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| MIT Award smal(bw) | Faculty of Business502.522 Object Oriented Programming |
| Assessment | **Project** |
| Due Date: | Thursday, 7 September 2017 |
| Assessment  Weighting: | **This project contributes 40% towards the course total.** |
| Student ID: |  |
| Student Name: |  |
| Student E-mail: |  |
| Statement of Original Authorship I hereby confirm that this project is my own work. In addition, the project has not previously been submitted for assessment, either in whole or in part, by either myself or any other student at either Manukau Institute of Technology or at any other tertiary institution. To the best of my knowledge and belief, the project contains no material which has been previously published or written by another person **except where due reference has been made**. All unpublished sources of information have been acknowledged. I make this statement in full knowledge of an understanding that, should it be found false, I will, in most circumstances, receive zero marks for this project and may face disciplinary action.   |  |  | | --- | --- | | Signed by student: |  | | Date: |  | |  |  | | |

**This signed form must be submitted with your project.**

# Learning Outcomes

This project will test your understanding of the following learning outcomes:

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| LO2 | Apply an Object-Oriented programming language |
| LO3 | Code Object-Oriented software solutions for small systems involving multiple objects |
| LO4 | Correct, test and debug Object-Oriented programs |

# Case Study

“Quality Cars” is an Auckland based car rental company providing rental services of different types of cars to customers Auckland wide. To get rid of the most of paper work involved in the business, they are looking to set up automation software to manage the rental business. You are hired as a software developer for this company to develop "Quality Cars" Rental management system. The system should mainly consist of three components: Stock Maintenance, Rental Record Management, Employee and Customer management.

Stock Maintenance component must keep track of Cars. It maintains car information such as make, model, transmission (manual, automatic or tiptronic), engine size, warrant of fitness (WOF) due date, renewal of vehicle license (rego) due date, rent charge per day, year of manufacture, colour, status (available for rent, rented out or under maintenance), body type ( sedan, SUV, hatchback, van and station wagon), date it rents and date due back in.

The Rental Record management component manages information about rental records. A rental is a somewhat abstract object. A rental occurs when a customer approaches the company reception desk and selects car or cars to rent out. Over time a customer can have many rental records. A rental record can have many cars associated with it. (And a car can be on many rental records over a period of time)

The Employee and Customer management component manages the information of both persons: employees and customers. Basic information about all persons is person ID, name, date of birth, address, and telephone number. For employee, additional information is office address, phone extension number, login details (username and password) and role like admin or staff. For customers, additional information such as licence number, age and license expiry date is maintained.

# What you are required to do:

You have a choice to work in teams (maximum of 3 students) or individually for this project but you will only be assessed on your own contribution to the overall work. Provide windows Graphical User Interface (GUI) for the project.

There are three components to code, the Stock management, the Rental management and the Employee and Customer Management. You are only required to create one of these if you work in a team of three, but each member creates a separate and different component (there cannot be two of the same component). If you are working on your own (or in a team of two) identify which component you wish to be marked and fully code this. You will need to code some elements of the other components to ensure you can adequately test your component. Teams are expected to combine their work into a cohesive whole but you may not copy code from one of your teammates for your component, this is seen as misconduct. Your component should be your own development. It is acceptable to assist your team members if they are having problems but it should be a troubleshooting exercise on their code, not a copy from your own code.

**Stock Management Component should enable employee/staff to do following:**

* Add a new car information
* Display a list of cars available for rent
* Display car details make, model, colour and status
* Display car details model, body style, rent per day, registration number and status of a selected registration number
* Display car details make, model, colour, body style, rent per day of a selected year of manufacture
* Update the information of a selected car (Hint: search car by its registration number and update its details, you need to check what details of a car are changeable.)(**Need to check on updating status**).

**Rental Management Component should be able to**

* Rent Car/Cars to a customer.(**Doesn’t show confirm dialogue.**)
* Return Car/Cars rented by a customer(**Check Confirm message**)
* Display a list of cars rented out by a selected customer
* Display the list of all cars rented out between two selected dates

**Employee and Customer Management Component should be able to**

* Add details of a new employee
* Display the information of a person by id
* View and update information of a selected person
* View and update the information of a selected employee

When you have built this system you must test that your system meets the requirements. This will include testing that all of the above components work. Each team member should create test cases to test their component. This will be black box testing.

***Note: You are required to create Graphical User Interface (GUI) for above three components: Stock Management, Rental Management, Employee and Customer Management.***

# Submission

You are required to submit the Java project in zip format via Canvas by the due date. Moreover, you are also required to present your project. Please note that your submission will be marked only if you **present** your project. You must be able to explain your code and answer questions about it.

**Failure to present the project and/or submit the code means zero mark for this assessment.**

A presentation schedule will be provided and you are expected to present on time. Please contact your Lecturer if you intend to reschedule your presentation providing that you have a genuine excuse.

# Late submission

If you have not completed your project by the due date, I may allow you to hand it in up to 5-days late. In this case a penalty of 5% per day will be deducted from your mark.

# Marking Guide

You are required to submit the following items:

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| **Details of submission items** | **Possible Marks** | **Learning Outcomes** |
| Your component code that may include various classes such as Employee, Customer, Car, Rental to store and manage car information etc. and demonstrate following:   * + Correctly passing object references and persistence of objects (3 marks)   + Correctly demonstrating associations and aggregation (5 marks)   + Correctly demonstrating enum   (3 marks)   * + Correctly demonstrating inheritance   (5 marks)   * + Use of collections such as ArrayList, adding, removing and searching items   (5 marks)   * Correctly demonstrating constructor/method overloading   (2 marks)   * Correctly demonstrating polymorphism   (2 marks)   * + Creating a model which accurately reflects the business process   (5 marks)   * + Graphical user Interface (GUI) including various controls such as label, textfied, tabPane, JTable etc.   ( 5 marks) | **35** | 2,3 |
| Your Test cases | 5 | 4 |
| **Total Marks** | **40** |  |

# *Feedback to Student:*

Feedback will be uploaded on canvas along with your marks.