Problem:

Write a java program that implements a multi-threaded application that has three threads. First thread generates a random integer 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.

Aim:

To write a java program that implements a multi-threaded application that has three threads. First thread generates a random integer 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:Start.
Step 2:Create three classes. Two classes (even, odd) implements Runnable and one thread extends
        Thread Class.
Step 3: First thread generates a random integer every 1 second.
Step 4: The integer value is even, the second thread computes the square of the number and prints.
Step 5: If the value is odd, the third thread will print the value of cube of the number.
Step 6: Stop

Program:

```
import java.util.*;
class even implements Runnable
{
        public int x;
        public even(int x)
        {
                this.x = x;
        }
        public void run()
        {
            System.out.println(" Thread- 2 : "+ x +" is EVEN and Square of " + x + " is: " + x * x);
        }
}
class odd implements Runnable
{
        public int x;
        public odd(int x)
        {
                this.x = x;
        }
```

```java
        public void run()
        {
            System.out.println("Thread - 3 : "+ x +" is ODD and Cube of " + x + " is: " + x * x * x);
        }
}
class A extends Thread
{
        public void run()
        {
                int num = 0;
                Random r = new Random();
                try
                {
                        for (int i = 0; i < 5; i++)
                        {
                                num = r.nextInt(100);
                                System.out.println(" Thread-1 : Generated Number is " + num);
                                if (num % 2 == 0)
                                {
                                        Thread t1 = new Thread(new even(num));
                                        t1.start();
                                }
                                else
                                {
                                        Thread t2 = new Thread(new odd(num));
                                        t2.start();
                                }
                                //Thread.sleep(1000);
                                System.out.println(" ");
                        }
                }
                catch (Exception ex)
                {
                        System.out.println(ex.getMessage());
                }
        }
}
public class ThreeThreads
{
        public static void main(String[] args)
        {
                A a = new A();
                a.start();
        }
}
```

Viva Questions:

1. How will you Import the java packages?
2. How to Create a thread?
3. How the thread generates a random integer?
4. How the thread computes the square of the number?
5. How the thread will print the value of cube of the number?

Result:
      Thus the java program that implements a multi-threaded application that has three threads was written and the output was verified successfully.