# What is CMake ?

Chat GPT Answer

CMake, which stands for "Cross-Platform Make," is an open-source build system and configuration management tool. It is designed to help software developers build, test, and package their projects across different platforms and build environments in a consistent and efficient manner. CMake is widely used in the software development industry, particularly for C and C++ projects, but it can be used for other programming languages as well.

Here are some key features and aspects of CMake:

1. Cross-Platform: CMake is designed to be platform-agnostic, meaning it can **generate build scripts and configuration files for various build systems and operating systems**, including Unix-like systems (Linux, macOS), Windows, and others.

2. Declarative Language: CMake uses a domain-specific language that is declarative in nature. Developers create CMakeLists.txt files, which specify **how the project should be built**, what the **dependencies** are, and various **project settings**.

CMake then **processes these files to generate build scripts** for the chosen build system (e.g., Makefiles, Visual Studio solutions).

3. Dependency Management: CMake allows you to **define project dependencies** and **find** required libraries and packages **automatically**. This simplifies the process of setting up and building complex projects.

4. Build System Independence: CMake can **generate build files for a variety of build systems**, such as Make, Ninja, Visual Studio, Xcode, and more. This flexibility makes it easier to work with the referred build system of your choice.

5. Integration with IDEs: CMake integrates with many popular integrated development environments (IDEs), making it easier to manage and build your projects from within your preferred development environment.

6. Extensibility: CMake can be **extended with custom modules and scripts** to accommodate specific project requirements or build processes.

7. Cross-Compilation: CMake supports **cross-compilation**, allowing you to **build software for a target platform different from the one you are currentl**y working on.

CMake is widely used in the development of open-source and proprietary projects due to **its versatility and ability to simplify the build process**, especially for projects that need to be built on multiple platforms. It has become a standard tool in the C and C++ development ecosystems, and it is also used in various other programming languages.

**Hand Notes Summary**

