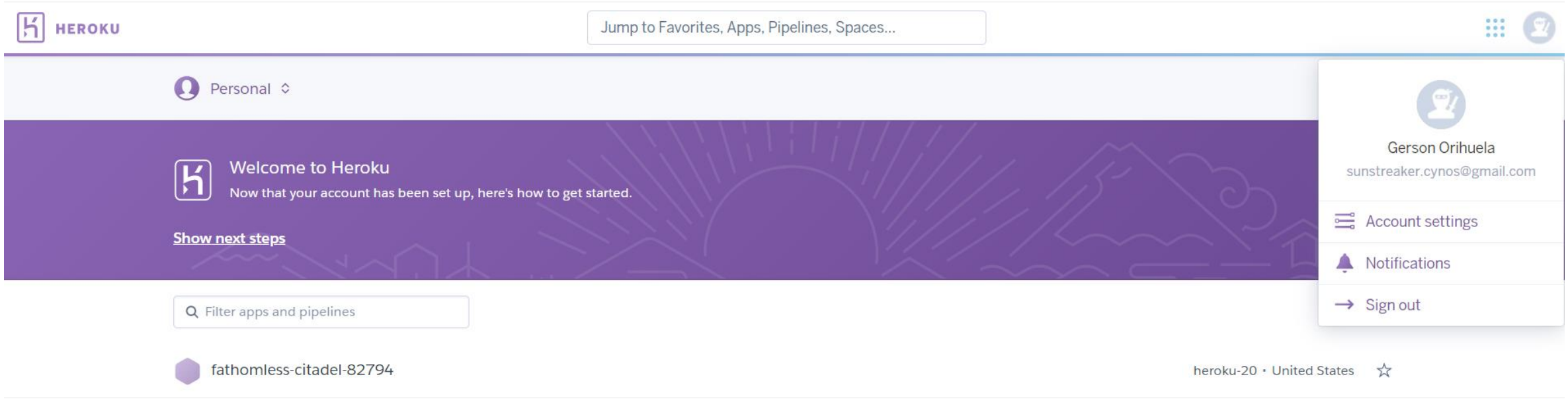
Configuring Heroku

Creating Heroku App

```
(flask) D:\repos\DG\W5\flask>heroku create
 »   Warning: Our terms of service have changed: https://dashboard.heroku.com/terms-of-service
Creating app... !
 !    Invalid credentials provided.
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/18d23448-a5cc-4803-bd73-c1c49516283d?requestor=SFMyNTY.g
2gDbQAAAA4xOTAuMjMyLjc0LjIxOG4GAE1HfWF4AWIAAVGA.YxOC4aadhHoLxP0S9xfwb2fSAfSwTxZV0xtIfHJY1OA
Logging in... done
Logged in as sunstreaker.cynos@gmail.com
Creating app... done, ⬚ fathomless-citadel-82794
https://fathomless-citadel-82794.herokuapp.com/ | https://git.heroku.com/fathomless-citadel-82794.git
```

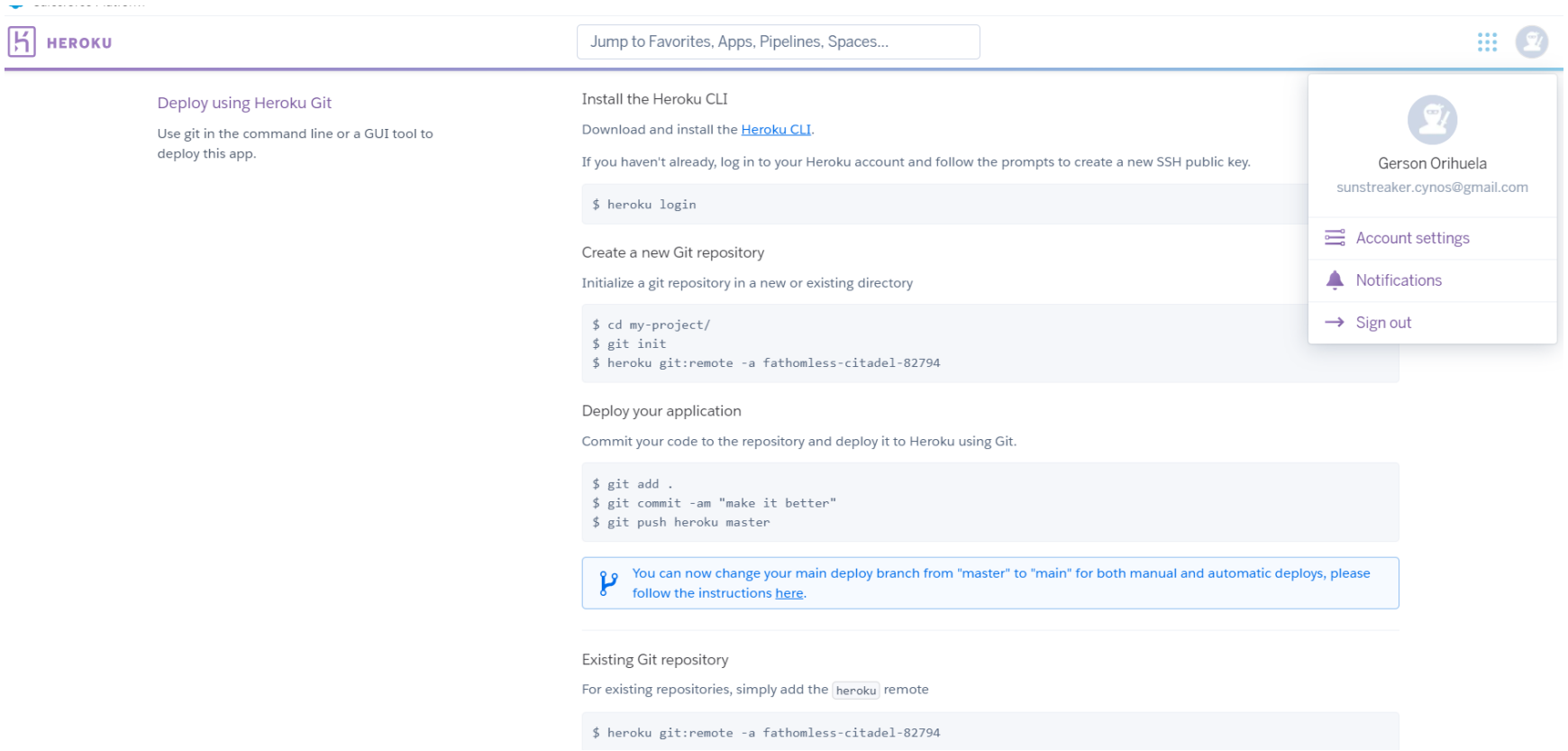
Configuring Heroku

Created App into Heroku



Deployment into Heroku

Commands for deployment



Deployment into Heroku

Following prompts

```
(flask) D:\repos\DG\W5\flask>heroku login
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/a2c35554-7098-4759-870a-a42792569112?requestor=SFMyNTY.g
2gDbQAAAA4xOTAuMjMyLjc0LjIxOG4GAA3qhWF4AWIAAVGA.W1RU52GUcrlpwjGK-lwNWgFrSAc0Ns2TiJOx2wv_5yE
Logging in... done
Logged in as sunstreaker.cynos@gmail.com

(flask) D:\repos\DG\W5\flask>git init
Initialized empty Git repository in D:/repos/DG/W5/flask/.git/

(flask) D:\repos\DG\W5\flask>heroku git:remote -a fathomless-citadel-82794
set git remote heroku to https://git.heroku.com/fathomless-citadel-82794.git

(flask) D:\repos\DG\W5\flask>git add .

(flask) D:\repos\DG\W5\flask>git commit -am "make it better"
[master (root-commit) 4db0f08] make it better
 8 files changed, 231 insertions(+)
 create mode 100644 Procfile
 create mode 100644 app.py
 create mode 100644 model/finalized_model.sav
 create mode 100644 requirements.txt
 create mode 100644 static/css/123.jpg
 create mode 100644 static/css/html.jpg
 create mode 100644 static/css/styles.css
 create mode 100644 templates/registrarse.html
```

Deployment into Heroku

Following prompts

Done deployment

```
(flask) D:\repos\DG\W5\flask>git push heroku master
Enumerating objects: 20, done.
Counting objects: 100% (20/20), done.
Delta compression using up to 4 threads
Compressing objects: 100% (16/16), done.
Writing objects: 100% (20/20), 24.16 MiB | 1.05 MiB/s, done.
Total 20 (delta 4), reused 0 (delta 0), pack-reused 0
remote: Compressing source files... done.
remote: Building source:
remote:
remote: -----> Building on the Heroku-20 stack
remote: -----> Determining which buildpack to use for this a
remote: -----> Python app detected
remote: -----> Installing python-3.6.13
remote: -----> Installing pip 20.1.1, setuptools 47.1.1 and
remote: -----> Installing SQLite3
remote: -----> Installing requirements with pip
remote:        Collecting click==7.1.2
remote:          Downloading click-7.1.2-py2.py3-none-any.wh
remote:        Collecting Flask==1.1.2
remote:          Downloading Flask-1.1.2-py2.py3-none-any.wh
remote:        Collecting gunicorn==20.0.4
remote:          Downloading gunicorn-20.0.4-py2.py3-none-an
remote:        Collecting itsdangerous==1.1.0
remote:          Downloading itsdangerous-1.1.0-py2.py3-none
remote:        Collecting Jinja2==2.11.3
remote:          Downloading Jinja2-2.11.3-py2.py3-none-any.
remote:        Collecting joblib==1.0.1
remote:          Downloading joblib-1.0.1-py3-none-any.whl (
remote:        Collecting numpy==1.19.5
remote:          Downloading numpy-1.19.5-cp36-cp36m-manylinux2010_x86_64.whl (14.8 MB)
remote:        Collecting scikit-learn==0.23.2
remote:          Downloading scikit_learn-0.23.2-cp36-cp36m-manylinux1_x86_64.whl (6.8 MB)
remote:        Collecting scipy==1.5.4
remote:          Downloading scipy-1.5.4-cp36-cp36m-manylinux1_x86_64.whl (25.9 MB)
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:        Collecting WTForms==2.3.3
remote:          Downloading WTForms-2.3.3-py2.py3-none-any.whl (169 kB)
remote:        Installing collected packages: click, itsdangerous, MarkupSafe, Jinja2, Werkzeug, Flask, gunicorn, joblib
, numpy, threadpoolctl, scipy, scikit-learn, WTForms
remote:        Successfully installed Flask-1.1.2 Jinja2-2.11.3 MarkupSafe-1.1.1 WTForms-2.3.3 Werkzeug-1.0.1 click-7.1.
2 gunicorn-20.0.4 itsdangerous-1.1.0 joblib-1.0.1 numpy-1.19.5 scikit-learn-0.23.2 scipy-1.5.4 threadpoolctl-2.1.0
remote: -----> Discovering process types
remote:        Procfile declares types -> web
remote:
remote: -----> Compressing...
remote:        Done: 125.4M
remote: -----> Launching...
remote:        Released v3
remote:        https://fathomless-citadel-82794.herokuapp.com/ deployed to Heroku
remote:
remote: Verifying deploy... done.
To https://git.heroku.com/fathomless-citadel-82794.git
 * [new branch]      master -> master
```

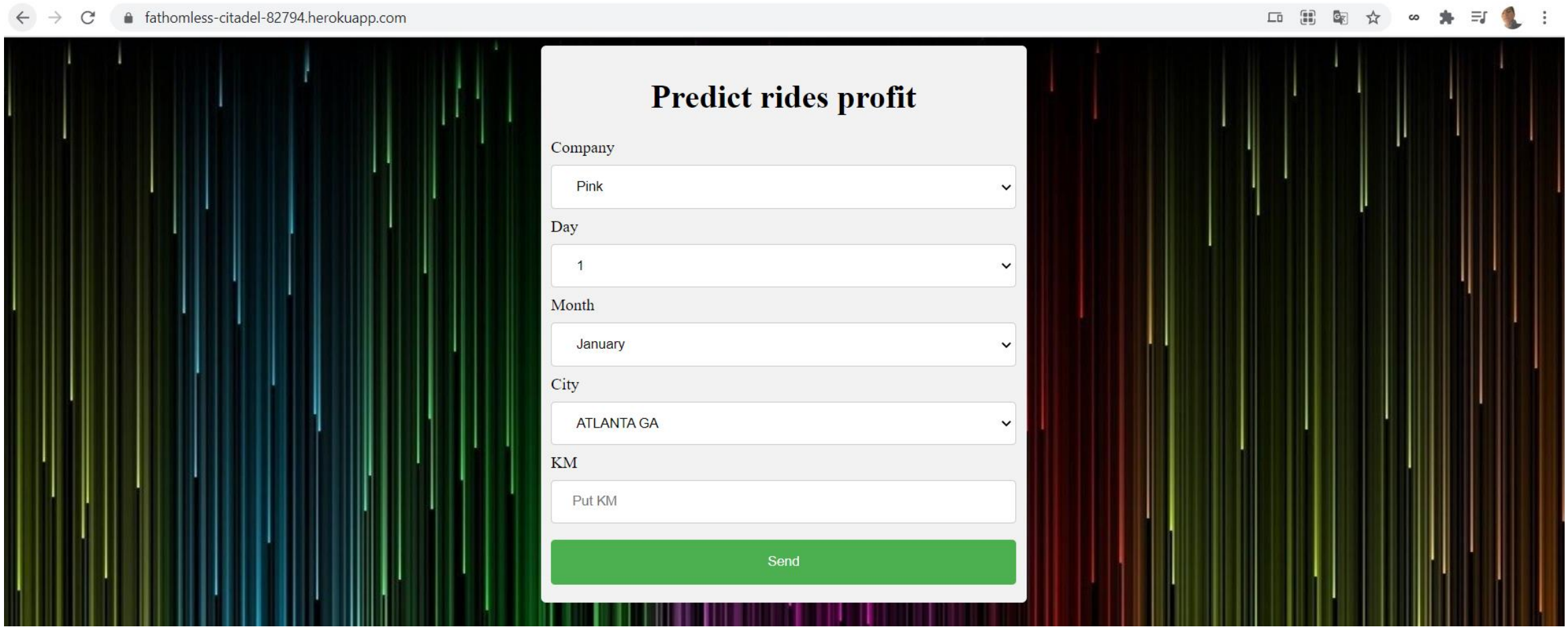
Deployment Test

URL for Implemented Model

https://fathomless-citadel-82794.herokuapp.com/

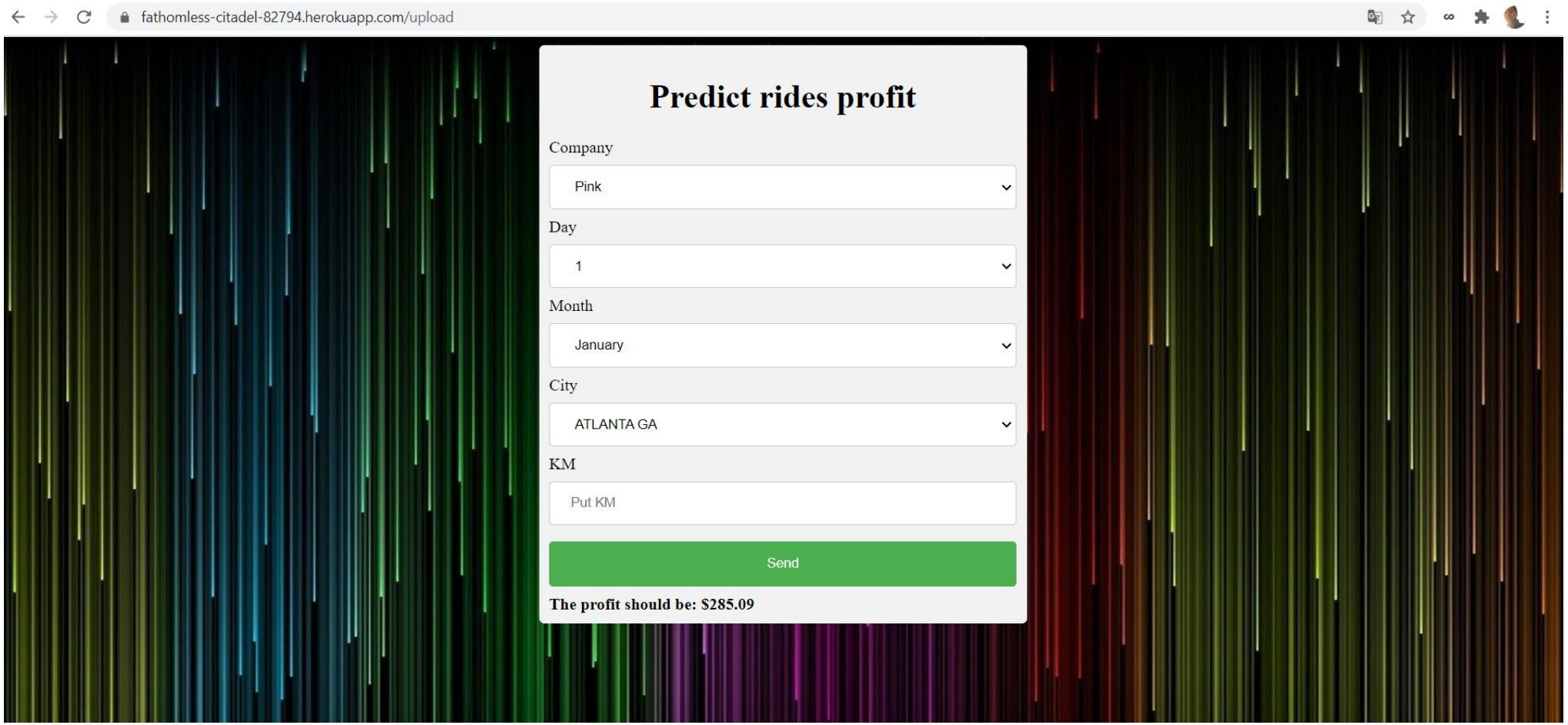
Deployment Test

Inserting URL



Deployment Test

Testing App



API Code

Coding Flask API

Loaded model

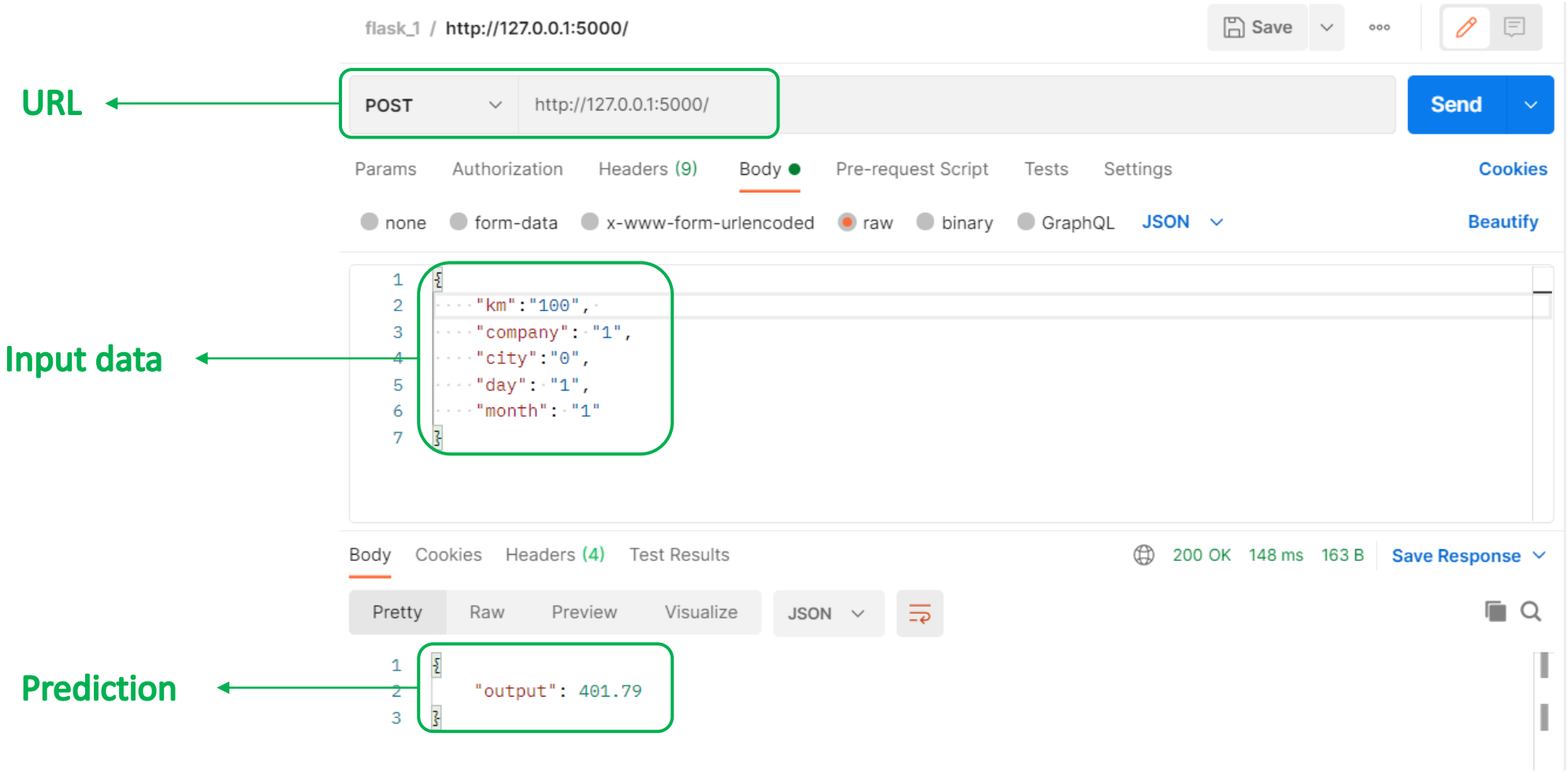
Input data

Prediction

```python
from flask import Flask, jsonify, request
import numpy as np
import pickle

app = Flask(__name__)

filename = 'model/finalized_model.sav'
model = pickle.load(open(filename, 'rb'))


@app.route('/', methods=['POST'])
def create_store():
    request_data = request.get_json()
    km=request_data['km']
    company=request_data['company']
    city=request_data['city']
    day=request_data['day']
    month=request_data['month']

    print(type(km),type(company),type(city),type(day),type(month))

    int_features = [float(km),int(month),int(day),int(company),int(city)]
    final_features = [np.array(int_features)]
    prediction =model.predict(final_features)

    output = round(prediction[0],2)
    print(output)

    return jsonify({'output':output})

app.run(port=5000)
```

API Code

API Test in local



API Deployment

Following prompts

```
(flask_rest) D:\repos\DG\pW5\flask_res>heroku create
Creating app... done, ⬚ intense-springs-49493
https://intense-springs-49493.herokuapp.com/ | https://git.heroku.com/intense-springs-49493.git

(flask_rest) D:\repos\DG\pW5\flask_res>heroku login
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/d5438fd4-69d3-4737-8f2b-3e131b15edb3?requestor=SFMyNTY.
2gDbQAAAA4xOTAuMjMyLjc0LjIyNm4GANo6wnp4AWIAAVGA.MiqeO3aH87yaQ4SvXc8Bs3HPpRlnCuh4O3DYXEcnp5I
Logging in... done
Logged in as sunstreaker.cynos@gmail.com

(flask_rest) D:\repos\DG\pW5\flask_res>git init
Reinitialized existing Git repository in D:/repos/DG/pW5/flask_res/.git/

(flask_rest) D:\repos\DG\pW5\flask_res>heroku git:remote -a intense-springs-49493
set git remote heroku to https://git.heroku.com/intense-springs-49493.git

(flask_rest) D:\repos\DG\pW5\flask_res>git add .

(flask_rest) D:\repos\DG\pW5\flask_res>git commit -am "make it better"
[master ac60401] make it better
 1 file changed, 2 insertions(+), 1 deletion(-)
```

API Deployment

Following prompts

```
(flask_rest) D:\repos\DG\pW5\flask_rest>git push heroku master
Enumerating objects: 10, done.
Counting objects: 100% (10/10), done.
Delta compression using up to 4 threads
Compressing objects: 100% (8/8), done.
Writing objects: 100% (10/10), 23.83 MiB | 1.31 MiB/s, done.
Total 10 (delta 2), reused 0 (delta 0), pack-reused 0
remote: Compressing source files... done.
remote: Building source:
remote:
remote: -----> Building on the Heroku-20 stack
remote: -----> Determining which buildpack to use for this app
remote: -----> Python app detected
remote: -----> Installing python-3.6.13
remote: -----> Installing pip 20.1.1, setuptools 47.1.1 and wheel 0.34.2
remote: -----> Installing SQLite3
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)
```

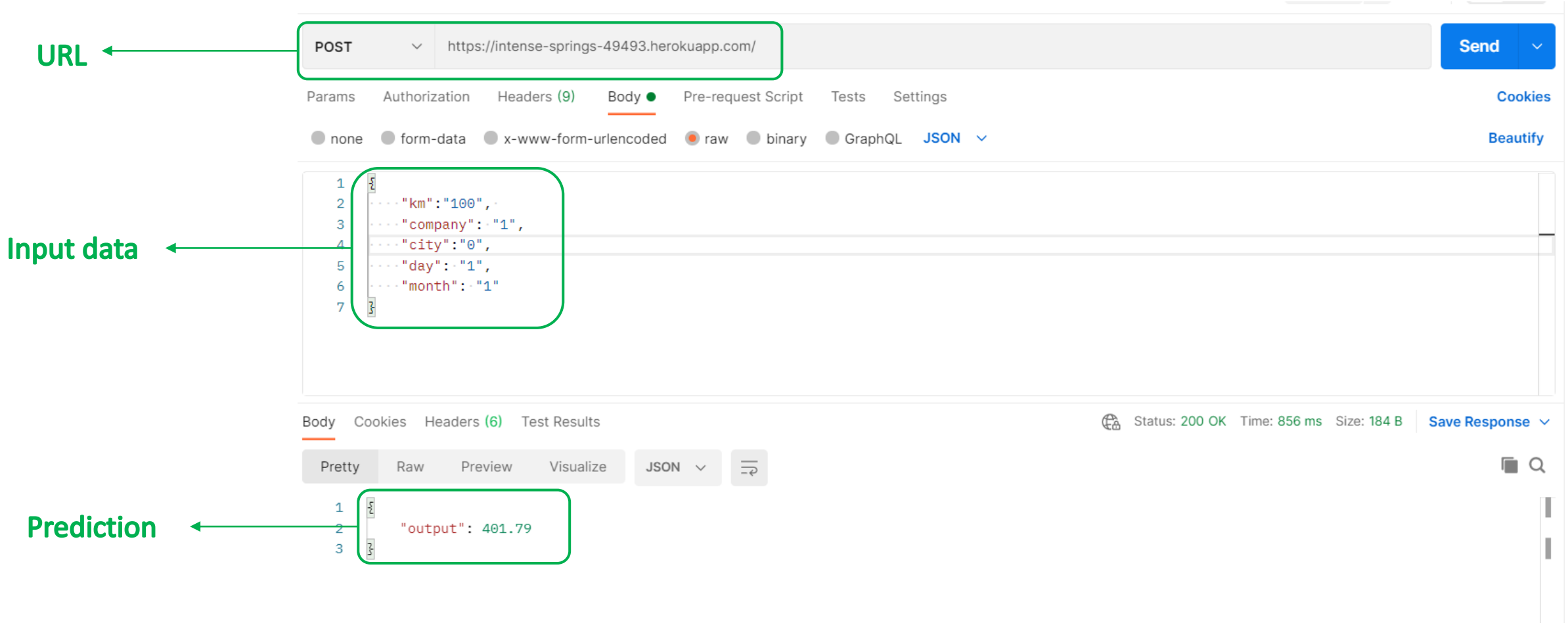
API Deployment

URL for Implemented API

https://intense-springs-49493.herokuapp.com/

API Deployment Test

API Test in server Heroku



Thank You