Graded Unit Project: Evaluation Stage

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# Introduction

This report is designed to evaluate all possible aspects of the given project for the company Simple Car and Van Hire and how well the project was analysed and implemented. The evaluation of the effectiveness of the approach taken including the design, project plan, implementation and testing will be looked at and accurately detailed.

## Analysis of Project Brief

The task handed out for the project was to design and implement a new computerised system For Simple Car and Van Hire that would reduce the time taken for customers to hire a vehicle and therefore help to increase business and income. The system had to allow the sales manager the availability of vehicles within their stock and ensure vehicles were allocated to a hire record taken in by sales staff. This was implemented in the development stage by creating an application with an interface that would allow for these functions. The admins window for example, had the function to be able to check vehicle availability for each group type.

## The Project Plan

Analysing the project brief and designing a solution meant thinking of a system that could speed up the hire process for customers and allow for the sales manager to record those hires and check vehicle availability. The project plan was to create an application that would allow the customers to make a booking by filling in their details and selecting a vehicle to hire. This would then allocate a logbook to that hire that the sales manager should be able to search for to see booking details for a specific hire. The manager should also have a login page where they can access their admin features such as checking vehicle availability.

## Effectiveness of Solution

The solution was implemented well to a point; meaning it was able to perform most of the functions required and proposed in the project plan. The system was functional at most areas with errors in some aspects.

### Strengths

* The final system allowed the sales manager to be able to log in and access the admin window
* The admin window allowed for the sales manager to check vehicle availability and display it in a list box
* By clicking the “Customer Booking” button on the login page, the customer was able to access the window to allow them to hire a vehicle
* In the Booking window the customer had to enter their details and click “Book” to be able to proceed – all fields to be filled in were coded with validation to ensure no detail was missed out otherwise the customer could not proceed.

### Weaknesses

* Once the sales manager accessed the admin window, the “Search” function was not functional
* In the Booking window, the validation would prevent the customer from leaving a box null but the “Book” button would not navigate to the Book Vehicle window to make the booking
* In the Book Vehicle window the vehicle selection and the “Hire” button were not linked so clicking a vehicle option and clicking “Hire” would not perform any task.

## Implementing The Solution

Implementing the solution meant following the project solution and creating a system that would perform the functions outlined. Implementing it included a number of tasks – firstly the application was given a database where the vehicle details and availability would be stored for hires taken out and returned or cancelled which was done by coding a class that held these details. Another class was created named “Vehicles” which stored the vehicle types and their groups along with the functions they performed within the application.

The interface was designed and created in four different windows that had a clear and simple task to make the system user friendly. The login window was created first which would allow the sales manager to login to access admin features; the customers would have a different option to take them straight to make a booking. From the admin window the sales manager was given two buttons: one, which would allow them to see the availability of vehicles in the database. The secondary button created was a search feature that would allow them to search for already existing bookings made by customers and display them. A list box was created in the UI where the details of availability and bookings would be displayed. The “Check Availability” button was coded to link to the vehicle database to show how many vehicles of each group was remaining. This is an example of how the solution was implemented towards the project brief.

Implementation was not completed fully as some functions were not functional due to coding errors. These were included in the Book vehicle window and search function in the admin window. The search function did not work due to coding errors and thus did not fulfil the project requirements accurately; the Booking window also did not allow for a booking to be made and the navigation to the Vehicle hire window was non-existent, which did not allow for the completion of the booking process as mentioned in the project plan.

## Testing the Implementation

Testing the implementation only included a series of test runs at the most and did not include a test strategy. The testing included tested the functions of each window in the user interface and validation that was coded allowing the correct details to be entered. The testing started off with the login screen and checking validation that allowed the sales manager to access the admin window.

The test cases were produced by starting with the login screen and testing the input into the username and passwords textboxes to check for validation that show error messages for invalid credentials. Another function that was tested was the button to navigate to the Booking window that would allow a customer to make a booking.

The second series of testing was performed on the admin window and the two functions involved. These included testing the “Search” button to navigate to another window to allow the user to search for an existing booking held in the database. This failed however, as the search function did not work as expected. The second function that was tested “View Vehicles” button that allowed the user to display the amount of vehicles remaining in the list box on the screen. This also failed as the function was not connected to the vehicle database and did not display the vehicles in the list box.

The Booking Window was tested for validation against all fields that had to be filled in by the user. When any box is left null, there had to be an error message showing that a field is empty and must be filled in. The validation functioned properly with every field when left null, forcing the user to complete them all to move on. Another aspect that was tested was the “Book” button that should navigate to the Book Vehicle screen when clicked; however this does not work.

Finally, the Hire Vehicle screen was tested for its functions. This included testing for the “Hire” button and selecting options from which vehicle to hire. When an option is selected and the Hire button is clicked, there will be a message notifying the user of the action. This however only worked till this point as it was also supposed to record the hire in the database and this function was non-existent making the hire button useless.

## Documentation Produced

The documentation produced consisted of one report for the planning of the project and three separate manuals for the development and implementation of the project. The report for the planning stage included several parts:

* Project brief
* The project solution
* The functional and non-functional requirements
* Initial Use case diagram
* Initial class diagram
* Activity diagram
* Sequence diagram
* Project management for planning stage

The development stage had three different pieces of documentation that included the Development Report, Technical Manual and User Manual.

The initial report included the use of a top-level use case that completed the initial one in the planning stage that was done to represent who the system would work when in use. The updated class diagram illustrated the classes and their functions within the application. The updated project management of the development stage continued on from the planning that outlined the stages taken to complete and reach the milestone of the implementation of the project. Within the report there was also the review of the second interview with the client to add to any functions and requirements to the system. There was also the design and layout of the application itself including the testing for each function for each window.

The Technical Manual contained the following:

* Requirements specification
* List of coding for each class and window interface
* User interface for the system
* Testing for each window interface

The Technical Manual was done to the best possible ability that included the original project brief: followed by the code listing for each class and window in the application. The manual also included the testing for each function in the application to check for possible errors and identify all functional areas as well.

The User Manual contained:

* Installation and Requirements Guide
* Instructions on how to use the application
* Possible error messages for each function

The User Manual was used to clearly illustrate on how to use the system step by step. It included clear instructions on what to do on each page to make it easier for the user to understand with accurate diagrams for each page. Each window was followed by an illustration of possible error messages that could appear if anything wrong was entered.

## Outline of Assignment

The assignment given was to produce a computerised system for Simple Car and Van Hire that would allow them to take bookings much faster and allow customers to hire vehicles in reduced time. The system had to be able to check availability of vehicles in the system; search for existing bookings made and allow customers to hire from an option of cars. I think my overall analysis of the assignment was not as good as I had hoped and was poor in most areas because of lack of time. This was due to me starting the project later into the allocated time, putting pressure on getting the implementation and reports handed in. Most of the implementation felt rushed which is why some of the coding contains errors, causing some of the system functions to not work completely.

I feel I completed the planning stage with plenty of time to go as it was only an initial design model for the proposed system and didn’t need as much documentation as the rest of the project.

For the development stage I could have started earlier than I did as I waited until the last few weeks of the deadline to hand in the final system. This was wrong as it meant that I also had to rush the documentation that was included with it. The program was also very bare and basic as I didn’t have much time to concentrate on design – this was because I had to prioritise the coding of the system to have something work rather than a completely blank product. Despite the shortage of time I managed to implement a solution that performed some of the functions stated in the project solution. I would also have like to have included a test strategy and usability tests to expand my development stage and make it more concise.

## Handling of Unforeseen Events

Any unforeseen events that occurred in the project were mostly encountered during the development stage while coding and testing the application. This is because I had made errors and failed to fix them straight away, which then created more and caused confusion. This was to do with one of the methods that stored the vehicle details in a .txt file and populated that file with the details entered into the database class created in the program. The feature to do this was not coded properly and led to failure to create the file path.

Another issue that was encountered was when saving my work to do at home, the files were saved to cloud storage to then be downloaded at home. However I did not upload all the necessary files needed to complete the task at the time and this slowed down the process, as I was not able to download all the correct files to finish the work at home. I will remember to upload and store all necessary files and documents needed and check they are correct before continuing with work in the future.

## Skills Gained and/or Developed

After the completion of the project, I felt I had learned from my mistakes and gained skill in developing by identifying errors more fluently and correcting them to suit the situation. I have also learned from this project on how to develop an application from the bottom up and this taught me the necessary skills to implement the same knowledge into future work and assessments in future education. I have learned to realise how sometimes the smallest part of coding can make the difference between an error and establishing a successful build. I have also increased my knowledge more deeply into making a database class to store important information in a program and how they can be used to populate them with data.

Other skills I believe I have gained or developed on would be just the general knowledge base as programmer. I have managed to learn about and use variables and methods that I would have otherwise struggled with in the past: which makes a difference to the overall simplicity and understanding of a program.

For me I think I should continue to improve my knowledge in implementation stages as I feel I could have performed much better if I used the allotted time wisely and started early in order to learn faster.

## Effectiveness of Problem Solving

The effectiveness of the problem solving performed was done well to an extent and as close to the original project brief as I could. I think my problem solving at the planning stage was done well as I managed to identify all functional and non-functional requirements as well as the use case and class diagrams and what each method would perform as an action. However, I feel it was the implementation again that let this down as it was not close to the original scenario and my planning stage report because some functions were not included due to incorrect coding and errors within the program.

I feel I did my best to identify what was required in the project and put it into a report. I could though, have done much better at the development stage to make sure that each of those requirements was met rather than leaving them non-functional.

## Improvements to The Project

As mentioned before, an improvement I could have made to make my project more accurate and concise had to be the development stage. This could have been done by using all of the time provided and starting earlier in order to prevent rush and pressure. I could have definitely put more work into the coding by sorting out errors early to prevent more occurring and sorting out buttons that did not simulate the function they were supposed to.

In the testing part of the implementation I should have also included a test strategy and usability test to expand the range of improvements that could have been made and to identify errors and solve them quicker. This would have made the project seem more gathered rather than just a few test cases that I ran.

On the project as a whole, I should have planned better and implemented the solution with better knowledge identifying errors as I went along and fixing them and starting the program early to prevent rushed work. I could have also included much more work in my stage reports by going into detail about each object and describing clearly the program for the development stage with clear diagrams and instructions.

## Recommendations For The Future

I would recommend at first priority to give myself an early start to each stage of the project and use each day properly to avoid rush and inconsistencies in the implementation. In the development stage report I would do more testing strategies and usability tests to identify system errors and anything that could be changed to make it better. In the planning stage I would have went into more detail about the functional and non-functional requirements and backed diagrams and information in the report with text explaining its purpose and how it was used to work towards the next goal.

I feel that I tend to work better when under pressure which could be the reason why my development was started so late. However, in the future I would create a much better GUI that would be user friendly and understanding. I would also fix an error before moving on in the project making full use of my time rather than doing it all last minute.

Overall I could have improved greatly on this project and would recommend that I make better use of time; fix my mistakes earlier; code methods carefully not missing out important information to allow a function to work; create a more visual GUI; implement better testing and include testing strategies; and identify diagrams and requirements in the planning stage in more detail.