EX: 08	MULTI THREADED APPLICATION
12-09-19	

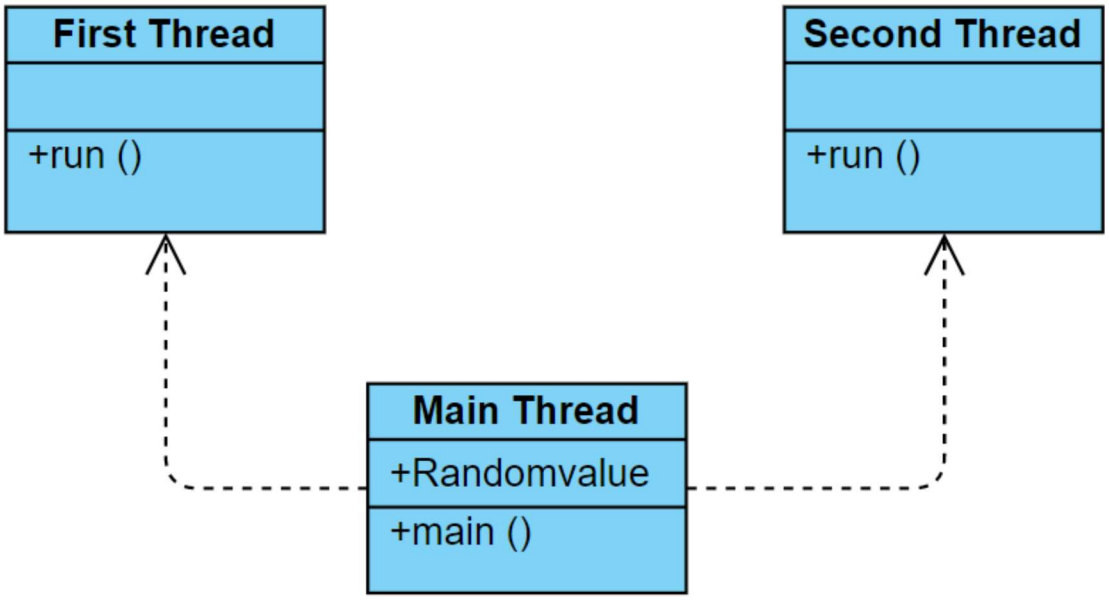
Aim:

To develop a java application that implements a multi threaded application that has three threads. First thread generates a random integer every one 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 as multithread.
Step 2: Declare the class as super class and subclass.
Step 3: Declare a constructor and add the data members.
Step 4: Inherit the class from the superclass and add the data members.
Step 5: Calculate the required multithread application.
Step 6: Display the result.

Class Diagram:



Program:

…….FirstThread……

```
package multithread;
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(1000);
}
}catch(InterruptedException ex)
{
System.out.println("Error:"+ex);
}}}
```

……..MainThread…….

```
package multithread;
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);
}
}
}
```

……SecondThread……

```
package multithread;
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);

}

}}
```

Output:

```
First thread started...
Second thread started...
Value is odd
Answer=857375
Placed a new number 95
Placed a new number 71
Value is odd
Answer=357911
Placed a new number 100
Value is even
Answer=10000
Placed a new number 191
Value is odd
Answer=6967871
Placed a new number 136
Value is even
Answer=18496
Placed a new number 29
```

Result:

Thus a java console application that implements a multi threaded application is verified.