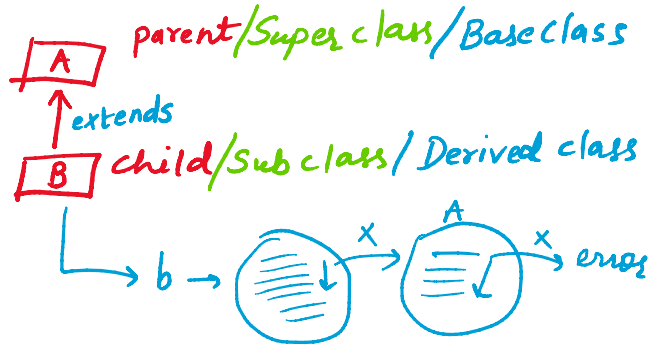
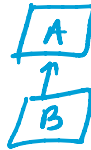


Inheritance → Reusability

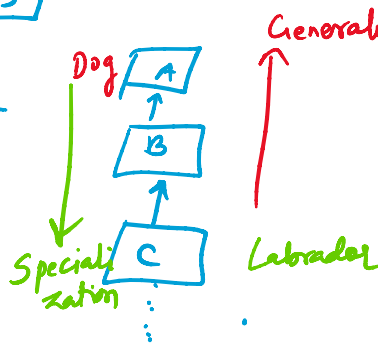
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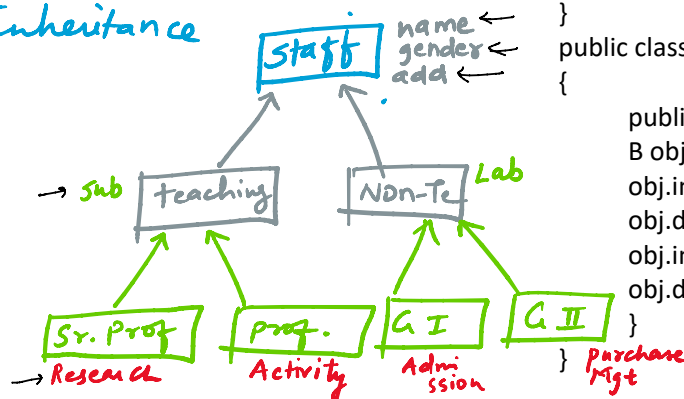
1) Single Inheritance



2) Multilevel Inheritance

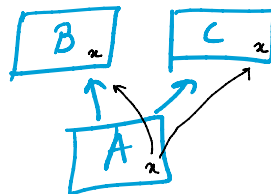


3) Hierarchical Inheritance



```
import java.util.*;
class A
{
    int a;
    Scanner s=new Scanner(System.in);
    void inputA()
    {
        System.out.println("Please enter A value");
        a=s.nextInt();
    }
    void displayA()
    {
        System.out.println(" A value is "+a);
    }
}
class B extends A
{
    int b;
    void inputB()
    {
        System.out.println("Please enter B value");
        b=s.nextInt();
    }
    void displayAplusB()
    {
        System.out.println(" Addition is "+(a+b));
    }
}
public class Main
{
    public static void main(String[] args) {
        B obj=new B();
        obj.inputA();
        obj.displayA();
        obj.inputB();
        obj.displayAplusB();
    }
}
```

4) Multiple Inheritance (Interfaces)



```
import java.util.*;
class A
{
    A()
    {
        System.out.println("Constructor of A class");
    }
}
class B extends A
{
    B()

```

```
import java.util.*;
class A
{
    int a;
    Scanner s=new Scanner(System.in);
    void inputA()
    {
        System.out.println("Please enter A value");
        a=s.nextInt();
    }
    void displayA()
    {
        System.out.println(" A value is "+a);
    }
}
```

```

class B extends A
{
    B()
    {
        System.out.println("Constructor of B class");
    }
}
class C extends B
{
    C()
    {
        System.out.println("Constructor of C class");
    }
}
public class Main
{
    public static void main(String[] args) {
        C obj=new C();
    }
}

```

```

        System.out.println(" A value is "+a);
    }
}
class B extends A
{
    int b;
    void inputB()
    {
        System.out.println("Please enter B value");
        b=s.nextInt();
    }
    void displayAplusB()
    {
        System.out.println(" Addition is "+(a+b));
    }
}
class C extends B
{
    int c;
    void inputC()
    {
        System.out.println("Please enter C value");
        c=s.nextInt();
    }
    void displayAddition()
    {
        System.out.println(" Addition is "+(a+b+c));
    }
}
public class Main
{
    public static void main(String[] args) {
        C obj=new C();
        obj.inputA();
        obj.displayA();
        obj.inputB();
        obj.displayAplusB();
        obj.inputC();
        obj.displayAddition();
    }
}

```

Method Overriding

```

import java.util.*;
class A
{
    int a;
    Scanner s=new Scanner(System.in);
    void inputA()
    {
        System.out.println("Please enter A value");
        a=s.nextInt();
    }
    void displaySum() X
    {
        System.out.println(" A value is "+a);
    }
}
class B extends A
{
    int b;
    void inputB()
    {
        System.out.println("Please enter B value");
        b=s.nextInt();
    }
    void displaySum() ✓
    {
        System.out.println(" Addition is "+(a+b));
    }
}
public class Main
{
    public static void main(String[] args) {
        B obj=new B();
        obj.inputA();
    }
}

```

Super Keyword

```

import java.util.*;
class A
{
    int a;
    Scanner s=new Scanner(System.in);
    void inputA()
    {
        System.out.println("Please enter A value");
        a=s.nextInt();
    }
    void display() ←
    {
        ↓
        System.out.println(" A value is "+a);
    }
}
class B extends A

```

```

public static void main(String[] args) {
    B obj=new B();
    obj.inputA();
    obj.displaySum();
    obj.inputB();
    obj.displaySum();
}

```

Super keyword for parent class Constructor

```

class A
{
    int a;
    A(int x)
    {
        a=x;
    }
    void display()
    {
        System.out.println(" A value is "+a);
    }
}
class B extends A
{
    int b;
    B(int x,int y)
    {
        super(x);
        b=y;
    }
    void display()
    {
        super.display();
        System.out.println(" Addition is "+(a+b));
    }
}
public class Main
{
    public static void main(String[] args) {
        B obj=new B(10,5);
        obj.display();
    }
}

```

final keyword → Method

```

import java.util.*;
class A
{
    int a=3;
    Scanner s=new Scanner(System.in);
    void inputA()
    {
        System.out.println("Please enter A value");
        a=s.nextInt();
    }
    final void display()
    {

```

```

}
}
class B extends A
{
    int b;
    void inputB()
    {
        System.out.println("Please enter B value");
        b=s.nextInt();
    }
    void display()
    {
        super.display();
        System.out.println(" Addition is "+(a+b));
    }
}
public class Main
{
    public static void main(String[] args) {
        B obj=new B();
        obj.inputA();
        obj.inputB();
        obj.display();
    }
}

```

final keyword → variable

```

import java.util.*;
class A
{
    final int a=3;
    Scanner s=new Scanner(System.in);
    void inputA()
    {
        System.out.println("Please enter A value");
        a=s.nextInt();
    }
    void displayA()
    {
        System.out.println(" A value is "+a);
    }
}
class B extends A
{
    int b;
    void inputB()
    {
        System.out.println("Please enter B value");
        b=s.nextInt();
    }
    void displayAplusB()
    {
        System.out.println(" Addition is "+(a+b));
    }
}
public class Main
{
    public static void main(String[] args) {

```

```

    }
    final void display()
    {
        System.out.println(" A value is "+a);
    }
}
class B extends A
{
    int b;
    void inputB()
    {
        System.out.println("Please enter B value");
        b=s.nextInt();
    }
    void display()
    {
        System.out.println(" Addition is "+(a+b));
    }
}
public class Main
{
    public static void main(String[] args) {
        B obj=new B();
        obj.inputA();
        obj.display();
        obj.inputB();
        obj.display();
    }
}

```

```

public class Main
{
    public static void main(String[] args) {
        B obj=new B();
        obj.inputA();
        obj.displayA();
        obj.inputB();
        obj.displayAplusB();
    }
}

```

final keyword → class.

```

import java.util.*;
class A
{
    int a=3;
    Scanner s=new Scanner(System.in);
    void inputA()
    {
        System.out.println("Please enter A value");
        a=s.nextInt();
    }
    void display()
    {
        System.out.println(" A value is "+a);
    }
}
final class B extends A
{
    int b;
    void inputB()
    {
        System.out.println("Please enter B value");
        b=s.nextInt();
    }
    void display()
    {
        System.out.println(" Addition is "+(a+b));
    }
}
class C extends B
{
}

public class Main
{
    public static void main(String[] args) {
        C obj=new C();
        obj.inputA();
        obj.display();
        obj.inputB();
        obj.display();
    }
}

```