



Question 7

Program to demonstrate multithreading using runnable interface. Define three different threads one to calculate square of first n integers, another to calculate cube of first n integers and third thread to find the square root of the first n integers.

```
import java.util.Scanner;

class Square implements Runnable {
    int n, i;

    Square(int no) {
        n = no;
    }

    public void run() {
        for (i = 1; i <= n; i++) {
            System.out.println("Square of " + i + " is " + i * i);
        }
    }
}

class Cube implements Runnable {
    int n, j;

    Cube(int no) {
        n = no;
    }

    public void run() {
        for (j = 1; j <= n; j++) {
            System.out.println("Cube of " + j + " is " + j * j * j);
        }
    }
}

class SquareRoot implements Runnable {
```

```

    int n, k;

    SquareRoot(int no) {
        n = no;
    }

    public void run() {
        for (k = 1; k <= n; k++) {
            System.out.println("SquareRoot of " + k + " is " + Math.sqrt(k));
        }
    }
}

public class RootThread {
    public static void main(String args[]) {
        try {
            Scanner b = new Scanner(System.in);
            System.out.print("Enter any number: ");
            int n = b.nextInt();

            Square s = new Square(n);
            Cube c = new Cube(n);
            SquareRoot q = new SquareRoot(n);

            Thread t1 = new Thread(s);
            Thread t2 = new Thread(c);
            Thread t3 = new Thread(q);

            System.out.println("Start Thread t1");
            t1.start();
            System.out.println("Start Thread t2");
            t2.start();
            System.out.println("Start Thread t3");
            t3.start();

            b.close();
        } catch (Exception e) {}
    }
}

```

Output:

```
Enter any number: 5
Start Thread t1
Start Thread t2
Start Thread t3
Cube of 1 is 1
SquareRoot of 1 is 1.0
Square of 1 is 1
Square of 2 is 4
Square of 3 is 9
SquareRoot of 2 is 1.4142135623730951
Cube of 2 is 8
Cube of 3 is 27
SquareRoot of 3 is 1.7320508075688772
Square of 4 is 16
SquareRoot of 4 is 2.0
Cube of 4 is 64
SquareRoot of 5 is 2.23606797749979
Square of 5 is 25
Cube of 5 is 125
```