

Inheritance



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Agenda

- **Inheritance**
- **Inheritance implementation in C++**
- **Types of Inheritance**
- **Visibility Modes**

Inheritance

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

Normal car



- Properties



- methods



Sport car



- Properties



- methods



How to implementation of Inheritance in C++

Class **old class**

```
{  
    ----  
    ----  
};
```

- **old class**
- Base class
- Supper class
- Parent class

class **new class** : visibility Mode **old class**

```
{  
    ----  
    ----  
};
```

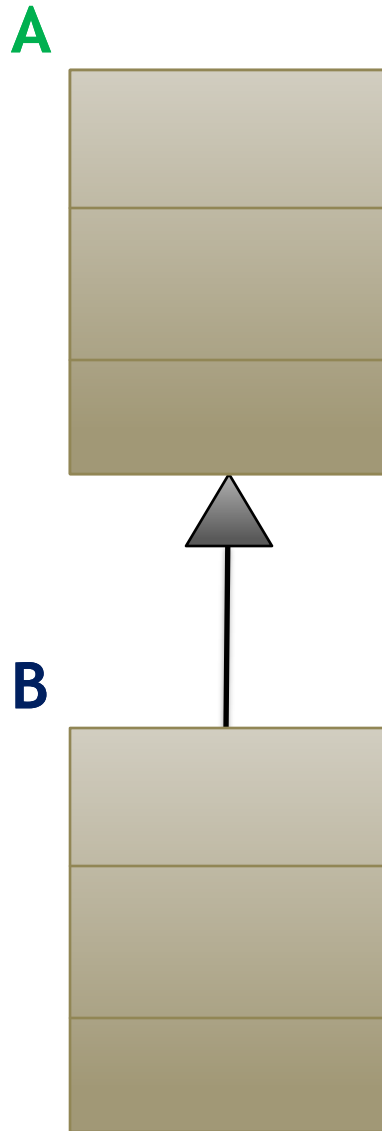
- Private
- Protected
- public

- **New class**
- derived class
- Sub class
- Child class

Types of Inheritance

- **There are five types of inheritance** 🖱️
 - **Single inheritance**
 - **Multiple inheritance**
 - **Hierarchical inheritance**
 - **Multilevel inheritance**
 - **Hybrid inheritance**

Single inheritance

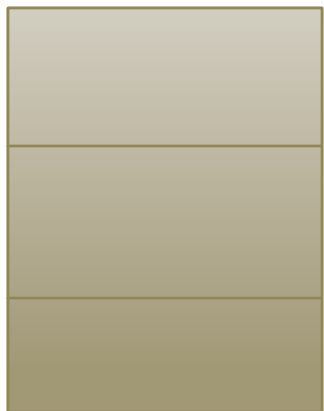


```
class A  
{  
    ----  
    ----  
    ----  
};
```

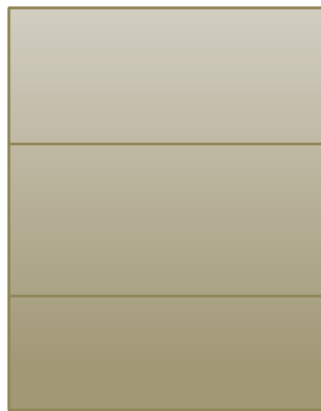
```
class B : public A  
{  
    ----  
    ----  
    ----  
};
```

Multiple inheritance

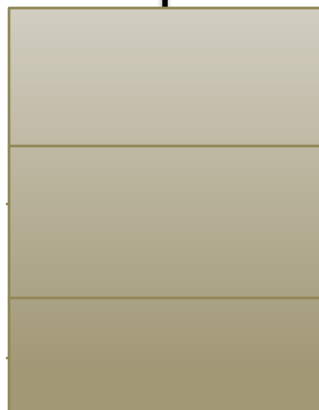
A1



A2



B



```
class A1
```

```
{
```

```
----
```

```
----
```

```
----
```

```
};
```

```
class A2
```

```
{
```

```
----
```

```
----
```

```
----
```

```
};
```

```
class B : public A1,public A2
```

```
{
```

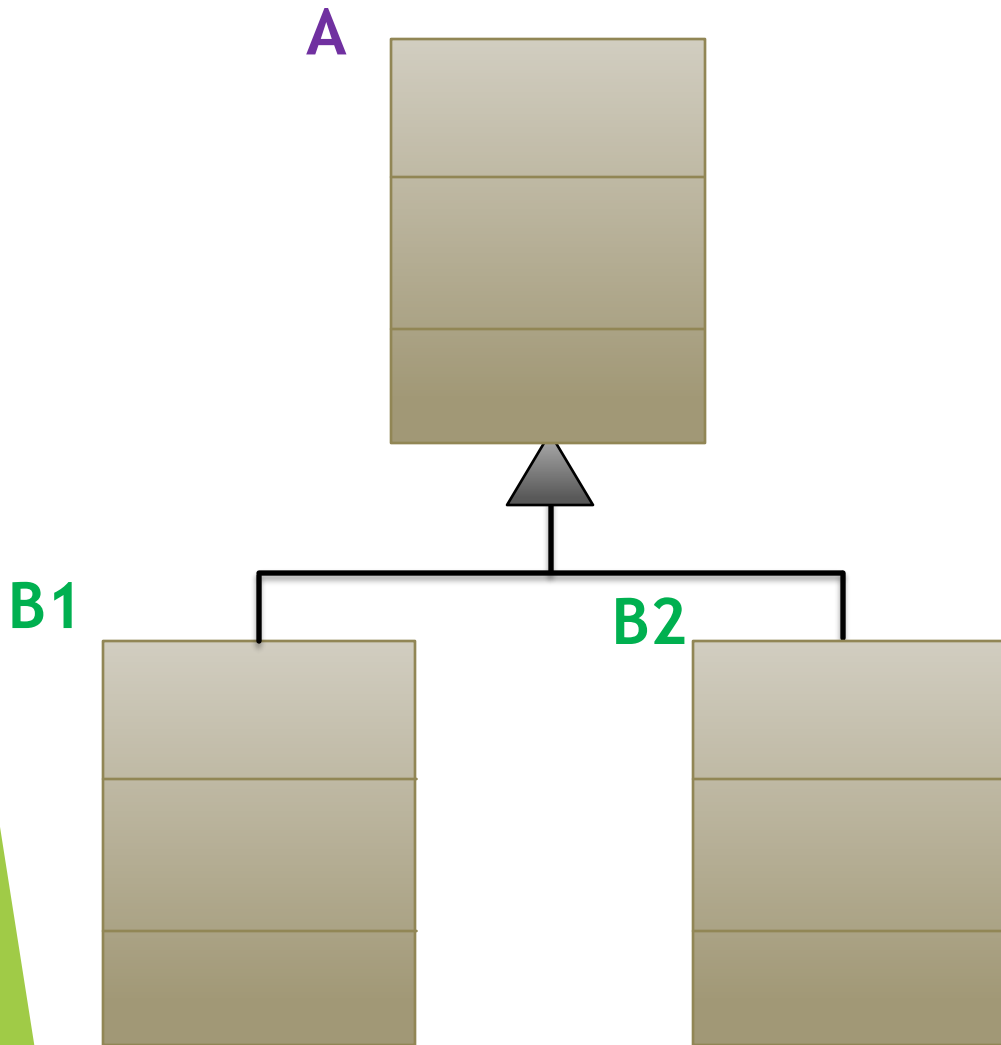
```
----
```

```
----
```

```
----
```

```
};
```

Hierarchical inheritance



class A

{

};

class B1 : public A

{

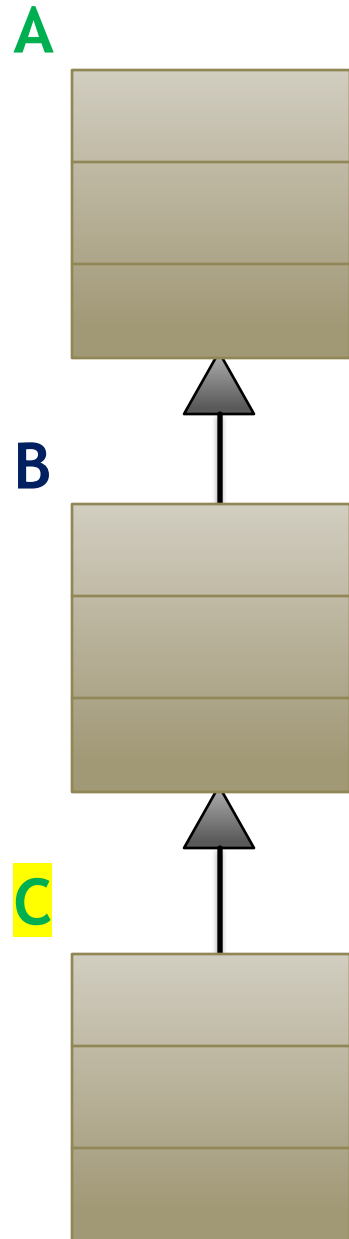
};

class B2 : public A

{

};

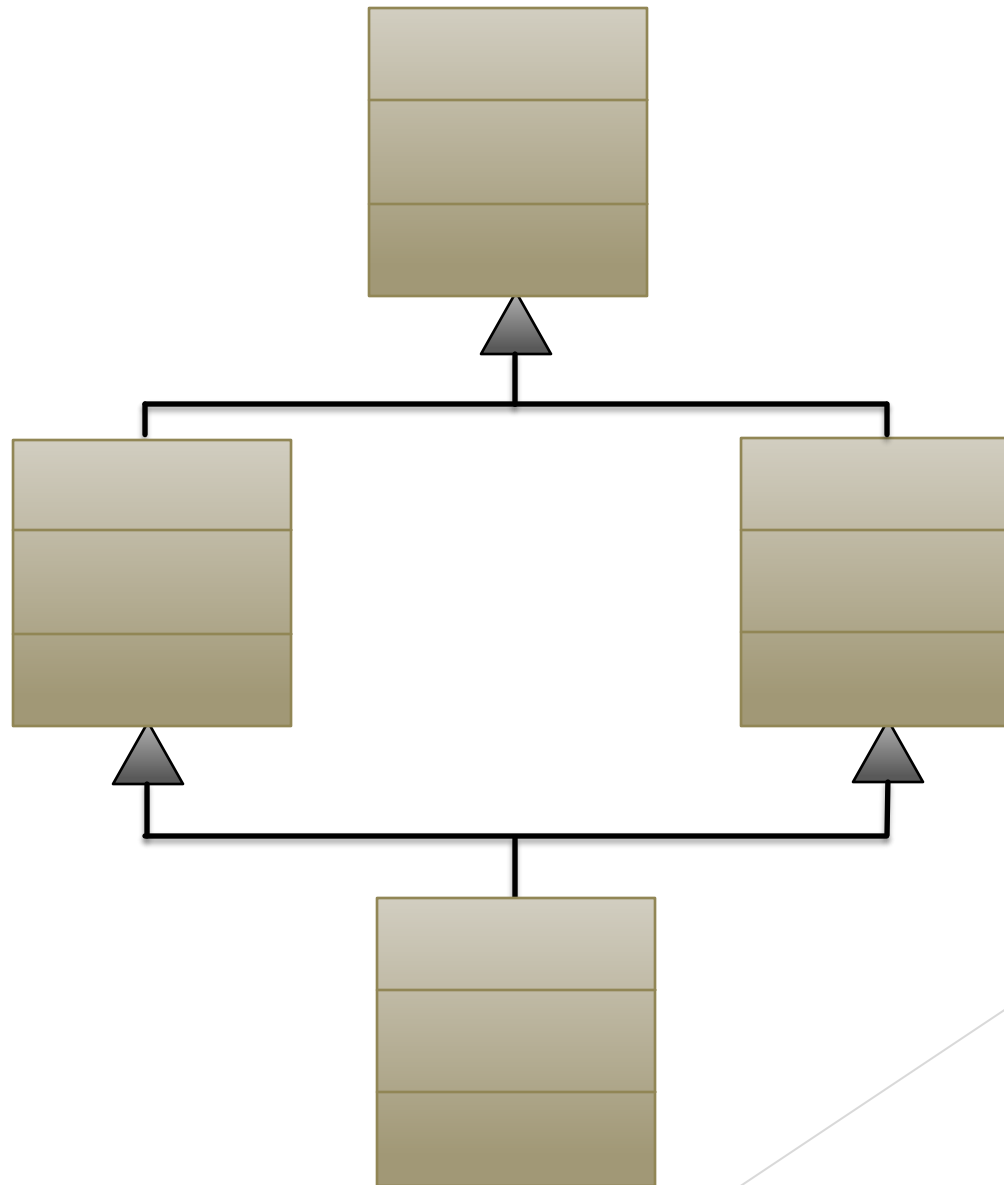
Multilevel inheritance



```
class A
{
    ----
    ----
    ----
};
class B : public A
{
    ----
    ----
    ----
};
class C : public B
{
    ----
    ----
    ----
};
```

Hybrid inheritance

- **Hybrid (Virtual)**
- **Hybrid Inheritance** is implemented by combining more than one type of inheritance.



Visibility Modes

1. Private

2. Protected

3. Public

	Private	Protected	Public
User1	✗	✗	✓
User2	✗	✓	✓

Visibility Modes

