

C++

- Developed by Bjarne Stroustrup
- Initially known as "C with classes" and was renamed C++ in 1983.
- Used C as a starting point
- Main sources for ideas for C++ was C, Simula, Algol 68, BPCL, Ada, ML, etc
- Versions of C++ : C++98, C++03, C++11, C++14, C++17, C++20
- C++ is a general purpose programming language that was developed as an enhancement of the C language to include object-oriented paradigm.
- It is an imperative and a compiled language
- Middle level language - advantage of programming low level (drivers, kernels) and higher-level applications (games, GUI, desktop apps)
- Basic syntax and code structure of both C and C++ are same

Features of C++

- Simple: It is a simple language in the sense that programs can be broken down into logical units and parts, has a rich library support and a variety of data types.
- Machine independent but Platform dependent :
A C++ executable is not platform independent (compiled programs on linux won't ~~run~~ on Windows), however they are machine independent.

- Mid-level language: We can do both system programming (drivers, kernels, networking) and build large scale user applications (Media players, Photoshop, Game engines)
- Rich library support: Build in data structures, algorithms and 3rd party libraries for fast and rapid development
- Speed of execution: C++ programs excel in execution speed.
- Pointer and direct memory-access: C++ provides pointer support which aids users to directly manipulate storage addresses. This helps in doing low level programming.
- Object-oriented: Helps to make maintainable and extensible programs
- Compiled language: C++ is a compiled language

Applications of C++

- Operating systems and systems programming (Linux, Windows, Ubuntu)
- Browsers (Chrome and Firefox)
- Graphics and Game engines (Photoshop, Blender, Unreal engine)
- Database engines (MySQL, MongoDB, Redis)
- Cloud/Distributed systems