INHERITANCE

- ❖ Inheritance is one of the main pillar of java and concept of oops(object-oriented programming language)
- ❖ It's used to allow access data and field(properties) from another class
- ❖ Using a extends we connect java classes

Java inheritance types are:

- **Single inheritance**
- **Multilevel inheritance**
- **Hierarchical inheritance**

Inheritance types are:

- **Single inheritance**
- **Multilevel inheritance**
- **Hierarchical inheritance**
- **Multiple inheritance**
- **Hybrid inheritance**

Single inheritance:

```
package javaprogram;

// single inheritance is used to connect with one class to another class

//  network is called as superclass,base class,parent class

class network

{

	void mobilenetworkconnection()

	{

		System.out.println("mobile network connected");

	}
```

```
}
// mobile class is child its connect with network class (parent)
// mobile is called as subclass,derived class,child class
class mobile extends network
{
	void mobilenetwork()
	{
		System.out.println("trying to connect mobile network");
	}
}
public class javainheritance {
	public static void main(String[] args) {
		mobile connectionpassed=new mobile();
		connectionpassed.mobilenetwork();
		connectionpassed.mobilenetworkconnection();
	}
}
```

Hierarchical inheritance

```
package javaprogram;
// Hierarchical inheritance occurs when multiple classes inherit from a single parent class.
//  network is called as superclass,base class,parent class
class network
{
```

```
	void mobilenetworkconnection()
	{
		System.out.println("mobile network connected");
	}
}
// bsnl class is child its connect with network class (parent)
// bsnl is called as subclass,derived class,child class
class bsnl extends network
{
	void bsnlnetwork()
	{
		System.out.println("trying to connect bsnl to network");
	}
}
//airfiber class is child its connect with network class (parent)
//airfiber is called as subclass,derived class,child class
class airfiber extends network
{
	void airfibernetwork()
	{
		System.out.println("trying to connect airfiber to
network");
	}
}
```

```
//airtel class is child its connect with network class (parent)
//airtel is called as subclass,derived class,child class
class airtel extends network
{
	void airtelnetwork()
	{
		System.out.println("trying to connect airtel to network");
	}
}
public class javainheritance {
	public static void main(String[] args) {
		bsnl bsnlconnectionpassed=new bsnl();
		bsnlconnectionpassed.bsnlnetwork();
		airfiber airfiberconnectionpassed=new airfiber();
		airfiberconnectionpassed.airfibernetwork();
		airtel airtelconnectionpassed=new airtel();
		airtelconnectionpassed.airtelnetwork();
	}
}
```

Multilevel inheritance:

```
package javaprogram;
// multilevel inheritance occurs when multiple classes inherit from a one class another class
//  twoGnetwork is called as superclass,base class,parent class
```

```
class twoGnetwork
{
	void twoGnetworkConnect()
	{
		System.out.println("twoGnetworkConnect is low");
	}
}
//twoGnetwork is called as superclass,base class,parent class
// threeGnetwork is called as subclass,derived class,child class
class threeGnetwork extends twoGnetwork
{
	void threeGnetworkConnect()
	{
		System.out.println("threeGnetworkConnect is fast");
	}
}
//threeGnetwork is called as superclass,base class,parent class
//fourGnetwork is called as subclass,derived class,child class
class fourGnetwork extends threeGnetwork
{
	void fourGnetworkConnect()
	{
		System.out.println("fourGnetworkConnect is very fast");
	}
```

```
}
//fourGnetwork is called as superclass,base class,parent class
//fiveGnetwork is called as subclass,derived class,child class
class fiveGnetwork extends fourGnetwork
{
	void fiveGnetworkConnect()
	{
		System.out.println("fiveGnetworkConnect is very very fast");
	}
}

public class javainheritance {
	public static void main(String[] args) {
		fiveGnetwork networkspeed=new fiveGnetwork();
		networkspeed.twoGnetworkConnect();
		networkspeed.threeGnetworkConnect();
		networkspeed.fourGnetworkConnect();
		networkspeed.fiveGnetworkConnect();
	}
}
```

Multiple and hybrid we will not use in java inheritance

Multiple inheritance:

```
package javaprogram;
```

```
// multiple inheritance is used to connect one java class to multiple java classes
// Alpha is called as superclass,base class,parent class
class Alpha
{
  int a=10;
}
//Beta is called as superclass,base class,parent class
class Beta
{
   int b=20;
}
// its not possible to connect one java class to multiple java classes
// Cell is called as subclass,derived class,child class
class Cell extends Alpha,Beta
{
  int c=30;
}
public class javainheritance {
        public static void main(String[] args) {
                Cell CellConnectToAlphaBeta=new Cell();
                System.out.println(CellConnectToAlphaBeta.a);
                System.out.println(CellConnectToAlphaBeta.b);
                System.out.println(CellConnectToAlphaBeta.c);
```

```
        }
}
```

// output: Error: Could not find or load main class javaprogram.javainheritance in module javaprogram

Hybrid inheritance:

```
package javaprogram;
// hybrid inheritance is used to connect each java class to multiple java classes
// Cell is called as superclass,base class,parent class
// Beta is called as superclass,base class,parent class
// Alpha is called as subclass,derived class,child class
class Alpha extends Beta,Cell
{
   int a=10;
}
//Alpha is called as superclass,base class,parent class
//Cell is called as superclass,base class,parent class
//Beta is called as subclass,derived class,child class
class Beta extends Alpha,Cell
{
    int b=20;
}
// its not possible to connect each java class to multiple java classes
//Alpha is called as superclass,base class,parent class
```

```
//Beta is called as superclass,base class,parent class
//Cell is called as subclass,derived class,child class
class Cell extends Alpha,Beta
{
  int c=30;
}
public class javainheritance {

        public static void main(String[] args) {
                // can't call class properties throws error
        }
}
```

// output: Error: Could not find or load main class javaprogram.javainheritance in module javaprogram

But multiple inheritance we can used with java interface it's one of the pillar in java oops