Lab Manual: Development Environment Setup for C++ Programming

Objective

Students will be able to:

- Create a GitHub account
- Create their first GitHub repository
- Install and configure essential development tools for C++ programming

Tasks

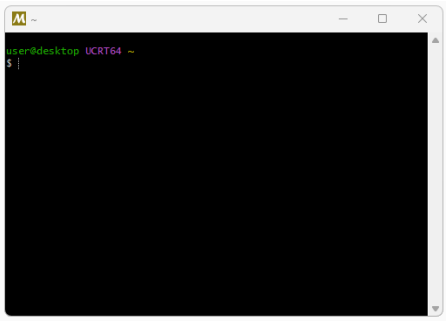
1. **Create a GitHub Account**
   i. Go to: https://github.com
   ii. Click **Sign up**.
   iii. Enter:
      a. valid email address/ username
      b. strong password
   iv. Complete the verification process.

2. **Create Your First GitHub Repository**
   i. Log in to your GitHub account.
   ii. Create a **new repository.** Follow the official GitHub QuickStart guide: https://docs.github.com/en/repositories/creating-and-managing-repositories/quickstart-for-repositories
   iii. Provide:
      a. Repository name (e.g., s26-cpp-lab-01)
      b. A short description
   iv. Select **Public** repository.
   v. Initialize the repository with a **README.md** file. You can write your name in README.md.
   vi. Open your newly created repository in the browser.
   vii. Confirm that the README file is visible.

3. **Download and Install CLion**
   i. Visit: https://www.jetbrains.com/clion/
   ii. Download CLion for your operating system.
   iii. Run the installer and follow the on-screen instructions.
   iv. Launch CLion after installation.
   v. When CLion starts, accept the default settings.

4. **Download and Install GCC, G++ Compiler, and GDB (MinGW-w64)**
   Follow this tutorial https://www.youtube.com/watch?v=oC69vlWofJQ&t=170s from 00:57 to 02:42 for installation.

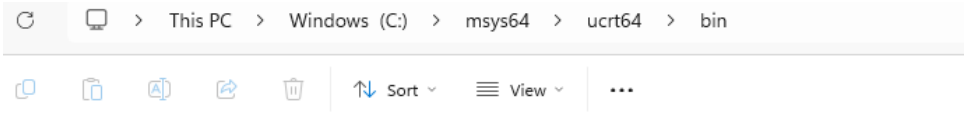
i. Visit: https://www.msys2.org/
ii. Download the Windows installer.
iii. After installation, a terminal for the UCRT64 environment will launch.



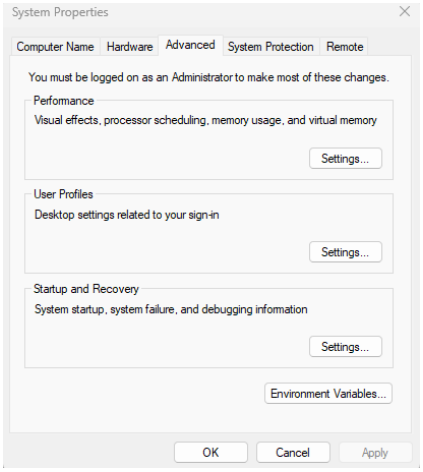
iv. We need tools like the mingw-w64 GCC to compile projects. Run the following command in the URT64 terminal:

pacman -S mingw-w64-ucrt-x86_64-gcc

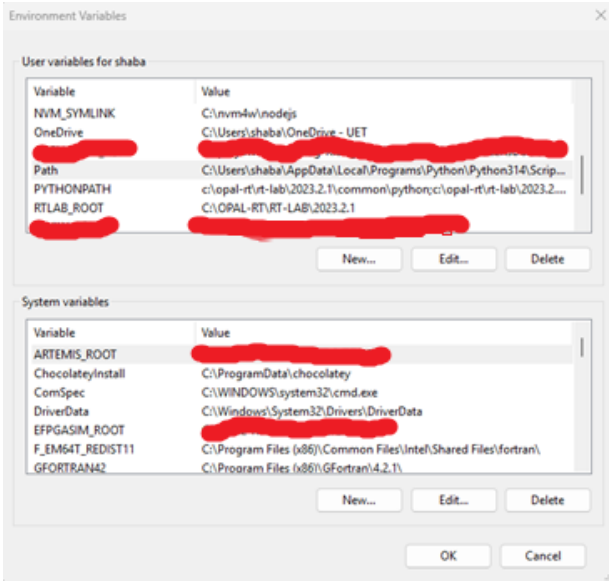
v. Enter ***y*** if asked during installation.
vi. Locate the msys64\ucrt64\bin directory (e.g., C:\msys64\ucrt64\bin).



vii. In windows search bar, type **Environment Variables**. Open **Edit the Environment Variables** and click on **Environment Variables.**

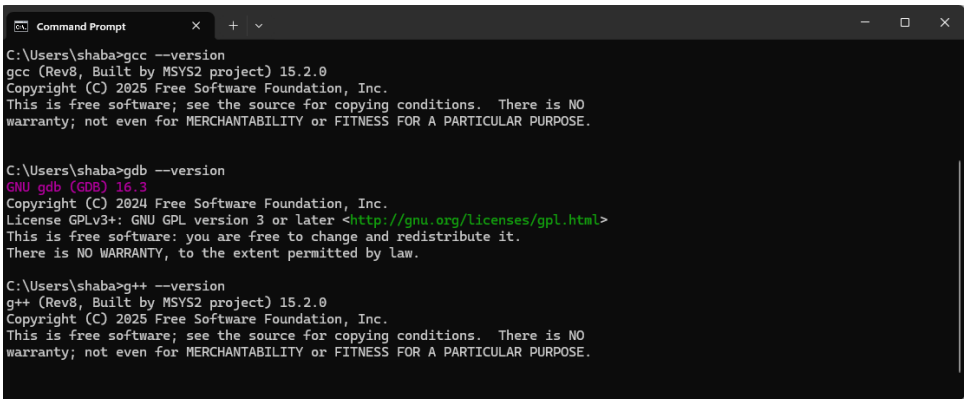


viii. Select **PATH** variable and then select **New.** Add the bin directory path here.



ix. Open Command Prompt and verify installation:

- g++ --version
- gdb –version



5. Download and Install Safe Exam Browser

i. Visit: https://safeexambrowser.org/download_en.html
ii. Download the Windows version.
iii. Run the installer and complete the setup using default options.
iv. Launch Safe Exam Browser once to confirm installation.

6. Download and Install CMake

i. Visit: https://cmake.org/download/
ii. Download the Windows installer.
iii. Verify installation using Command Prompt:

- cmake --version