Online Exam

IT2030 – Object Oriented Programming   **Semester 1, 2022**

Instructions on submitting the assignment:

1. Copy all the java classes into a single notepad file and rename it with your student id.
2. Upload to the course web for the relevant center link visible during the time frame.

** Students are strictly advised to following the submission guidelines. Any student answer which is not following the correct instructions when submitting, will not be assessed.

**Please note that "Gradescope" will be used to check the plagiarism and the plagiarism benchmark will be 40%. (If the similarity report shows the code similarity percentage as 40% or above it will consider as copied.)

1. Create a class called AlarmClock. The class should keep the following information in fields:
    - Hour, Minute, Second

    a) Your class should have a constructor that initializes the three instance variables to 12 hours, 0 minutes, 0 seconds.
    b) Implement a method called InputAlarm() which will input the three numbers from the keyboard and store it the properties.
        a. Use a Try Catch statement to prevent non numerical values from being entered.
        b. Throw and catch a user defined exception for the following errors
            i. Hour (should be between 0 to 12)
            ii. Minute, Second should be between (0 to 59)

2. Add the following methods.
    a) ShowAlarm() which should display the Alarm that has been set.
    b) SetAlarm() – To assign Hour, Minute, Second to the properties. The above validations for Hour, Minute, Second should be checked using if statements. If incorrect the value zero should be stored for the parameter.

3. Create the MainApp class which contains the main() method. Perform the following within the main() method.

    a) Create 2 instances of the AlarmClock class.
    b) Use the InputAlarm() method to assign one of the Alarms, set the second Alarm using the SetAlarm() method.
    c) Use an ArrayList and store both AlarmClock objects in the ArrayList
    d) Iterate through the ArrayList and display the two Alarms that were set.