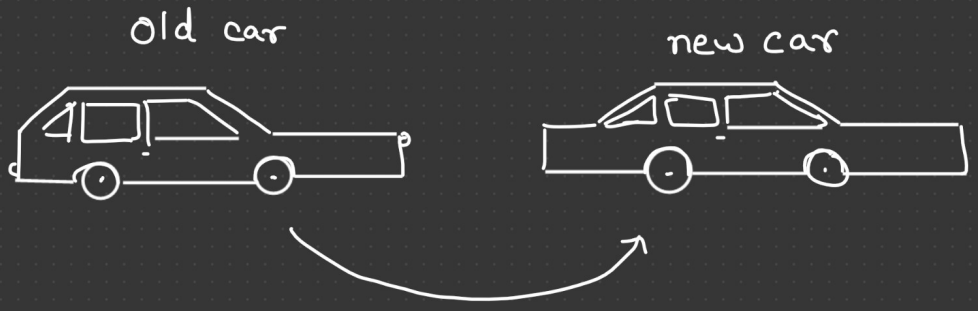
# Inheritance

One of the main goal of OOP's is to provide reusable code.




+ engine ↑
+ design ↑
+ new features ↑

+ Old functionality

```
Class Calculator
{
    add()
    {

    }
    sub()
    {

    }
};
```

```
Class NewCalculator
{
    add() ✓
    sub() ✓
    mult() +
    divide() +
};
```

Parent class/Base class

↓

child class / Derived class

```
class A
{
    ____
    ____
    ____
    ____
};
```

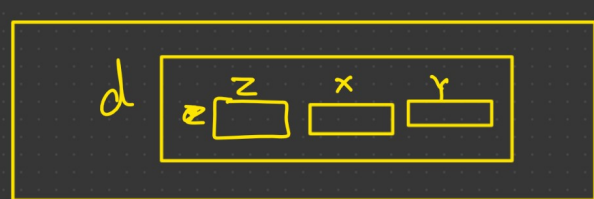
```
class B : public A
{
    ____
    ____
    ____
    ____
    +
    New
};
```

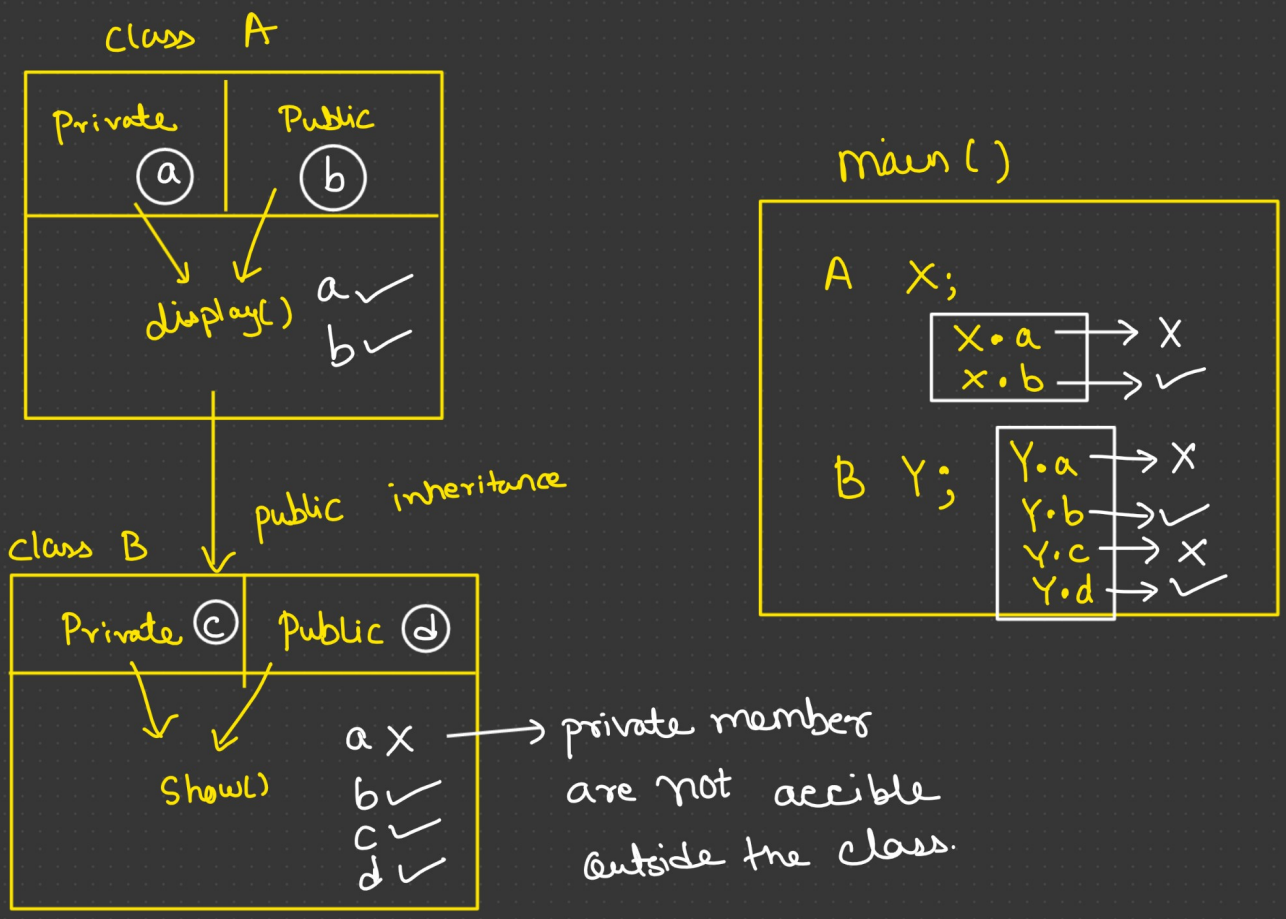
---

```
class ABC
{
    public :
        int x, y;
};
```

```
class DEF : Public ABC
{
    public :
        int z;
};
```

```
int main()
{
    DEF d;
};
```




Class A
Private
Public
a
b
display()
a ✓
b ✓
public inheritance
Class B
Private c
Public d
Show()
a X
b ✓
c ✓
d ✓
private member are not accible outside the class.
main()
A X;
X.a → X
X.b → ✓
B Y;
Y.a → X
Y.b → ✓
Y.c → X
Y.d → ✓