



**MBARARA UNIVERSITY OF SCIENCE AND TECHNOLOGY
FACULTY OF COMPUTING AND INFORMATICS**

**COURSE UNIT: SOFTWARE ENGINEERING INDUSTRIAL
MINI PROJECT II**

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TEST CASES

I tested the portable matrix library across different programming languages. First, I focused on unit testing.

Unit Testing

Defined Unit Tests : I started by defining tests for the main features of the library, such as creating matrices, adding them, and multiplying them.

Used Testing Frameworks : For each language, I picked the right testing framework, like JUnit for Java and pytest for Python, to run my tests.

Ran Unit Tests : I ran the unit tests in each language. I noted any failures and fixed issues as I went along.

Refined Tests : After looking at the results, I updated the tests to cover any missed scenarios and corrected errors in the library.

System Integration Testing

Set Up Environment : I made sure my test environment was ready for each language with all the right tools and libraries.

Defined Testing Scenarios : I thought of real-world scenarios where I might use the library and created tests for those situations.

Recorded Results : After running the tests, I recorded and reviewed the results to find any problems or unexpected behaviour.

Debugged and Refactored : I fixed any issues that came up during testing and refined the code to ensure everything worked smoothly.

Performance Testing : I added some basic performance tests to see how the library handled different data sets.

Documented Findings : Finally, I documented all the test cases, results, and any important lessons I learned throughout the process.

By completing these tests, I ensured that the portable matrix library functioned well across different programming languages, preparing it for the next steps in development.

References.

J. Pan, "Software Testing," 18-849b Dependable Embedded Systems, Carnegie Mellon University, Spring 1999. [Online]. Available: jpan@cmu.edu.