

C++ is a high-level programming language that was developed by Bjarne Stroustrup in the early 1980s as an extension of the C programming language. It is a powerful and versatile language that is widely used for developing system software, applications, games, and more.

Some of the key features and peculiarities of C++ include:

1. **Object-Oriented Programming (OOP):** C++ supports the principles of object-oriented programming, including concepts such as classes, objects, inheritance, polymorphism, and encapsulation. This allows for the creation of modular and reusable code, making it easier to manage and maintain large-scale projects.
2. **Strongly Typed:** C++ is a strongly typed language, which means that every variable and expression has a specific data type associated with it. This helps in catching type-related errors at compile-time, providing better type safety.
3. **Static and Dynamic Memory Allocation:** C++ allows for both static and dynamic memory allocation. Static memory allocation occurs at compile-time, where memory is allocated for variables and objects before the program runs. Dynamic memory allocation, on the other hand, allows for memory allocation at runtime using pointers and dynamic memory allocation functions like **new** and **delete**.
4. **Standard Template Library (STL):** C++ comes with a powerful library called the Standard Template Library (STL), which provides a collection of generic algorithms and data structures. These include containers like vectors, lists, and maps, as well as algorithms for sorting, searching, and manipulating data. STL components can greatly simplify and speed up development tasks.
5. **Operator Overloading:** C++ allows for operator overloading, which means that operators such as **+**, **-**, **\***, **/**, etc., can be redefined for user-defined types. This enables more natural and intuitive syntax for custom data types.
6. **Multiple Inheritance:** C++ supports multiple inheritance, allowing a class to inherit properties and behavior from more than one base class. While powerful, multiple inheritance can lead to complexities and potential ambiguities in code design.
7. **Manual Memory Management:** Unlike higher-level languages like Java or Python, C++ requires manual memory management using pointers and memory allocation functions. While this gives the programmer greater control over memory usage, it also introduces the risk of memory leaks and pointer-related errors if not handled properly.

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### **Resumen:**

El lenguaje C++ es un lenguaje de programación de alto nivel desarrollado por Bjarne Stroustrup en la década de los 80'. Es ampliamente utilizado para desarrollo de software, videojuegos, crear aplicaciones etc.

Algunas de las peculiaridades claves de C++ son:

**Programación orientada a objetos (POO):** C++ es uno de los principales lenguajes de programación que ofrece una programación orientada a objetos, incluyendo cosas como: clases, objetos, herencia, polimorfismo y encapsulación.

**Lenguaje robusto:** C++ tiene es un lenguaje robusto, lo que significa que tiene una sintaxis estricta, lo que da una mayor seguridad para evitar errores de programación de tipo “advertencias” o ambigüedades.

**Asignación de memoria dinámica y estática:** C++ admite estas ambas asignaciones de memoria, la memoria estática, que es donde la memoria está asignada a variables antes de que se ejecute el código, mientras que la memoria dinámica asigna variables durante la ejecución.

**Plantilla de librería estándar (STL):** C++ provee de una librería conocida como librería estándar, esta librería contiene algoritmos genéricos que nos pueden ayudar a realizar varios tipos de procedimientos.

**Operador de sobrecarga:** Estos operadores son como: +, -, \*, /, y nos permite redefinir los tipos de operadores, ofreciendo así una mayor naturalidad de sintaxis.

**Herencia múltiple:** C++ permite asignar varias herencias a una clase determinada.

**Gestión de memoria manual:** C++ al tener una sintaxis estricta, hay que gestionar de manera manual todas las variables a utilizar.