

## **SWE2721-121 – Lab 2 Circular Queue with TestNG**

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**Repo Link:** <https://github.com/msoe-SWE2721/swe2721-lab2-2025c-polleschk.git>

## I. Introduction

What are you trying to accomplish with this lab?

Review the circular queue class and find the bugs that are hidden and build into the code. Using TestNG we need to find the problem(s) with the code.

## II. Testing strategy

What strategy did you use to create your test? How did you go about organizing the tests in the test file?

To create my tests, I went in testing each of the methods, or low-level testing so that I could verify that each individual method works as intended, not just working as it is coded. So, I looked at the method headers then built a test for each, and organized them from how the CircularQueue class was build. I also looked at the given tests on the lab handout and made some of those.

## III. Fault Locations

What problems did your testing find? Where did you make a change to fix the bug?

The two problems that I found were in the “poll()” method and the “clear()” method. In the poll method it was updating the tail instead of the head so I changed those, and when we cleared the queue we didn’t reset the head and reset the tail so that was the other bug that I fixed.

## IV. Discussion

How did the AAA test approach help you structure your test cases? On the V Model, what type of tests are you writing here, why did you provide this answer?

I used the AAA method to help structure my test cases by separating the setup, execution, and verification of each test, making each test easier to read. On the V-model, the test written are unit tests and the unit tests are at the bottom of the V-model. This model helps verify that each individual component of the code works rather than just parts of it. Ensuring that the small parts are correct are essential before integrating them into something larger. I provided this answer because it asked its relation to the V-model and this model emphasizes verification at each stage of development.

## V. Things gone right/gone wrong

This section shall discuss the things which went correctly with this experiment as well as the things which posed problems during this lab.

During this lab, creating test cases to find the bugs was a little difficult at first as I have never used TestNG before so that was a learning curve. I also thought that it was quite easy to find the bugs once I understood exactly what was expected. Writing the correct tests for every method helped me identify the bugs faster.

## VI. Conclusions

What have you learned from this experience? What improvements can be made in this experience in the future?

This experience was difficult at first as it was something new with Gradle and TestNG, so providing a little more assistance in bridging the gap with that learning curve, and maybe some documentation that you could have pointed us to would have been helpful!