

CSC490 Assignment A5 - Testing Your Project - 10% of Final Grade

Due: Mar 27th, 10:59pm with a Github PR + Quercus Submission

The goal of this assignment is to showcase your performance optimization, testing and debugging approach for your project.

1 Part One - Profiling Execution time (10 marks)

Profile 5 important functions in your codebase using <https://docs.python.org/3/library/profile.html>. Analyze your functions and find ways to improve them.

2 Part Two - Showing Code Coverage (10 marks)

Using `pytest-cov` (<https://github.com/pytest-dev/pytest-cov>) or a similar library, show the code coverage of your project. Create a github workflow to generate your test coverage automatically on your readme and PRs. You can reference the example in `pytest-cov` or other open source projects.

3 Part Three: Test Coverage Breadth (20 marks)

Let's make sure our code is well tested. You'll receive 0.20 marks for each 1% of code coverage up to 20 marks based on part two.

4 Part Four: Test Coverage Depth (20 marks)

Choose your most complex module in your codebase. Create at least 10 unit tests for this module that test edge cases, failure modes and important use cases. Link the tests and edge cases, and explain why you chose these tests in comments of that module. We'll try to find additional edge cases that exist to cause an error! Make sure to write positive tests and negative tests (ones that throw errors or gracefully handle incorrect inputs)

5 Part Five: Two Memorable Bugs (40 marks)

Record a video walkthrough of two of the most memorable bugs you encountered during your project. For each bug, include:

- What the bug was and how you discovered it
- The debugging process you used to identify the root cause
- How you fixed the bug
- What you learned from the experience
- The test cases you created to prevent this bug from reoccurring

Link your video in your a5.pdf

6 Submission Instructions

Submit a pull request to the course Github repo with your assignment in a folder named a5 with your a5.pdf on a branch called a5, include your team members names on the first page with student IDs. Also upload your assignment to quercus.