Data Glacier

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Deployment on Heroku

Raisin type prediction app

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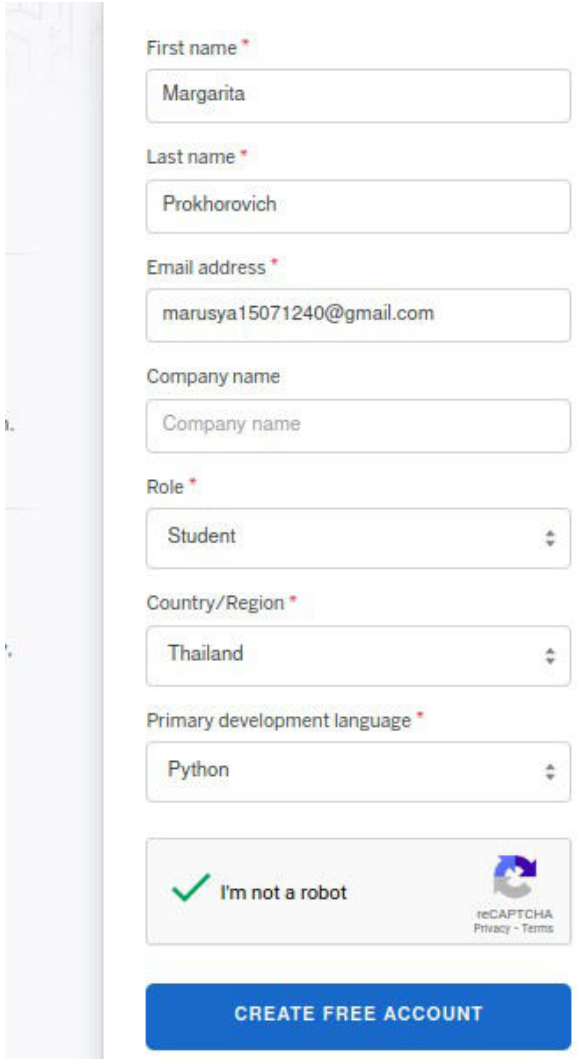
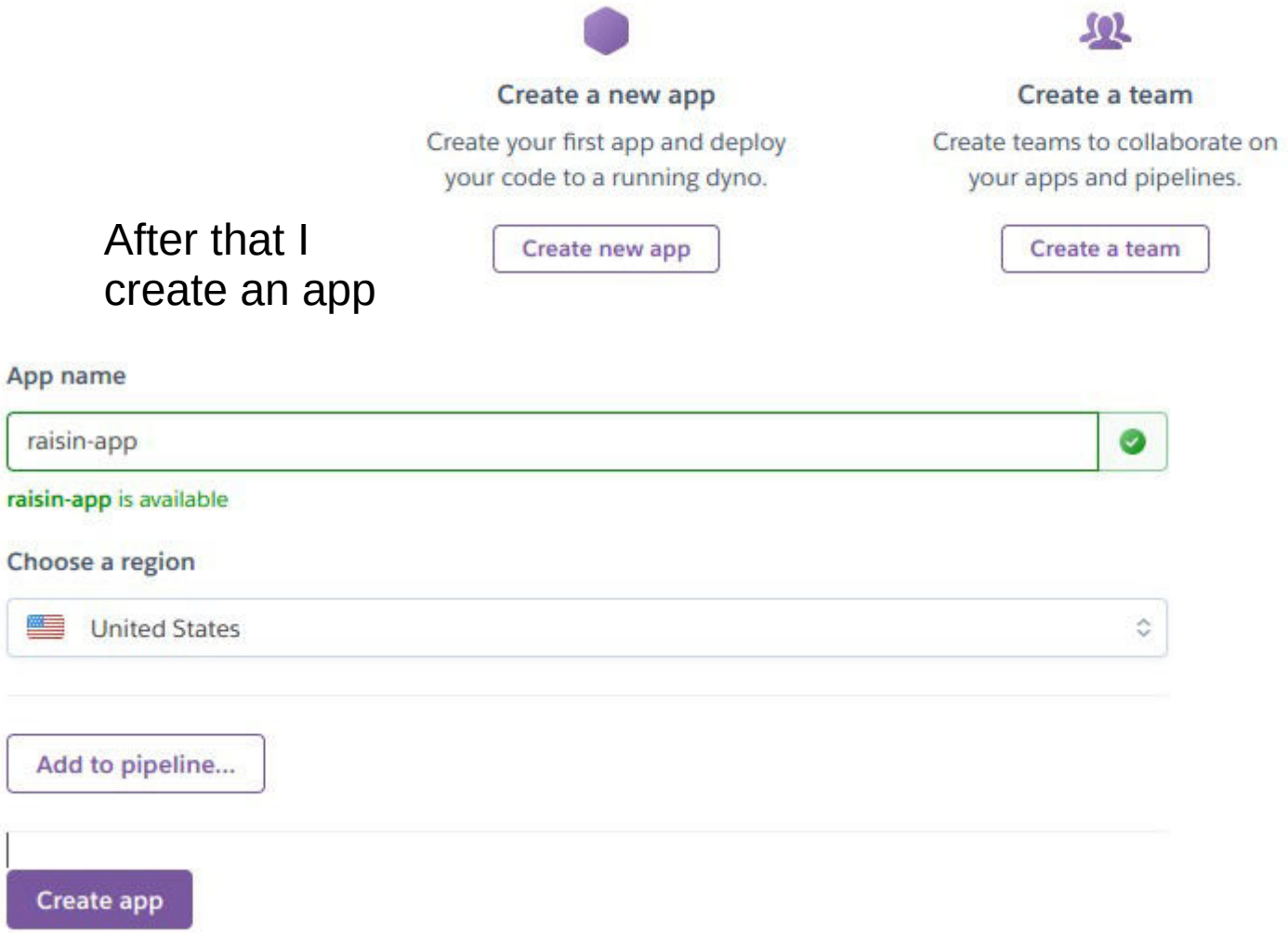
Creating Heroku account and app

In this project I use a model and app from the previous project – raisin type prediction app. I described model building and deployment on Flask sections in a previous week project. Here I'll describe a further development on Heroku.



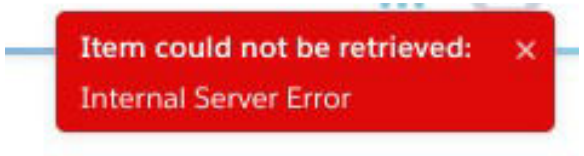
First step is to log in in Heroku filling the form.

After that I create an app



Linking the app to a GitHub repository and start of the deployment

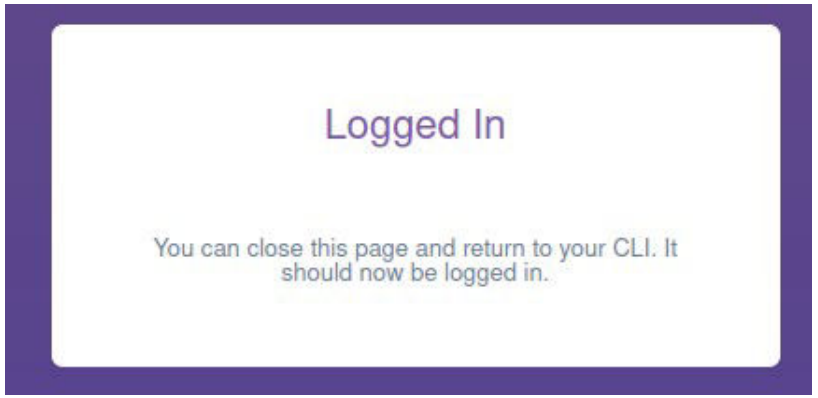
I choose GitHub as a deployment method. When pressing ‘Connect to GitHub’, an error occurs. Since there’s no possibility to deploy the app through GitHub, I’ll deploy it through Heroku Git.



An error that occurs when trying to connect to GitHub.
Type ‘heroku login’ in the console.

```
nyak@nyak-ThinkPad-X220:~/Desktop/scripts$ 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/2f
b9ffb4-8e85-47e7-90a8-2e42991e9523?requestor=SFMyNTY.g2gDbQAAAAw0O
S4yMzcuOC4yMTVuBgD4i6P2gAFiAAFRgA.zWhGZUaoEeCCiKfA1fkuzbrt_qOB-CkQ
GCH8e2N1sHQ
heroku: Waiting for login...
```

Logged in on the site.




```
nyak@nyak-ThinkPad-X220:~/Desktop/scripts/VC/Week5$ pip install
pipreqs
Defaulting to user installation because normal site-packages is
not writeable
Requirement already satisfied: pipreqs in /home/nyak/.local/lib/
python3.8/site-packages (0.4.11)
Requirement already satisfied: docopt in /home/nyak/.local/lib/p
ython3.8/site-packages (from pipreqs) (0.6.2)
Requirement already satisfied: yarg in /home/nyak/.local/lib/pyt
hon3.8/site-packages (from pipreqs) (0.1.9)
Requirement already satisfied: requests in /usr/lib/python3/dist
-packages (from yarg->pipreqs) (2.22.0)
WARNING: You are using pip version 22.0.4; however, version 22.1
 is available.
You should consider upgrading via the '/usr/bin/python3 -m pip i
nstall --upgrade pip' command.
nyak@nyak-ThinkPad-X220:~/Desktop/scripts/VC/Week5$ pipreqs .
INFO: Successfully saved requirements file in ./requirements.txt
nyak@nyak-ThinkPad-X220:~/Desktop/scripts/VC/Week5$
```

In addition to app and model files, templates and style files, it’s also needed to add requirements.txt and Procfile files. To generate requirements.txt file, I can use pipreqs module. Since an error occurs, I also add gunicorn to the requirements. Also I create runtime.txt to specify python version.

Model deployment

```
nyak@nyak-ThinkPad-X220:~/Desktop/scripts/VC/Week5$ git init
Initialized empty Git repository in /home/nyak/Desktop/scripts/VC/Week5/.git/
nyak@nyak-ThinkPad-X220:~/Desktop/scripts/VC/Week5$ heroku git:remote -a raisin-app
set git remote heroku to https://git.heroku.com/raisin-app.git
nyak@nyak-ThinkPad-X220:~/Desktop/scripts/VC/Week5$ git add .
nyak@nyak-ThinkPad-X220:~/Desktop/scripts/VC/Week5$ git commit -m 'Created heroku app'
[master (root-commit) aaacb91] Created heroku app
 15 files changed, 833 insertions(+)
 create mode 100644 .~lock.Deployment_on_Flask_snapshots.odp#
 create mode 100644 .~lock.Raisin_Dataset.xlsx#
 create mode 100644 Deployment_on_Flask_snapshots.odp
 create mode 100644 Procfile
 create mode 100644 README.md
 create mode 100644 Raisin_Dataset.xlsx
 create mode 100644 app.py
 create mode 100644 model.ipynb
 create mode 100644 model_raisin.pkl
 create mode 100644 requirements.txt
 create mode 100644 runtime.txt
 create mode 100644 standart_scale.pkl
 create mode 100644 static/css/style.css
 create mode 100644 static/images/schema.png
 create mode 100644 templates/index.html
```

I initialize a new git repository in a project week. Next step is to connect the app to git remote. After that I add and commit the files.

```
nyak@nyak-ThinkPad-X220:~/Desktop/scripts/VC/Week5$ git push heroku master
Enumerating objects: 21, done.
Counting objects: 100% (21/21), done.
Delta compression using up to 4 threads
Compressing objects: 100% (15/15), done.
Writing objects: 100% (21/21), 470.41 KiB | 14.70 MiB/s, done.
Total 21 (delta 0), reused 0 (delta 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: -----> Using Python version specified in runtime.txt
remote: -----> Installing python-3.9.13
remote: -----> Installing pip 22.0.4, setuptools 60.10.0 and wheel 0.37.1
remote: -----> Installing SQLite3
remote: -----> Installing requirements with pip
remote:        Collecting Flask==1.1.1
remote:          Downloading Flask-1.1.1-py2.py3-none-any.whl (94 kB)
```

After that I push the changes to heroku master branch. Process is completed successfully.
After that I type ‘heroku open’ to open the app and test it.

```
nyak@nyak-ThinkPad-X220:~/Desktop/scripts/VC/Week5$ heroku open
nyak@nyak-ThinkPad-X220:~/Desktop/scripts/VC/Week5$
```

Testing the app

App opens in a new tab, predictions work. Deployment on Heroku is completed.

https://raisin-app.herokuapp.com/predict

Predict Raisin Type

53698	348.223231	197.752897	0.823104
56089	0.731341	938.705	

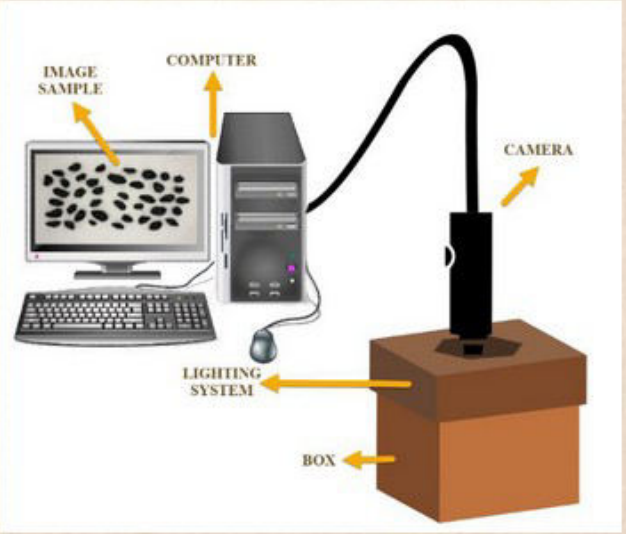
Predict

Raisin type should be Kecimen

Features that determine type of raisin are morphological features that were extracted based on image processing:

- Area: Gives the number of pixels within the boundaries of the raisin grain.
- Perimeter: It measures the environment by calculating the distance between the boundaries of the raisin grain and the pixels around it.
- MajorAxisLength: Gives the length of the main axis, which is the longest line that can be drawn on the raisin grain.
- MinorAxisLength: Gives the length of the small axis, which is the shortest line that can be drawn on the raisin grain.
- Eccentricity: It gives a measure of the eccentricity of the ellipse, which has the same moments as raisins.
- ConvexArea: Gives the number of pixels of the smallest convex shell of the region formed by the raisin grain.
- Extent: Gives the ratio of the region formed by the raisin grain to the total pixels in the bounding box.

Full study text



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Thank You