Software Design

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I. The Initial requirements understanding

Discussing the nature of Bvis Car Hire Company

Reading through the problem description of Bvis Car Hire Company it is clear that an object orientated development would suit the company. The current paper base system that is used could become quite complicated if the business was to have a higher customer demand. Therefore having an object orientated development system would improve reliability and flexibility. The design needs complicated actions to take place for many different queries. For example:

When Bvis Car Hire service cars they either have a minor or major service, the type of service they receive depends on the amount of miles the car has travelled (6000miles for a minor service, 12000miles for a major service). Therefore an object orientated development would be applicable for this project because it would make it easier for the mechanics, not only to know which service the car would need but also when it needs. With an object orientated development staff would be able to record the amount of miles of a car that has been brought back from hire. Therefore when a car reaches either 6000 or 12,000 miles a pop up can be inserted to alert the mechanic.

If an unknown customer wanted to hire a car Bvis Car Hire takes details such as; Customer Name, Address, Telephone number and Driving license number. An object orientated development would be most applicable for this as it would save time for both the staff and new customer. Staff would be able to load a form and fill out all the details needed from the new customer. Not only does this save time, but it makes the whole hiring process more efficient.

批注 [ZL1]: The five attributes of complex systems in Chapter 3 of the course notes should be applied

Identify the essential use cases

The following are the use cases that we used for Bvis Car Hire Company

Use-Case number	
Use-Case	Record a service for a particular car, together with the date of the service, the type of service, and the name of the mechanic responsible
Actor(s)	Mechanic
Purpose	The purpose of this user case it guarantee the conditions of the cars are in good shape. Keeping a record of date and time of the service is will allow the company to stay on top of the any services that the cars may require.
Overview	All BVIS cars have to undertake services which are carried out by the company own mechanic. Services are carried out every 6000 to 12,000 miles. There type of service, date and the mechanic that carried the service out is then recorded.

批注 [ZL2]: A shorter name needed for future references

批注 [ZL3]: This should be described in terms of a process with actions taking by the actor(s)

Use-Case number	
Use-Case	Add new car to the fleet
Actor(s)	Manager
Purpose	Add a new car to the current hire list
Overview	Manager will check to see if the details of the car are correct and record the car to the system and hire list

Use-Case number	
Use-Case	Delete a car ~~that is no longer in hire fleet~~
Actor(s)	Manager
Purpose	Delete cars from the system that are no longer with the fleet
Overview	Cars that may be sold or damaged will need to be deleted from the system

Use-Case number	
Use-Case	Add a mechanic ~~who has joined the company~~
Actor(s)	Manager
Purpose	Add a new mechanic to the system who has joined the company
Overview	The manager will add a mechanic to their company. First they conduct an interview and if successful will put the mechanics details onto the system.

Use-Case number	

Use-Case	Remove ~~the details of~~ a mechanic ~~who has left the company~~
Actor(s)	Manager
Purpose	To remove a mechanic who has left the company from the system
Overview	A certain mechanic has left the company and it is the mangers job to remove his details from the system.

Use-Case number	
Use-Case	Determine if a particular car is due for a particular service
Actor(s)	Manager
Purpose	To check if a particular cars needs a service (minor or major)
Overview	The system will determine whether a car needs a minor or major service.

批注 **[ZL4]:** This would be better a part of a use case case

Use-Case number	
Use-Case	List the information (history) about all hires for a specified car
Actor(s)	Employee
Purpose	Capture all the information of the customers that have hired a car.
Overview	The employee lists all the information about the cars that has been hired. Information such as: the customer details and which specific car the customer hired.

Use-Case number	
Use-Case	List the information (history) about all the services that a specified car has had
Actor(s)	Mechanic and Employee
Purpose	Capture all the information about the services the car has had
Overview	The mechanic looks at the car once it has been returned from the customer. Mechanic then looks at any damages that have been made to the car if so the mechanic will pass this information to the employee and then the employee will charge the customer of the damage that has been made to the car.

批注 **[ZL5]:** Too generic

Use-Case number	
Use-Case	Register a new customer
Actor(s)	Sales Rep
Purpose	Register a new customer into the Bvis cars hire system

Overview	

Use-Case number	
Use-Case	~~Record that a particular car has been returned~~Return a car
Actor(s)	Sales Rep
Purpose	A record will be placed into the system when a car is returned so the Sales Rep, Admin and Mechanic know which cars are available for customers to hire or servicing.
Overview	Keep a record of when a car has been returned from hire.

Use-Case number	
Use-Case	~~Record that a particular car has been hired~~Hire a car
Actor(s)	Sales Rep
Purpose	A record will be placed into the system when a car is hired so the Sales Rep and Admin know which cars are unavailable to hire out in case they have any enquires from customers.
Overview	Keep a record of when a car has been hired out.

Use-Case number	
Use-Case	Log a completed hire
Actor(s)	Salesman, Customer (Initiator)
Purpose	The purpose of the log complete hire is to ensure that possible customers have retuned the cars.
Overview	Logging a complete hire will keep a record of the cars that have been used by customers. The data that will be recorded will include is information about the customers and the care. This information would be save in the BVIS database. This complete hire would then be sent to management.

Use-Case number	
Use-Case	Remove a customer
Actor(s)	Manager/ Customer
Purpose	Remove a customer from the system
Overview	Customer is no longer using company services or has asked to be removed. Manager would remove customer details

Use-Case number	
Use-Case	Calculate the cost based on the daily hire rate

Actor(s)	Staff
Purpose	A calculation will generate in to the system to work out each car daily rate.
Overview	Keep details of the whole total sum of each customer.

Use-Case number	
Use-Case	Display the appropriate details and print out a receipt
Actor(s)	Staff
Purpose	The system will have to generate a hardcopy of the payment transaction that has been calculated on question 4
Overview	Print out a receipt of the payment so it can be handed to the customer.

批注 **[ZL6]:** Similar comments to each use case

Expanded Descriptions for use cases

Use-Case Number		
Use-Case	Record a service ~~for a particular car, together with the date of the service, the type of service, and the name of the mechanic responsible~~	
Priority	**High**	
Actor(s)	Management staff, mechanic	
Description	This use case will describe process of recording a service for a particular car.	
Pre-Condition	**None**	
Post-Condition	All data would be collect about the car service.	
Basic course of Action	**User Action**	**System Response**
	1. Staff will enter details of the car, such as the model etc. 3. Staff would them enter the mileage. 6. Staff would then select an available mechanic. 8. Car would be then be taken to the company garage. 9. Mechanic would then be asking to fill out a form, requesting the details of the services needed to the car and date of service. 10. This data will then be transferred by management staff on to the data base and be recorded.	2. The system would ask for the mileage of the car 4. If the mileage is over 6 miles it would request the user to give the car a minor service. If millage is over 12 the system would then request the user to give a major service to the car. 5. If car needs servicing, the system would display current available mechanics. 7. The selected name of the mechanic would be saved on the system. 11. Use case exit.
Alternate course of Action		

批注 [ZL7]: Why does the system not know the mileage of the cars?

批注 [ZL8]: Not clear enough

Use-Case Number		
Use-Case	Add new car ~~to the fleet~~	
Priority	High	
Actor(s)	Manager	
Description	This use case will add a new car to the fleet	
Pre-Condition	Cars in the fleet remain the same	
Post-Condition	If this use case is successful a new car would have been added to the system	
Basic course of Action	**User Action**	**System Response**
	1. This use case begins with the Manager wanting to add a new car to the fleet. 2. The Manager requests add a	3. The system displays a form to be filled out for adding a vehicle. 6. The system verifies that the

	new vehicle form. 4. The Manger enters the following information: Registration Number, Make, Model, Engine capacity, Hire class (1-6), Date of Registration, Date of each service, Record of the mileage at each service. 5. The Manager saves the details to the system.	fields have been filled out correctly. 7. The System displays successfully added message to the Manager. 8. Use case exit.
Alternate course of Action	Alternate 6. – If the Manager does not fill all the fields correctly the process will return to step 4 and ask for the blank fields to be filled in correctly.	

批注 **[ZL9]:** Does not have to be a form

Use-Case Number		
Use-Case	Delete a car that is no longer in hire fleet	
Priority	High	
Actor(s)	Manager	
Description	This use case will delete a car from the fleet	
Pre-Condition	All cars in the fleet list will remain the same	
Post-Condition	If this use case is successful a car will be removed from the fleet list	
Basic course of Action	**User Action**	**System Response**
	1. The use case begins with the Managers wanting to remove a car from the fleet. 2. The Manager requests a remove vehicle form. 4. The Manger enters the following information: Registration Number, Make, Model, Engine capacity, Hire class (1-6), Date of Registration, Date of each service, Record of the mileage at each service. 5. The Manager saves the details to the system.	3. The system displays a form to be filled out for vehicle removal. 6. The system verifies the fields have been filled out correctly. 7. The system displays a successfully removed message to the Manager. 8. Use case exit.
Alternate course of Action	Alternate 6. – If the Manager does not fill all the fields correctly the process will return to step 4 and ask for the blank fields to be filled correctly.	

Use-Case Number	
Use-Case	Add a mechanic who has joined the company
Priority	High
Actor(s)	Manager
Description	This use case will add a new mechanic into the system

Pre-Condition	None	
Post-Condition	If interview is successful then the new mechanics details will be in the system, and he will be given his company user ID.	
Basic course of Action	**User Action**	**System Response**
	1. This use case will begin when the mechanic arrives. 2. The mechanic will have to provide any form of ID. 3. The mechanic will enter the room for an interview. 4. The interview will conduct 5. The interview is successful 7. When all is done the mechanic will be given his ID badge.	6. The system will print out the mechanics company documents such as ID, interview details etc
Alternate course of Action	If one of the actions is not carried out, then the procedure will have to restart.	

Use-Case Number		
Use-Case	Remove the details of a mechanic who has left the company	
Priority	High	
Actor(s)	Manager	
Description	This use case will remove a mechanic from the system	
Pre-Condition	None	
Post-Condition	The details of the mechanic will be removed	
Basic course of Action	**User Action**	**System Response**
	1. Staff will search mechanics details on the system 3. Staff will remove details	2. The system will show the details 4.System removes details 5. Use case Exit.
Alternate course of Action	Ensure all steps are followed accurately. If one of them, is not, then they must restart.	

Use-Case Number		
Use-Case	Determine if a particular car is due for a particular service	
Priority	High	
Actor(s)	Manager, Mechanic	
Description	This use case will determine if a car needs a service	
Pre-Condition	None	
Post-Condition	The system notifies the staff if a car needs a service	
Basic course of Action	**User Action**	**System Response**
	2. Staffs notifies mechanic to service the car 3. Staff or mechanic logs in the details of the service	1. The system notifies the staff that a car needs a service 4. System stores information about the service 5. Use case Exit.
Alternate course of Action	Ensure all steps are followed accurately. If one of them is not, then they must restart. In addition, once identifying the car and the problems, each data must be in the system.	

Use-Case Number		
Use-Case	List the information (history) about all hires for a specified car	
Priority	High	
Actor(s)	Employee	
Description	This use case will describe how the information of the hired cars will be listed.	
Pre-Condition	None	
Post-Condition	If use case is successful all the information of the hired cars will be listed.	
Basic course of Action	**User Action**	**System Response**
	1. The staff wants to list the information of the customers that have hired a car. 2. The staff would then access the information that contains about all hires made from the customers for a specified car.	3. The system then displays the cars that have been hired from the customers. 4. Use Case Exit
Alternate course of Action		

Use-Case Number		
Use-Case	List the information (history) about all the services that a specified car has had	
Priority	High	
Actor(s)	Mechanic and Employee	
Description	This use case will describe how the information of all the services that a specified car has had.	
Pre-Condition	None	
Post-Condition	If use case is successful the information about all services that a specified car has had will be viewed.	
Basic course of Action	**User Action**	**System Response**
	1. The staff wants to list the information about all the services the cars have had. 2. The staff would request the information from the mechanic. 3. The Mechanic would then pass on the information to the staff via the computer. 5. The staff will then need to know if any charges will be made to the customers.	4. The system displays all of the services that a specified car has had. 6. The system will show the total amount of charges to be made to the customers if any damage has been occurred. 7. Use case exit.
Alternate course of Action		

Use-Case Number	
Use-Case	Register a new customer

Priority	High	
Actor(s)	Sales Rep	
Description	This use case will describe how a new customer is registered	
Pre-Condition	None	
Post-Condition	If use case is successful a new customer will be added into the system.	
Basic course of Action	**User Action**	**System Response**
	1. The staff want to add a new customer 2. The staff requests add new customer form page 4. The staff selects weather the customer is "non-regular" or "Regular" 6. For "Regular" customers the staff will fill out: Customer Name, Telephone Number, Address 7. For "Non-Regular" customers the staff will fill out: Customer Name, Address, Telephone Number, Driving license number.	3. The system displays a question asking is the customer is "Regular" or "Non-regular" 5. The system displays the appropriate form. 8. The system displayed a successful message to the sales rep 9. Use case Exit.
Alternate course of Action	8. If all fields are not filled out the system goes back or returns to step 3 of the basic course action to fill the invalid or empty field.	

Use-Case Number		
Use-Case	Record that a particular car has been returned	
Priority		
Actor(s)	Sales Rep	
Description	This use case will record when a car has been returned from hire	
Pre-Condition	System states car is out on hire	
Post-Condition	If this use case is successful the system will state the care is returned	
Basic course of Action	**User Action**	**System Response**
	1. Sales rep wants to record that a car has been returned 2. Open the Return Page 4. Sales Rep fills out the Return form	3. System displays the Return Page 5. System displays successful message to the sales rep 6. Use case Exit
Alternate course of Action	5. Fields must be filled out correctly i.e. making sure the correct vehicle registration number is correct. If the system detects a fault in the information that was filled out the Sales Rep will be returned to step 4 of the basic course action.	

Use-Case Number	
Use-Case	Record that a particular car has been hired

Priority	High	
Actor(s)	Sales Rep	
Description	This use case will record when a car has been hired out	
Pre-Condition	System states car is still in the car fleet	
Post-Condition	If this use case is successful system will state car is out on hire	
Basic course of Action	**User Action**	**System Response**
	1. Sales rep wants to record that a car has been hired 2. Open the Hire Page 4. Sales Rep fills out the Hire form	3. System displays the Hire Page 5. System displays successful message to the sales rep 6. Use case Exit
Alternate course of Action	5. Fields must be filled out correctly i.e. making sure the correct vehicle registration number is correct. If the system detects a fault in the information that was filled out the Sales Rep will be returned to step 4 of the basic course action.	

Use-Case Number		
Use-Case	Log a completed hire	
Priority		
Actor(s)	Salesman, Customer (Initiator)	
Description	This use case will describe process of the log complete hire.	
Pre-Condition	**None**	
Post-Condition	This use case will create a complete log of data relating to the hire of cars including data such as the car, customer and cost.	
Basic course of Action	**User Action**	**System Response**
	1. The customer has purchased a hired and returned a car. 3. The staff will enter the customers detail such as name & address. 6. Staff would then select this option. 8. Staff would then send this data to management.	2. The system would ask for customers details. 4. If the system recognises the customers details it would then display the date of hire and return details of the car and cost. (This data was collected and saved on the data base from previous use cases). 5.The system would then give an option of "print complete hire" 7. System would the display all data from customers details it would then display the date of hire and return, details of the car and cost as a complete log. (This data was collected and saved on the data base from previous use cases). 8. Use case exit.
Alternate course of Action		

Use-Case Number		
Use-Case	Remove a customer	
Priority	High	
Actor(s)	Manager/ Customer	
Description	This use case will allow a customer to be removed from the system	
Pre-Condition	Customer list will be the same	
Post-Condition	If this use case is successful a customer would have been removed from the system	
Basic course of Action	**User Action**	**System Response**
	1. The use case begins with a Customer asking to be removed from the system providing information such as user id, address, telephone number and customer account number. 2. The Manager will then look for the user in the system. 4. The manager then proceeds to delete the information. 6. Manger will notify the customer that they have been removed from the system.	3. Finds user using the information given by Manager. 5. The system will delete the customer information. 7. System will send an email to the customer stating their membership has been cancelled. 8. Use Case Exit.
Alternate course of Action	Alternate 3. – If the customer gives the wrong information to the manager the process goes back to step 1.	

Use-Case Number		
Use-Case	Calculate the cost based on the daily hire rate	
Priority	High.	
Actor(s)	Staff.	
Description	This is to calculate the costs of each car that can be hired per day.	
Pre-Condition	Vehicles should be ready for hire	
Post-Condition	If successful, the payment should be accepted	
Basic course of Action	**User Action**	**System Response**
	1. Staff will check for existing customer details and hire information. 3. Staff will click on calculate the costs per day. 5.Then staff will click on calculate total costs	2. The system will display form. 4. The system will calculate integers using math. 6. The system calculates total using math. 7. The system will pop up to register payment and accept payment. 8. Use case ends.
Alternate course of Action	6. If calculations are incorrect, system will recheck values on step 4.	

Use-Case Number		
Use-Case	Display the appropriate details and print out a receipt	
Priority	High	
Actor(s)	Staff	
Description	This will show a hardcopy of the cost and customer details.	
Pre-Condition	Payment must be accepted and customer wants to see receipt	
Post-Condition	If successful then the system will print receipt	
Basic course of Action	**User Action**	**System Response**
	1. The staff wants to generate a receipt. 2. The staff clicks on print receipt. 4. Then receipt is handed to customer.	3. The system responds the requested detail. 5. Use case ends.
Alternate course of Action	3. If the system does not respond or fails to print then repeat process 2.	

批注 [ZL10]: This part show a good understanding of the concept and use of use cases, and the formats for use case descriptions.

There are some problems in the understanding of the application logic, and design and GUI details are often included in the description.

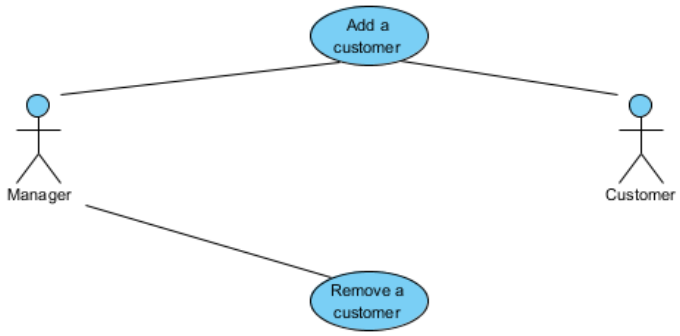
Presentation issues: names of use cases should be shorter and given to represent the intends of the processes

批注 [ZL11]: Why do you need manager, not simply a sales clerk to do the use cases of, say register and delete customers?

Use Case Diagrams

Adding and removing Customer

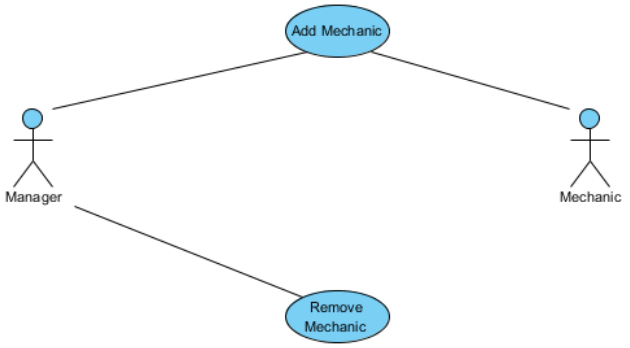
This use case diagram shows the system adding and removing a customer. The two actors that are used are the manager and customer. The manager will be allowed to add or removed the customer. The customer is there so that they can give their details if they want to be registered onto the system.



Adding and removing mechanic:

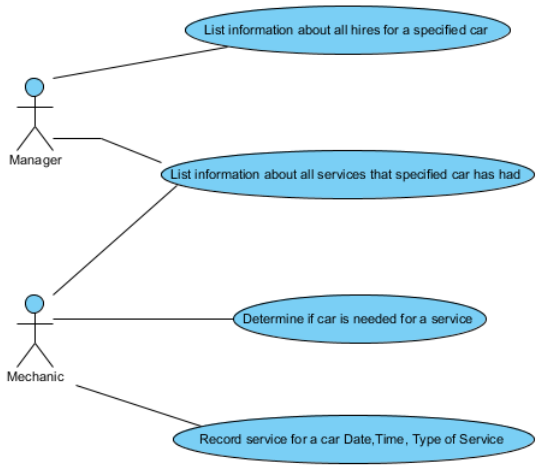
This use case diagram shows how the system will add or remove a mechanic. The actors used are the manager and the mechanic. The manager is there as he would be able to either add or remove the mechanic. The mechanic is there so that he can give his details to the manager in order for him to employee him.

批注 [ZL12]: Now the names of use cases in the class diagrams are not consistent with those in their descriptions



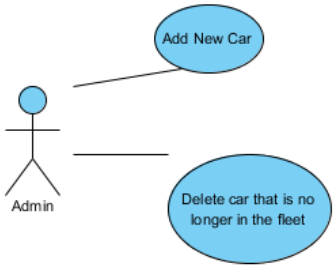
Car Servicing:

This use case shows the process of the system determining whether car needs a service or not. The actors used is the manager and the mechanic. The manager is there as he will be making the overall decision to whether he wants the car to be serviced or not. The mechanic is use as he will need to determine is the car needs to be serviced. He will do this by listing all the information about any previous services the car may have had. After the service has taken place the mechanic will record the date, time and type of service (Minor or Major).



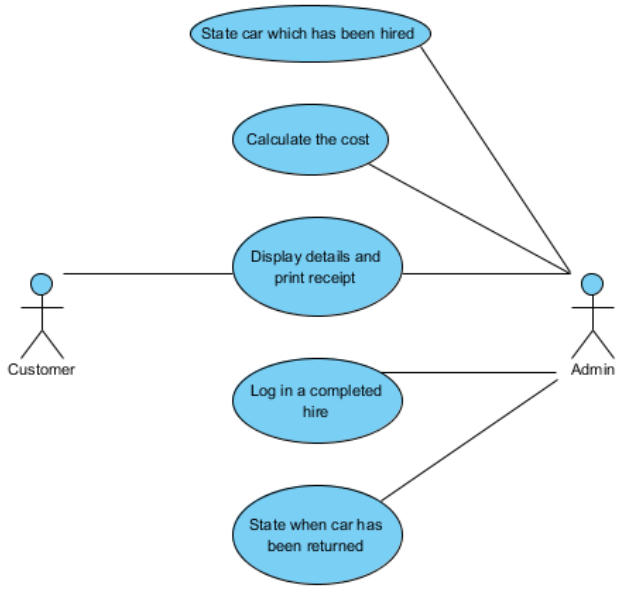
Add a new car:

This use case shows how a car will be added into the system. The only actor used here is the Admin, they will need to either add the car to the system or removed the car.



Calculating cost, hiring and returning a car:

This use case diagram shows how the cost of a hire is calculated, along with the hire and return dates of a car. The actors used here are the Admin (Staff at Bvis Car Hire Company) and the customer. First of all the admin will state to the system which car is to be hired, after doing this the system will then calculate the cost of the hire. Once the cost has been calculated a receipt will be printed out for the customer. The Admin will then need to log in a completed hire into the system, then when the car has been returned they will need to record this as well.

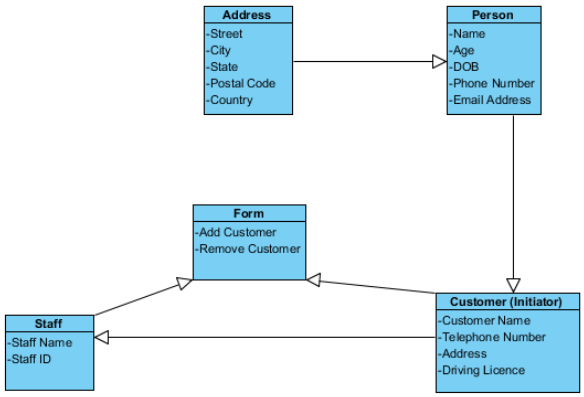


Use case diagrams are a bit too sketchy

Conceptual Class Diagrams

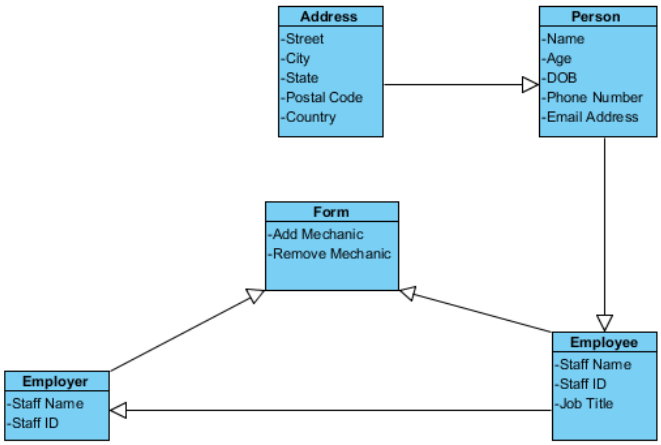
Adding and removing customer:

This conceptual class diagram shows the logic behind what we have worked on as a group. It shows the different information that is needed for adding a new customer into the system. As you can see adding and removing a customer will be done through forms which have been linked by the staff and the customer.

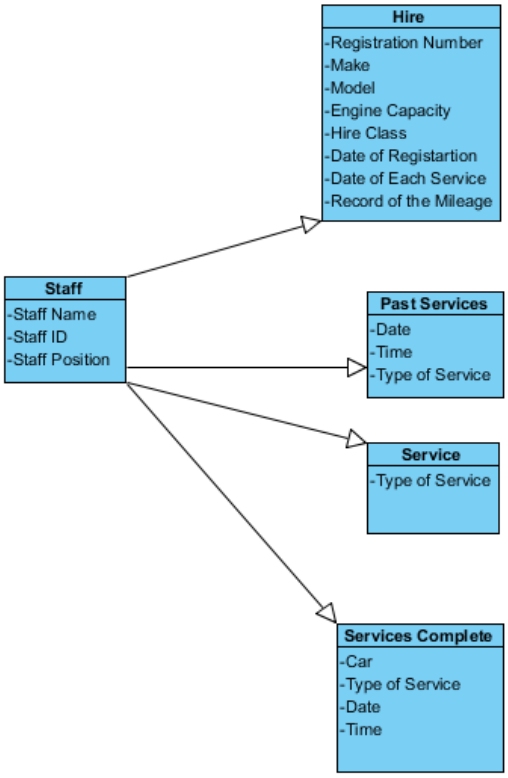


Adding and removing Mechanic:

This conceptual class diagram uses a similar process as to what has been explained above. However, with this the customer has been replaced with the mechanic.

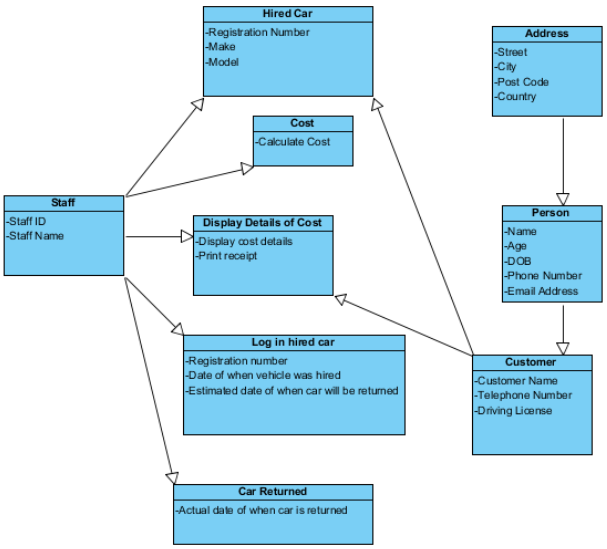


Servicing Car:



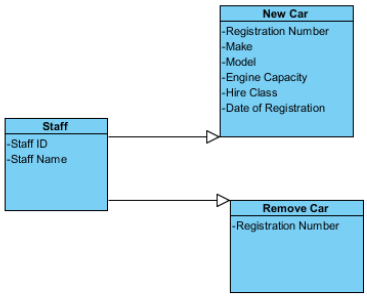
This conceptual class diagram shows the process of servicing a car. As you can see a few different classes need to be taken into consideration before staff can record the service into the system. The type of service the car receives depends on the mileage is has taken, 6000miles declaring it to be a minor service while 12,000 declares a major service.

Calculating cost, hiring and returning a car:



Adding a new car:

The conceptual case design is simple for adding a new car into the system. Attributes have been set according to what information would be required in the system for a newly bought car.



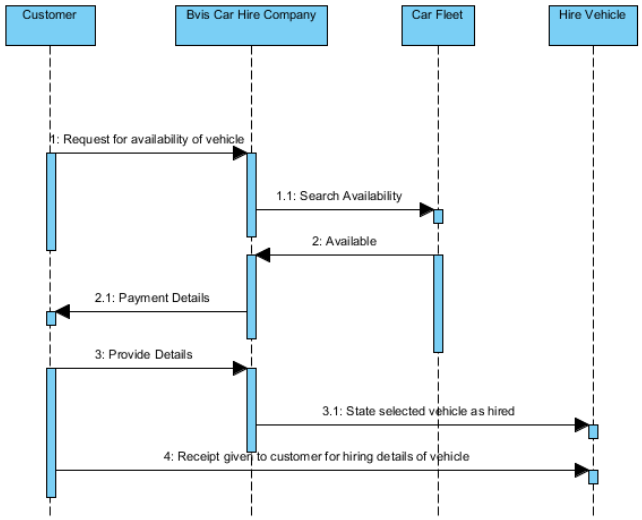
The class diagrams should be integrated. And why are classes only in generalisation and specialisation relations? This does not make sense

II. Functionality Analysis of System Operations

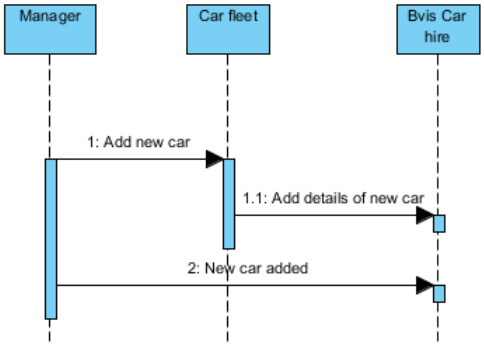
Sequence Diagrams

Customer hiring a car:

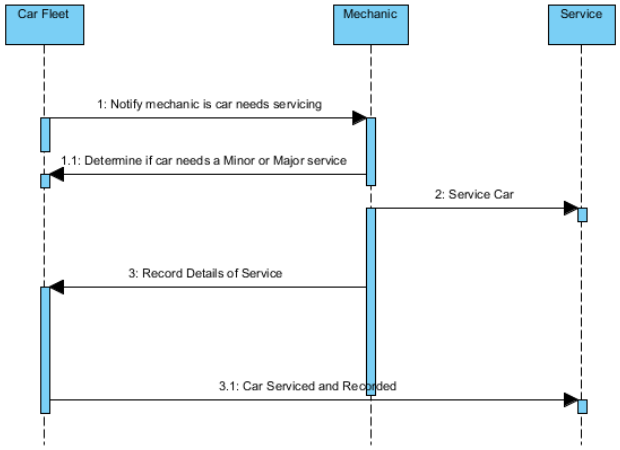
批注 [ZL13]: 1. Name of use case 2. use case diagram only show interactions between the actors and the system under development, not among internal objects of the system. 3 Use case diagram does not show feedback values from the system to the actors as interaction actions



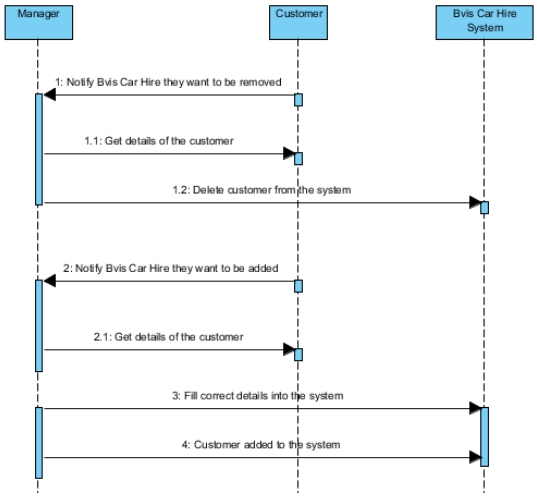
Adding a new car to the system:



Servicing a car:



Adding and Removing Customers:



批注 [ZL14]: Show the understanding of the syntax of sequence diagrams, but poor understanding of their meaning and useage

Contracts For System Operations

Customer hiring a car:

Name: Request for availability of vehicle

Cross References: Use case (Customer hiring a car)

Exception:

Preconditions: Customer has come into branch to acquire for a vehicle.

Post conditions:

- Search availability instance created

Name: Search for availability

Cross References: Use case (Customer hiring a car)

Exception:

Preconditions: Request for vehicle

Post conditions:

- Available instance created

Name: Available

Cross References: Use case (Customer hiring a car)

Exception:

Precondition: Search for availability

Post conditions:

- Payment details instance created

Name: Payment Details

Cross References: Use case (Customer hiring a car)

Exception:

Precondition: Vehicle is available

Post conditions:

- Provide Details instance created

Name: Provide Details

Cross References: Use case (Customer hiring a car)

Exception:

Precondition: Payment details need to be acquired for sale to go through.

Post conditions:

- Vehicle hired instance created

Name: Vehicle hired

Cross References Use case (Customer hiring a car)

Exceptions:

Pre-condition: Details provided for payment car is now hired.

Post conditions:

- Customer receipt instance created
- Car will display as hired on Bvis system
- Receipt and details of hire given to customer

Name: Receipt given to customer

References: Use case (Customer hiring a car)

Exception:

Precondition: Vehicle has successfully been hired.

Post conditions:

- Hire is complete.

Adding a new car to the system:

Name: Add new car

Cross References: Use case (Adding a new car)

Exception:

Preconditions: Manager wants to add new car to fleet.

Post conditions:

- Add details of car instance created

Name: Add details of new car

Cross References: Use case (Adding a new car)

Exception:

Preconditions: New car needs to be added to fleet.

Post conditions:

- New car added instance created.

Name: New car added

Cross References: Use case (Adding a new car)

Exception:

Preconditions: Details added of new car

Post conditions:

- New car added is successful.

Servicing a car:

Name: Notify mechanic for servicing

Cross References: Use case (Servicing a car)

Exception: Might not need servicing

Preconditions: Car may need servicing.

Post conditions:

- Determine minor or major service instance created

Name: Minor or Major Service

Cross References: Use case (Servicing a car)

Exception:

Preconditions: Notified for servicing by a member of staff.

Post conditions:

- Service car instance created

Name: Minor or Major Service

Cross References: Use case (Servicing a car)

Exception:

Preconditions: Determine the service type needed.

Post conditions:

- Record details of service instance created

Name: Details of service recorded

Cross References: Use case (Servicing a car)

Exception:

Preconditions: Servicing on a car has been completed.

Post conditions:

- Car serviced and recorded instance created.
- Information sent to service system.

Name: Car serviced and recorded

Cross References: Use case (Servicing a car)

Exception:

Preconditions: Details of service recorded

Post conditions:

- Details sent to service system on completion of service.
- Servicing complete.

Adding and removing customers:

Name: Notify Bvis car hire that they want to be removed

Cross References: Use case (Adding or removing customers)

Exception: Customer may already be removed from system.

Preconditions: Customer inquiring to be removed

Post conditions:

- Customer details instance created.

Name: Details of Customer

Cross References: Use case (Adding or removing customers)

Exception:

Preconditions: Customer inquired to be removed.

Post conditions:

- Delete Customer from system instance created.

Name: Delete customer from the system

Cross References: Use case (Adding or removing customers)

Exception:

Preconditions: Details of Customer are correct therefore can go through with removing them from the system.

Post conditions:

- Customer removed successfully from system

Name: Notifiy Bvis they want to be added

Cross References: Use case (Adding or removing customers)

Exception:

Preconditions: A Customer notifies Bvis that they want to be added to the system.

Post conditions:

- Customer details instance created.

Name: Get details of customer

Cross References: Use case (Adding or removing customers)

Exception:

Preconditions: Customer has notified Bvis that they wanted to be added.

Post conditions:

- Fill correct details instance created

Name: Fill correct details into the system

Cross References: Use case (Adding or removing customers)

Exception:

Preconditions: Customer details obtained.

Post Conditions:

- Customer added to the system instance created.

Name: Customer added to the system

Cross References: Use case (Adding or removing customers)

Exception:

Preconditions: Correct details obtained and sheet filled out correctly for adding a new customer to the system.

Post Conditions:

- Customer added to the system successfully.

批注 [ZL15]: Show only understanding of the format of contracts, but little more than this

Appendix A – Minutes and Agenda's

Delegating Roles

AGENDA

Date and Time: 02/02/2015 – 4:00pm till 6:00pm

Location: Birmingham City University

Attendees: Tarandeep Clare (PM)

Absentees: Zahid Akbar, Zulfikar Ahmed Baig, Shazmul Khan, Rashid Ali, Hassan Ahad

Special Guests: None

Objective 1: The objective of our first meeting was to determine who the project manager would be for the project. As this was our first team meeting it was short with only one objective.

Time	Plan
5:50pm	Decide who project manager will be
6:00pm	Questions and Answers

MINTUES

Objective 1: The objective was completed as we came to the decision of making Tarandeep Clare the project manager.

Discussing the Project

AGENDA

Date and Time: 09/02/2015 – 4:00pm till 6:00pm

Location: Birmingham City University

Attendees: Tarandeep Clare (PM), Zulfikar Ahmed Baig

Absentees: Zahid Akbar, Shazmul Khan, Rashid Ali, Hassan Ahad

Special Guests: None

Objective 1: The objective will be to read through the project description and get a clear idea of what the project requires of us

Objective 2: We will also try to justify why an object orientated development would be applicable for this project

Time	Plan
4:00pm	Read through and understand the project
5:00pm	Justify why Bvis Car Hire Company would benefit from using an object orientated development.
6:00pm	Questions and answers

MINTUES

Objective 1: Objective 1 was complete as both of us read and understood what we needed to do for the project

Objective 2: This objective was also completed as we were both able to justify why an object orientated development would be suitable for Bvis Car Hire Company to use

Presenting System Functions

AGENDA

Date and Time: 16/02/2015 – 4:00pm till 5:00pm

Location: Birmingham City University

Attendees: Tarandeep Clare (PM), Zulfikar Ahmed Baig

Absentees: Zahid Akbar, Shazmul Khan, Rashid Ali, Hassan Ahad

Special Guests: None

Objective 1: We will try to present the system functions that will be needed for Bvis Car Hire Company

Time	Plan
4:00pm	Read and present system functions
5:00pm	Questions and Answers

MINTUES

Objective 1: Objective was achieved as we were able to discuss the system functions which we thought were correct

Identifying the use cases

AGENDA

Date and Time: 23/02/2015 – 4:00pm till 6:00pm

Location: Birmingham City University

Attendees: Tarandeep Clare (PM), Zulfikar Ahmed Baig, Zahid Akbar, Shazmul Khan, Rashid Ali, Hassan Ahad

Absentees: None

Special Guests: None

Objective 1: We will all discuss the use cases which we think are relevant for the project

Objective 2: We will identify the purpose and overview for each of them

Time	Plan
4:00pm	Identify each use case we will use
5:00pm	Identify the purpose and overview for each of them
6:00pm	Questions and Answers

MINTUES

Objective 1: We identified 15 different use cases that we were going to use through the project

Objective 2: Each of us divided the use cases between us to make the purpose and overview for each of them

Expanded versions of the use cases

AGENDA

Date and Time: 02/03/2015 – 4:00pm till 6:00pm

Location: Birmingham City University

Attendees: Tarandeep Clare (PM), Zulfikar Ahmed Baig

Absentees: Zahid Akbar, Shazmul Khan, Rashid Ali, Hassan Ahad

Special Guests: None

Objective 1: We will write up expanded versions of the use cases we identified last week

Time	Plan
4:00pm	Write up expanded versions of use cases
6:00pm	Questions and Answers

MINTUES

Objective 1: This objective was met as we were both able to complete this task in the two hours that were allocated.

As no body attended, two of us had to do the objectives ourselves.

Create Use case diagrams

AGENDA

Date and Time: 09/03/2015 – 4:00pm till 6:00pm

Location: Birmingham City University

Attendees: Tarandeep Clare (PM), Zulfikar Ahmed Baig

Absentees: Zahid Akbar, Shazmul Khan, Rashid Ali, Hassan Ahad

Special Guests: None

Objective 1: From the use cases we discussed, we will draw diagrams that present them all

Time	Plan
4:00pm	Draw up use case diagrams using the correct software
6:00pm	Questions and Answers

MINTUES

Objective 1: Object was complete as we managed to design the use case diagrams

Only two of us attended this meeting, so we were left to do all the work again

Conceptual Class Diagrams

AGENDA

Date and Time: 16/03/2015 – 4:00pm till 6:00pm

Location: Birmingham City University

Attendees: Tarandeep Clare (PM), Zulfikar Ahmed Baig

Absentees: Zahid Akbar, Shazmul Khan, Rashid Ali, Hassan Ahad

Special Guests: None

Objective 1: We will design the conceptual class diagrams for the project

Time	Plan
4:00pm	Draw up conceptual designs
6:00pm	Questions and Answers

MINTUES

Objective 1: We managed to do most diagrams but ran short on time, therefore we decided to continue the rest at home and send each other the work

Only two of us attended this meeting, so we were left to do all the work again

Sequence Diagrams

AGENDA

Date and Time: 23/03/2015 – 4:00pm till 6:00pm

Location: Birmingham City University

Attendees: Tarandeep Clare (PM), Zulfikar Ahmed Baig

Absentees: Zahid Akbar, Shazmul Khan, Rashid Ali, Hassan Ahad

Special Guests: None

Objective 1: We will design the sequence diagrams needed for this project

Time	Plan
4:00pm	Draw up sequence diagrams
4:30pm	
5:00pm	
5:30pm	
6:00pm	Questions and Answers

MINTUES

Objective 1: Similar to last week we ran short on time, therefore we will both do the diagrams at home

Only two of us attended this meeting, so we were left to do all the work again

Contracts

AGENDA

Date and Time: 20/04/2015 – 4:00pm till 6:00pm

Location: Birmingham City University

Attendees: Tarandeep Clare (PM), Zulfikar Ahmed Baig

Absentees: Zahid Akbar, Shazmul Khan, Rashid Ali, Hassan Ahad

Special Guests: None

Objective 1: Attempt to write up the contracts

Time	Plan
4:00pm	Contracts will be documented according to the sequence diagrams
6:00pm	Questions and Answers

MINTUES

Objective 1: Objective was completed within the time scale that was set

Only two of us attended this meeting, so we were left to do all the work again

Final Documentation

AGENDA

Date and Time: 27/04/2015 – 4:00pm till 6:00pm

Location: Birmingham City University

Attendees: Tarandeep Clare (PM), Zulfikar Ahmed Baig

Absentees: Zahid Akbar, Shazmul Khan, Rashid Ali, Hassan Ahad

Special Guests: None

Objective 1: We will bring all the work together into one document for our final piece of documentation

Objective 2: We will go through and check that we are happy with the work

Time	Plan
4:00pm	Bring all the work together to put into one document
5:30pm	Review the work
6:00pm	Questions and Answers

MINTUES

Objective 1: All the work was put into one document successfully

Objective 2: We both went through the work and were both satisfied with the documentation

Only two of us attended this meeting, so we were left to do all the work again