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Batch code: LISUM0
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Submitted to: Data Glacier

Snapshots of deployment procedure

1. **Created virtual environment called venv for package installation inside the folder "heroku_project.**

```
Microsoft Windows [Version 10.0.19042.1083]
(c) Microsoft Corporation. All rights reserved.

C:\Users\william>cd onedrive

C:\Users\william\OneDrive>cd desktop

C:\Users\william\OneDrive\Desktop>heroku_project\venv\scripts\activate.bat

(venv) C:\Users\william\OneDrive\Desktop>
```

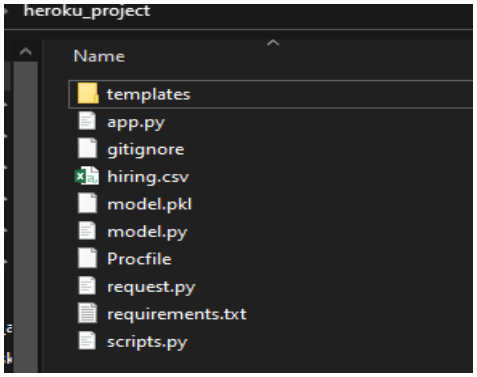
2. **Virtual environment Venv is created and activated.**

```
(venv) C:\Users\william\OneDrive\Desktop>pip install -r requirements.txt
Requirement already satisfied: Flask==2.0.1 in c:\users\william\onedrive\desktop\heroku_project\venv\lib\site-packages
from -r requirements.txt (line 1)) (2.0.1)
```

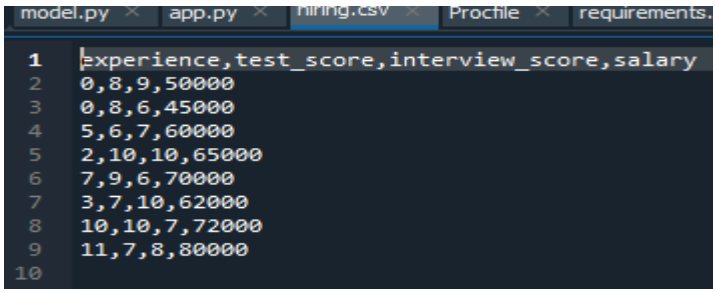
3. Additional packages needed for heroku deployment are installed and checked.

```
(venv) C:\Users\william\OneDrive\Desktop>pip  freeze local
certifi==2021.5.30
chardet==4.0.0
click==7.1.2
colorama==0.4.4
cycler==0.10.0
Flask==2.0.1
gunicorn==20.1.0
idna==2.10
itsdangerous==2.0.1
Jinja2==3.0.1
joblib==1.0.1
kiwisolver==1.3.1
MarkupSafe==2.0.1
matplotlib==3.4.2
numpy==1.21.0
pandas==1.3.0
pickleshare==0.7.5
Pillow==8.3.1
pyparsing==2.4.7
python-dateutil==2.8.1
pytz==2021.1
requests==2.25.1
scikit-learn==0.24.2
scipy==1.7.0
six==1.16.0
threadpoolctl==2.1.0
urllib3==1.26.6
Werkzeug==2.0.0

(venv) C:\Users\william\OneDrive\Desktop>
```

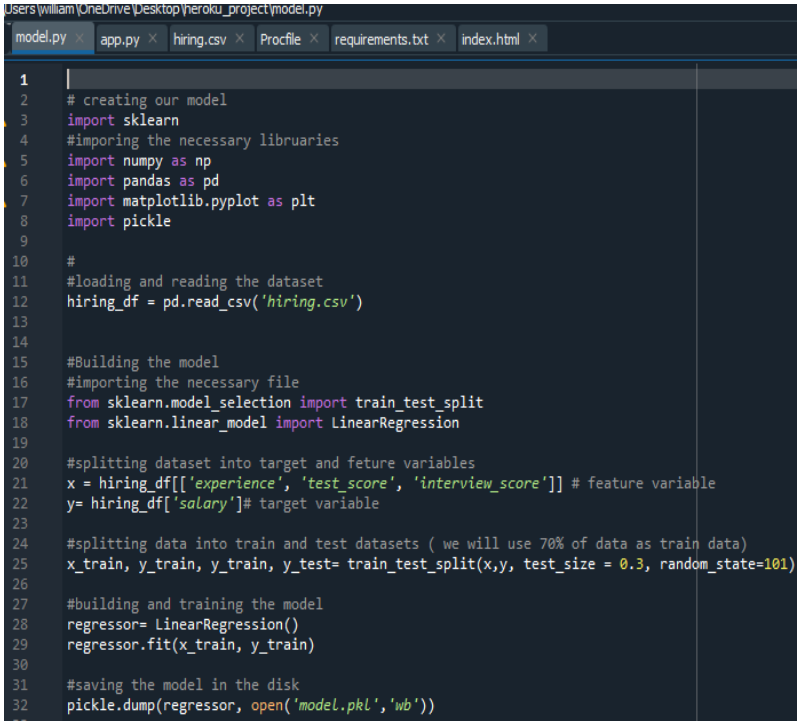
4. More files are created and the final folder for deployment should be like below:



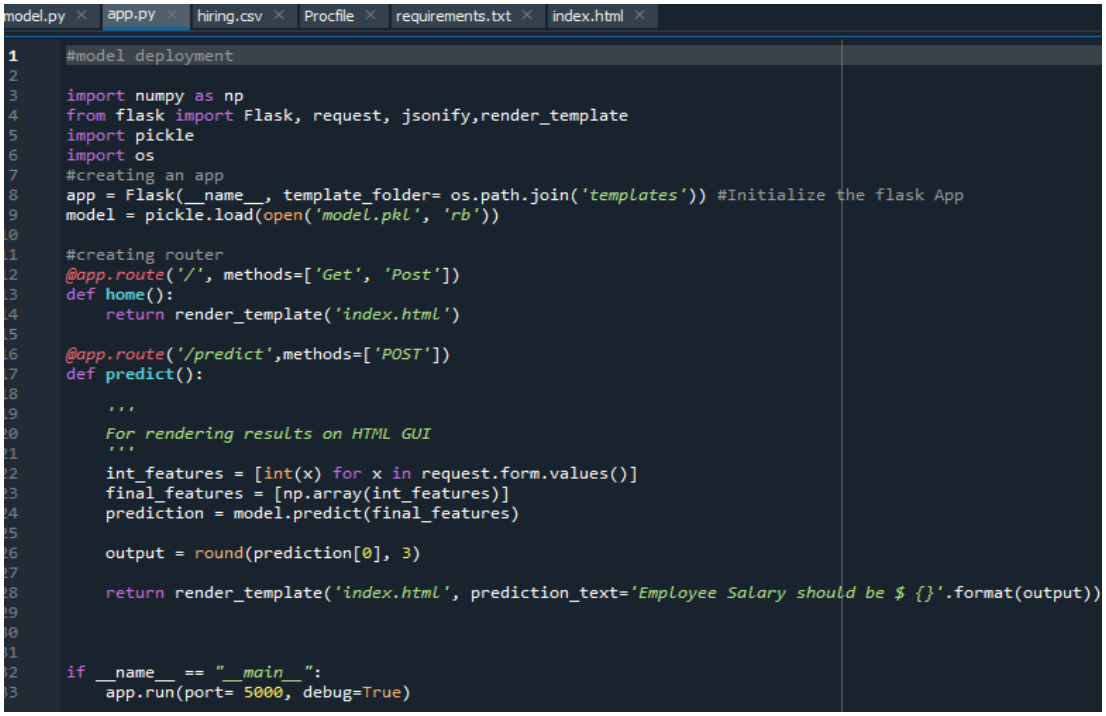
5. Get the datset to be used to build the model (hiring.csv, sourced from kaggle)



6. I first build the model in model.py file and dumped/savedwor it in pickle file 'model.pkl'

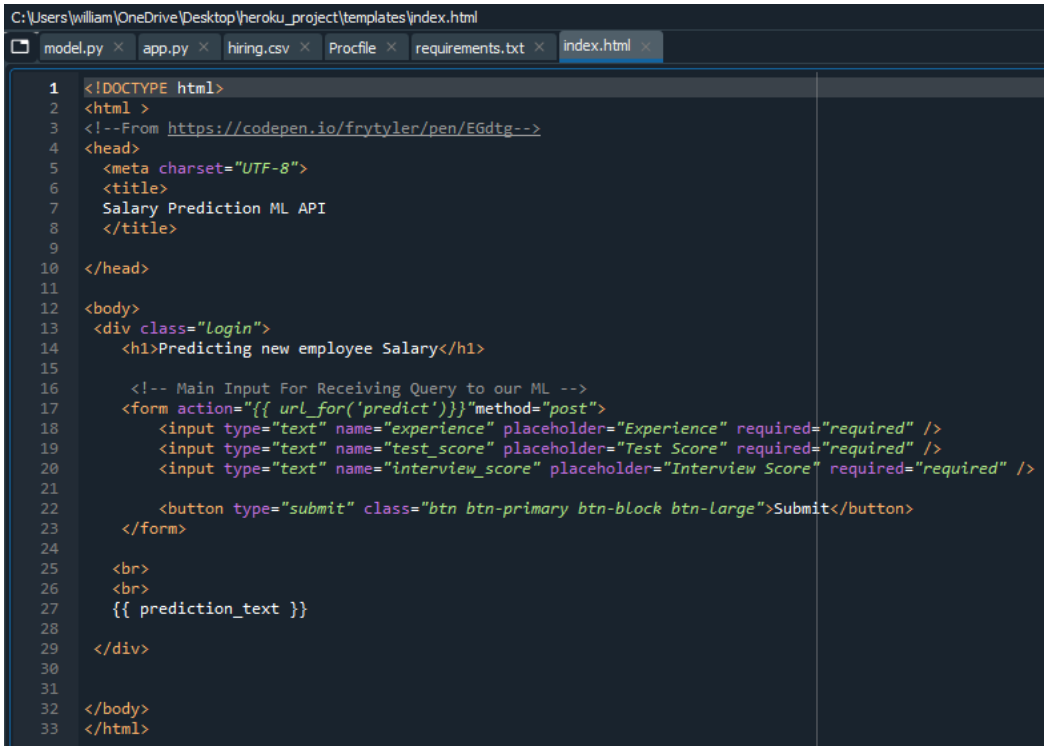


7. Worked on app.py file for model deployment.



```python
#model deployment

import numpy as np
from flask import Flask, request, jsonify,render_template
import pickle
import os
#creating an app
app = Flask(__name__, template_folder= os.path.join('templates')) #Initialize the flask App
model = pickle.load(open('model.pkl', 'rb'))

#creating router
@app.route('/', methods=['Get', 'Post'])
def home():
    return render_template('index.html')

@app.route('/predict',methods=['POST'])
def predict():

    '''
    For rendering results on HTML GUI
    '''
    int_features = [int(x) for x in request.form.values()]
    final_features = [np.array(int_features)]
    prediction = model.predict(final_features)

    output = round(prediction[0], 3)

    return render_template('index.html', prediction_text='Employee Salary should be $ {}'.format(output))



if __name__ == "__main__":
    app.run(port= 5000, debug=True)
```

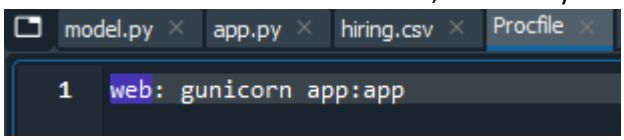
8. Worked on html file



```
C:\Users\william\OneDrive\Desktop\heroku_project\templates\index.html
```

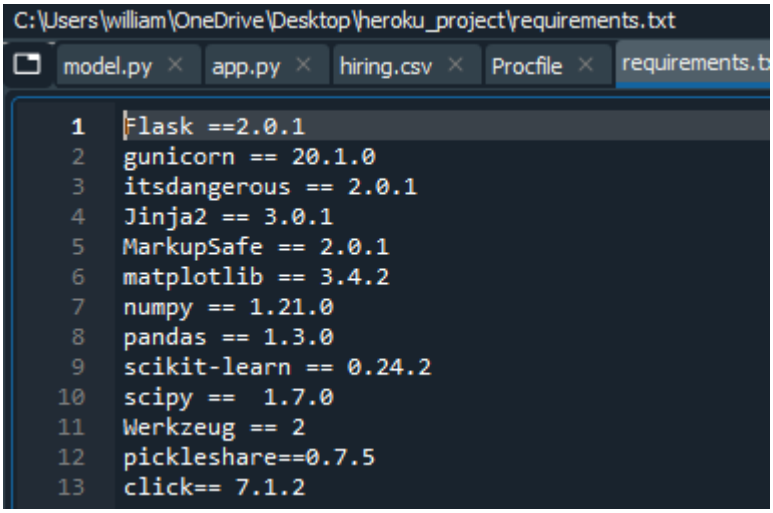
```html
<!DOCTYPE html>
<html >
<!--From https://codepen.io/frytyler/pen/EGdtg-->
<head>
  <meta charset="UTF-8">
  <title>
  Salary Prediction ML API
  </title>

</head>

<body>
 <div class="login">
    <h1>Predicting new employee Salary</h1>

     <!-- Main Input For Receiving Query to our ML -->
    <form action="{{ url_for('predict')}}"method="post">
        <input type="text" name="experience" placeholder="Experience" required="required" />
        <input type="text" name="test_score" placeholder="Test Score" required="required" />
        <input type="text" name="interview_score" placeholder="Interview Score" required="required" />

        <button type="submit" class="btn btn-primary btn-block btn-large">Submit</button>
    </form>

   <br>
   <br>
   {{ prediction_text }}

 </div>


</body>
</html>
```

9. Created Procfile to host into heroku, this is very vital for deployment

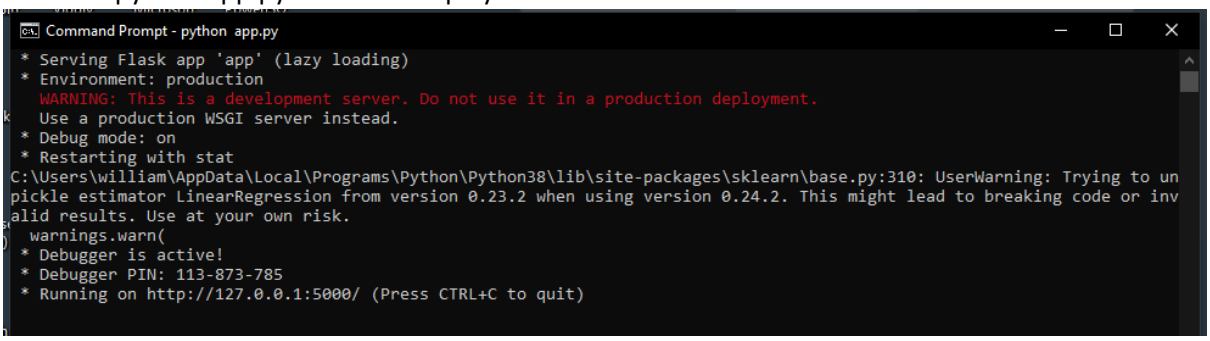


```
web: gunicorn app:app
```

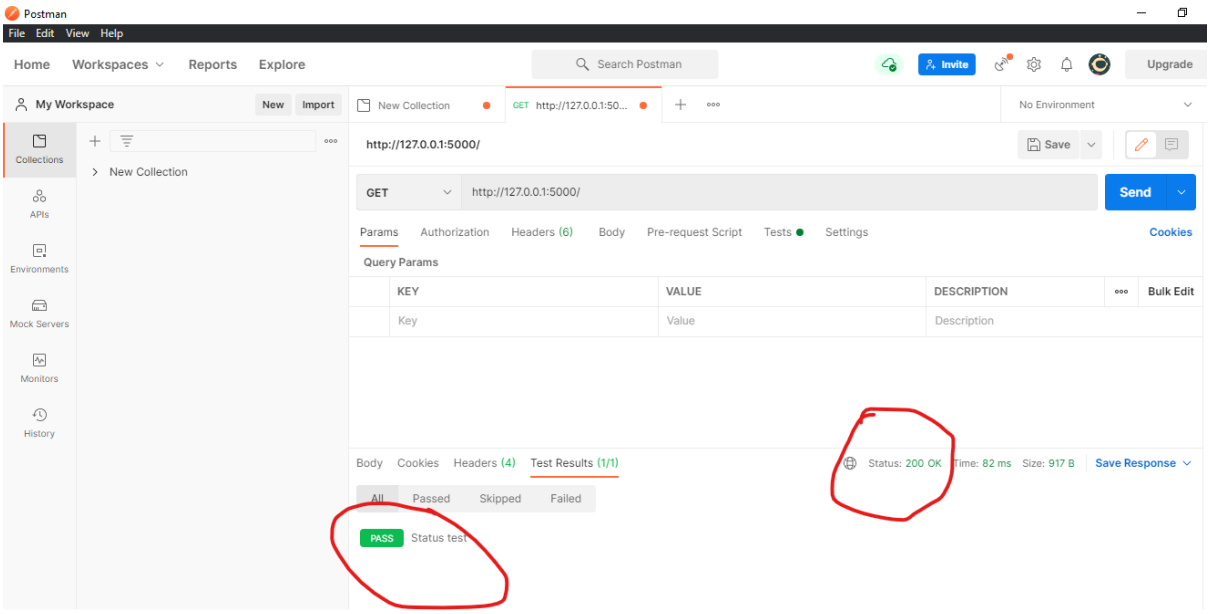
10. Get the required packages for heruko deployment from the earlier installed in the virtual environment and stored in requirements.txt file.



11. Run the code, go to the terminal prompt, ensure you are in the directory (heroku_projects) and run “python app.py”. this will display the bellow:



12. Test the status on postman. If you see 200 then the deployment is successful

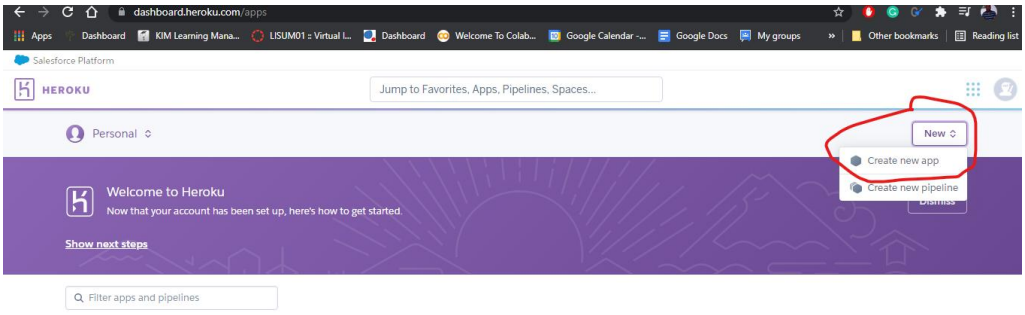


13. You can now deactivate the virtual environment

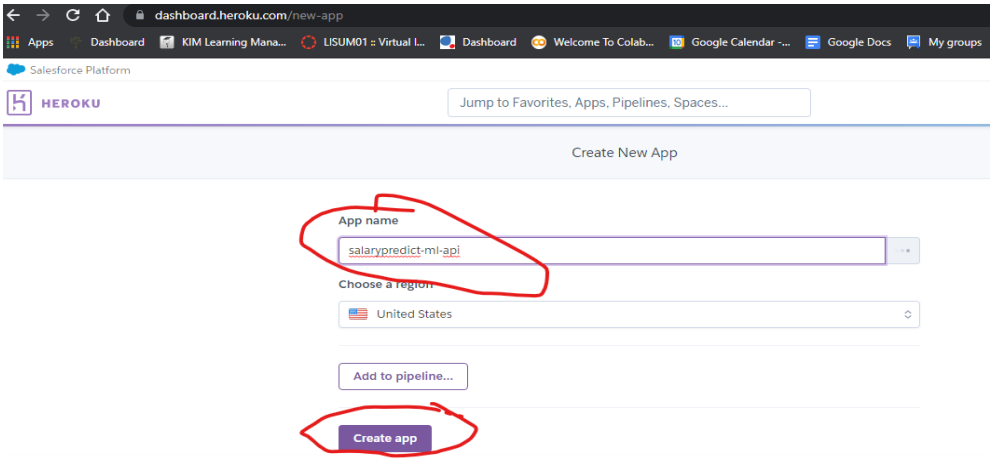
```
(venv) C:\Users\william\OneDrive\Desktop>cd heroku_project

(venv) C:\Users\william\OneDrive\Desktop\heroku_project>deactivate
C:\Users\william\OneDrive\Desktop\heroku_project>
```

It is now time to deploy the model on heroku

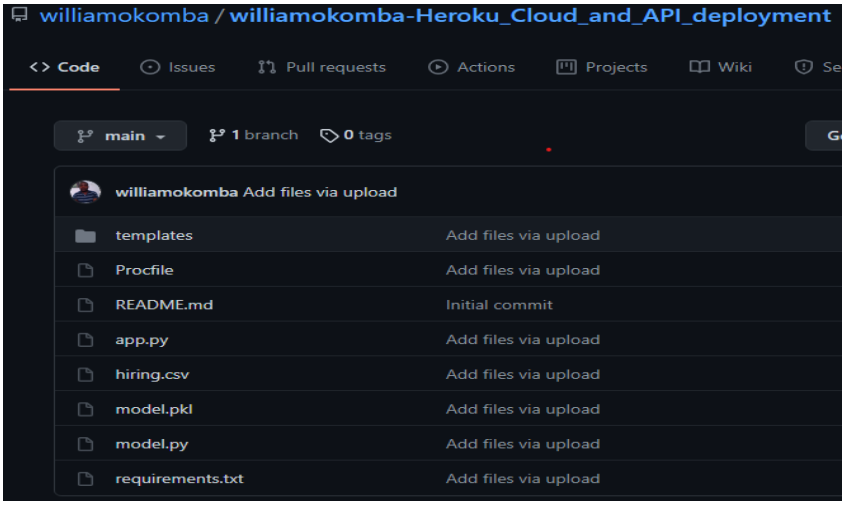
1. Register a Heroku account and log in
2. Click on New and select create new account.



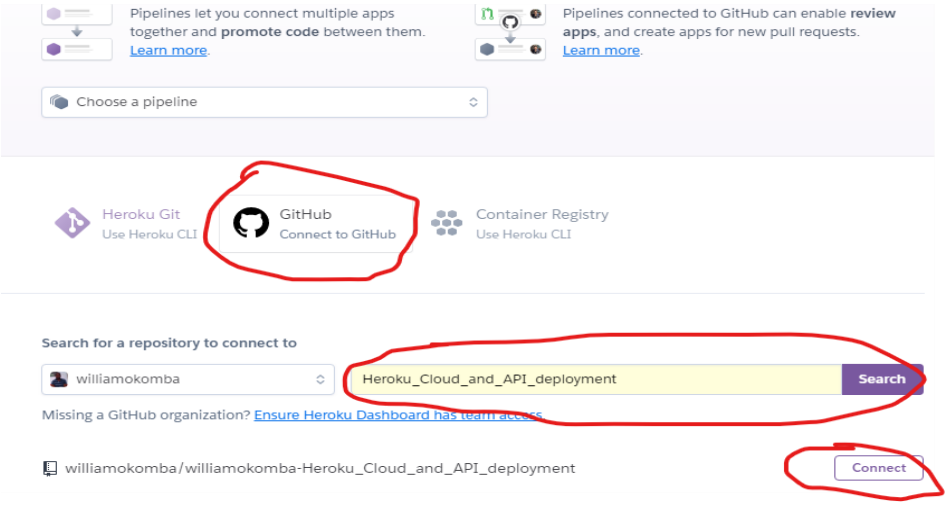
3. Write an app name, leave chose a region to default, and click create app



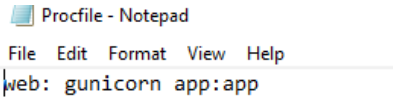
4. Confirm the GitHub repository containing the heroku deployment file: this is done by creating repository, adding files, and Git commit. Then push to the heroku.

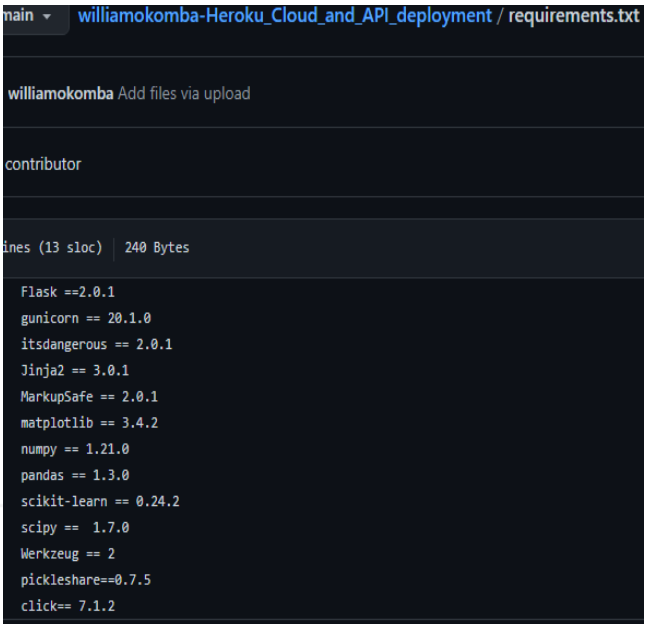


5. Go to deployment, and select GitHub, then add the repository name that is containing the deployment files.

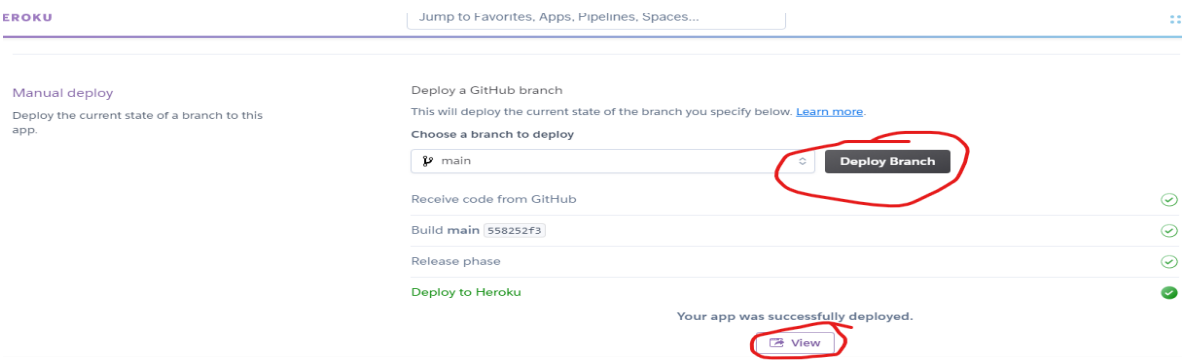


6. Confirming the Procfile is ok as well as the requirements.txt file

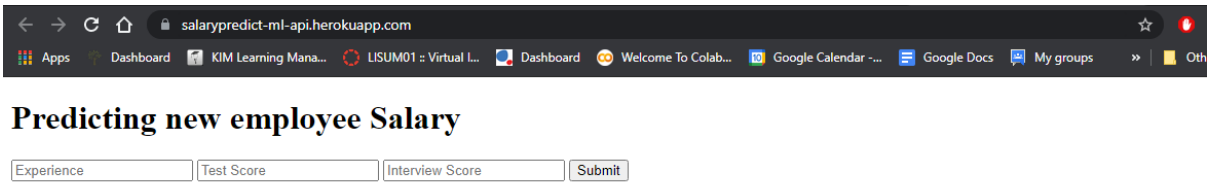




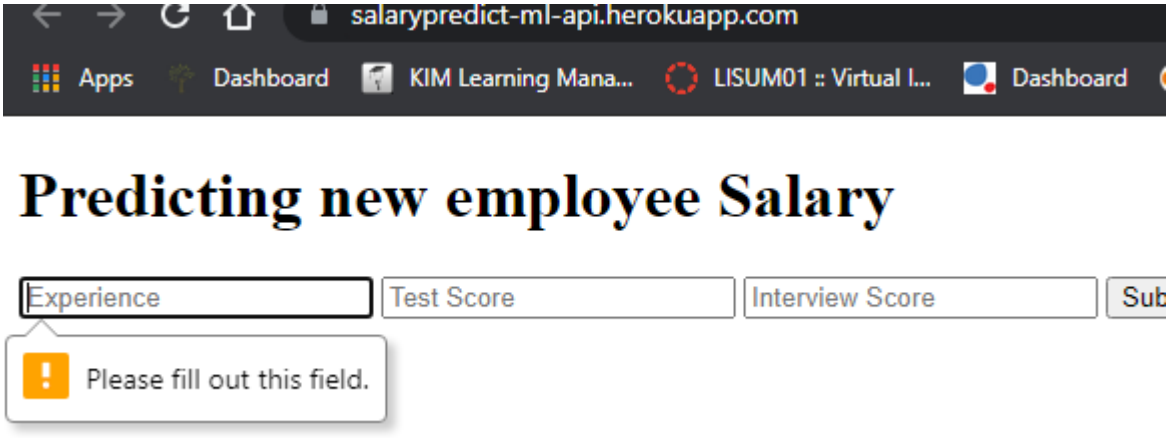
7. Connect the GitHub repository and then click Deploy Branch, wait for the heroku to load files. Url will be created. You can access it by clicking view.



8. url : https://salarypredict-ml-api.herokuapp.com/ is created and model is successfully deployed.

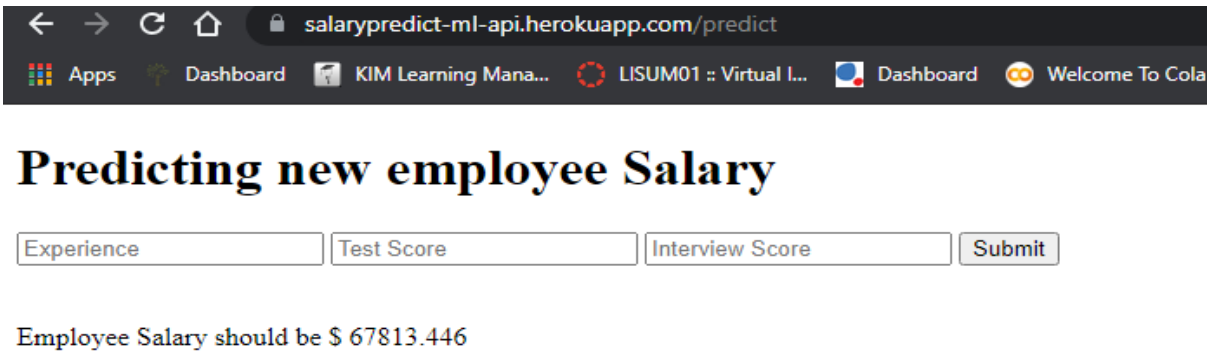


9. Trying to submit without inputting figures gives errors.



10. confirming it works: we try to input values

11. output:



END.