

# C++

## Need for c++

- For solving of large and complex problems of big organizations like banking, database management the programming like c that uses the concept of procedure orient programming is beneficial.
- Thus for modelling of real world problems and handle the complex problems c++ is needed.
- To overcome the limitation of c and other procedure oriented programming language.

## Introduction to c++

- C++ is the improved version of c
- It is a high lever language that supports oop
- C++ focuses on data
- C++ is used for development of high performance software's like windows xp, Mozilla firefox etc.
- C++ is a highly portable language and is often the language of choice for multi device multi plat form app development.
- It includes classes, inheritance, polymorphism, data abstraction and an encapsulation.
- Allows exception handling and operator overloading.

## Features of c++

- **Namespace**

- Used for grouping of program elements like classes, functions, variables etc. logically
- Namespace is useful for development of large application by different members of programming team independent without fear of conflict of naming identifier
- Used or logical grouping of program elements like classes, functions, variables etc.
- Reduces the naming conflict problem

- **Classes**

- User defined data type
- Ties data and function into single unit
- User defined data type.
- Ties logically related data and functions into a single unit.
- Objects of the class are declared and initialized once the class is defined

- **Access controllers**

- Keywords: private, public and protected are used to control the access of members within class.
- Members declared as private is visible only by the member functions.
- Protected data member in a class makes the functions or data accessible form function of derived class.

- Private, public and protected keywords limits the access control of members.

Private: this keyword makes the elements visible to only member functions and no others.

Public: outside

Protected: Characteristics of the base class.

- **Constructor and destructor**

- Constructor is special member function of class which allocates required memory for members along with initialization of objects of its class.
- Constructor has same name as that of class.
- If there is no need of object, it can be destroyed by another special member function called destructor.
- Name of destructor is same as class name but preceded by ~ symbol.

Similarly there are other features of c++ which includes friend function and class, polymorphism, operator overloading, inline function, memory operation, memory management, exception handling etc.