Encapsulation

Hiding “sensitive” data from the user. Encapsulation is achieved in C++ using Classes.

Classes have two main components:

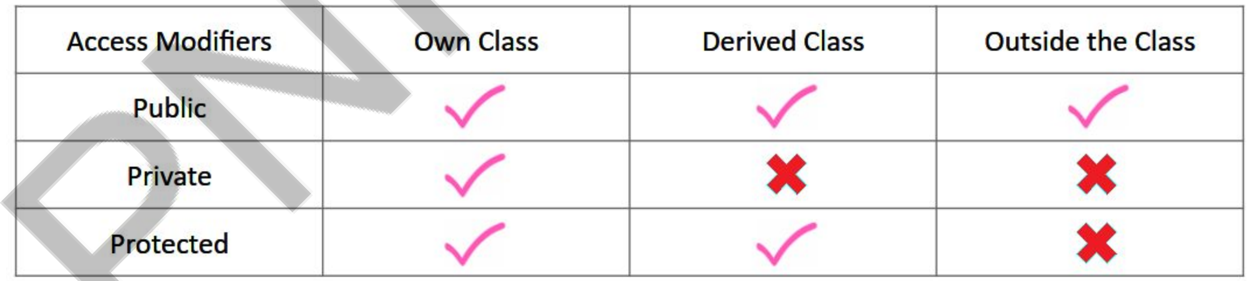
1. Data Members
2. Member Function

Access Modifiers:

Access modifiers are keywords in object-oriented languages that set the accessibility of classes, methods, and other members. Access modifiers are used to facilitate the encapsulation of components.

There are 3 types of Access Modifiers:

1. **Public:** Class objects can access the data members and function outside the class.
2. **Private:** Objects cannot access the data members and function outside the class. These members can only be accessed inside the class.
3. **Protected:** Objects cannot access the data members and function outside the class. These members can be accessed inside the class and inherited class.



Access Modifiers	Own Class	Derived Class	Outside the Class
Public	✓	✓	✓
Private	✓	✖	✖
Protected	✓	✓	✖

Advantages of Encapsulation:

- Good coding practice, useful in interviews
- Increased security of data

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Sample Code:

```cpp
#include <iostream>
using namespace std;
class A {
public:
    int a;
    void funcA() {
        cout << "Func A\n";
    }
private:
    int b;
    void funcB() {
        cout << "Func B\n";
    }
protected:
    int c;
    void funcC() {
        cout << "Func C\n";
    }
};
int main() {
    A obj;
    obj.funcA();
    obj.funcB();
}
```

In the above code, obj cannot access funcB.

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