ML web app deployment to Heroku and API

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Submission date: 26-March-2021
Submitted to: Data Glacier
Repository: https://github.com/jaycee-ds/Salary_ModelDeployment_Flask

For this week's assignment, I continued working with the Machine Learning based web app that I created previously with Flask. This is the process I've followed:

First of all, I signed up to Heroku and installed their CLI. Also, having Flask installed on my environment, had to do the same for gunicorn (web server gateway interface). Ready to start setting up the files before pushing the code to Heroku: Procfile and requirements.txt.

Procfile

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

And to create the requirements.txt file from which the cloud system will collect the necessary packages, I ran the following command:

```
$ pip list --not-required --format=freeze > requirements.txt
```

So I got this:

requirements.txt

```
argh==0.26.2
autopep8==1.5.6
brotlipy==0.7.0
colorama==0.4.4
flake8==3.9.0
Flask==1.1.2
future==0.18.2
gunicorn==20.0.4
importlib-metadata==3.7.3
matplotlib==3.3.4
olefile==0.46
pip==21.0.1
pydocstyle==5.1.1
pyOpenSSL==20.0.1
PySocks==1.7.1
PyYAML==5.4.1
rope==0.18.0
scikit-learn==0.24.1
sip==4.19.8
spyder==4.2.3
statsmodels==0.12.2
wheel==0.36.2
yapf==0.31.0
```

After that, committed the new files (and all the ones related to the app where already committed), logged in Heroku and created the app on cloud.

```
[(Deployment) juancarlos@MacBook-Air-de-Juan Salaries Flask App % heroku login
 › Warning: Our terms of service have changed: https://dashboard.heroku.com/terms-of-se
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/d00e86a6-3fd8-4fa7-a37a-e
3844?requestor=SFMyNTY.g2gDbQAAAA0yMTcuMjE3LjE4Ljk1bgYAM0EdaXgBYgABUYA.Ib4-P6fc7EfC97xPS2
9FW2a02GNzPxaf36rc
Logging in... done
Logged in as juanca.gc91@gmail.com
[(Deployment) juancarlos@MacBook-Air-de-Juan Salaries Flask App %
[(Deployment) juancarlos@MacBook-Air-de-Juan Salaries Flask App % heroku create
Creating app... done, ⬢ fierce-mesa-24698
https://fierce-mesa-24698.herokuapp.com/ | https://git.heroku.com/fierce-mesa-24698.git
```

Here we have our app URL in blue.

We have to push the code to Heroku using git with the following command:

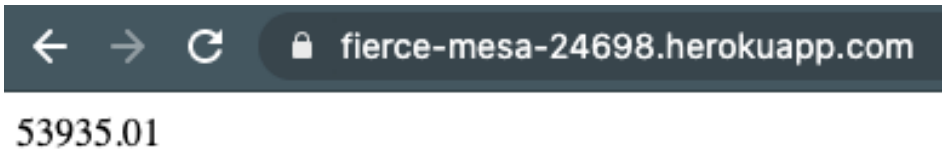
```
$ git push heroku main
```

It starts collecting the necessary packages (listed in our requirements.txt file) and installing them on the cloud. Once it's done, we'll see the message that deployment is completed:

```
remote:        Released v3
remote:        https://fierce-mesa-24698.herokuapp.com/ deployed to Heroku
remote:
remote: Verifying deploy... done.
To https://git.heroku.com/fierce-mesa-24698.git
```

Now, our app should be running properly.

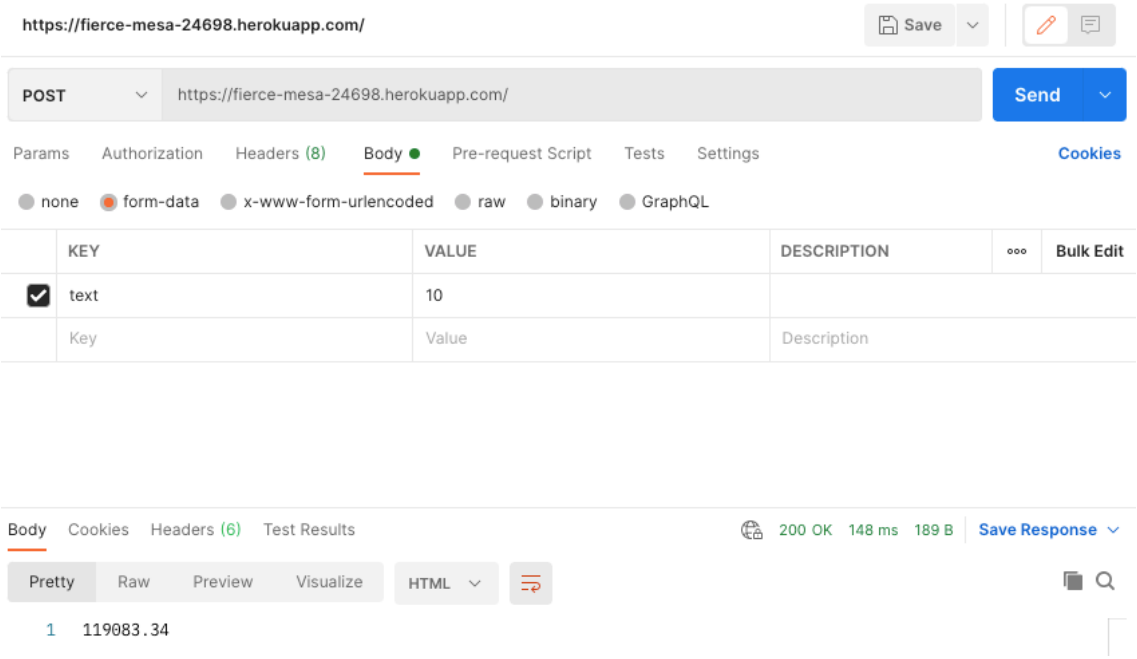
Here we go…



We enter a number (stands for years of experience) and returns a predicted salary.

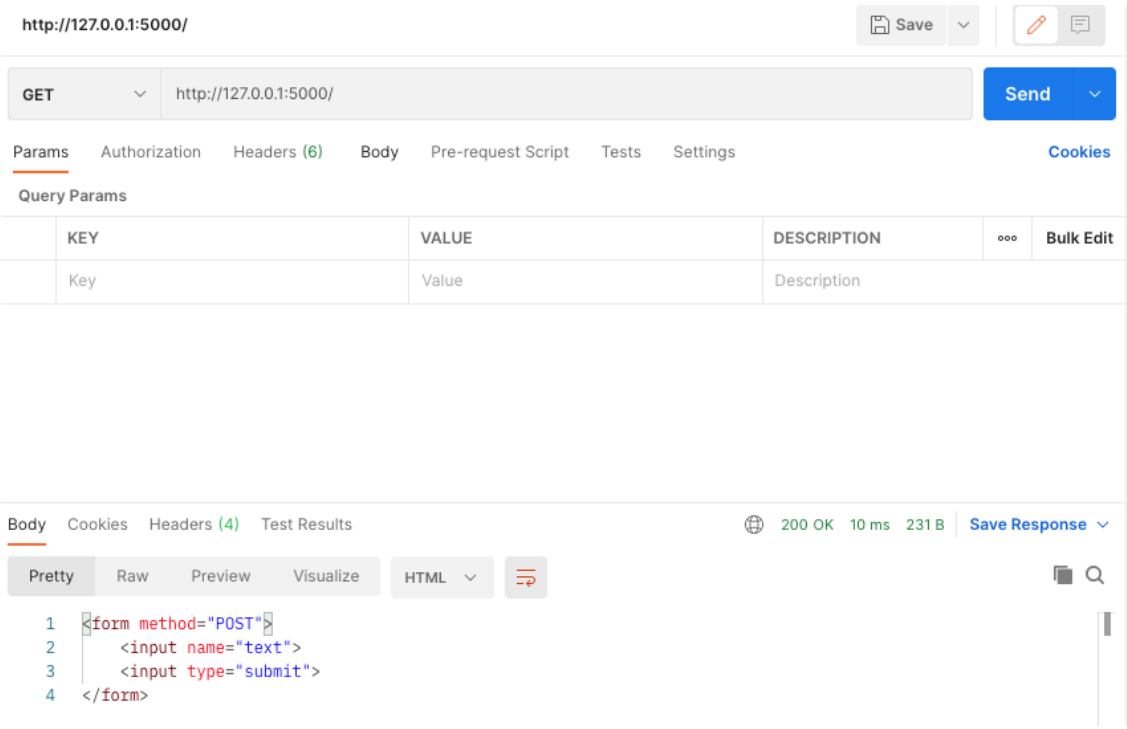
Now, let's move on to test the API. I used both Postman and the Mac terminal.

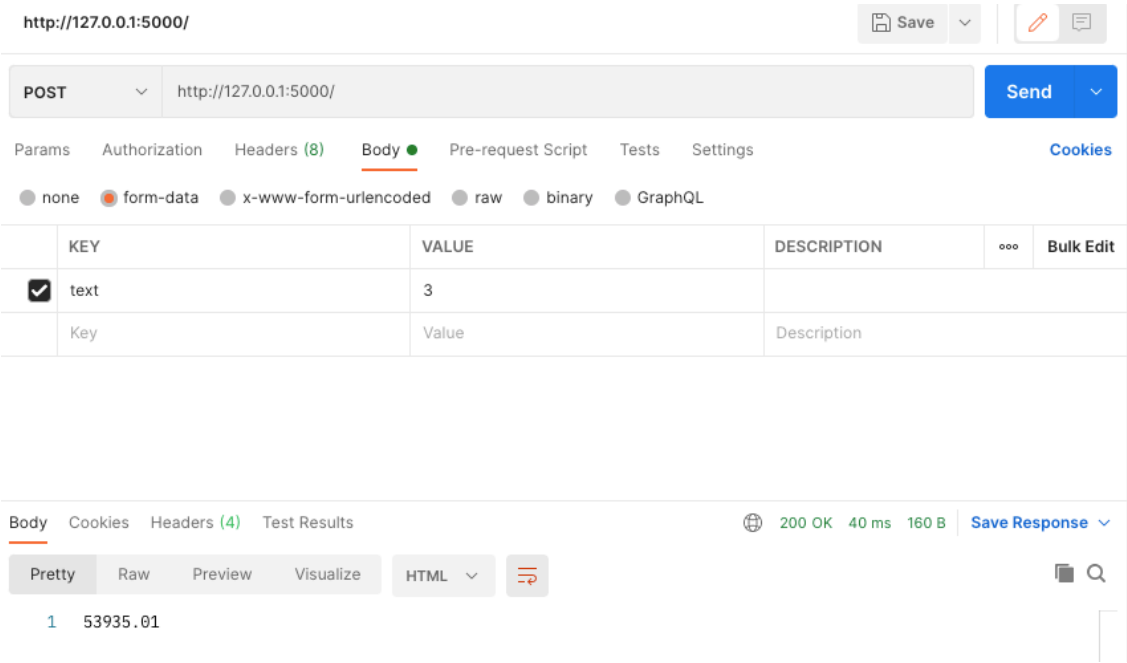
In Postman, using POST method, I entered a key “text” (in this case) and a value of 10. It returns the prediction correctly. This is the Heroku web API.



Finally, I tested the local API.

Using Postman:





And also using the Terminal:

```
(base) juancarlos@MacBook-Air-de-Juan ~ % curl http://localhost:5000
<form method="POST">
    <input name="text">
    <input type="submit">
</form>%

(base) juancarlos@MacBook-Air-de-Juan ~ % curl --data "text=4" http://localhost:
5000
63241.92%
```

First, sending a GET request (it returns the HTML form) and then sending a POST request (inputting 4 as value) and giving the prediction back.