**C++ Introduction**

* **What is C++ Program?**
* **History**
* **Features**
* **Applications**
* **C program** Vs **C++ Program**

**C++ Compiler**

* **What is C++ Compiler?**
* **Types of C++ Compilers?**
* **Installation process**

**IDE (**Integrated Development Environment**)**

* **What is an IDE?**
* **Types of C++ IDE’s?**
* **Configure VS code for C++**

**Basic Structure of C++ Program**

**First C++ program**

**What is C++?**

C++ is General Purpose, High Level, compiler based and Object Oriented Programming Language.

**HISTORY: -**

It was Developed by **Bjarne Stroustrup** in 1979 at AT&T Bell labs.

It combines the **procedural programming features** of **C** with **object oriented features** of **Simula** (First object oriented programming).

**C++** also consider as superset of **C Programming Language.**

Initially it was called as **C with classes** later it was renamed as (**CPP)** **C++** in 1983.

**FEATURES: -**

* Object oriented Programming
* Structured Programming Language
* Middle Level Programming Language
* Machine independent
* Platform Dependent
* Compiler Based
* Dynamic Memory Allocation
* Memory Management
* Rich Library
* Case Sensitive
* Multi-Threading

**Applications: -**

* **Operating Systems**

E.g.: -Microsoft Windows, Linux, and Mac OS X.

* **Web Browsers**

E.g.: -Mozilla and Chrome.

* **Data Base Management Systems**

E.g.: -MySQL, PostgreSQL, Oracle and MongoDB.

* **Games**

E.g.: - Tic-tac-toe, World of Warcraft, Counter-Strike, and PUBG.

* **Compliers**

E.g.: - Tic-tac-toe, World of Warcraft, Counter-Strike, and PUBG.

* **Embedded Systems**

E.g.: -Bosch, Siemens, and ARM.

* **Cloud Computing platforms**

E.g.: - AWS, and Azure.

* **Device Drivers**
* **3D Visuals**
* **GUI (**Graphical User Interface**)**
* **Virtual Reality**

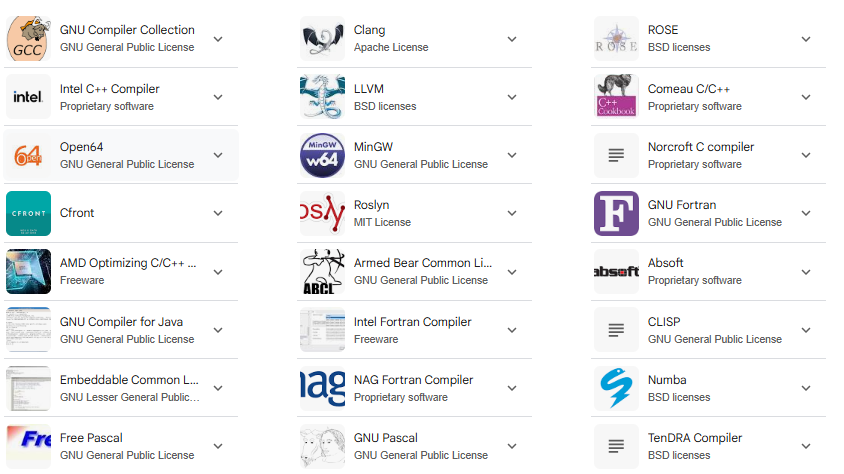
**C** vs **C++: -**

|  |  |
| --- | --- |
| **C PROGRAMMING LANGUAGE** | **C++ PROGRAMMING LANGUAGE** |
| **C** supports **procedural programming** paradigm. | **C++** supports both **Procedural** and **object** **oriented programming** paradigms that’s why  It is known as **hybrid language**. |
| **Function** and **operators** **overloading** is not supported. | **Function** and **operators** **overloading** is supported. |
| **Default Arguments** are **not supported** . | **Default Arguments** are **supported** . |
| **Namespace** is not supported**.** | **Namespace** is supported**.** |
| **Virtual** and **Friend** functionsare not supported. | **Virtual** and **Friend** functionsare supported. |
| Contains **32 keywords.** | Contains **90+ keywords.** |
| **Exception handling** is not supported. | **Exception handling** is supported. |
| File Extension is **.c** | File Extension is **.cpp**  or **.c++** or **.cc** or **.cxx** |
| Dynamic Memory allocation done through **malloc()** , **calloc()** functions and de-allocation done through **free()** . | Dynamic Memory allocation done through **new**  **operator**  and de-allocation done through **delete operator** . |
| **Reference variable** is not supported. | **Reference variable** is supported. |

**What is C++ compiler?**

A **C++ Compiler** is a **software** that translates C++ **source code** (.cpp) into **machine code** (.exe). It takes source code as an input and reads and optimize the source code by checking for **syntax error** and **other errors**. It creates an **object files** that contain **machine code**.

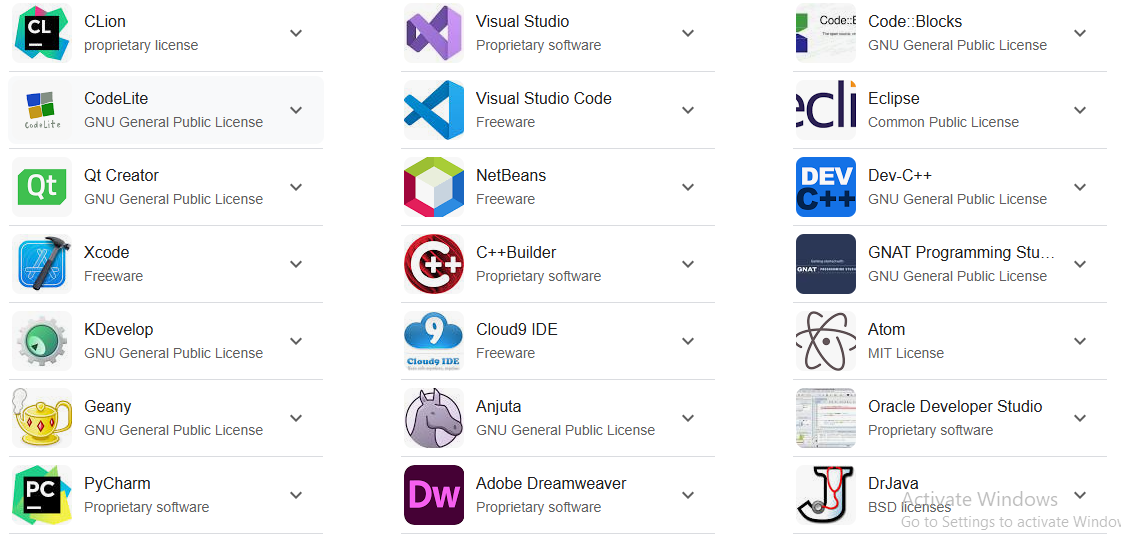
**List of C++ compilers**



**What is an IDE?**

An IDE, or Integrated Development Environment, is a software application that helps programmers write, test, and build software. IDEs combine common developer tools into a single graphical user interface (GUI).

**List of C++ IDE’s**



**Basic structure of C++ Program**

* **Documentation Section**
* **Link Section**
* **Definition section**
* **Global Declaration section**
* **Function Definition section**
* **Main Function**