

## **UE20CS352 – OOAD with Java**

### **Lab Assignment – 8**

#### **Multi-Threading in Java**

##### **Problem Description:**

Write a Java program that simulates a race between multiple runners. Each runner should be represented as a separate thread, and the program should output the current distance each runner has covered after each second. The distance each runner covers in each second should be determined randomly. The program should stop once one of the runners reaches a distance of 1000 meters. The program should then print the top 3 runners of the race.

##### **Requirements:**

1. The program should read input as to how many runners are running the race.
2. The program should create a separate thread for each runner (optionally add names for each thread to represent the runner).
3. Each thread should print the total distance run so far by the runner after each second. The distance each runner covers in each second should be determined randomly (approx. between 5 – 10 m).
4. The program should stop once one of the runners reaches a distance of 1000 meters. The program should then print the top 3 runners of the race.
5. Execute the code at least 3 times with different number of runners.

##### **Submission Document:**

The submission should contain a write up about Multithreading in Java (min 1 page to max 2 pages), the problem statement, the code and screenshot of execution output (execute the code at least 3 times with different number of runners).