EX.NO: 08

DATE: 16-09-19

MULTI THREADED APPLICATION

AIM:

To develop a java program for implementing multithread application.

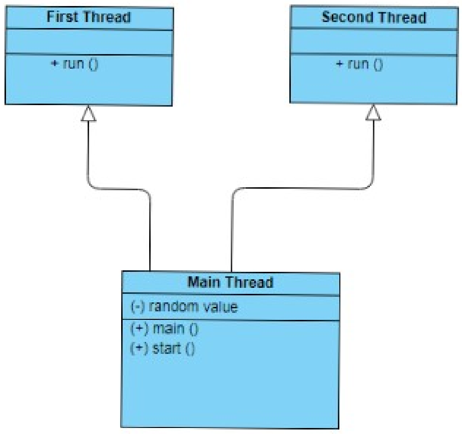
REQUIREMENTS:

Develop a java program that implements a multithread application that has 3 threads.First generates a random integer for every 1 second and if the value is even,second thread computes the square of the number and prints.If the value is odd,the third thread will print the value of cube of the number.

ALGORITHM:

STEP 1: Declare a package called multithread.
STEP 2: Declare a class name of FirstThread,SecondThread which extends from Thread.
STEP 3: Declare a object in the respective classes.
STEP 4: Create a condition to check the statements.
STEP 5: Print the result.

CLASS DIAGRAM:



PROGRAM:

```
/**
*created by:
*aharish.m
*/
```

FIRSTTHREAD

```
package multithreading;

import multithreading.MainThread;

public class FirstThread extends Thread {

    public void run()
    {

        try
        {
            System.out.println("First thread started...");
            while(true)
            {
                synchronized(MainThread.RandomValue)
                {
                    if((MainThread.RandomValue
%2)==0&&MainThread.RandomValue!=-1)
                    {
                        System.out.println("Value is even");
                        System.out.println("Answer="+
(MainThread.RandomValue*MainThread.RandomValue));
                        MainThread.RandomValue=-1;
                    }
                }

                Thread.sleep(2000);
            }
        }catch(InterruptedException ex)
        {
            System.out.println("Error:"+ex);
        }

    }
}
```

MAINTHREAD

```
package multithreading;

import java.util.*;

public class MainThread {
    public static Integer RandomValue;

    public static void main(String[] args) {
        FirstThread t1;
        SecondThread t2;
        Random r;

            t1=new FirstThread();
            t2=new SecondThread();

            r=new Random();
            RandomValue=-1;

            t1.start();
            t2.start();

            try
            {
            while(true)
            {
                synchronized(RandomValue)
                {
                    if(RandomValue==-1)
                    {
                        RandomValue=r.nextInt(200);
                        System.out.println("Placed a new number
"+RandomValue);
                    }
                }
                Thread.sleep(1000);
            }
            }catch(InterruptedException ex)
            {
                System.out.println("Error:"+ex);
            }

    }

}
```

SECOND THREAD

```
package multithreading;

import multithreading.MainThread;
```

```
public class SecondThread extends Thread {

        public void run()
        {
                try
                {
                        System.out.println("Second thread started...");
                        while(true)
                        {
                                synchronized(MainThread.RandomValue)
                                {
                                        if((MainThread.RandomValue%2)!
=0&&MainThread.RandomValue!=-1)
                                        {
                                                System.out.println("Value is odd");
                                                System.out.println("Answer="+
(MainThread.RandomValue*MainThread.RandomValue*MainThread.RandomValue)
);
                                                MainThread.RandomValue=-1;
                                        }
                                }

                                Thread.sleep(2000);
                        }
                }catch(InterruptedException ex)
                {
                        System.out.println("Error:"+ex);
                }
        }
}
```

OUTPUT:

```
Second thread started...
Placed a new number 22
First thread started...
Value is even
Answer=484
Placed a new number 70
Value is even
Answer=4900
Placed a new number 17
Value is odd
Answer=4913
Placed a new number 85
```

```
Value is odd
Answer=614125
Placed a new number 46
Value is even
Answer=2116
Placed a new number 156
Value is even
Answer=24336
Placed a new number 166
Value is even
Answer=27556
Placed a new number 187
Value is odd
Answer=6539203
Placed a new number 64
Value is even
Answer=4096
```

RESULT:

Thus a java application that performs multithreading is developed.