FALL SEM – (20 – 2021)

CSE2005

SUBMITTED BY : SRIHARSHITHA DEEPALA

REG NO : 19BCD7246

LAB NO : 9

SLOT : L5

Rohan was asked by his teacher to develop a program which takes in a dynamic user input and prints all the prime numbers till that number and then prints all the composite numbers (numbers that are not prime). Help him out by developing the java program to do so. Use one thread each for both prime and composite numbers and apply the concept of thread synchronization.

CODE:

```
import java.util.*;
class Prime_and_Comp{
synchronized void display(int a,boolean x){
   if(x==false){
    System.out.println("Displaying Prime Numbers :");
  }
  if(x==true){
    System.out.println("Displaying Non - Primes/Composite Numbers :
");
  }
  for(int i=2;i<=a;i++){
    boolean flag=false;
    for(int j=2;j<i/2+1;j++){
      if(i%j==0){
        flag=true;
        break;
        }
     }
     if(flag==x){
      System.out.println(i);
      }
     try{
      Thread.sleep(200);
      }
     catch(Exception e){
      System.out.println(e);
     }
   }
  }
}
class MyThread_1 extends Thread{
  Prime_and_Comp n;
  int A;
  MyThread_1(Prime_and_Comp n,int A){
    this.n=n;
    this.A = A;
  }
  public void run(){
    n.display(A,false);
  }
}
class MyThread_2 extends Thread{
  Prime_and_Comp n;
  int A;
```

```
  MyThread_2(Prime_and_Comp n,int A){
    this.n=n;
    this.A = A;
  }
  public void run(){
    n.display(A,true);
 }
}
public class Main{
 public static void main(String args[]){
   Scanner scan = new Scanner(System.in);
   System.out.println("Enter a Number :");
   int n = scan.nextInt();
   Prime_and_Comp obj = new Prime_and_Comp();
   MyThread_1 t1=new MyThread_1(obj,n);
   MyThread_2 t2=new MyThread_2(obj,n);
   t1.start();
   t2.start();
   scan.close();
}
}
```

OUTPUT – 1:

```
> javac -classpath .:/run_dir/junit-4.12.jar:target/dependency/* -d . Main.java
> java -classpath .:/run_dir/junit-4.12.jar:target/dependency/* Main
Enter a Number :
32
Displaying Prime Numbers :
2
3
5
7
11
13
17
19
23
29
31
Displaying Non - Primes/Composite Numbers :
4
6
8
9
10
12
14
15
16
18
20
21
22
24
25
26
27
28
30
32
>
```

OUTPUT – 2 :

```
> javac -classpath .:/run_dir/junit-4.12.jar:target/dependency/* -d . Main.java
> java -classpath .:/run_dir/junit-4.12.jar:target/dependency/* Main
Enter a Number :
29
Displaying Prime Numbers :
2
3
5
7
11
13
17
19
23
29
Displaying Non - Primes/Composite Numbers :
4
6
8
9
10
12
14
15
16
18
20
21
22
24
25
26
27
28
>
```