

Assignment 3: Continuous Integration and Cloud Deployment

For this assignment, you will be creating a continuous integration loop on your repository via GitHub actions as well as deploy your service to the cloud, using Google Cloud. For this assignment you are required to make a **MINIMUM of 2 substantial commits** within your repository, please see assignment 0 to review the definition of a 'substantial commit'.

0. Choosing to Use Reference Solutions or Your Own Code

If you do not feel comfortable using your own solutions please see courseworks for the updated files, just replace or copy and paste the contents into the repository. Make this decision prior to completing this assignment.

1. Reminder of Required Documentation and commits

Just as a reminder that you need to have "honesty.txt" and "citations.txt" in the root of your repository as mentioned in assignment 1, failure to include "honesty.txt" will result in an immediate 0 on the assignment. Failure to include "citations.txt" will be assumed to mean that you consulted no outside sources during completion of this assignment. A reminder of the academic integrity policy you agreed to when submitting honesty.txt

2. Continuous Integration Loop

An important part of developing and maintaining a codebase is to make sure that your new changes work with the previous changes that you have already implemented. Since your projects are public on GitHub you are actually able to make a continuous integration loop very easily using GitHub actions, at minimum the loop should build and run the unit tests that you have been writing for the past few assignments (this one included) Here is a link to get you started: [How to build a CI/CD pipeline with GitHub Actions in four simple steps - The GitHub Blog](#)

3. Maintaining the Codebase

The codebase must still be maintained even after writing new features for the code. For the features you implemented, you must write documentation and additional tests so that you still meet the checkstyle requirements as specified in assignment 1, as well as maintaining at least 55% branch coverage (even if you got $\geq 55\%$ without writing new tests, you need to write new tests)

4. Deployment to the Cloud

Once you get to this point you will need to deploy your service to the cloud. Follow the appropriate guide from the GCP demo in order to do this, once you have the service deployed to the cloud you'll need to test this functionality by pointing the URL to the address it gives you to use, you'll need to submit a link to a video demonstrating successful deployment and functionality using a service like Postman.

5. Writing a README:

At this point everything should be done, now you just need to write a valid README, you'll need to explain things like how to properly setup the codebase on a local machine, how to run certain commands and where you'll find the outputs etc. The README you write should resemble the one found here: [GitHub Repo](#). Properly documented software is good software. You'll be required to do the same on your group projects as well.

6. Submission Details:

On Courseworks under "Individual Assignment #3" you will submit a link to your repository, remember that if you made your repository private then you must make all members of the Teaching Staff contributors on the repo so we may grade you. At the root level of the repository you must have the honesty.txt file described in section 1 as well as your citations.txt file which contains the links and descriptions of all the resources you used during this assignment as a reminder **you are not allowed** to work with any other student on these individual assignments. You will need to provide a screenshot of your Google Cloud instance as well as the video described in (4).

This assignment is due at **11:59 pm on September 27, 2024** If for some reason you need to submit the assignment late, that is fine, but just know

in the real world deadlines are strictly enforced and there are consequences that happen when those deadlines are missed as such the structure for late individual assignment submissions is as follows:

-10% of score day after deadline

-20% of score 2 days after deadline

-30% of score 3 days after deadline

0 if received after 11:59pm on September 30, 2024