Faculty of
Computing, Engineering
and the Built Environment

UNDERGRADUATE PROGRAMME

ACADEMIC YEAR 2014-2015

COURSEWORK: TEAM PRJECT

Module:	*CMP2515 SOFTWARE DESIGN UG2*
SCHOOL:	**COMPUTING, TELECOMMUNICATION AND NETWORKS**
Module Co-ordinator:	**Professor Zhiming Liu**
SETUP DATE	**20/02/2015**
SUBMISSION DATE	**21/04/2015**
TEAM NUMBER	_____T21_____
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Team Members:

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SOFTWARE DESIGN PROJECT

BVIS CAR RENTAL SYSTEM

Abstract:

For this assignment a group has been created in order to complete the software design assignment. An analysis requirement for Bvis car Hire Company has been carried out in order to understand what is needed. The essential use cases for this task has been produced and expanded on to fit the requirement analysis for the company. The use case diagrams have been created to match the essential use cases. The system operations have also been identified in order to make the use case diagrams. A design document is used for the UML models and use cases for this report.

- Record details of all cars
- Cars have minor servicing at every 6,00 miles
- Cars have major servicing every 12,00 miles
- When a car is hired details of the car and customer is recorded by the system
- When a car is returned, the actual date and mileage is recorded
- When a car is returned the management requires that's details of the customer, the beginning and end dates, the amount of payments are recorded

Keywords: system, business process

Requirement Analysis:

The system has been task with these specific functions, from the project requirements these are the functions expected of the system based on the current paper based system.

SYSTEM FUNCTIONS:

Reference	System Requirement
R1	Register new Client
R2	Record Hired Car
R3	Record Returned Car
R4	Calculate Rent Cost Per Day
R5	Display Appropriate details
R6	Log Completed car
R7	Record service details and print out receipt
R8	Remove customer
R9	Add new customer
R10	Delete customer
R11	Add new mechanic
R12	Remove mechanic
R13	Check for service update
R14	Display hire information
R15	Display service history
R16	Make enquiry

Use Case Analysis:

Use case analysis is used to analyse a specific behaviour of a system or subsystem or objects within classes without revealing the internal structure of the subject [systems, subsystems, classes].

From the requirement analysis of the system, roles and their actions have been identified. From the systems user case scenarios actors have been used to represent the system roles and use cases as system actions.

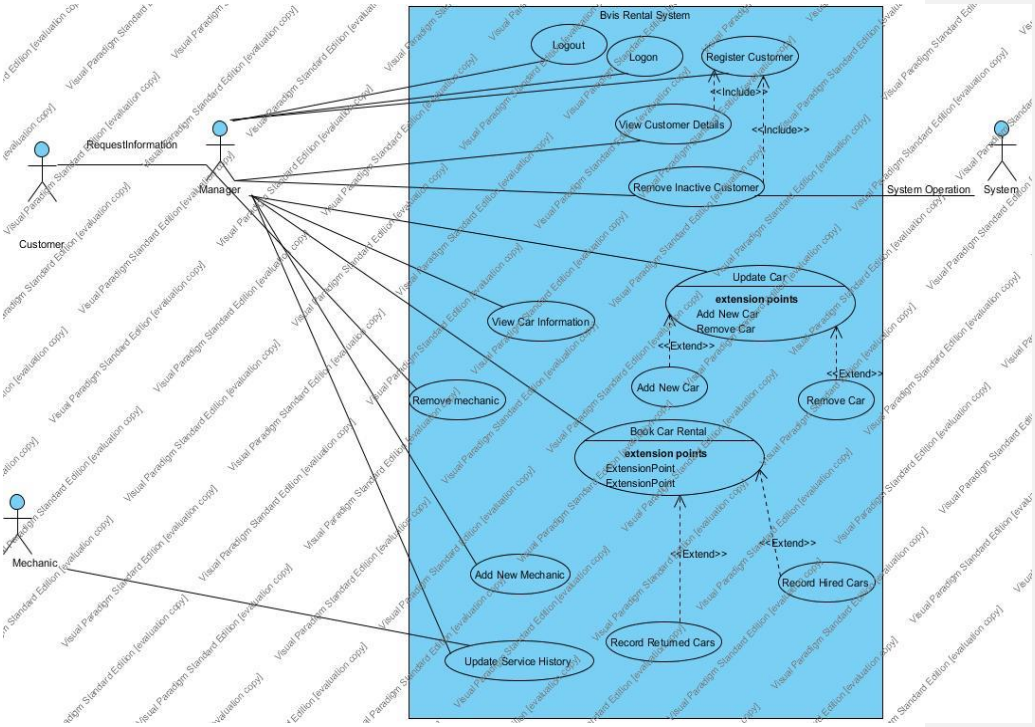


Image 1.1 case diagram

Textual use case descriptions:

Use Case	Receive Enquiry
Initiator	Customer
Actors	Manager(staff), Customer
Purpose	Enquiry made about a specific car
Pre-Condition	
Description	The customer makes the contact with system management, to enquire about an availability of a specific car
Uses	Manager

Post-Condition	The customer is then verified
Requirement reference	R16
Description	It is required by the company to keep track of all registered customers and map them to their rental history
Post-Condition	Become a registered customer
Requirement reference	R1

Use Case	View customer details
Actors	Manager(staff)
Purpose	Check if customer exist in the system
Pre-condition	Customer making enquiries
Description	This displays current registered customers
Post-Condition	Show customer the requested car
Requirement reference	R5

Use Case	Register New Customer
Actors	Manager(staff)
Purpose	Register new customer
Pre-condition	If customer is not in the system
Description	It is required by the company to keep track of all registered customers and map them to their rental history
Post-Condition	Become a registered customer
Requirement reference	R1

Use Case	Remove inactive customer
Actors	Manager(staff), System
Purpose	Register new customer
Pre-condition	If the customer has not been active for specific amount of time
Description	It is required by the company to keep track of all registered customers and map them to their rental history, also the system can be given a task to check for inactive customers based on a given criteria
Post-Condition	Customer removed
Requirement reference	R8

Use Case	Calculate daily rental cost
Actors	Manager(staff), system
Purpose	Calculate the cost car rental
Pre-condition	If customer is not in the system
Description	It is required by the company to keep track of all registered customers and map them to their rental history
Post-Condition	Become a registered customer
Requirement reference	R1

Class Diagram

Customer class - We have created the class Customers and in it two attributes have been added, the first attribute is Customer ID and it has been made unique the reason for this is so that every customer can be recognised individually.

The second attribute is the name for the customer this is so that the customer can be addressed. Two names could be the same so that's why it is important for a Customer ID to be unique so that the customers with the same name don't get mixed up.

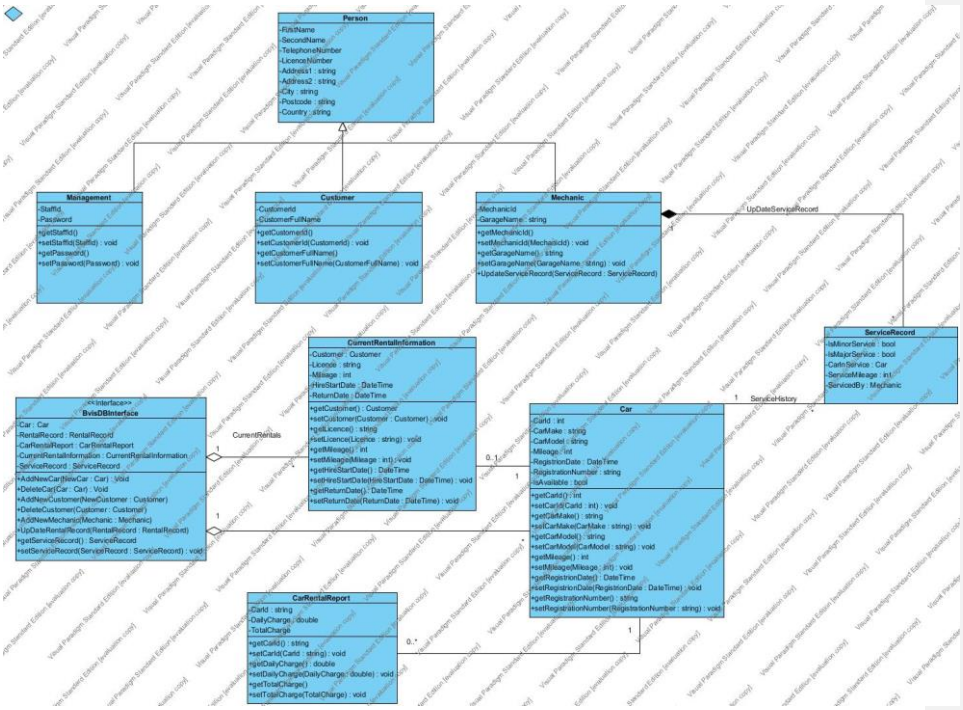
Person class – We have included 2 attributes which are called First name and Second name this is so that the customer can be addressed by the company staff. Another attribute that has been included is the address of the person which includes house number, street name, postcode and city, this has been included because it will give able the company to send any documentation or letter to the person.

An attribute telephone number has been included this is so that the customer can be contacted.

Staff class – We have got a staff class with two attributes which are staff Id and staff name this has been created so that are staff which can process payments with the customers and this is why the two classes customer and staff are linked.

Customer class has been linked to the payment class so that the customer can make a payment after they have hired the car.

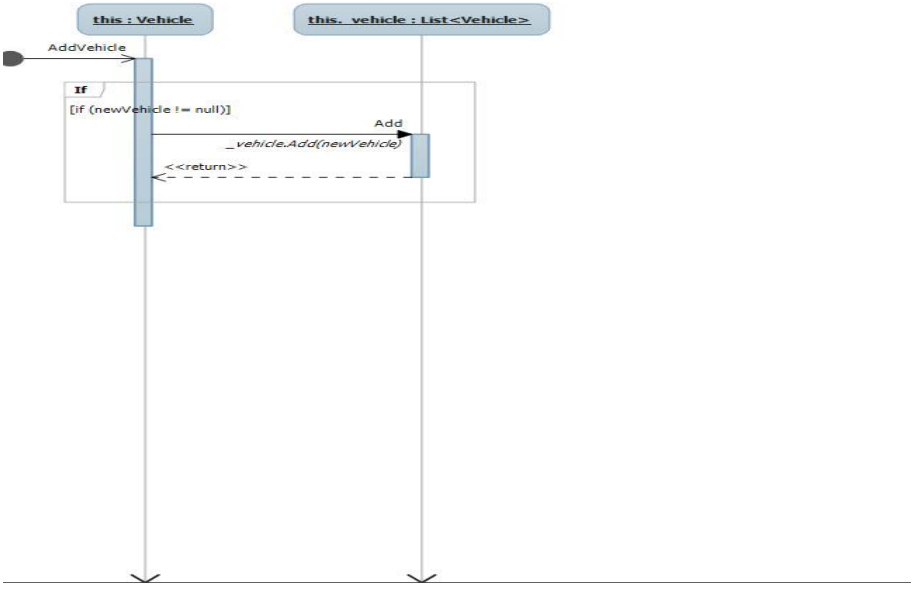
A Customer class is also linked to the current rental information class this is because the customer needs to provide information when they are hiring a car.



批注 [ZL1]: Missing some important classes
Iapproriate use of aggregation

Sequence Diagram:

Add New Customer



Group Members

- Abdul Gaffar
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- Talida Ionescu

Group Meeting 1

Group meeting 1 took place on January 20th and everyone attended the meeting. Here we discussed how to divide the work setting the roles and responsibilities of each individual.

Group Meeting 2

Group meeting 2 took place on January 27th and everyone attended the meeting. Here we discussed the use case diagrams and use cases.

Group Meeting 3

Group meeting 3 took place on February 3rd and everyone attended the meeting. Here we discussed the use case diagrams and use cases in further detail. This was done by looking at the PowerPoint slides on Moodle.

Group meeting 4

Group meeting 4 took place on February 10th and everyone attended the meeting. We started working on the use case diagrams and use cases.

Group meeting 5

Group meeting 5 took place on February 17th and everyone attended the meeting. On this meeting we were still working on the use case diagrams.

Group meeting 6

Group meeting 6 took place on February 27th and everyone attended the meeting. On group meeting 6 we started looking at the sequence diagrams.

Group meeting 7

Group meeting 7 took place on March 3rd and everyone attended the meeting. On this group meeting we looked at the sequence diagrams in further detail and this was done by searching on the internet and looking at the slides on Moodle.

Group Meeting 8

Group meeting 8 took place on March 10th and everyone attended the meeting. On this group meeting we stared working on the sequence diagram.

Group Meeting 9

Group meeting 9 took place on March 18th and everyone attended the meeting. On this group meeting we were still working on the sequence diagram and making good programs.

Group meeting 10

Group meeting 10 took place on March 25th and everyone attended the meeting. On this meeting we looked at the contracts and discussed what contracts are and the purpose of it.

Group meeting 11

Group meeting 11 took place on 7th April and everyone attended the meeting. On this group meeting we looked further into details about contracts and we did this by looking on Moodle.

Group meeting 12

Group meeting 12 took place on April 8th and everyone attended the meeting. On this group meeting we started working on contracts.

Group meeting 13

Group meeting 13 took place on April 13th and everyone attended the meeting. On this group meeting we tried to make contracts.

Group meeting 14

Group meeting 14 took place on 14th April and everyone attended the meeting. On this group meeting we looked at the work we did and did an overview on it.

Group meeting 15

Group meeting 15 took place on 17th April and everyone attended the meeting. On this group meeting we looked at the sequence diagrams a use cases to see if would could develop them further.

Group meeting 16

Group meeting 16 took place on 20th April and everyone attended the meeting. On this group meeting we have begun the reports and documentations.