Sample Test 1

Due Aug 6 by 23:59 **Points** None **Available** Jul 25 at 0:00 - Aug 6 at 23:59

INTE2512 Object-Oriented Programming

Test 1 (20%)

Length: 2 hours

Type: Individual assessment

Feedback mode: on Canvas within 14 working days from the assessment date

Late work: N/A

Learning Objectives Assessed

1. Understand and able to apply the key features of an OO programming language to solve problems
2. Analyze and design an OO solution for a given problem
3. Implement a program from the design using an IDE
4. Test and debug a program using an IDE

Ready for Life and Work

1. Understand and able to apply the key features of Java to solve problems
2. Analyze and design an OO solution for a given problem using draw.io
3. Implement a program from the design using IntelliJ
4. Test and debug a program using IntelliJ

Assessment Details

Question 1

Design an OO solution for the following problem and present it in an UML class diagram.

The Department of Motor Vehicles (DMV) of a fictitious country wants to build a vehicle registration system to manage the vehicles in that country.

A vehicle has a unique vehicle identification number (VIN), maker, model, year, color, engine size, fuel type, and license plate. For example: 4Y1SL65848Z411439, Toyota, Camry, 2008, black, 2.4-liter,

gasoline, 4BEX972. There are three types of vehicles: motorcycle, car, and truck. A motorcycle has either two or three wheels. A car has a seat capacity such as 5 or 7, while a truck has a load that it can carry such as 20 tons or 30 tons.

A vehicle is either owned by a person or an organization and is registered at the DMV with a registration date such as 31/08/2008. A person has a name, phone, email, and address. An organization also has name, phone, email, address and is presented by a person as its legal representative.

A vehicle can be sold or given to a different owner. When that happens, the current owner of the vehicle fills the form on the back of the current ownership paper and signed it. The new owner can then take this ownership paper to the DMV to request a change of the ownership for the vehicle. The new owner and a new registration date will be added to the vehicle record by the DMV. After that, the DMV issues a new ownership paper to the new owner.

The system has the following functionalities:

- Register vehicle
- Search vehicles
- Display vehicle info (display all vehicle info including all the owners and the corresponding registration dates)
- Change ownership

Question 2

Use IntelliJ to write a Java program that prompts the user to enter a line of alphabetic characters and insert an ampersand (&) between an upper-case letter and a lower-case letter.

Here is an example:

- Input: AbQueaZ
- Output: A&b&Q&uea&Z

Your program **must not terminate abnormally** in any situations. If there are something invalid in the input, the program should nicely print an error message and let the user to re-enter again. To receive a good mark, your program not only runs correctly but also follows all the programming best practices that we have learned in the course.

Header

Please include the following header at the top of each source code file (.java).

```
/*

  RMIT University Vietnam
  Course: INTE2512 Object-Oriented Programming
  Semester: 2021B
```

Assessment: Test 1
Author: Your name (e.g. Nguyen Van Minh)
ID: Your student id (e.g. 1234567)
Created date: dd/mm/yyyy (e.g. 31/03/2019)
Acknowledgement: Acknowledge the resources that you use here.
*/

Question 1: In draw.io, select **File > Export as > PDF** to export your class diagram to a pdf file.

Question 2: In IntelliJ, select **File > Export to Zip File** to export your Intellij project to a zip file.

Support Resources

This assessment requires that you meet RMIT's expectations for academic integrity. More information and advice on how to avoid plagiarism are available in the Getting Started module.

- Open the **Academic Integrity (https://www.rmit.edu.au/students/student-essentials/assessment-and-results/academic-integrity)** page

Additional library and learning resources are available to help with the assessment in this course.

- Link to **Assignment Support**

Plagiarism

Plagiarism is a form of cheating. It is the presentation of the work, idea or creation of another person as though it is your own.

This is an individual assessment thus everything must be your own work. Do not help or collaborate with others on the assessment. If you use any resources, write an acknowledgment in the file where the resources were used. Any submission found in whole or in part plagiarized will be considered as plagiarism. Please ask your Lecturer if you are in doubt.

The penalty you for plagiarism is extremely severe at RMIT. If you are found to plagiarize, you will receive a mark of zero for an assessment or even an entire course. Repeated plagiarism will lead to exclusion from RMIT.

For more information, visit RMIT's website for **Academic integrity information and policy (https://www.rmit.edu.au/students/student-essentials/assessment-and-exams/academic-integrity)**.

Submission Instructions

- Before the due time, you must submit a pdf file and a zip file to Canvas.

- You can make multiple submissions, but only the last one is graded.

OOP 2022A Test Rubric		
Criteria	**Ratings**	**Pts**
Design Well-designed class diagram		40 pts
Style - Nice code format (indent size of 4 spaces, consistent layout of { and }, blank line between two code sections, etc) - Have the required header at the top of the source code file - Descriptive comment for each code section - Descriptive names that follow the Java naming convention in the course		10 pts
Correctness You will get maximum 50% for correctness if your program can't get compiled or run		40 pts
Efficiency - The required tasks were performed efficiently - The program was designed properly into suitable methods and/or classes - You will get zero for efficiency if your program can't get compiled or run		10 pts
		Total Points: 100