FAST School of Computing

Object Oriented Programming – Spring 2023

Cyber Security Department

LAB 01

Learning Outcomes

In this lab you are expected to learn the following:

- Installation of Eclipse and G Test.
- Debugging using Eclipse IDE.
- Testing using G Test.

Installation of Eclipse IDE on Ubuntu

You can install Eclipse for C, C++ on your PCs using the following link:

https://linuxconfig.org/eclipse-ide-for-c-c-developers-installation-on-ubuntu-22-04

Installation of G Test on Ubuntu

After the installation of Eclipse, now you need to install G test on your machines.

1. First of all, download the folder Lab1 from Google Classroom and unzip it.
2. There is a subfolder in it named as Gtest_Tutorial.zip.
3. Unzip and open the folder.
4. Open the terminal in that particular folder(Gtest_Tutorial).
5. Run the following command: **bash install-libraries.sh**
6. G test has been installed on your machine.

How to do debugging on Eclipse?

1. Open Debug.cpp from the folder Lab1.

2. Now open eclipse and create a new C++ project.

3. Name your project as Debug Exercise.

4. Copy code from Debug.cpp file and paste it in your new project file.
5. Now add breakpoints in the code at the mentioned lines.

6. After adding breakpoints, start debugging the project by clicking on Debug Icon in the Quick Access toolbar.

7. Use step in and step out to check the value of each declared variable inside all functions.
8. For example, in the given image, the debugger stops at breakpoint inserted at line 45, and the values of all variables are shown in variable window.
9. For each function, at all given breakpoints, you need to report the values of each local variable declared.
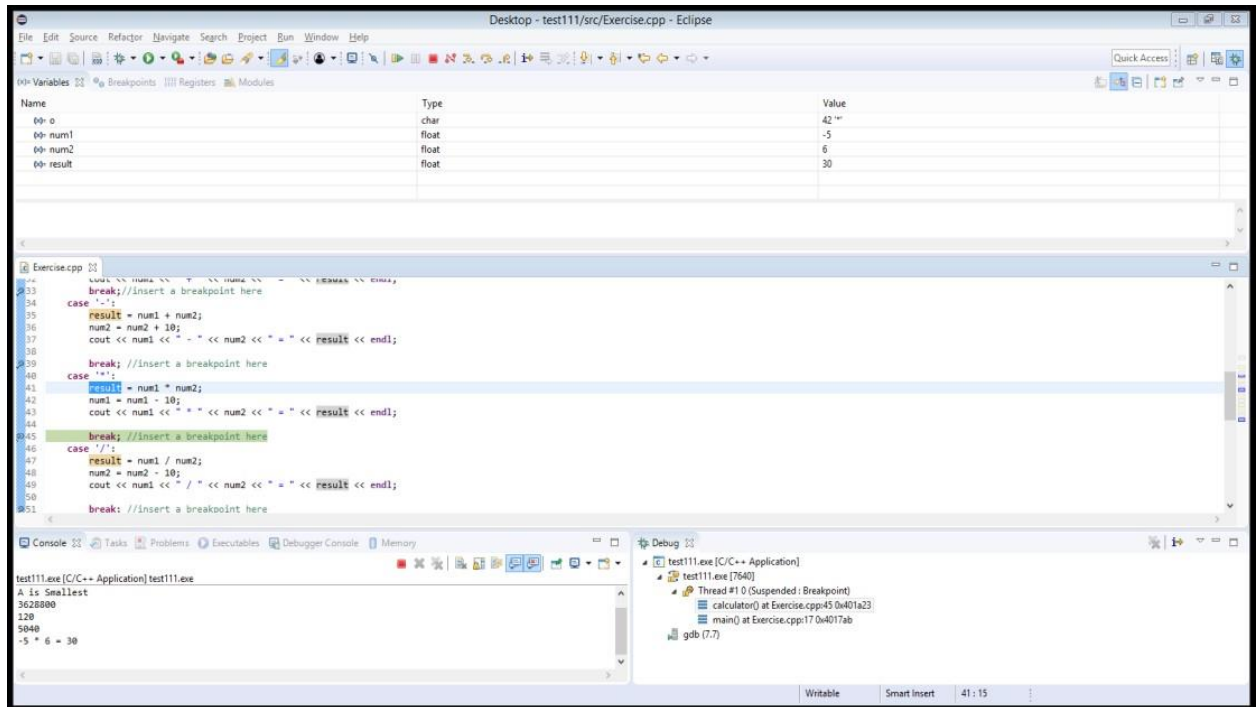
How to do testing using G Test?

1. The downloaded folder Gtest_Tutorial.zip has two files:

   Whattotest.cpp and tests.cpp

2. Whattotest.cpp has the code and tests.cpp has test cases.

3. Run the **tests.cpp** by the following g++ command:

   g++ tests.cpp -lgtest -lpthread -o test

4. This will create the test executable file in the folder.

5. Now you can run the test file by using command: **./test**

6. This will show the summary of the test cases which are passed, and which are failed.

Lab Task

1. Submit the screen shots of debugging of **Debug.cpp.**
2. Write the function **Sum()** in **task1.cpp** and run the G Test in file **test1.cpp**.
3. Submit the screen shot of terminal along with the file task1.cpp.
4. Submit a zip folder named as i22-XXXX.zip.