THE UNIVERSITY OF HONG KONG

FACULTY OF ENGINEERING
DEPARTMENT OF COMPUTER SCIENCE

COMP2396B: Object-Oriented Programming and Java

Mock Examination

Date: May 7, 2021   **Time: 9:30am-9:45am**

Only approved calculators as announced by the Examinations Secretary can be used in this examination. It is the candidates' responsibility to ensure that their calculator operates satisfactorily, and candidates must record the name and type of the calculator on the front page of the examination script.

Instructions:
- This paper contains 1 question.
- Complete ALL tasks.
- Candidates are permitted to refer to any electronic/printed/handwritten materials in the examination. Internet searching and crowdsourcing from group messages, online forums or social media, etc. are strictly forbidden.
- For Task 1, you should provide typeset program and upload the .java file. For Task 2, you should provide typeset or handwritten answer and upload the answer file in word or pdf format.
- Write your University No. on the first page of the answer script.
- Total Mark is 10.

Question. (10 points)

This question consists of 2 tasks.

Tim Tim has written the following program to test the concept of threads.

```java
public class ThreadOrder {
    int count = 0;

    public static void main(String[] arg) {
        Counter ct;
        Tracker trk1 = new Tracker(ct, "thread one");
        Tracker trk2 = new Tracker(ct, "thread two");
        trk1.start();
        System.out.println(count);
        trk2.start();
        System.out.println(ct.nextCounter());
    }
}

class Tracker extends Thread {
    Counter ct;
    String message;

    public void Tracker(Counter ct, String msg) {
        this.ct = ct;
        message = msg;
    }

    public void run() {
        System.out.println(message);
    }
}

class Counter {
    private int count = 0;

    public int nextCounter() {
        synchronized (this) {
            count++;
            return count;
        }
    }
}
```

Unfortunately, the program contains some syntax errors.

Task 1 [5 points]
Please fix all syntax errors to make the program compliable and executable.

Task 2 [5 points]
What is the output of the program?

* * * END OF PAPER * * *

* * * Good luck to your exam preparation! * * *