

Assessment-3

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Lab Assessment-6

Q)

```
package p1;
```

```
public class Primes{
```

```
public static boolean checkForPrime(int a){
```

```
    if(a<4) return a>1;
```

```
    for(int i=2;i<a/2;i++)
```

```
        if (a%i==0) return false;
```

```
    return true;
```

```
}}
```

```
import p1.*;
```

```
import java.util.*;
```

```
class TwinPrimes{
```

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

```
Scanner in=new Scanner(System.in);
```

```
System.out.println("input limit to check for twin  
primes till:");
```

```
int n=in.nextInt();
```

```
if (n<5) return;
```

```
for(int i=3;i+1<n;i+=4){
```

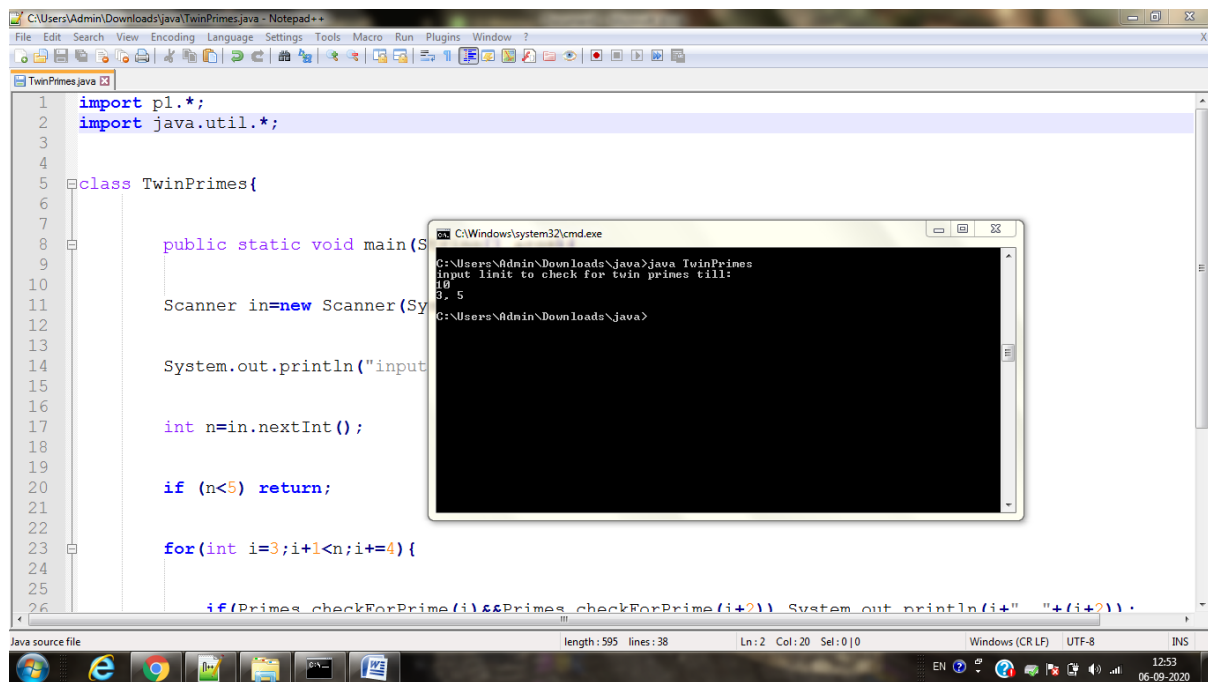
```
if(Primes.checkForPrime(i)&&Primes.checkForPrime(i+
2)) System.out.println(i+", "+(i+2));
```

```
if(i+2<n&&Primes.checkForPrime(i+1)&&Primes.check
ForPrime(i+3)) System.out.println((i+1)+", "+(i+3));
```

```
}
```

```
}
```

```
}
```



Q)

package p2;

interface AddSub{

void add();

void sub();

}

class Test1 implements AddSub{

void add()

```
{  
    int a=1,b=2;  
    int c=a+b;  
    System.out.println("Addition=" + c);  
}  
void sub()  
{  
    int a=4,b=2;  
    int c=a-b;  
    System.out.println("Subtraction=" + c);  
}  
}
```

```
package p3;
```

```
interface MulDiv{  
    void mul();  
    void div();  
}
```

```
}
```

```
class Test2 implements MulDiv{
```

```
    void mul()
```

```
    {
```

```
        int a=1,b=0;
```

```
        int c=a*b;
```

```
        System.out.println("Multiplication=" + c);
```

```
    }
```

```
    void div()
```

```
    {
```

```
        int a=4,b=1;
```

```
        int c=a/b;
```

```
        System.out.println("Division=" + c);
```

```
    }
```

```
}
```

```
import p2.*;
```

```
import p3.*;

public class Run{

    public static void main(String[] args)
    {

        AddSub as=new Test1();

        as.add();

        as.sub();

        MulDiv md=new Test2();

        md.mul();

        md.div();

    }

}
```

Lab Assessment-7

Q)

```
import java.util.*;
```

```
public class Number{
```

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

```
    {
```

```
        String reg_no,phone_no;
```

```
        Scanner sc=new Scanner(System.in);
```

```
        System.out.println("enter registration  
number:");
```

```
        reg_no=sc.nextLine();
```

```
        System.out.println("enter phone number:");
```

```
        phone_no=sc.nextLine();
```

```
        try
```

```
        {
```

```
            if(reg_no.length()<9 || reg_no.length()>9)
```

```
                System.out.println("invalid");
```

```
        else

            System.out.println("valid");
    }

    catch(IllegalArgumentException e)

    {

        System.out.println(e);
    }

    try

    {

        if(reg_no.length()<10 ||
reg_no.length()>10)

            System.out.println("invalid");

        else

            System.out.println("valid");
    }

    catch(NoSuchElementException e)

    {

        System.out.println(e);
```

```

    }

    finally

    {

        System.out.println("execution
completed");

    }

}

```

The screenshot shows a Notepad++ window with the following Java code:

```

14      if(reg_no.length()<9 || reg_no.length()>9)
15      System.out.println("invalid");
16      else
17      System.out.println("valid");
18  }
19  catch(IllegalArgumentException e)
20  {
21      System.out.println(e);
22  }
23  try
24  {
25      if(reg_no.length()<10
26      System.out.println("i
27      else
28      System.out.println("v
29  }
30  catch(NoSuchElementException
31  {
32      System.out.println(e)
33  }
34  finally
35  {
36      System.out.println("execution completed");
37  }
38  }
39  }

```

Overlaid on the code is a Windows command prompt window titled "C:\Windows\system32\cmd.exe". It shows the execution of the program:

```

C:\Users\Admin\Downloads\java>java Number
enter registration number:
123
enter phone number:
234
invalid
invalid
execution completed
C:\Users\Admin\Downloads\java>

```

The status bar at the bottom of the Notepad++ window indicates "length: 809 lines: 39", "Ln:17 Col:13 Sel:0|0", "Windows (CR LF)", "UTF-8", and "INS". The system tray shows the date and time as "06-09-2020 14:43".

Lab Assessment-8

Q)

```
public class PrintEvenOddTester {  
  
    public static void main(String... args) {  
        Printer print = new Printer();  
        Thread t1 = new Thread(new TaskEvenOdd(print,  
10, false));  
        Thread t2 = new Thread(new TaskEvenOdd(print,  
10, true));  
        t1.start();  
        t2.start();  
    }  
  
}
```



```
class TaskEvenOdd implements Runnable {
```

```
private int max;  
  
private Printer print;  
  
private boolean isEvenNumber;
```

```
TaskEvenOdd(Printer print, int max, boolean  
isEvenNumber) {  
  
    this.print = print;  
  
    this.max = max;  
  
    this.isEvenNumber = isEvenNumber;  
  
}
```

```
@Override
```

```
public void run() {  
  
    //System.out.println("Run method");  
  
    int number = isEvenNumber == true ? 2 : 1;  
  
    while (number <= max) {
```

```
        if (isEvenNumber) {  
            //System.out.println("Even :"+  
Thread.currentThread().getName());  
            print.printEven(number);  
            //number+=2;  
        } else {  
            //System.out.println("Odd :"+  
Thread.currentThread().getName());  
            print.printOdd(number);  
            // number+=2;  
        }  
        number += 2;  
    }  
  
}  
  
}
```

```
class Printer {  
  
    boolean isOdd = false;  
  
    synchronized void printEven(int number) {  
  
        while (isOdd == false) {  
            try {  
                wait();  
            } catch (InterruptedException e) {  
                e.printStackTrace();  
            }  
        }  
  
        System.out.println("Even:" + number);  
        isOdd = false;  
        notifyAll();  
    }  
}
```

```
synchronized void printOdd(int number) {  
    while (isOdd == true) {  
        try {  
            wait();  
        } catch (InterruptedException e) {  
            e.printStackTrace();  
        }  
    }  
    System.out.println("Odd:" + number);  
    isOdd = true;  
    notifyAll();  
}  
}
```


The screenshot shows a Notepad++ window with the file `C:\Users\Admin\Downloads\java\PrintEvenOddTester.java` open. The code is as follows:

```
54 while (isOdd == false) {  
55     try {  
56         wait();  
57     } catch (InterruptedException e) {  
58         e.printStackTrace();  
59     }  
60 }  
61 System.out.println("Even:" + number);  
62 isOdd = false;  
63  
64 }  
65  
66 }  
67  
68 }  
69  
70 }  
71  
72 }  
73  
74 }  
75  
76 }  
77  
78 }  
79 }
```

Overlaid on the code is a Windows command prompt window with the following output:

```
C:\Windows\system32\cmd.exe  
Microsoft Windows [Version 6.1.7601]  
Copyright (c) 2009 Microsoft Corporation. All rights reserved.  
  
C:\Users\Admin>cd Downloads  
C:\Users\Admin\Downloads>cd java  
C:\Users\Admin\Downloads\java>javac PrintEvenOddTester.java  
C:\Users\Admin\Downloads\java>java PrintEvenOddTester  
Odd:1  
Even:2  
Odd:3  
Even:4  
Odd:5  
Even:6  
Odd:7  
Even:8  
Odd:9  
Even:10  
C:\Users\Admin\Downloads\java>
```

Q)

class ThreadExample extends Thread

{

ThreadExample(String s)

{

super(s);

start();

}

public void run()

{

```
    for(int i=0;i<5;i++)
    {

System.out.println(Thread.currentThread().getName())
;

        try
        {

if(Thread.currentThread().getName()=="Hello")
        {

            Thread.sleep(2000);

        }

        else
        {

            Thread.sleep(4000);

        }

    }

    catch(Exception e){}

}
```

```
    }  
}  
class MainMsg  
{  
    public static void main(String arg[])  
    {  
        System.out.println("Thread name :  
"+Thread.currentThread().getName());  
        ThreadExample e1=new ThreadExample("Hello");  
        ThreadExample e2=new  
ThreadExample("Welcome to VIT");  
    }  
}
```

The screenshot shows an IDE with a Java file named `MainMsg.java`. The code is as follows:

```

10  for (int i=0;i<5;i++)
11  {
12      System.out.println(Thread.currentThread().getName());
13      try
14      {
15          if(Thread.currentThread().getName()=="Hello")
16          {
17              Thread.sleep(2000);
18          }
19      }
20  }
21
22  class MainMsg
23  {
24      public static void main(String[] args)
25      {
26          ThreadExample e2=new ThreadExample("Welcome to VIT");
27          e2.start();
28      }
29  }

```

A command prompt window titled `C:\Windows\system32\cmd.exe` is overlaid on the code, showing the output of running `java MainMsg`:

```

C:\Users\Admin\Downloads\java>java MainMsg
Thread name : main
Hello
Welcome to VIT
Hello
Welcome to VIT
Hello
Welcome to VIT
Hello
Welcome to VIT
Hello
Welcome to VIT
Hello
Welcome to VIT
Hello
Welcome to VIT
Hello
Welcome to VIT

```

The IDE's status bar at the bottom indicates the file is `Java source file`, with a length of 875, 36 lines, and the cursor is at line 34, column 59, selection 0 to 10.