

Name: Hitendra Sisodia

## Lab 10

Sap id: 500091910

Ques1: Write a program to implement the concept of multithreading by extending Thread class.

### Source Code

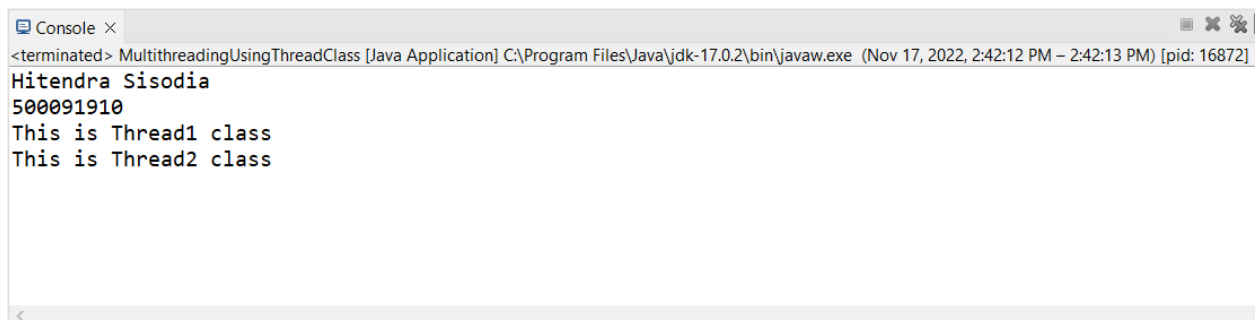
```
package Lab10;

class Thread1 extends Thread {
    @Override
    public void run() {
        System.out.println("This is Thread1 class");
    }
}

class Thread2 extends Thread {
    @Override
    public void run() {
        System.out.println("This is Thread2 class");
    }
}

public class MultithreadingUsingThreadClass {
    public static void main(String args[]) {
        System.out.println("Hitendra Sisodia");
        System.out.println("500091910");
        Thread1 t1 = new Thread1();
        Thread2 t2 = new Thread2();
        t1.start();
        t2.start();
    }
}
```

### Output

A screenshot of a Java IDE's console window. The title bar shows 'Console' with a close button. The text in the console is as follows:  
<terminated> MultithreadingUsingThreadClass [Java Application] C:\Program Files\Java\jdk-17.0.2\bin\javaw.exe (Nov 17, 2022, 2:42:12 PM – 2:42:13 PM) [pid: 16872]  
Hitendra Sisodia  
500091910  
This is Thread1 class  
This is Thread2 class  
The output shows the main thread printing the name and ID first, followed by the two sub-threads printing their respective messages in parallel.

```
Console ×
<terminated> MultithreadingUsingThreadClass [Java Application] C:\Program Files\Java\jdk-17.0.2\bin\javaw.exe (Nov 17, 2022, 2:42:12 PM – 2:42:13 PM) [pid: 16872]
Hitendra Sisodia
500091910
This is Thread1 class
This is Thread2 class
```

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Ques2: Write a program to implement the concept of multithreading by implementing Runnable interface.

### Source Code

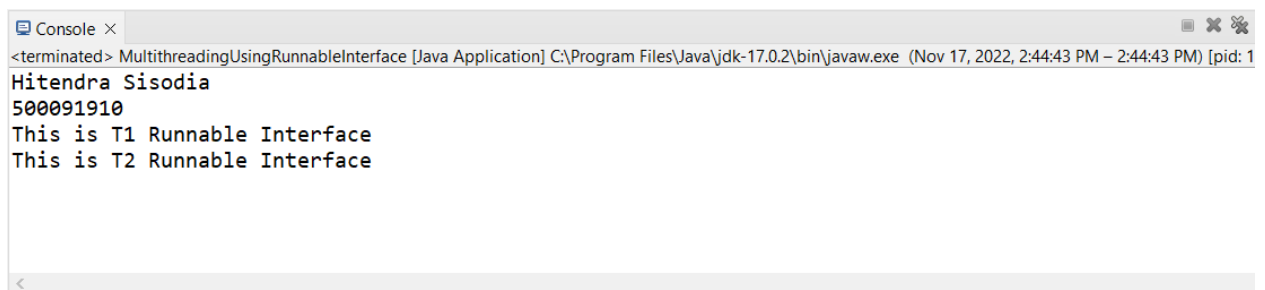
```
package Lab10;

class T1 implements Runnable {
    @Override
    public void run() {
        System.out.println("This is T1 Runnable Interface");
    }
}

class T2 implements Runnable {
    @Override
    public void run() {
        System.out.println("This is T2 Runnable Interface");
    }
}

public class MultithreadingUsingRunnableInterface {
    public static void main(String args[]) {
        System.out.println("Hitendra Sisodia");
        System.out.println("500091910");
        T1 obj1 = new T1();
        T2 obj2 = new T2();
        Thread t1 = new Thread(obj1);
        t1.start();
        Thread t2 = new Thread(obj2);
        t2.start();
    }
}
```

### Output

A screenshot of a Java console window titled "Console x". The window shows the output of a Java application. The first two lines are "Hitendra Sisodia" and "500091910". The next two lines are "This is T1 Runnable Interface" and "This is T2 Runnable Interface". The window also shows the command prompt path "C:\Program Files\Java\jdk-17.0.2\bin\javaw.exe" and the date and time "Nov 17, 2022, 2:44:43 PM - 2:44:43 PM". The process ID is shown as "[pid: 1]".

```
<terminated> MultithreadingUsingRunnableInterface [Java Application] C:\Program Files\Java\jdk-17.0.2\bin\javaw.exe (Nov 17, 2022, 2:44:43 PM - 2:44:43 PM) [pid: 1]
Hitendra Sisodia
500091910
This is T1 Runnable Interface
This is T2 Runnable Interface
```

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Ques3: Write a program for generating 2 threads, one for printing even numbers and the other for printing odd numbers.

### Source Code

```
package Lab10;

class Thread3 extends Thread {
    // Thread for printing even numbers
    @Override
    public void run() {
        for(int i = 0 ; i < 10 ; i++) {
            if(i % 2 == 0) {
                System.out.println("Even Number: "+i);
            }
        }
    }
}

class Thread4 extends Thread {
    // Thread for printing even numbers
    @Override
    public void run() {
        for(int i = 0 ; i < 10 ; i++) {
            if(i % 2 != 0) {
                System.out.println("Odd Number: "+i);
            }
        }
    }
}

public class PrintEvenAndOdd {
    public static void main(String args[]) {
        System.out.println("Hitendra Sisodia");
        System.out.println("500091910");
        Thread3 obj1 = new Thread3();
        Thread4 obj2 = new Thread4();
        obj1.start();
        obj2.start();
    }
}
```

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## Output

```
Console ×
<terminated> PrintEvenAndOdd [Java Application] C:\Program Files\Java\jdk-17.0.2\bin\javaw.exe (Nov 17, 2022, 2:48:22 PM – 2:48:22 PM) [pid: 7356]
Hitendra Sisodia
500091910
Even Number: 0
Even Number: 2
Even Number: 4
Odd Number: 1
Even Number: 6
Odd Number: 3
Even Number: 8
Odd Number: 5
Odd Number: 7
Odd Number: 9
<
```

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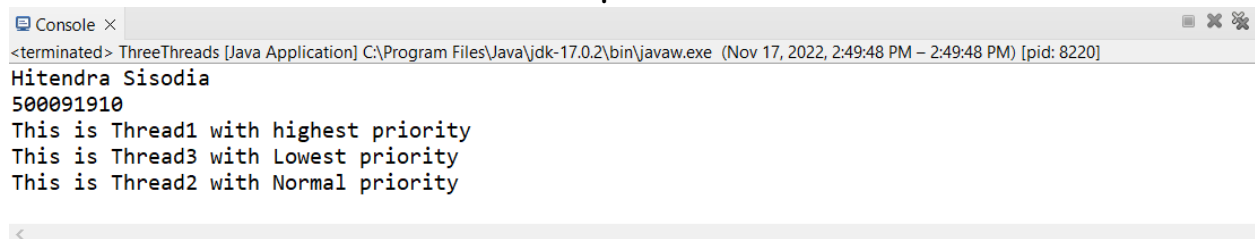
Ques4: Write a Java program that show multithreading between three threads. Set different priority to each thread and show output.

### Source Code

```
package Lab10;

class C1 extends Thread {
    public void run() {
        System.out.println("This is Thread1 with highest priority");
    }
}
class C2 extends Thread {
    public void run() {
        System.out.println("This is Thread2 with Normal priority");
    }
}
class C3 extends Thread {
    public void run() {
        System.out.println("This is Thread3 with Lowest priority");
    }
}
public class ThreeThreads {
    public static void main(String args[]) {
        System.out.println("Hitendra Sisodia");
        System.out.println("500091910");
        C1 t1 = new C1();
        C2 t2 = new C2();
        C3 t3 = new C3();
        t1.setPriority(Thread.MAX_PRIORITY);
        t2.setPriority(Thread.NORM_PRIORITY);
        t3.setPriority(Thread.MIN_PRIORITY);
        t1.start();
        t2.start();
        t3.start();
    }
}
```

### Output

A screenshot of a Java IDE console window. The title bar reads "Console x" and the status bar shows "<terminated> ThreeThreads [Java Application] C:\Program Files\Java\jdk-17.0.2\bin\javaw.exe (Nov 17, 2022, 2:49:48 PM - 2:49:48 PM) [pid: 8220]". The output text is: "Hitendra Sisodia", "500091910", "This is Thread1 with highest priority", "This is Thread3 with Lowest priority", and "This is Thread2 with Normal priority".

```
Console x
<terminated> ThreeThreads [Java Application] C:\Program Files\Java\jdk-17.0.2\bin\javaw.exe (Nov 17, 2022, 2:49:48 PM - 2:49:48 PM) [pid: 8220]
Hitendra Sisodia
500091910
This is Thread1 with highest priority
This is Thread3 with Lowest priority
This is Thread2 with Normal priority
```