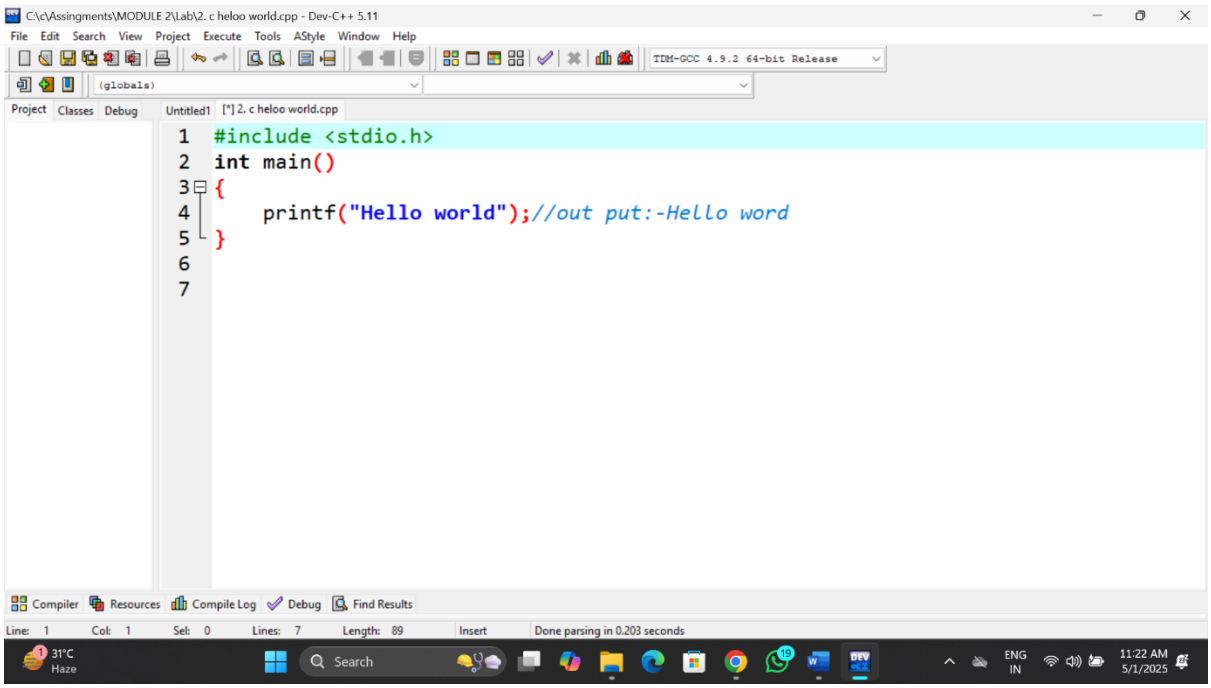
2. Setting Up Environment

• THEORY EXERCISE: Describe the steps to install a C compiler (e.g., GCC) and set up an Integrated Development Environment (IDE) like DevC++, VS Code, or CodeBlocks.

To install a C compiler like GCC and an IDE like DevC++, VS Code, or Code::Blocks, you'll generally download the compiler, potentially an IDE, and configure your system to recognize the compiler's location. For some IDEs, you might also need to install specific extensions or plugins.



1. Installing GCC (GNU Compiler Collection)

- **Windows:**
    - Download MinGW-w64, a free and open-source compiler suite for Windows.
    - Extract the downloaded file to a folder (e.g., C:\MinGW).
    - Install the MinGW Installation Manager.
    - In the manager, select the GCC package and click "Install".
    - Add the MinGW's bin directory (e.g., C:\MinGW\bin) to your system's PATH environment variable.
- **Linux:**
    - Use your distribution's package manager (e.g., apt on Debian/Ubuntu, yum on Fedora/CentOS).

    - Install GCC and G++: sudo apt-get install gcc g++ or sudo yum install gcc gcc-c++.

2. Setting up an IDE (Integrated Development Environment)

- **DevC++:**
    - Download the DevC++ installer from the official website.
    - Run the installer and follow the on-screen instructions.
    - DevC++ typically comes with GCC, so you should be ready to compile after installation.
- **VS Code:**
    - Download and install VS Code from the official website.
    - Install the C/C++ extension from the Extensions view (Ctrl+Shift+X, then search for "C++").
    - Ensure GCC (or another C compiler) is installed on your system and its path is included in your PATH environment variable.
    - Configure VS Code to use your compiler:
        - Create a launch.json and settings.json file in your workspace.
        - Specify the compiler path in the launch.json and settings.json files.
- **Code::Blocks:**
    - Download the Code::Blocks installer (with or without MinGW) from the official website.
    - Run the installer and follow the on-screen instructions.
    - If you choose the version with MinGW, it should automatically install and configure the GCC compiler.
    - If you have an existing compiler (like MinGW), you might need to manually configure Code::Blocks to use it.
    - Navigate to "Settings" > "Compilers" and specify the compiler path.

3. Compiling and Running Your Code

- **With GCC (from command line):**
    - Save your C code in a file (e.g., hello.c).

    - Open a terminal or command prompt and navigate to the directory where you saved the file.
    - Compile the code: gcc hello.c -o hello.exe (on Windows) or gcc hello.c -o hello (on Linux).
    - Run the compiled executable: .\hello.exe (on Windows) or ./hello (on Linux).
- **With an IDE:**
    - Open your IDE and create a new project.
    - Write your C code in the editor.
    - Use the IDE's build or compile button to compile the code.
    - Use the IDE's run button to execute the compiled program.