

C, C++, DSA in depth

Inheritance



Saurabh Shukla (MySirG)

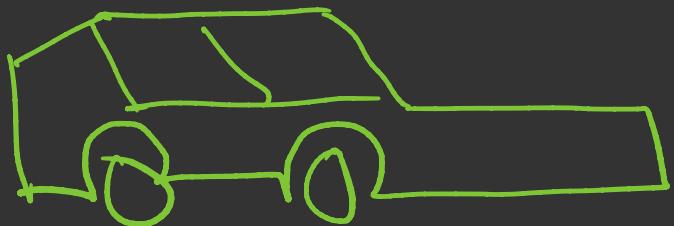
Agenda

- ① Introduction to Inheritance
- ② Inheritance implementation in C++
- ③ Types of inheritance
- ④ Visibility modes

Introduction

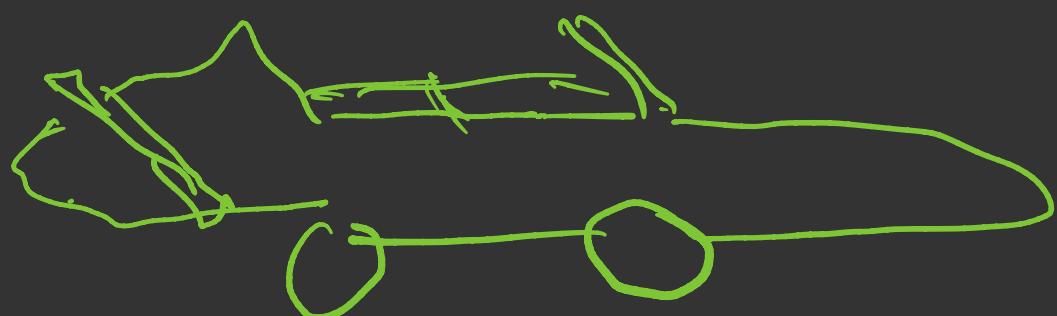
Class Car

Properties - 10
methods - 20



Class SportsCar

Properties - 15
methods - 50



Inheritance

Deriving a new class by inheriting properties and methods of an old class is known as Inheritance.

Inheritance Implementation in C++

```
class BaseClass
```

```
{
```

```
};
```

```
class DerivedClass : visibilityMode BaseClass
```

```
{
```

```
};
```

private
protected
public

old class
Base class
Super class
parent class

new class
Derived class
sub class
Child class

Inheritance Relationship is-a

SportsCar is a car

Sub-Category is-a Category

Banana is a fruit

Table is a Furniture

Car is a Vehicle

Algebra is a Mathematics

Doctor is a Person

Specific is a Generic

Derived

Person

Fruit

Banana Student

Employed

car

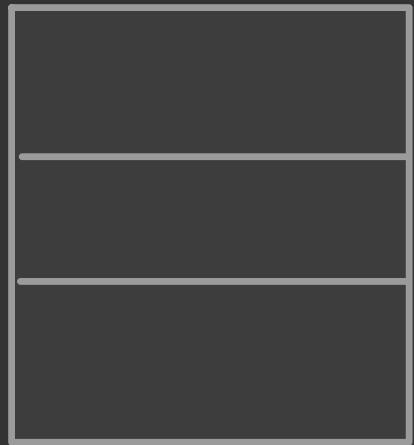
SportsCar

Types of Inheritance

- ① Single Inheritance
- ② Multilevel Inheritance
- ③ Multiple Inheritance
- ④ Hierarchical Inheritance
- ⑤ Hybrid Inheritance

Single Inheritance

A



class A

{

};

B



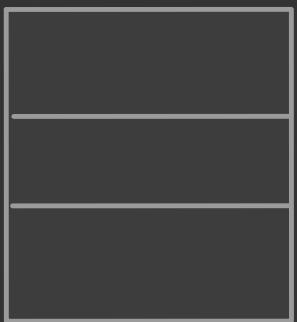
class B : public A

{

};

Multilevel Inheritance

A



Class A

{
}

↳:

Class B : public A

{
}

↳:

Class C : public B

{
}

↳:

Vehicle Person

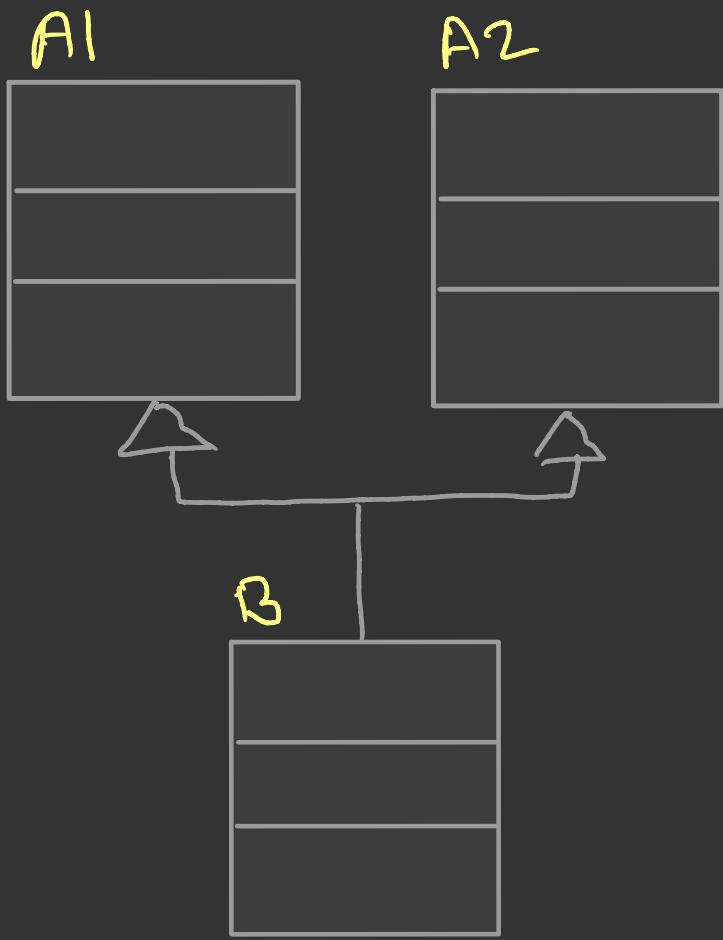
Car

Student

CollegeStudent

SportsCar

Multiple Inheritance



class A1
{

};

class A2
{

};

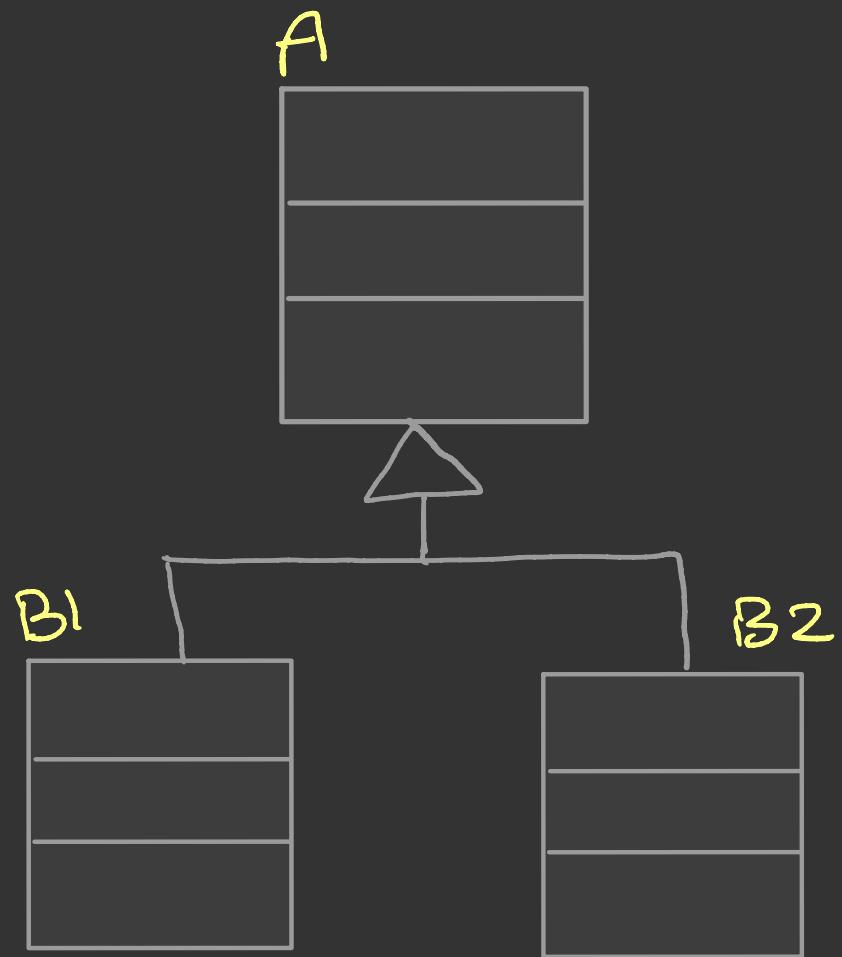
class B : public A1, public A2

{

};

Tiger Lion
↓ ↓
Liger

Hierarchical Inheritance



class A
{
}

};

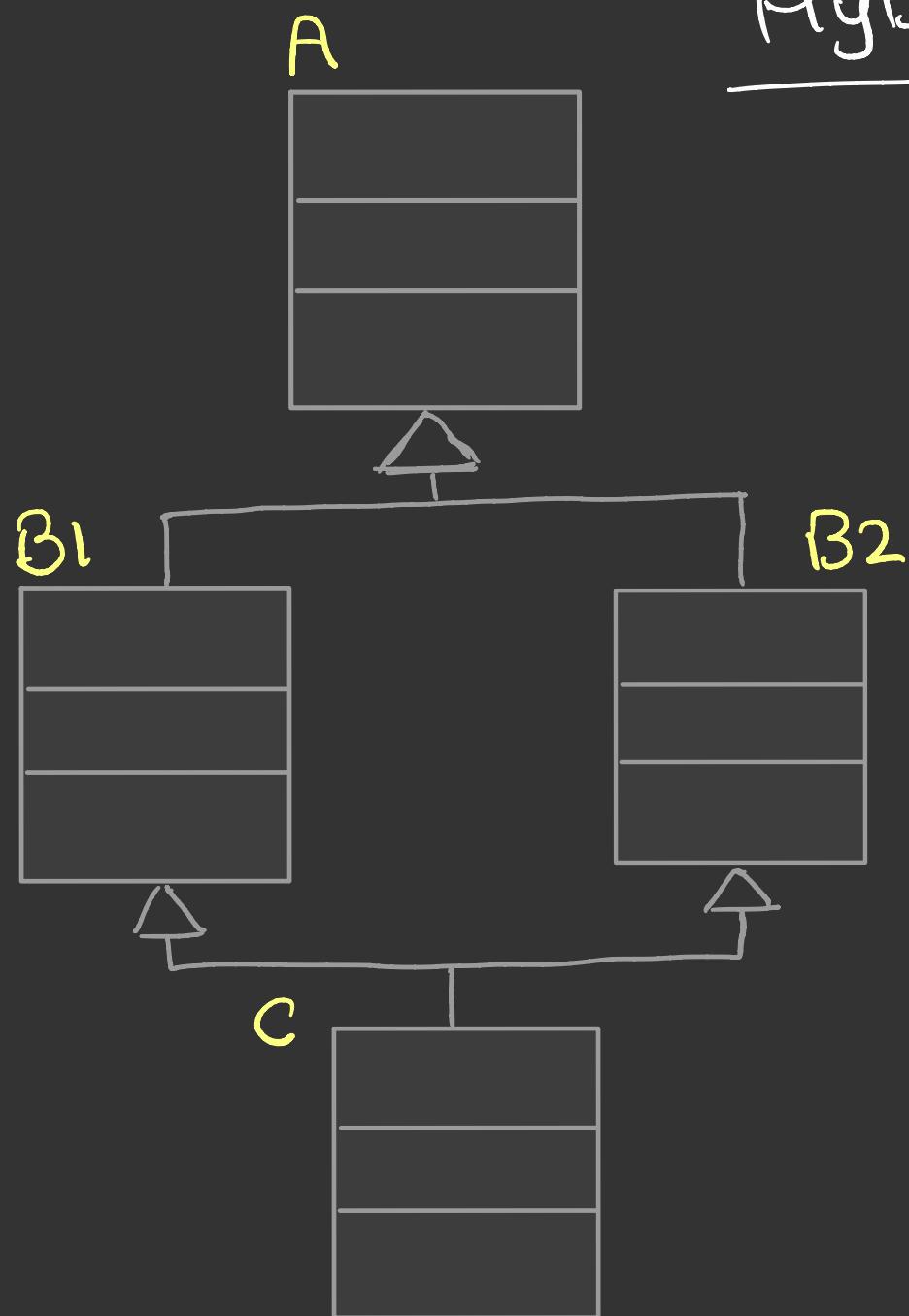
class B1 : public A
{
}

};

class B2 : public A
{
}

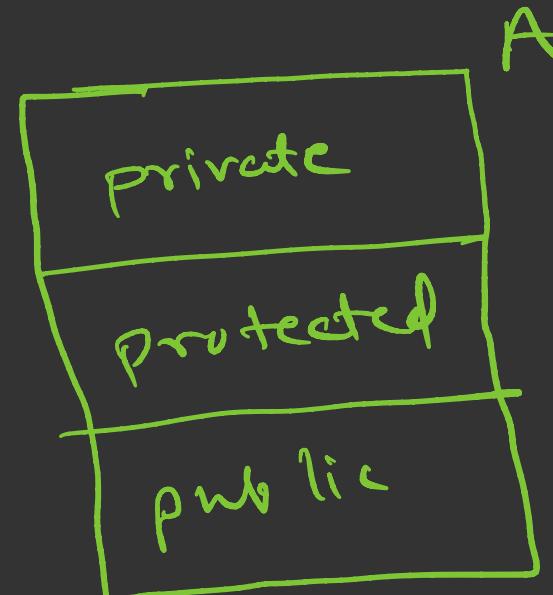
};

Hybrid Inheritance



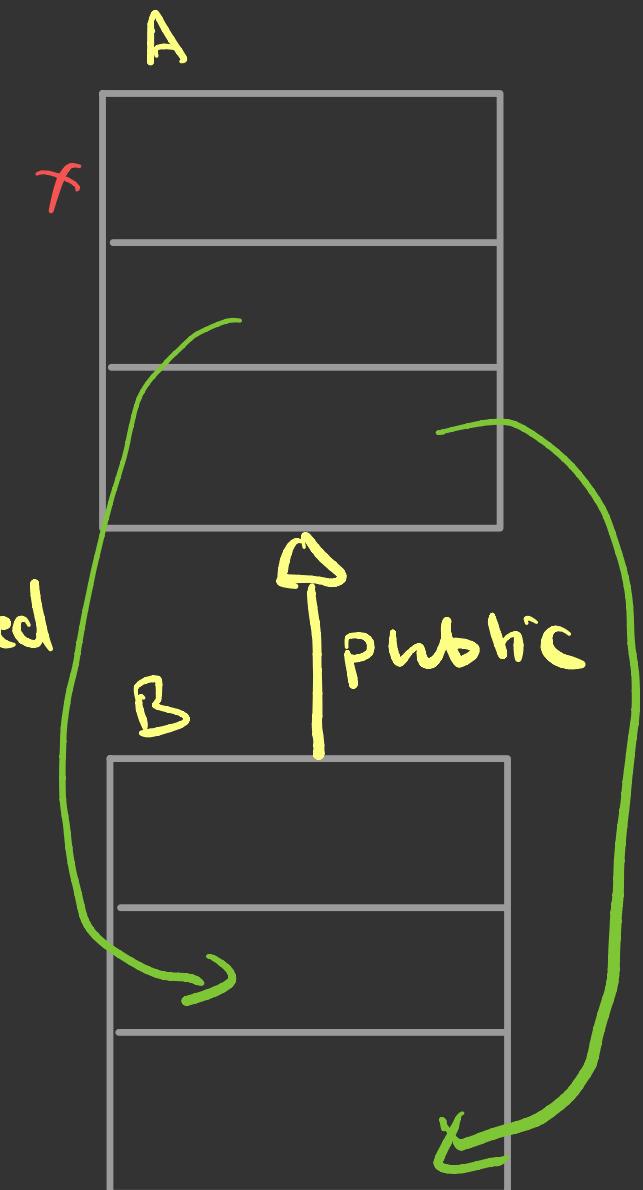
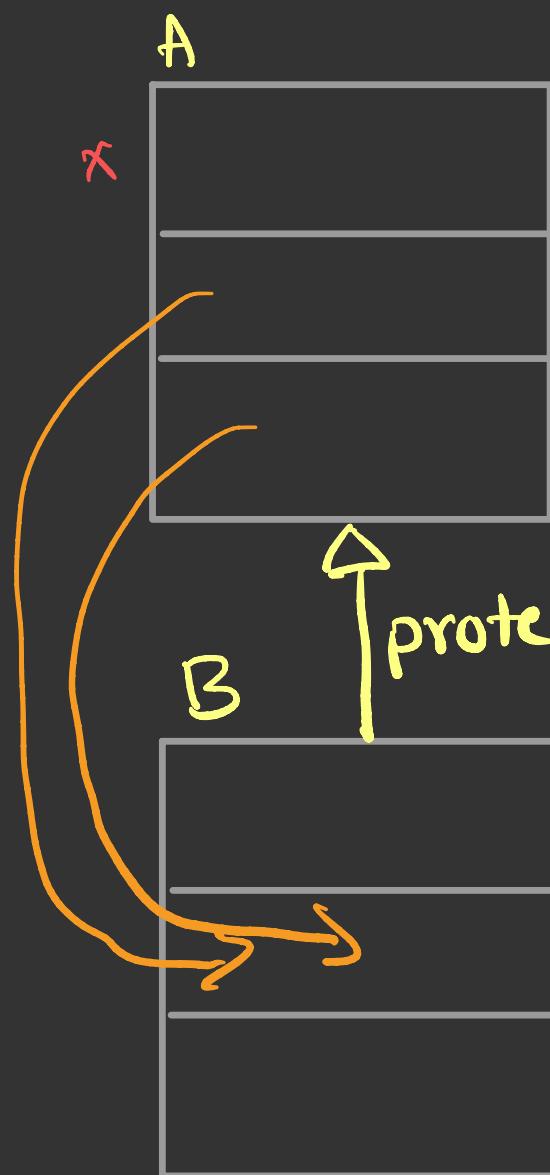
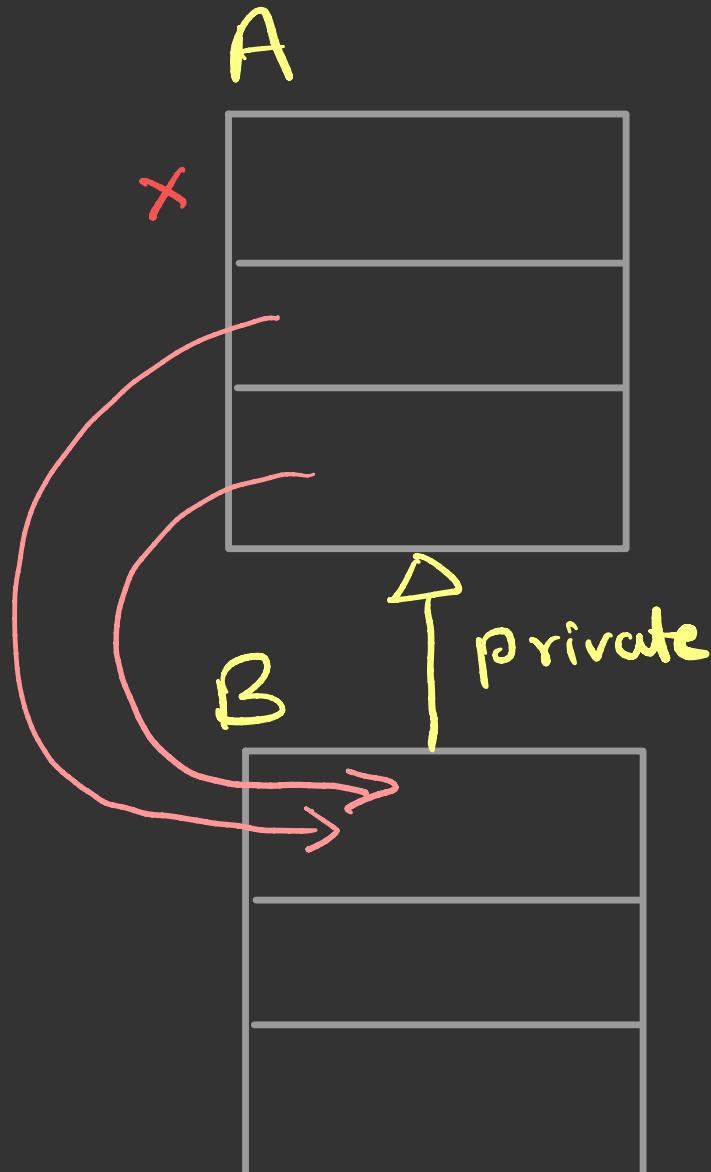
Visibility Modes

- ① private
- ② protected
- ③ public



	private	protected	public
User 1	✗	✗	✓
User 2	✗	✓	✓

Visibility Mode



Class B :

A