Assignment-1

Q. 1. What two ways can you use to create a thread? Explain each in a couple of sentences.

A.1. 1. By implementing the Runnable interface.

2. By extending the Thread.

1. By implementing the Runnable interface : A class is implemented by Runnable interface, and we implement a single method called run() . Any instance of this kind are intended to be executed by thread. To create a thread we pass an instance of the class implemented earlier in Thread constructor. When the thread is started it calls run() method the class created earlier.

2. By extending the Thread : A class is extended by Thread Class and we override a method called run() and then create an instance of this class. The run method is executed by the thread after we call start.

Q.2. Whichever way you choose to create a thread, what is the name of the method that must be part of your thread's implementation?

A.2. public void run() is the name of the method that must be the part of the implementation.

Q.3. Implement a class that checks whether a given number is a prime using both the Thread class and Runnable interface.

A.3. Program Using Runnable

```
 import java.util.*;
class PrimeNumberCheck implements Runnable
{
    int number;
    boolean flag = false ;
    PrimeNumberCheck(int no)
    {
        number = no ;
    }
    public void run()
    {
        for(int i = 2 ;i<number/2; i++)
        {
            if(number%i==0)
            {  flag = true ;
                break;
            }
        }
        if(flag)
```

```
        System.out.println("Number Is Not Prime");
        else
        System.out.println("Number Is Prime");
    }
}

class PrimeCheck {
        public static void main(String args[]) {
            System.out.println("Enter A Number : ");
            Scanner in = new Scanner(System.in);
            int no = in.nextInt();
            PrimeNumberCheck pmc = new PrimeNumberCheck(no);
            Thread t1 = new Thread(pmc);
            t1.start();
            in.close();
    }
}
```

Program Using Thread Class

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

```
class PrimeNumberCheck extends Thread
{    int number;
    boolean flag = false ;
    PrimeNumberCheck(int no)
    {
        number = no ;
    }
    public void run()
    {
        for(int i = 2 ;i<number/2; i++)
        {
            if(number%i==0)
            {  flag = true ;
                break;
            }
        }

        if(flag)
        System.out.println("Number Is Not Prime");
```

```
        else
        System.out.println("Number Is Prime");
    }
}

class PrimeCheck {
        public static void main(String args[]) {
            System.out.println("Enter A Number : ");
            Scanner in = new Scanner(System.in);
            int no = in.nextInt();
            PrimeNumberCheck pmc = new PrimeNumberCheck(no);
            pmc.start();
            in.close();
    }
}
```

Q.4. What would be the result of the program if the main method called

r1.run();

r2.run();

instead of starting threads?

A.4. By directly calling run method, here r1 and r2 will be treated as normal objects not as thread objects.