ASSINGMENT-2

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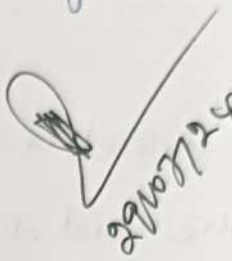
What is inheritance and describe the types of Inheritance

Inheritance :-

The method to create a hierarchy between classes by inheriting from other classes.



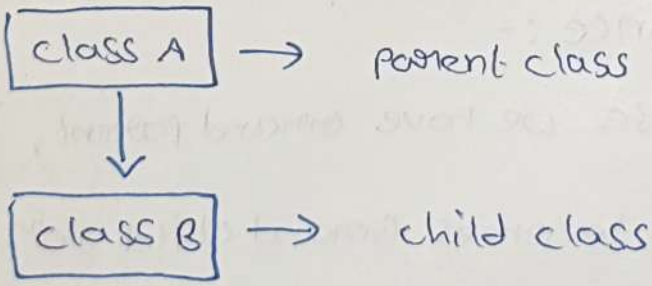
There are 5 types of Inheritance

- Single Inheritance
- Multilevel Inheritance
- Multiple Inheritance
- Hierarchial Inheritance
- Hybrid Inheritance

In this Multiple Inheritance does not support in Java to overcome we use Interface

1. Single Inheritance :-

In this we have one parent class and child class Both are interlinked and child class is accessed by the parent class



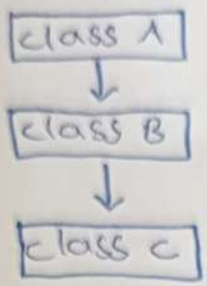
program:-

```
class A {
    public void dis_a() {
    system.out.println ("base class is derived");
}
class B extends A {
    public void dis_b() {
    system.out.println ("child class is created");
}
class Main {
    public static void main (string args[]) {
        b obj = new b();
        obj.dis_a();
        obj.dis_b();
}
```

output:- base class is derived
child class is created

Multilevel Inheritance :-

In this case we have Grand parent, parent and child class where child class becomes Grand child for the Grand parent-class



Grand parent

parent

child / Grand child

program :-

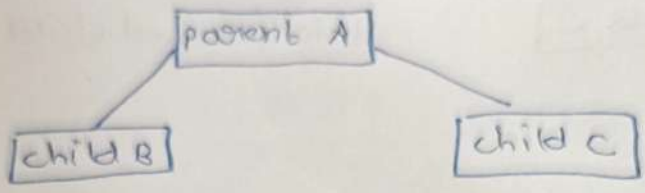
```
class A {
  public void dis1 () {
    system.out.println("Hi");
  }
}
class B extends A {
    public void dis2 () {
    system.out.println ("Hello");
  }
}
class C extends B {
    public void dis3() {
    system.out.println ("world");
  }
}
class main {
   public static void main (String [] args) {
        C o = new C();
        o.dis1();
        o.dis2();
        o.dis3();
  }
}
```

output :-

Hi
Hello
world

3. Hierarchial Inheritance:

In this Inheritance single parent class have many child classes as follows



program:

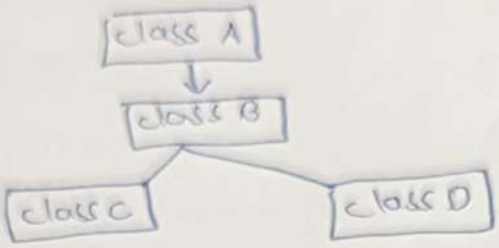
```
class A {
public void dis1() {
system.out.println("parent class derived");
}}
class B extends A {
public void dis2() {
system.out.println("child is derived");
}}
class C extends A {
public void dis3() {
system.out.println("child is derived");
}}
class Main {
public static void main(string[] args) {
b o1 = new b();
c o2 = new c();
o1.dis1();
o1.dis2();
o2.dis3();
}}
```

output:-

parent class derived
child 1 is derived
child 2 is derived

Hybrid inheritance:

In this inheritance is done when combination of 2 inheritance as follows



program:

```
class a {
  public void dis1 () {
  system.out.println ("Hi");
}}
class b extends a {
  public void dis2() {
  system.out.println ("Hello");
}}
class c extends B {
  public void dis3 () {
  system.out.println ("Hi!");
}}
  class d extends b {
    public void dis4() {
    system.out.println ("king");
  }
}
```

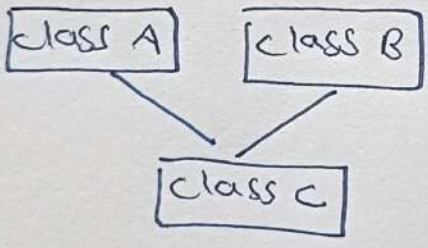
```
class Main {
  public static void main (String () args) {
      c objc = new c();
      d objd = new d();
      objc.dis1();
      objc.dis2();
      objc.dis3();
      objd.dis1();
      objd.dis2();
      objd.dis3();
  }
}
```

output:

Hi
Hello
Hi!
Hi
Hello
King

Multiple Inheritance:

In this Inheritance 2 parent class combines and forms an single child class where in Java it is not possible for overcoming we use Interface.




```
class A {
  int a;
  A() {
    a = 5;
  }
```

```
    void dis1(){
        system.out.println(a);
    }
}
interface B {
    int b=10;
    void dis2(){
    system.out.println(b);
}
}
class C extends A implements B {
    int c=15;
    void dis3(){
    system.out.println(c);
}
}
public class main {
    public static void main(String[] args){
        C obj=new C();
        obj.dis1();
        obj.dis2();
        obj.dis3();
    }
}
```

output:

5

10

15

3.
```
class Main {
    public static void main (String[] args) {
        try {
            int a= 50/0;
            System.out.println("There is no error");
        }
        catch (Exception e) {
            System.out.println (e.getMessage());
        }
        finally
        {
        System.out.println ("This is a Finally block");
        }
    }
}
```

output:

1 by zero

This is a Finally block