EECS2030Z: LAB 2 Due: Jan 20th, 2025- 11:59 pm Max. Marks: 100

The purpose of this lab is to ensure that you

A) practice testing codes using JUnit 4.

B) are being comfortable generating automated test framework using eclipse (or any other editor that you prefer)

1. Setup

Please download Lab2.java that is attached to this description.

- Open eclipse.
- Click on *File* and select *Import*.
- Select *General*
- Choose *Existing Projects in Workspace* and click *Next*.
- Click on *Select Archive File* and then *Browse*. Find lab2.zip and click *Finish*.

You should see two files, one is called Lab2.java and one Lab2Tester.java.

2. JavaDoc generation

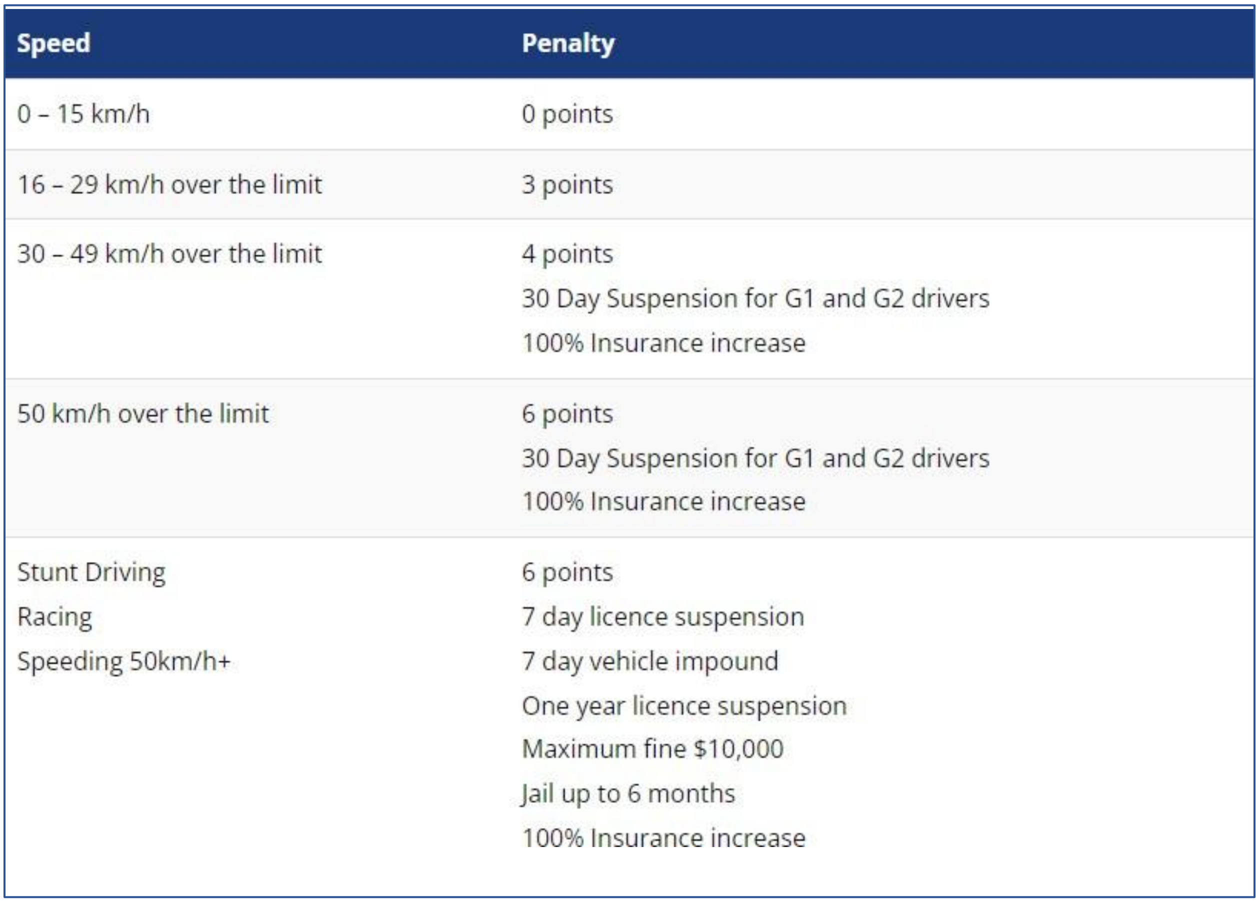
The javaDoc has been written for you in Lab2.java file. All you need to do is to generate it as an HTML file to make it easier for navigation. For this select lab2 package -> click Project from main menu -> select lab2 package-> select lab2.java. It will ask you for the destination in which you want to store the documentation. Enter the path, click next, select the basic options and then click on Finish.

If you look at the location in which you stored the documentation, you'll see there is a file called index.html. Clicking on this file shows the documentation of the project in your browser.

3. Testing Task

For this task, we are asking you to implement a comprehensive set of test cases for the given method in the enclosed example.

The given code is a working code that solves the problem of calculating points that are given to the drivers who violate the maximum speed limit. The points are given according to the table below. Please note that the given code calculates the points only and does nothing about other penalties.



Speed	Penalty
0 – 15 km/h	0 points
16 – 29 km/h over the limit	3 points
30 – 49 km/h over the limit	4 points 30 Day Suspension for G1 and G2 drivers 100% Insurance increase
50 km/h over the limit	6 points 30 Day Suspension for G1 and G2 drivers 100% Insurance increase
Stunt Driving Racing Speeding 50km/h+	6 points 7 day licence suspension 7 day vehicle impound One year licence suspension Maximum fine $10,000 Jail up to 6 months 100% Insurance increase

Figure 1: *the picture is taken from https://www.ontariotraffictickets.com/speeding-tickets/speeding-tickets-demerit-points/.*

Your task is to write a set of JUnit test cases that comprehensively test the given code. A comprehensive set of test cases is one that not only checks if the expected output is the same as the actual output, as described in the specification above but also traverses all paths in the code. If there is a conditional statement, both the true and false conditions should be tested. For multiple conditions, all possible combinations of the conditions being true or false should be tested. This means if the condition is "A AND B," four different test cases should be written, unless it is not possible. The four conditions are:

- A=True, B=True
- A=True, B=False
- A=False, B=True
- A=False, B=False.

4. Submit

You only need to submit one file containing your test cases. I strongly recommend attending the lab, as it allows you to become familiar with how our trained TAs will grade your work. During the lab, the TA will grade your submission and provide feedback to improve your code.

Please note that there is no implication that this code is correct. Therefore, if there is any fault in the code, your test cases should be able to identify it.

5. Marking Schema

Labs are not graded. If you'd like to understand how your program performed or need clarification on any concepts, it's essential to attend the lab sessions, where the TAs will assist you with any lab-related questions.

For your reference, if the labs were graded, we would have used the following marking scheme:

You are graded based on how complete your test cases are. If there is any compilation error in your code, you will not receive any grade. Also, please note that there is no guarantee that the code is fault free. If you find any fault in the code, i.e. the test case does not pass, you should include the case in your solution and explain why you think it is a fault.