

Ministry of Education and Science of Ukraine

National Technical University "KhPI"

Educational and Scientific Institute of Computer Science and Informational Technology

Department of Computer Engineering and Programming

Course: Programming. Part1

REPORT on the laboratory work #6

Topic: *"Implementing a Function Library with Unit Testing"*

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Checked by:

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Task 6

Explanation

To implement unit tests for a C library using the Unity framework.

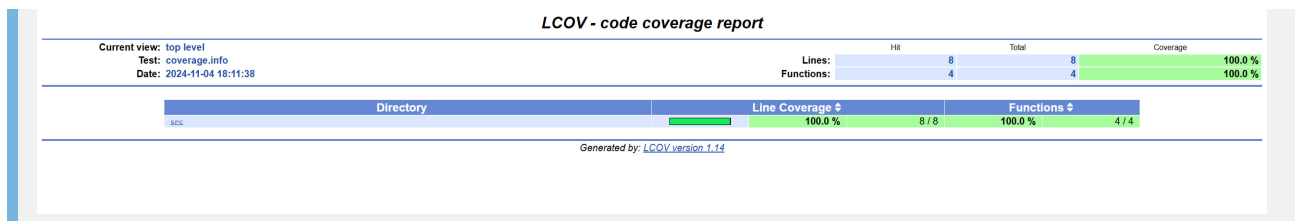
Command performed

```
git clone git@github.com:ThrowTheSwitch/Unity.git
...
make
make test
./main
./run_tests
make coverage
make clean
```

Algorithm

1. Implemented the mathematical expressions as functions in a library
 - Created a header file lib.h in the include directory with function prototypes.
 - Implemented the functions in lib.c in the src directory.
2. Created a unit test for each function using the Unity framework

- Cloned Unity framework files to the project.
 - Created test cases for each function in test_lib.c in the test directory.
 - Used Unity macros to assert expected outcomes.
3. Configure the project structure and Makefile to build the library, main application, and test suite
- Organized the project structure with src, include, and test directories.
 - Wrote a Makefile to compile the library, main application, and test suite.
 - Ensured the Makefile includes targets for building the library, main application, and running tests.
4. Generated a coverage report and include a screenshot of it in the final report
- Configured the Makefile to generate coverage data using gcov or lcov.
 - Ran the tests to generate coverage data.
 - Generated a coverage report and take a screenshot.
 - Included the screenshot in the final report.



Tools:

- OS: **Ubuntu**
- Editor: **VS Code**