Part-IX
MultiThreading

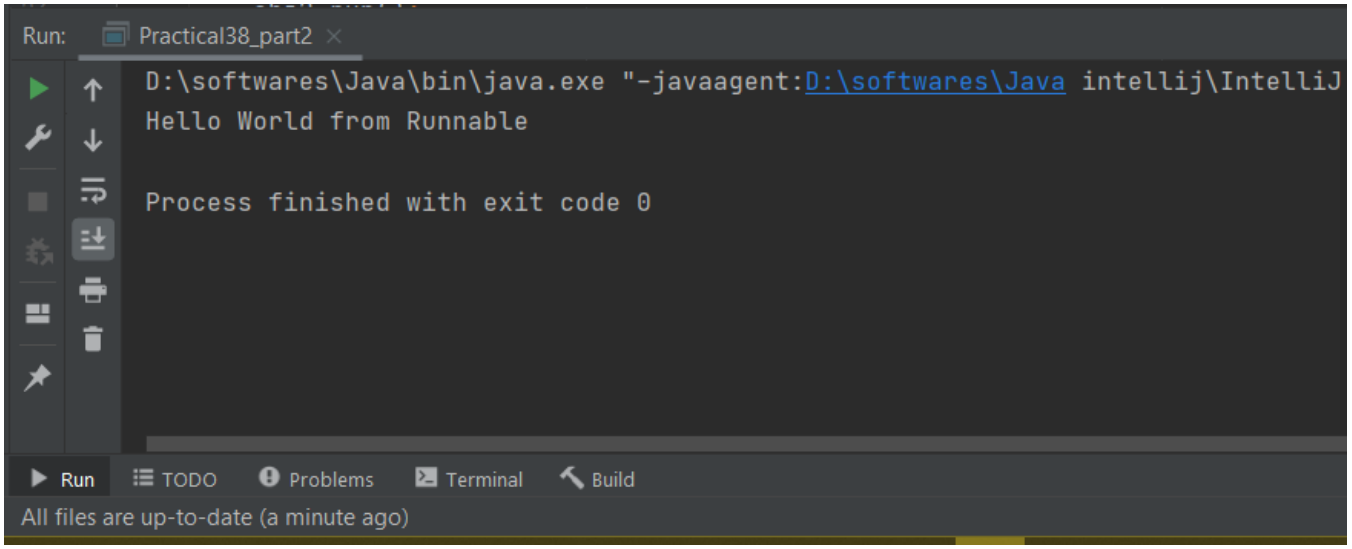
Practical No: 38
AIM: Write a program to create thread which display "Hello World" message.
A. by extending Thread class
B. by using Runnable interface

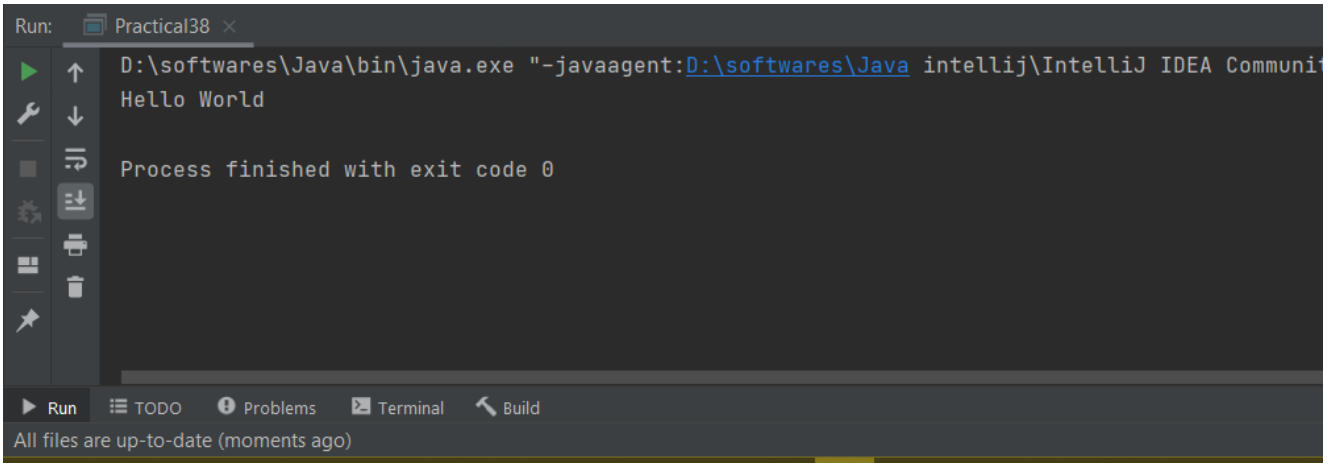
Solution

Practical38.java

```
package com.jayshil.javaapp;

public class Practical38 extends Thread{
  public void run(){
     System.out.println("Hello World");
  }


  public static void main(String[] args) {
     Practical38 obj1 = new Practical38();
     obj1.run();

  }
}

class Practical38_part2 implements Runnable{
  public void run(){
     System.out.println("Hello World from Runnable");
  }

  public static void main(String[] args) {
     Practical38_part2 obj2 = new Practical38_part2();
     obj2.run();
  }
}
```

Output


Run:
Practical38_part2
D:\softwares\Java\bin\java.exe "-javaagent:D:\softwares\Java intellij\IntelliJ
Hello World from Runnable
Process finished with exit code 0
Run
TODO
Problems
Terminal
Build
All files are up-to-date (a minute ago)


Run:
Practical38
D:\softwares\Java\bin\java.exe "-javaagent:D:\softwares\Java intellij\IntelliJ IDEA Communi
Hello World
Process finished with exit code 0
Run
TODO
Problems
Terminal
Build
All files are up-to-date (moments ago)

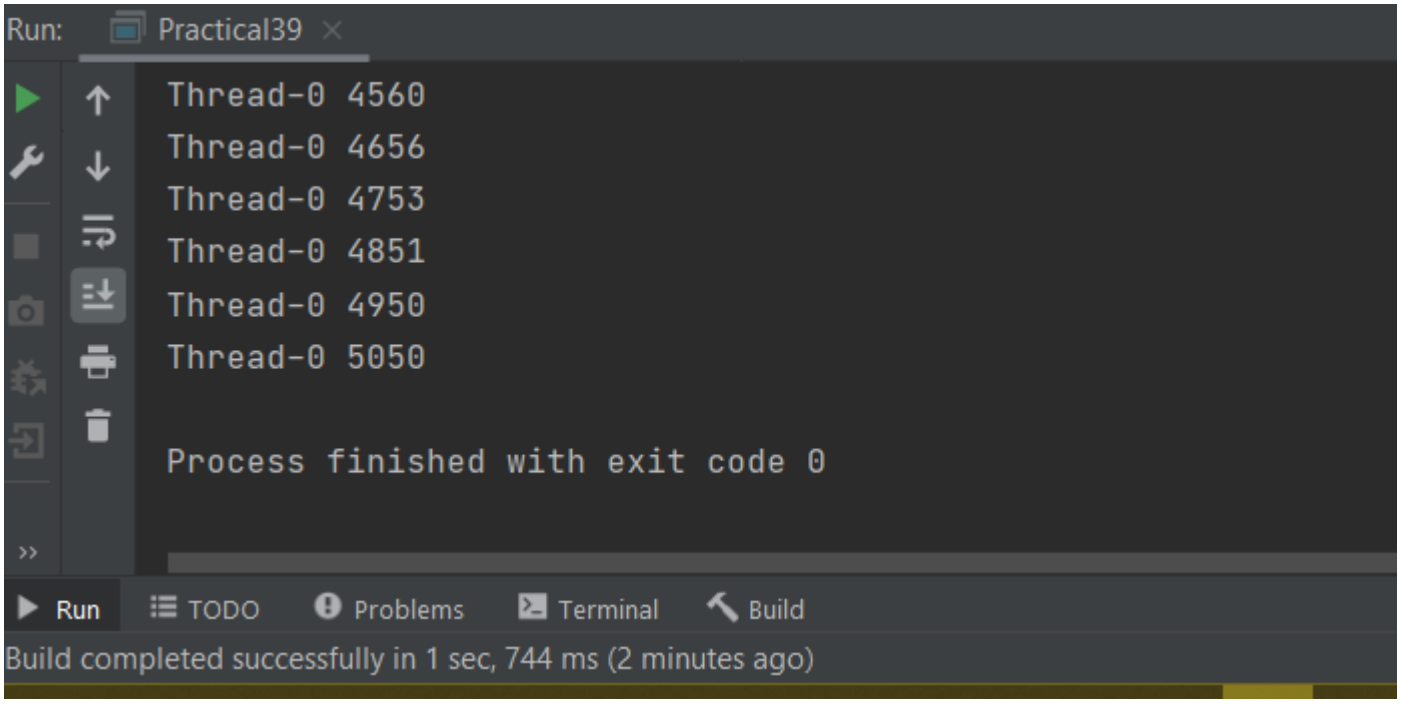
Practical No: 39
AIM: Write a program to perform addition of 1to 100 numbers using 4 threads.

Solution

Practical39.java

```
package com.jayshil.javaapp;

public class Practical39 extends Thread {
  static int sum = 0,i=0;
  int max = 0;
  public void run(){
     for (; i <= 100; i++) {
        sum =sum + i;
        System.out.println(getName()+" "+sum);

     }

  }

  public static void main(String[] args) {
     Practical39 t1 = new Practical39();
     Practical39 t2 = new Practical39();
     Practical39 t3 = new Practical39();
     Practical39 t4 = new Practical39();
     t1.start();
     try {
        sleep(10);
     } catch (InterruptedException e) {
        e.printStackTrace();
     }
     t2.start();
     t3.start();
     t4.start();

  }
}
```

Output


Run:
Practical39
Thread-0 4560
Thread-0 4656
Thread-0 4753
Thread-0 4851
Thread-0 4950
Thread-0 5050
Process finished with exit code 0
Run
TODO
Problems
Terminal
Build
Build completed successfully in 1 sec, 744 ms (2 minutes ago)

Practical No: 40

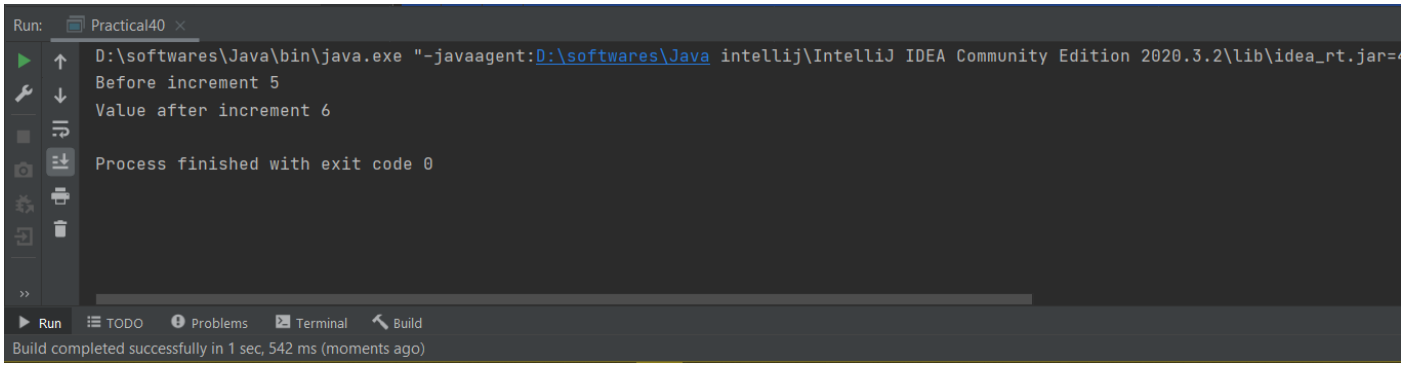
AIM: Write a program to increment the value of one variable by one and display it after one second using thread using sleep() method.

Solution

Practical40.java

```
package com.jayshil.javaapp;

public class Practical40 extends Thread {
  static int var_value = 5;
  public static void main(String[] args) {


     new Thread(new Runnable() {
        @Override
        public void run() {
           System.out.println("Before increment "+var_value);
           var_value=var_value+1;
        }
     },"Thread 1").start();


     try {
        sleep(1000);
     } catch (InterruptedException e) {
        e.printStackTrace();


     }
     new Thread(new Runnable() {
        @Override
        public void run() {

           System.out.println("Value after increment "+var_value);

        }
     },"Thread 2").start();
  }
}
```

Output:-


Run:
Practical40
D:\softwares\Java\bin\java.exe "-javaagent:D:\softwares\Java intellij\IntelliJ IDEA Community Edition 2020.3.2\lib\idea_rt.jar=
Before increment 5
Value after increment 6
Process finished with exit code 0
Run
TODO
Problems
Terminal
Build
Build completed successfully in 1 sec, 542 ms (moments ago)

Practical No: 41

AIM: Write a program to create three threads ‘FIRST’, ‘SECOND’, ‘THIRD’. Set the priority of the ‘FIRST’ thread to 3, the ‘SECOND’ thread to 5(default) and the ‘THIRD’ thread to 7

Solution

Practical41.java

```
package com.jayshil.javaapp;

public class Practical41 extends Thread{

  public void run(){

     for (int i = 0; i < 10; i++) {
        System.out.println(getName()+" "+i);
     }

  }


  public static void main(String[] args) {
     Practical41 FIRST = new Practical41();
     Practical41 SECOND = new Practical41();
     Practical41 THIRD = new Practical41();

     FIRST.setPriority(3);
     SECOND.setPriority(5);
     THIRD.setPriority(7);

//     FIRST.start();
//     SECOND.start();
//     THIRD.start();

     System.out.println("FIRST thread priority : " + FIRST.getPriority());
     System.out.println("SECOND thread priority : " + SECOND.getPriority());
     System.out.println("THIRD thread priority : " + THIRD.getPriority());
  }
}
```

Output:-

Practical No: 42
AIM: WAP to show the use of Synchronized keyword/ synchronized methods.

Solution

.java

Output:-


Run:
Practical37
D:\softwares\Java\bin\java.exe "-javaagent:D:\softwares\Java intellij\Intelli
Enter a number :
4
Answer is 25
The code ends.
Process finished with exit code 0
Run
TODO
Problems
Terminal
Build
All files are up-to-date (moments ago)