MANUKAU INSTITUTE OF TECHNOLOGY Te Whare Takiura o Manukau	**Faculty of Business** **502.518 Software Engineering 1B**
Assessment	**Assignment 2: Revised design**
Due Date:	21 October 5:00 pm
Where to Submit	Drop on emit drop box named "Assignment2 Dropbox"
Assessment Weighting:	**This assignment contributes 20% towards course 502.518 total.**
Student ID:	
Student Name:	

Statement of Original Authorship

- I hereby confirm that this assignment is my own work.
- I confirm that I have not shared this work with any other student
- In addition, the assignment 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 assignment 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- All unpublished sources of information have been acknowledged.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 assignment and may face disciplinary action.

Signed by student: _____

Date: _____

This signed form must be submitted with your assignment.

Learning Outcomes

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

LO1	Use recognised object-oriented modelling methodologies and techniques to model various business systems and processes.
LO2	Demonstrate object oriented programming concepts, both applied and theoretical
LO3	Code and fully test various business systems and processes using recognised Object Oriented Software

Case Study

"Quality Vehicle Cars" is an Auckland based car rental company providing rental services of different categories 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 Cars Rental management system. The system should mainly consist of three components: Stock Maintenance, Rental Record Management, and Employee and Customer management System.

Stock Maintenance component must keep track of Cars. It maintains car Information such as brand, model, year of manufacture, engine size, rent charge per day, WOF due date, registration due date, colour, car status (whether it is on the shop, rented out or under maintenance), date it rents and date due back in. A Car can fall only in one of the four categories of body styles: Sedan, SUV, Hatchback, and Station Wagon.

The Employee and customer management subsystem 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, information such as licence number, age and license expiry date is maintained.

The Rental Record management subsystem manages information about rental records. A rental is a somewhat abstract object. A rental occurs when a customer approaches the company reception desk and select 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)

What you are required to do:

You have been asked to design the Stock maintenance portion and customer management of the system. This includes the ability of the staff to manage the stock.

A Car object should be able to

- save and return information: brand, model, year of manufacture, engine size, rent charge per day, WOF due date, registration due date, colour, car status
- Identify whether its WOF is due this month
- Change its status to rented when it is rented by a customer
- Change its status to available when it is returned by a customer

A Customer object should be able to

- save and return his/her information: person ID, name, date of birth, address, and telephone number, licence number, age and license expiry date

An Employee Object should be able to

- Issue car/cars to a customer
- Return car/cars from a customer
- Add new car information
- Search any car by model name
- Search car/cars by price
- Get a list of all the cars rented by customers between given any two dates.
- Get a list of cars rented by a customer
- Get a list of available cars for rent
- Get a list of total cars (either rented or available)
- Get a list of 3 most rented cars
- Get a list of cars that have been rented but not returned yet
- Get a list of overdue cars

When you have built this system you must test that your system meets requirements. This will include testing that all of the above methods work.

Marking Criteria:

In the coding section, marks will be given for

- Car class code **(3 Marks)**
- Customer Class Code **(2 Marks)**
- Employee class code (**15 Marks**)
    - Correctly passing object references and persistence of objects (2 marks)
    - Correctly demonstrating associations and aggregation (5 marks)
    - Correctly demonstrating inheritance (2 marks)
    - Use of collections such as List<Type>, adding, removing and searching items (3 marks)
    - Creating a model which accurately reflects the business process (3 marks)

For full marks for testing, you must test every method, identify any issues and present this information in a logical format (such as a table). The code does not need to be working correctly but you should be able to identify any faults.

There is no requirement for any form of user interface. All testing can be conducted from the main method but please document your testing.

Deliverables

You are required to submit the following items:

Details of submission items – Submit as One Word Document	Possible Marks	Learning Outcomes
All of your C# code including your testing code.	20	1,2,3

Feedback to Student:

Feedback will be uploaded on emit along with your marks.