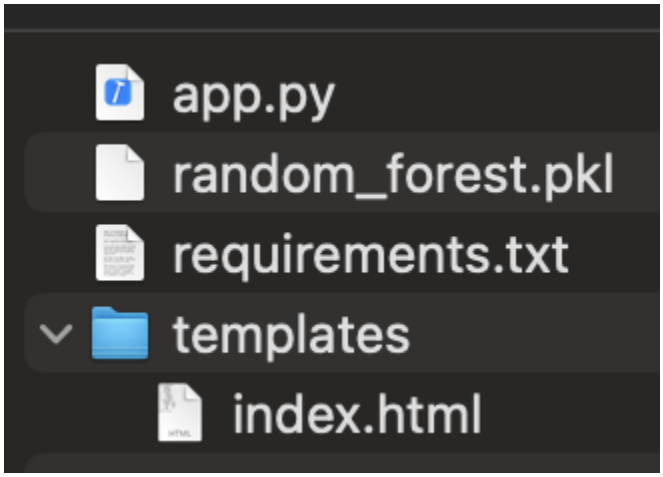
DataGlacier Week #5 API Deployment

Name: Rohan Khatri
Batch Code: LISUM39
Submission Date: 5 December 2024
Submitted to: Github Respository

Website URL: https://lisum39-wineapp.onrender.com/

Step 1: Prepping Flask App

- The Flask app needs to to be fully operational on localhost first
- Ensure all the required files are present (app.py, index.html, etc.)
- Need the **requirements.txt** file to deploy



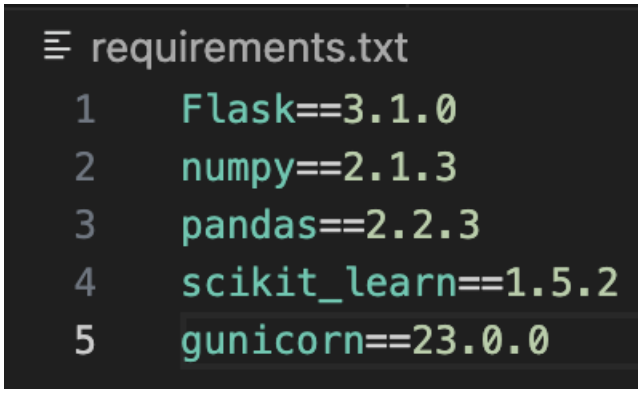
- To create the requirements.txt file, use the **pipreqs** library to automatically list all the imports needed
    - In the terminal, install pipreqs by running: **"pip install pipreqs"** or **"pip3 install pipreqs"** if using Python3
- Generate the requirements.txt file with **"pipreqs ."**

- This file plays a crucial role in deploying applications on platforms like Render, as it lists the Python packages required for the app to function. Without it, the necessary libraries wouldn't be installed, leading to application failures during deployment.

- Next, add the **gunicorn** package using "**pip install gunicorn**" or "**pip3 install gunicorn**" if using Python3
    - Include gunircorn in the requirements.txt file to make sure that it is installed with the other dependencies. Use the format: "**gunicorn==<version>**"

- Gunicorn is employed here because it serves as a high-performance Web Server Gateway Interface (WSGI) server, optimized for production environments. Unlike Flask's default development server, Gunicorn provides superior efficiency and stability, making it an ideal choice for managing production workloads. This ensures the application can handle concurrent users, which is critical for maintaining consistent application performance in demanding scenarios.

- The requirements.txt file should look like this after all the previous steps have been completed.



Step 2: Pushing to Github

1. Initialize a Git Repository (if not done already):
   Initialize git by navigating to project directory and inputting command “git init”

2. Stage all files for commit with command **“git add .”**

   Commit changes with a message such as the following: **git commit -m “Initial commit for Flask app deployment”**

3. Create a New Repository on GitHub:
   - Log in to your GitHub account and create a new repository.
   - Copy the repository URL (HTTPS or SSH).

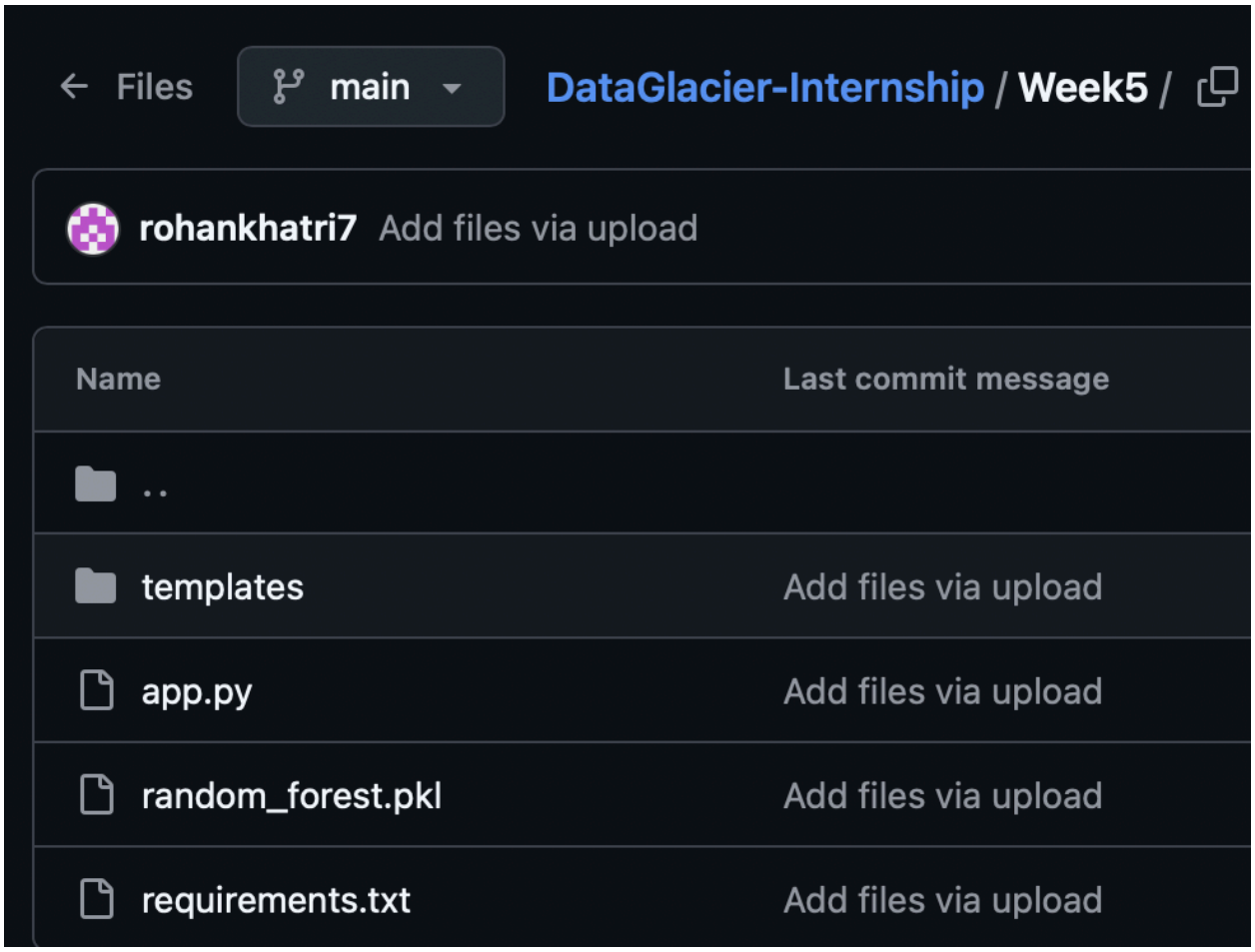
4. Link your local repository to Hithub by adding the repository as a remote origin using **“git remote add origin <repository-URL>”**

5. Push code to the main branch with the following commands
   - git branch -M main
   - git push -u origin main

6. Verify the Github repository has all the required files

   - Uploading code to Github enables Render to access the repository for app deployment.

The repository should look something similar to:

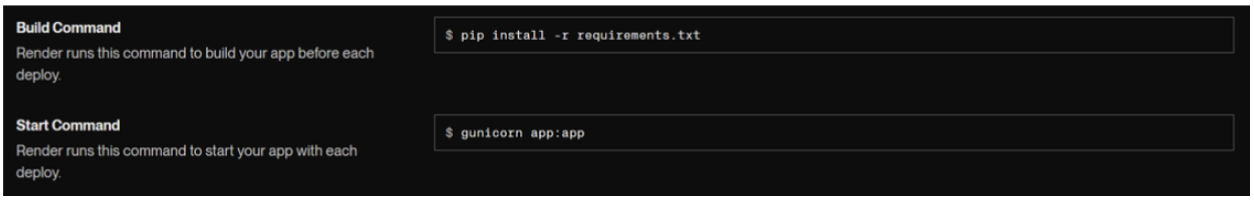


Step 3: Create a Render Account and Deploy Application

1. Create a New Web Service:
    - Log in to your Render account or create one if you do not have one yet.
    - Click on “New +” and select Web Service

2. Connect your Github repository by selecting the repository containing the Flask app and follow the necessary prompts to authorize the required access.

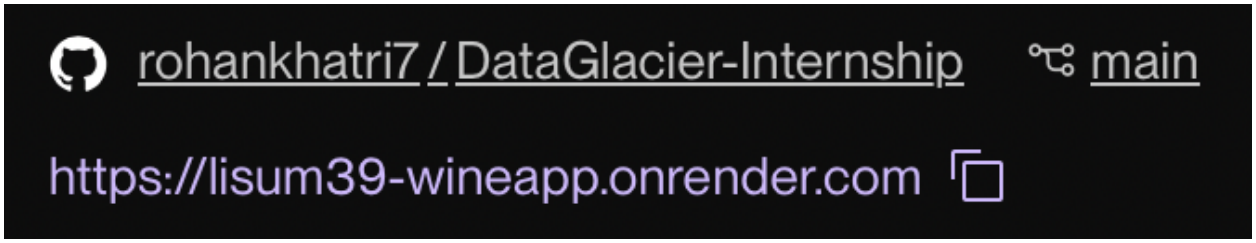
3. Configure the Deployment Settings as such:



- (Replace app:app with <filename>:<Flask_instance> if your app isn't named app.py.)

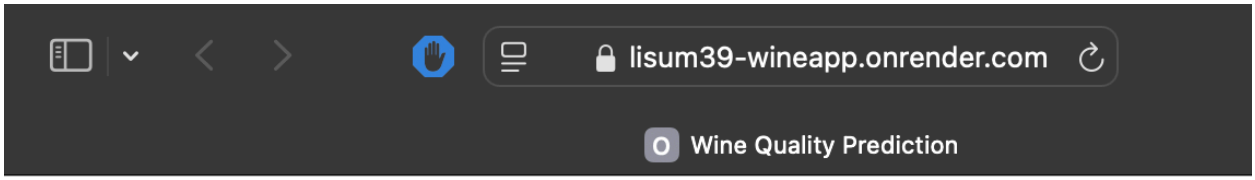
4. Click the “Create Web Service” to initiate the deployment and Render will pull your code, install dependencies from the requirements.txt file we created, and deploy the application.

5. Once the deployment is successful, Render will provide a URL for your app such as:



6. To make future changes, push changes to the Github repository using:
    - git add .
    - git commit -m “update message”
    - git push
    - Render will automatically redeploy the updating app

7. Flask app should now be fully deployed and accessible online as you can see:



Wine Quality Prediction

Alcohol:

Malic Acid:

Ash:

Alcalinity of Ash:

Magnesium:

Total Phenols:

Flavanoids:

Nonflavanoid Phenols:

Proanthocyanins:

Color Intensity:

Hue:

OD280/OD315 of diluted wines:

Proline:

Predict