The Build Process

Once you have written your source code, the **build process** turns that source code into an executable program. The build process involves several tools:

- **Preprocessor**—performs text substitution on your source code.
- **Compiler**—generates **assembly code** from the preprocessed source code.
- **Assembler**—converts assembly code into **object** or **native machine code**.
- **Linker**—combines machine-code modules into an **executable** that runs.
- **Make**—provides instructions for **building** each program.
- **Loader**—reads the executable from disk into memory and starts it running.
- **Debugger**—runs your program inside a controlled environment.

A **combination** a C++ compiler, linker, assembler and libraries, is known as a toolchain. The toolchain we'll use for this course is the Linux GCC 9 toolchain. In an online IDE, like the one in these lessons, you just click the **Run** button to perform all the steps and run the executable. In lecture, you'll look at each of these steps in more detail.