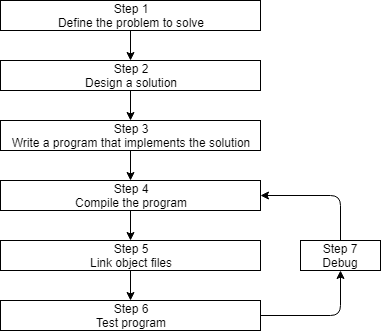
C++ Programming

**Process of development:**



**Object file**: Compiler translating C++ code into machine language instructions.  
Named “file.o”, ‘file’ is the name of the .cpp file and .o is the extension.\

**Linker:** Links all the .o ‘object’ files and produces the output file (usually an executable). Process is called **linking.**

A diagram of a linker

Description automatically generated

**Build:** Process of converting source code files into executables.   
(*build automation:* ***make / build2****)*

**Clean:** Removes all cached objects and executables so the next time the project is built, all files will be recompiled, and a new executable produced.

**Rebuild:** does a “clean”, followed by a “build”.

**Compile:** Recompiles a single code file (regardless of where it has been cached previous). This option does not invoke the *linker* or produce an *executable*.

**Run/Start:** executes the executable from a prior build. Some IDEs (e.g. Visual Studio) will invoke a ‘***build’*** before doing a “***run***” to ensure you are running the latest version of your code.

**Note:** to compile our programs we will typically choose the “build” (or “run”) option in our IDE to do so.

**Build Configuration (**also ***build target:*** collection of project settings that determines how your IDE will build your project. Includes: exe. Name, library/code file directories, keep/strip debugging information, how much the compiler optimizes the program.

**Debug configuration:** Helps debug the program, used when writing programs. *Turns off all optimisations, includes debugging information (*makes programs larger and slower, but easier to debug). **Active by default.**

**Release configuration:** Used when releasing public build. Optimised for *size* and *performance,* doesn’t contain extra debugging information. Useful for testing ***code performance.***

**Compiler extensions:** Compiler changes to enhance compatibility with other versions of the language.

**Compiler Diagnostic Message (**diagnostic)**:** Something that violates the rules of the language.

* **Error:** Compilation cannot continue due to the violation. (Provides line number containing the error & text about what’s expected vs what’s found.)
* **Warning:** Compilation can continue despite the violation. (Similar to errors, but don’t halt compilation). Compiler may identify code that does not violate the rules of the language, but that it believes could be ***incorrect.*** 
  + **Note:** Don’t pile up warnings, resolve them as you *encounter them*.