PRACTICAL:16

AIM:Write a program in Java to demonstrate following types of inheritance.

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

Inheritance:

- Inheritance in Java is a mechanism in which, one child class acquires all the properties and behaviors of a parent object.
- It is an important part of OOPs (Object Oriented programming system).
- Inheritance represents the IS-A relationship which is also known as a parent-child relationship.

SINGLE INHERITANCE:

- Single Inheritance is the simple inheritance of all, When a class extends another class(Only one class) then we call it as Single inheritance.
- Class B extends only one class Class A.
- Here Class B will be the Sub class and Class A will be one and Super class.
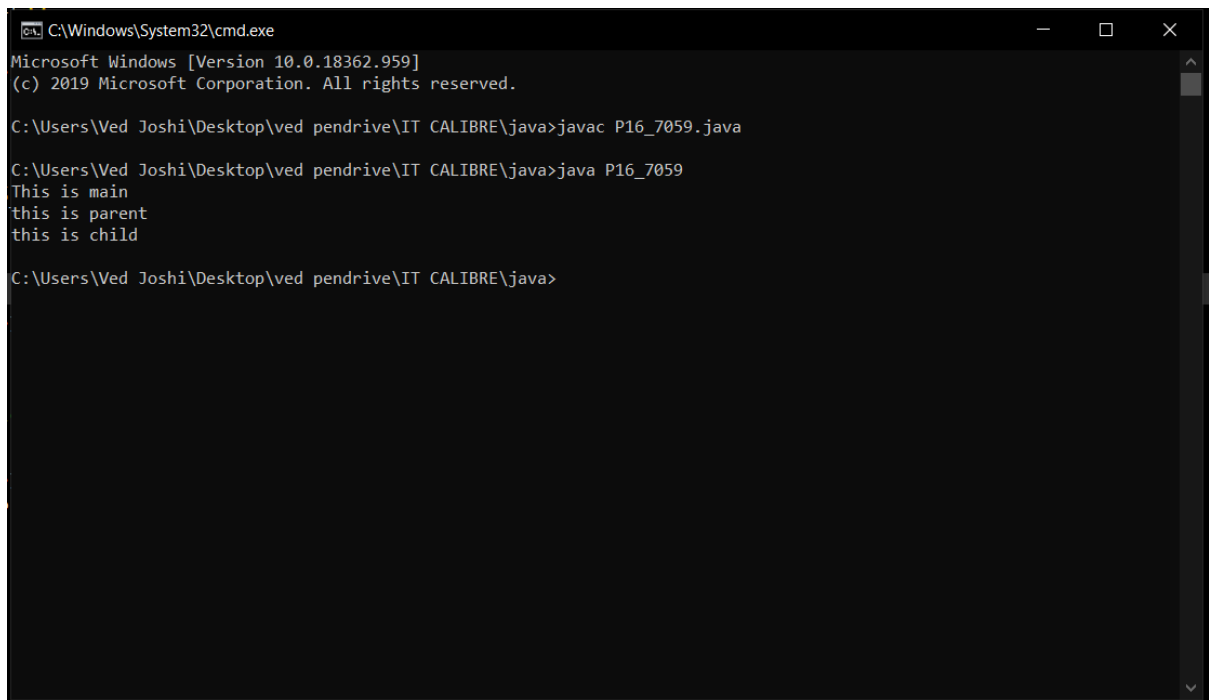
PROGRAM:

```
class Parent
{
      Parent()
      {
             System.out.println("this is parent");



      }
}
class P16_7059 extends Parent
{
      P16_7059()
      {
             System.out.println("this is child");


      }
```

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

{

        System.out.println("This is main");

        P16_7059 c1=new P16_7059();

}

}
```

OUTPUT:

MULTILEVEL INHERITANCE:

- In Multilevel Inheritance a derived class will be inheriting a parent class and as well as the derived class act as the parent class to other class.
- Class B inherits the property of Class A and again Class B act as a parent for Class C.
- In Short Class A parent for Class B and Class B parent for Class C.

PROGRAM:

```java
class Grand
{
    Grand()
    {
        System.out.println("this is Grand");


    }
}
class Parent extends Grand
{
    Parent()
    {
        System.out.println("this is parent");


    }
}
class P16_7059 extends Parent
{
    P16_7059()
    {
        System.out.println("this is child");


    }
    public static void main(String args[])
    {
```
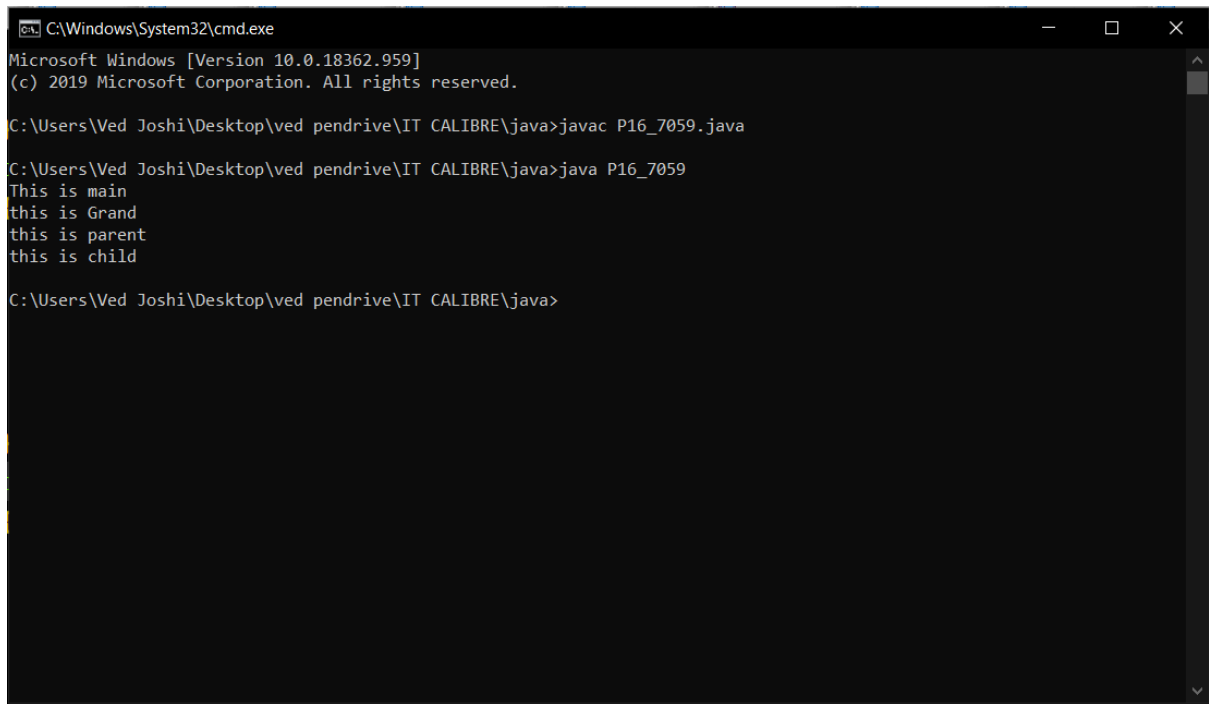
```
        System.out.println("This is main");

        P16_7059 c1=new P16_7059();

    }

}
```

OUTPUT:

HIERARCHICAL INHERITANCE:

- In Hierarchical inheritance one parent class will be inherited by many sub classes.
- Class A will be inherited by Class B, Class C and Class D.
- Class A will be acting as a parent class for Class B, Class C and Class D.

PROGRAM:

```java
class Parent

{

        Parent()

        {

                System.out.println("this is parent");


        }

}

class P16_7059_1 extends Parent

{

        P16_7059_1()

        {

                System.out.println("this is child-1");


        }

}

class P16_7059 extends Parent

{

        P16_7059()

        {

                System.out.println("this is child-2");


        }

        public static void main(String args[])

        {

                System.out.println("This is main");
```
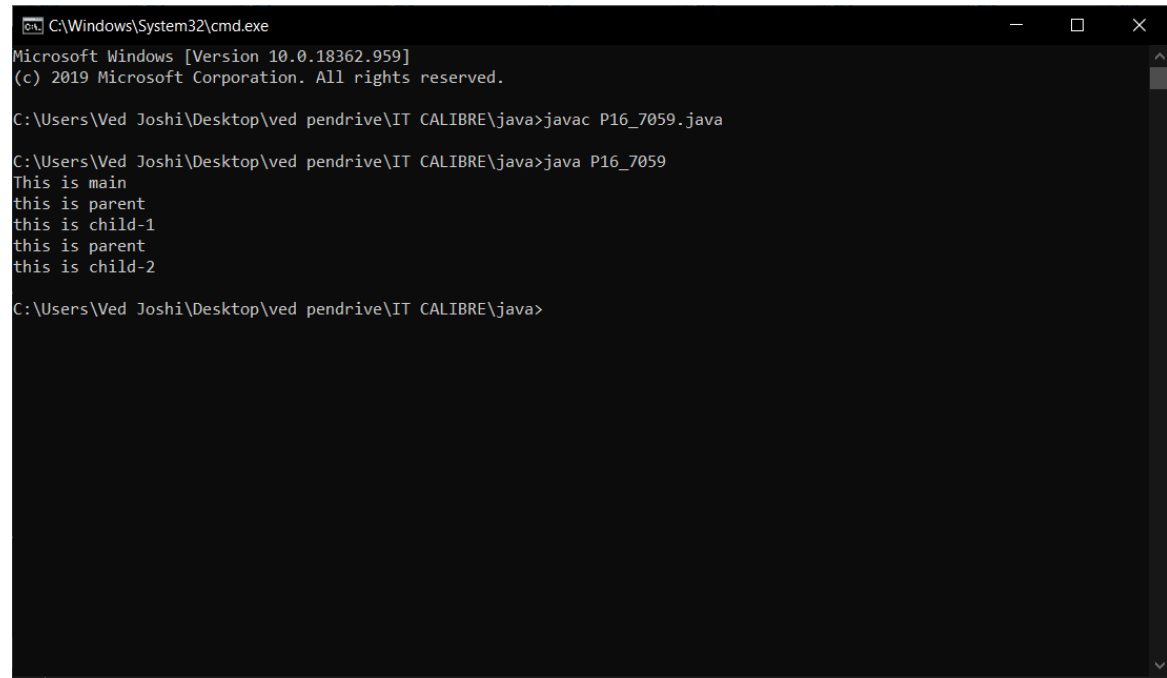
P16_7059_1 c1=new P16_7059_1();

P16_7059 d1=new P16_7059();

}

}

OUTPUT:

```
C:\Windows\System32\cmd.exe                                        —    □    ×

Microsoft Windows [Version 10.0.18362.959]
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C:\Users\Ved Joshi\Desktop\ved pendrive\IT CALIBRE\java>javac P16_7059.java

C:\Users\Ved Joshi\Desktop\ved pendrive\IT CALIBRE\java>java P16_7059
This is main
this is parent
this is child-1
this is parent
this is child-2

C:\Users\Ved Joshi\Desktop\ved pendrive\IT CALIBRE\java>
```