

**Course  
&  
Test Series**

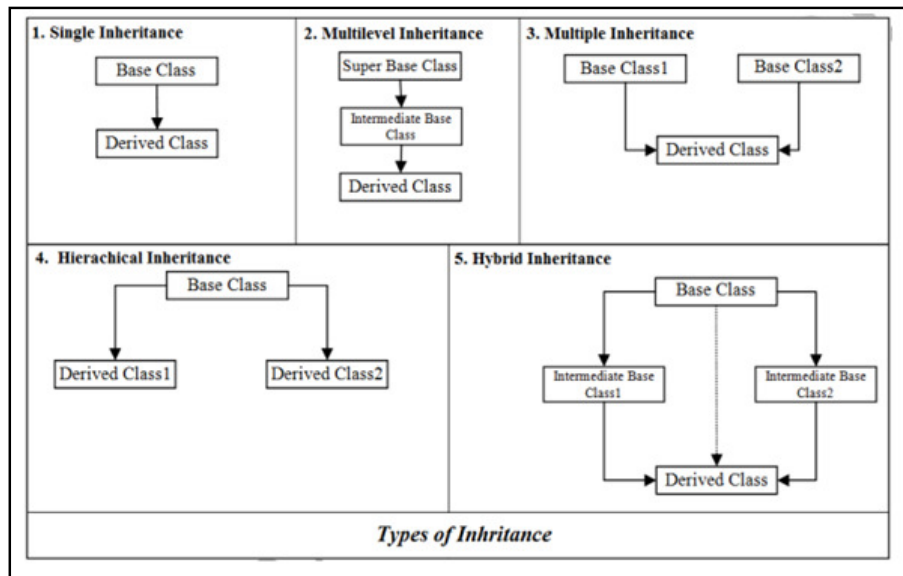
**Module 3 - Single Inheritance in C Plus Plus**

**Inheritance in C Plus Plus**

**Module 3 - Types of Inheritance in C Plus Plus**

**Types of inheritance:**

In C++, inheritance can be implemented in following ways.



1. Single Inheritance: A class (derived class) inherits from a single base class.
2. Multiple Inheritance: A class inherits from more than one base class.
3. Hierarchical Inheritance: Multiple classes inherit from a single base class.
4. Multilevel Inheritance: A class inherits from another derived class, forming a chain.
5. Hybrid Inheritance: A combination of more than one type of inheritance (e.g., multiple + hierarchical).

**Single Inheritance**

In single inheritance, a single derived class inherits from a single base class.

**Syntax:**

```
class Base {
    // Base class members
};

class Derived : public Base {
```

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Module 3 - Single Inheritance in C Plus Plus

```
// Derived class members  
};
```

**Solved Example:**

```
#include <iostream>  
using namespace std;  
  
class Animal {  
public:  
    void eat() {  
        cout << "I can eat!" << endl;  
    }  
};  
  
class Dog : public Animal {  
public:  
    void bark() {  
        cout << "I can bark!" << endl;  
    }  
};  
  
int main() {  
    Dog d;  
    d.eat(); // Inherited from Animal  
    d.bark();  
    return 0;  
}
```

**When to Use:**

- You have a clear "is-a" relationship between two classes (e.g., a derived class is a specialized form of the base class).
- You need to add specific functionality to an existing class without modifying it.

**Example Applications:**

- A login system, where Admin inherits from User.