The C++ Programming Language

C++ is a **compiled**, high-level programming language. Compilers produce **native machine code** programs, which run directly on your hardware, without an interpreter (like Python) or intermediate software, such as the Java Virtual Machine. Even though C++ programs are often more efficient than their Java or Python counterparts, certain kinds of errors cannot easily be detected, so you will find that you must be more careful and detail-oriented when writing programs in C++.

C++ is also a **standardized language**, specified by the ISO, or International Standards Organization. Unlike **proprietary languages**, controlled by a single company, **anyone** may implement the C++ language without fear of lawsuits. There are several versions of C++ you should know about.

- **Pre-standard C++**: 1980-98. Often incompatible versions, vendor specific.
- **C++ 98**: the first standard version; it was updated in 2003 (**C++03**).
- **C++ 11**: the second **major** standard; it was updated in **C++14** and **C++ 17**.
- C++20, the latest major standard, is now **complete**. Most recent compilers offer a sampling of some of its new features.

In this class we will be using **C++ 17**. Compilers that implement C++17 include **Visual Studio 2019**, GNU **g++ 7** (or later), and **clang 6**+.