Code Coverage using gcov and gcovr

Platform: Windows 11 / Linux / WSL / macOS

Step 1: Compile the Code with Coverage Flags

gcc -fprofile-arcs -ftest-coverage main.c -o main

This generates:

- main.gcno (at compile time)

- main.gcda (after running the program)

Step 2: Run the Executable

./main

Step 3: Generate .gcov Files (Optional)

gcov main.c

This creates: main.c.gcov (with annotated coverage)

Step 4: Generate Coverage Report using gcovr

Install gcovr:

pip install gcovr

Text Summary (Terminal Output)

gcovr

HTML Report (Single File)

gcovr --html --html-details -o coverage.html

HTML Report (Multiple Files)

gcovr --html --html-details --output-directory coverage_html

XML Report (For CI tools like Jenkins)

gcovr -x -o coverage.xml

CSV Report

gcovr --csv -o coverage.csv

Optional Filters

Only include files in src/: gcovr -r . --filter src/

Exclude test files: gcovr --exclude test/

Clean up Coverage Files

Windows: del /s *.gcda *.gcno *.gcov

Linux/macOS/WSL: rm -f *.gcda *.gcno *.gcov

Example Script (Windows Batch)

gcc -fprofile-arcs -ftest-coverage main.c -o main

main.exe

gcovr --html --html-details -o coverage.html

start coverage.html