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| MIT Award smal(bw) | Business and Information Technology Manukau Campus564.683 Database Application Development |
| Assessment | **Project Part A** |
| Due Date: | 8 June 2018 |
| Assessment  Weighting: | **This project contributes 60% towards course 564.683 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 assessment 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 All unpublished sources of information have been acknowledged.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:

1. Explain the usage context of the contents and architecture of a mainstream platform and object library;
2. Select and use appropriate objects to design and complete both front end and back end programming tasks of a multi-user database;
3. Manage database transactions in code and data integrity issues that occur in multi-user environments;
4. Create, test and debug a small commercially oriented program that uses bound and unbound visual components to support a GUI application;

# Case Study: Car Dealer Management System

Michael, is the owner of a Car dealer business which imports and sells different types of cars, the business is located in East Auckland. Michael believes that his business is working insufficiently due to the use of manual methods for processing his import and sale records as well as tracking the different types of cars in his yard, he is afraid that he is losing his business because of this and is seeking your help with his business. Car yard staff are also complaining that some of the car sale records are missing or duplicated in the one Excel file they all share. There is no backup system anywhere and reception depends on this file to issue invoices. Michael also need to identify how much the sale for selected months from excel sheet which is time consuming.

As a software developer you are required to develop car dealer management system. This system mainly consists of four components: Stock Maintenance, Employees and Customer Management System and Sale Record Management

Stock Management component must keep track of cars. Car information is maintained about both car models and the individual cars. Car models maintain information about manufacturer, model, number of seats and engine size. Individual cars maintain car information such as colour, current mileage, date imported, year of manufacture, transmission (manual, automatic or tiptronic), engine size, status (sold, available for sale, under repair) and body type ( sedan, SUV, hatchback, van and station wagon) . A car may come with extra features: Air conditioning, audio systems, sunroof, allow wheels, alarm system and keyless door, same feature may be shared with more than one car.

The Employee and customer management component manages the information of both persons: employees and customers. Basic information about all persons is person ID, name, 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.

The Sale Record management component manages information about car sale records. A sale is a somewhat abstract object. A sale occurs when a customer approaches the company reception desk and select car or cars to buy. Over time a customer can have many sale records. A sale record can have many cars associated with it.

# 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.

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.

**Note: You are required to participate in login and logout module in addition to your selected component development.**

**The Database design (ERD) is supplied with this assignment, use the design to implement database tables in sql server.**

# WPF Application functionality

**Stock Management Component functionalities:**

* Add a new car information ( model, individual car and features)
* Display a list of cars available for sale
* Display car details make, body style, asking price, features and status of a selected car model
* Update car information of a selected model

(Hint: search car by model and update its details, you need to check what details of a car are changeable and it should allow staff to change car mode, individual car and features)

**Sale Management Component functionalities**

* Sell car/cars to a customer ( this involves adding details of a new customer if not existed)
* Display a list of cars sold to a selected customer
* Display the list of all cars sold out between two selected dates
* Display the list of cars sold out with asking price (sale price not less than asking price) between two selected date

**Employee and Customer Management Component functionalities**

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

**System Access:**

* Login: Staff and Administrator
* Logout: login form should display when logout button is clicked

Note: There are a number of functionalities that only admin can access.

**The functionalities restricted to Administrator:**

* Add a new car information ( model, individual car and features)
* Update car information of a selected model

(Hint: search car by model and update its details, you need to check what details of a car are changeable and it should allow staff to change car mode, individual car and features)

* Add details of a new employee
* Update the information of a selected employee

***Rest of the system functionalities are accessible by both staff and Administrator.***

When you have built this system you must test that your system meets requirements. This will include testing that all of the above components work. Each team member should create a test matrix for their component and test its functionality. This will be white box testing, looking at the functionality from the developers’ perspective.

***Note: You are required to use entity framework, stored procedure and SQL queries to fetch database records into custom entity objects. The solution must use OOP concepts (Class, Interface, Abstract Class etc.) and build on 3 –tier system architecture: Presentation Layer, Business Logic layer and Data Access Layer.***

# Submission

You are required to submit the C# WPF 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 me if you intent to reschedule your presentation providing that you have a genuine excuse.

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# 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 Scheme

**Each component carries equal marks and yours marks will be based on the component you worked on.**

**WPF Application (100 marks)**

1. **Component Functionalities ( Same marks for each component )**

**Stock Management Component (70 marks)**

* 1. Add a new car information ( model, individual car and features) (20 marks)
  2. Display a list of cars available for sale (15 marks)
  3. Display car details make, body style, asking price, features and status of a selected car model (15 marks)
  4. Update car information of a selected model (20 marks)

*(Hint: search car by model and update its details, you need to check what details of a car are changeable and it should allow staff to change car mode, individual car and features)*

**Sale Management Component (70 marks)**

1. Sell car/cars to a customer ( this involves adding details of a new customer if not existed) (20 marks)
2. Display a list of cars sold to a selected customer (10 marks)
3. Display the list of all cars sold out between two selected dates (15 marks)
4. Display the list of cars sold out with asking price (sale price not less than asking price) between two selected date (25 marks)

**Employee and Customer Management Component (70 marks)**

1. Add details of a new employee ( 20 marks)
2. Display the information (name, address, and telephone number) of a person by id ( 10 marks)
3. View and update the information of a selected customer /employee (15 marks)
4. Display the information of customers who bought more than three cars in a selected month (25 marks)

*(Hint: You need to apply inheritance using abstract class or interface concept)*

1. **WPF Responsive design (15 marks)**
2. **Input Validation applied on presentation layer (15 marks)**

# *Feedback to Student:*

Feedback will be uploaded on canvas along with your marks.