MONASH University

# FIT5042 Assignment Design Report

Application Name: Monash Car Sale
Student Name: Jie ZHANG
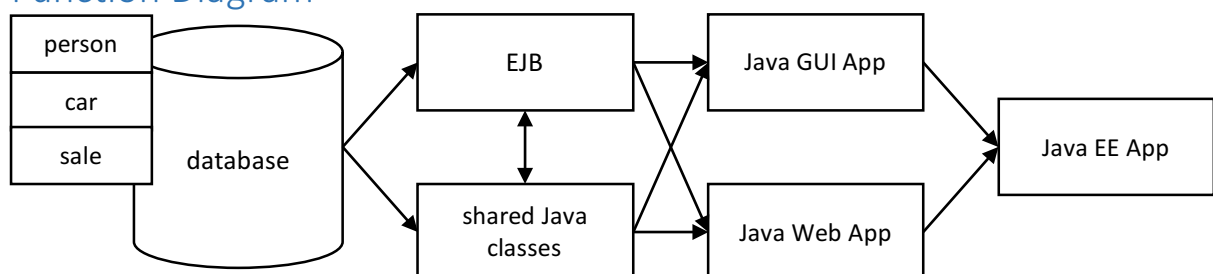Student ID: 25841866

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## Overview

My application is a Java EE based application contains a server with database and two clients. One client is Java GUI based and the other is a Java Web Application. This application is called "Monash Car Sale" (MCS), which is aimed to provide an online car sale system act differently to different kind of users. It provides basic functions to customers and advanced functions to salesmen, which also act as administrator. A Java EE based server provides the backbone business logics and connections with database, while the two clients provide user interfaces.

## Function Diagram



### Shared
Contains all the classes and interfaces that are shared by the other projects. In this case, it contains the EJB interface and the entity classes.

### EJB
Contains all the business core logic. In this case, all the search, add, edit and delete functions are implemented here.

### Java GUI App

Contains all the classes needed in the desktop application client, such as GUI and the main method.

### Java Web App

Contains all the classes (managed beans) and web pages needed in the web application client.

### Java EE App

Contains the EJB, the GUI App and the Web App. It is used to access the application.

### Database

It's an application managed database. All the tables and functions are managed by the application not manually.

## Core Program Functionality

My application provides an online car sale system act differently to different kind of users.

### Customer

A customer can search all the cars by Model No., Model Name, Model Make and Model Type. He/she can also buy a car. Besides, a customer can view the detail information of his/hers.

### Salesman

A Salesman act as an administrator here. He/she can do all the stuff a customer can do, except buying a car. After successfully logging in, a salesman can search, add, edit, delete cars, as well as users (customers and salesmen). A salesman can search users with a combined key of the User Id, User First Name, User Last Name and User Email.

## Usability Design Review

### Navigation

The navigation of the site is clear and easy to handle. All the links and menus are well placed and shows very clear the destination.

### Familiarity

This Web App and GUI App uses elements that all other applications use. Besides, all the menus and elements are put in the place what the users are used to be. Some common elements like arrows and bold letters can also increase the familiarity useability.

### Consistency

With the style sheet introduced, all the web pages share the same way to demonstrate content, making the user feel strong consistency during browsing this site.

## Error Prevention

In this application, all of the input fields are check with validators, which highly reduced the happening chance of errors caused by wrong user input. Also, all the links and menus are checked to be valid with right destination to avoid link errors.

## Feedback

According to feedback from alpha-test users, which is some friends of the author, the useability is quite good. The can easily access all the page they need to.

## Visual Clarity

In this application, all the elements in all pages are clear placed in proper place.  With the clean colours and some bold letters and lines, it is easy to read the content of the pages.

## Flexibility and Efficiency

Flexibility and efficiency can't both achieve the highest at the same time. However, this application has achieved a very good compromise between those two. Many of the components are flexible and reusable, but overall the efficiency of the application is quite high too.

## Check List of Site Functionality

| | TICK |
|---|:---:|
| **1. Pass Functionality** | |
| Search for Car by | X |
|    Make | X |
|    Model | X |
|    Model No | X |
|    Type | X |
| Results with tabular format with heading. | X |
| Option to view the full details | X |
| **Additional Pass Requirement** | |
| Learning Summary Report | X |
| **2. Credit Functionality** | |
| Login using a username and password | X |
| Sales people can: View | X |
|    Add | X |
|    Update | X |
|    Delete cars | X |
| **3. Low to Mid Distinction Functionality** | |
| Customers can buy car(s) | |
| Sales people search Customers by a **combination** of ID, last name, first name, type and email. | X |
| When adding a car to the system, the information of the car can be obtained via web service | |
| **4. Mid to Mid Distinction Requirements** | |
| This Design Document | X |
| **5. High Distinction Requirements** | |
| Research Report | |
| **6. Technical Requirements** | |
| **Pass** | |
| JSF web clients | X |
| GUI Swing application clients | X |
| Persistence API | X |
| Application managed entity manager or container managed entity manager. | X |
| **Credit** | |
| ONLY web client is required | X |
| Interaction between clients and database handled by EJBs | X |
| BOTH Criteria API and JPQL | X |
| **Distinction** | |
| Ability of mapping inheritance to database must be demonstrated. | |
| Bean validations used to validate data. | |
| Consumption of web services conducted in EJBs. | |
| Application secured using JAAS API. | X |
| **Audit** | |
| No breaking of copyright | X |

## Data Dictionary

```
person
-----------------
person_id int pk
person_fname string
person_lname string
person_address string
person_phone string
person_emai string
person_type string
person_password string
```

```
sale
-----------------
sale_id int pk
sale_date date
sale_salesperson_id  int fk
sale_customer_id int fk
```

```
sale_car
-----------------
sale_id int fk pk
model_id int fk pk
```

```
car
-----------------
model_id int pk
model_name string
model_make string
model_vin string
model_type string
model_description
model_thumbnail string
model_previewurl string
```

person 1—1 sale
sale 1—1
1
1 many sale_car 1—1 car