

ASSIGNMENT-2

Q: What is inheritance & describe the types of inheritances.

Inheritance:

The method to create a hierarchy b/w classes by inheriting from other classes.

There are 5 types of Inheritance

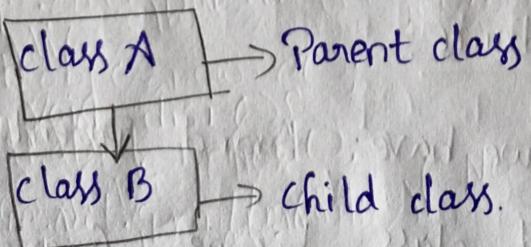
They are:

1. Single inheritance
2. Multiple inheritance
3. Multi level Inheritance
4. Hierachial Inheritance
5. Hybrid Inheritance.

In this multiple Inheritance does not supports in java to overcome we use Interface.

1. Single Inheritance:

In this we have one parent class & child class both are interlinked & child class is accessed by the Parent class.



Program:-

```
class A {
```

```
    public void dis-ac() {
```

```
        System.out.println("Base class is Derived");
```

```
}
```

```
}
```

```
class B {
```

```
    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-ac();
```

```
        obj.dis-b();
```

```
}
```

Output:-

Base class is Derived

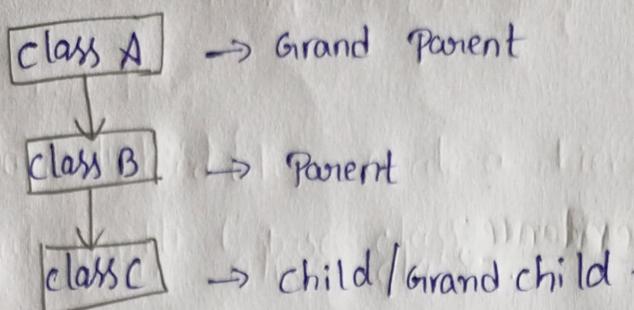
child class is created.

②)

Multilevel Inheritance:-

In this we have Grand Parent, Parent & child class where child class becomes Grand child for the

Grandparent class



Program :

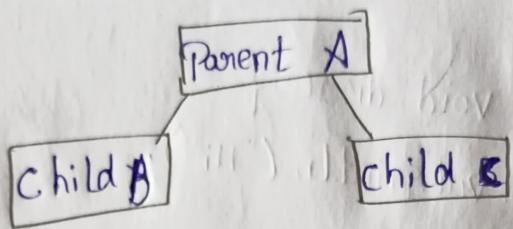
```
class A {  
    public void dis1() {  
        System.out.println("Hi");  
    }  
}  
  
class B extends A {  
    public void dis2() {  
        System.out.println("Hello");  
    }  
}  
  
class C extends B {  
    public void dis3() {  
        System.out.println("world");  
    }  
}  
  
class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

Output:-

Hi
Hello
world.

3) Hierarchical 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("child1 is derived");

 }

class C Extends A {

 Public void dis3() {

 System.out.println("child2 is derived");

 }

```

Class Main {
    } {A b o k s a 2015}

    Public static void main(String[] args) {
        } {A b o k s a 2015}
        b obj1 = new b();
        C obj2 = new c();
        Obj1.dis1();
        obj1.dis2();
        obj2.dis3();
    }
}

```

Output:-

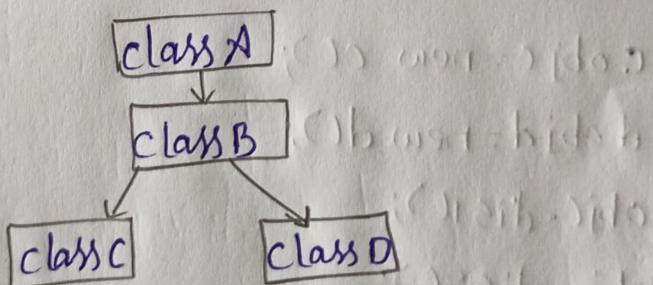
Parent class derived

child1 is derived

child2 is derived.

4) Hybrid Inheritance:-

In this Inheritance is done when combination of 2 Inheritances as follows



Program:-

```

class A {
    } {A b o k s a 2015}
    Public void dis1() {
        } {A b o k s a 2015}
        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("Vikings");

}

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.dis4();

}

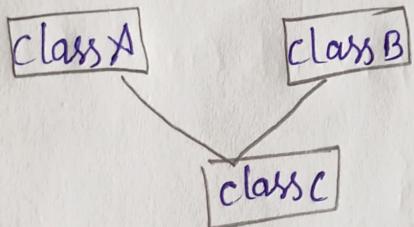
Output:-

Hi
Hello
Hi!
Hi
Hello
Vikings.

5)

Multiple Inheritance:

In this Inheritance 2 Parent class combines & forms a 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) {
        obj = new C();
        obj.dis1();
        obj.dis2();
        obj.dis3();
    }
}
```

obj
= 5
10
15

Exception → Try & catch programs:

1) Class Main {

```
public static void main(String[] args){}
```

try {

int a=5/0;

System.out.println("No error found");

}

Catch (ArithmetiException e){

System.out.println(e.getMessage());

}

}

Output: /by zero.

2) class Main {

 Public static void main (String[] args){

 try {

 int[] a = {1, 2, 3};

 System.out.println (*a[30]);

 }

 Catch (ArrayOutOfBoundsException e){

 System.out.println (e.getMessage());

 }

 Output

IndexOutOfBoundsException for length 3.

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 finally block");  
}  
}  
}
```

Output:

/by zero

This is finally Block.