**9 – Evaluation**

After conducting my project, I have developed my program skills a lot as I have had to encounter numerous problems and work around certain aspects of code. This means that when I first started my code I was nowhere near as good as I am now making it difficult now to alter previous code without completely breaking the code and needing to start over.

I chose the python programming language to develop my project because it is a programming language that I am very familiar with and means I believe that it was suitable to make a project to the best of my ability. I used a variety of additional python modules to develop my project like Pillow to import images from a database, tkinter for the GUI, sqlite to link databases to my project, random ro generate random integers, datetime to gather the current date and provide a delivery date. The python programming language is ideal numerical computation and data analysis which is a large bulk of my project making the language perfectly suitable for my project.

If I was to change anything about the modules I used throughout the project it would be using a different GUI module instead of tkinter. This is because I think tkinter is good but I think if I used a different module I could harness the full capabilities of my project with an even more appealing GUI. This could benefit the company more as it would improve sales and workflow. I understand that the GUI I have created for my project is a bit bare and rough around the edges. Another thing I want to add is if I was to use tkinter again as GUI module, I would do further research in how to harness its full capabilities, like using more frames to make the widgets look better within the window.

If I was to conduct this project again I would keep using sqlite3 to create and store data in databases because the module did everything I asked it to and was perfect for my program. The same can be said also for the other modules that I mentioned, most of them I only used a handful of times but when called upon, they were perfect for my project.

After looking at similar alternatives to my project on the market I saw similarities between them. My program had similar capabilities and functions with some of the rivalling companies such as Square Space, Wix, etc. For example, my program had Home buttons, account verification, log out buttons, create an account button, basket, etc. One aspect that isn’t similar to the rivals of the program is the GUI, this is not up to the same standard and something that I would seriously need to consider if I was to do this project again.

Successful features on my project are as follows:

* Different account types and verification
* Successful link between databases and program
* Databases stores data and retrieves for program
* Multiple Functions included within the program
* Certain Functions can only be used by certain account types
* Ability to make new accounts on the database
* Customers can contact employees and managers
* GUI isn’t completely bare and does have some customisation

The objectives for my project are as follows:

1. To provide an intuitive program for both customers and employees.
   1. To implement good-looking aesthetics to the system’s design
   2. To give users a range of functions within the program .
   3. To make the data accessible quickly as that is the reason.
2. To make my program save the business time in all aspects of operation.
   1. To organise the data efficiently.
   2. To ensure the code runs quickly by eliminating unnecessary code.
   3. To make the program intuitive.
3. To provide security on all data on the system.
   1. To encrypt all data on the database
   2. To incorporate different account types on the database to access different features
   3. To conduct security tests on the database to ensure the data is secure

I believe that my project managed to achieve a large amount of these aims which makes me think that my project was a success, even though there are a few rough edges. Aim 1 “To provide an intuitive program for both customers and employees”. I believe that I achieved this aim as made the program easy to navigate and made buttons and other aspects of the program clearly labelled. Objective 1 Aim1 “To implement good-looking aesthetics to the system’s design ”. I believe I achieved this objective as I implemented visually appealing colours for each different account type making sure that all the colours matched the other widgets. Objective 2 Aim 1 “To give users a range of functions within the program ”. I achieved this objective as I made it so the user could do a variety of tasks which made my program more versatile to the company’s employees and more important to the workforce. Objective 3 Aim 1 “To make the data accessible quickly as that is the reason”. I believe I achieved this objective as the databases and code throughout my program executed quickly and made the data accessible in those databases very quickly which means I have achieved this objective. Aim 2 “To make my program save the business time in all aspects of operation”. I achieved this aim by achieving all of the objectives and making my code run as quickly as possible. Objective 1 Aim 2 “To organise the data efficiently”. I did organise the data efficiently in my databases as I used primary and foreign keys which minimised data redundancy and made the data more efficiently organised. Furthermore, the program only stores necessary data within each database which helped me achieve this aim. Objective 2 Aim 2 “To ensure the code runs quickly by eliminating unnecessary code ”. I don’t believe I achieved this objective as I made multiple versions of the same functions which looking back on my development I feel I could have done things differently and made things run more efficient. However, I think I partly achieved this objective because my code executes quickly even though some aspects of the code could be further optimised. Objective 3 Aim 2 “To make the program intuitive.” I achieved this objective as I designed the program in such a way that it was easy to navigate and interpret. Additionally, the data was clearly labelled. Aim 3 “To provide security on all data on the system.” I believe that this aim was not achieved to the full extent because I didn’t have the ability to incorporate encryption on the database. The ability of not achieving objective 1 on this aim means that I don’t feel the data is not as secure as it should be in the modern age. However, I was able to achieve objective 2 on this aim as I was able to provide different account types on the database meaning that I was able to provide security on certain functions throughout the program, meaning certain users are unable to access certain sections. I also conducted security tests on all processes to make sure that the data is kept secure and is protected throughout the use of the program. This means I achieved objective 3 on aim3. Proof of this aim can be seen in the testing section of my project.

My strengths are that I managed to use my programming skills to fix complex programs when the code did not execute correctly through syntax and logic errors. This was done by reading and interpreting the code as if I was the program executing the code, which made debugging much easier. This is what I think one of my strengths was and it has also increased my problem-solving skills a large amount over the course of the project. Another one of my strengths is that I believe my creativity led to a completely unique design which I developed for my project which is important as the business can stand out from the rest of the competitors on the market. I believe that this strength was also further developed over the course of my project. Additionally, one of my strengths is that I developed my final project to be very similar to the design I developed. Which is important as it shows I can mould the code to match my design and use my design as a blueprint. Another strength of my code is that I made sure that I provided plenty of documentation and comments during the development, this made finding the function I wanted to work on easier and made interpreting the code easier.

One of my weaknesses is that my time-management skills weren’t demonstrated that effectively during this project. This is because sometimes I had other commitments in my life and often forgot to make this project my priority which gave me less time to develop my project. Another weakness is that I encountered during the development of my code a lot of bugs and regression in my code. For example, a bug would appear, I fix the bug and another two occur this made the development of my project very tricky and time-consuming. Another weakness is that I made my project to large, for example, my code is close to 2000 lines of code which made debugging and getting the code to run efficiently a monumental task due to the shear size of my program. Another weakness I have is that I code slowly which made the development of my project a lengthy process and meant I did not use my limited time efficiently. Meaning I did not have time to iron out the rough edges.

After conducting my project, I believe that there are several things that could have been done to improve my project. My first thing I could have done was increase the data protection throughout my program, by encrypting data on the database, increasing authentication when navigating manager and employee accounts and other methods. Which is what I would do to the project if I was to develop it further as it has the potential to be a lot more secure giving customers higher confidence in their data protection. Another factor I think that I could have improved upon is the appearance of my project’s GUI through the use of multiple frames and other tkinter features. This is another feature I would be looking to improve if I was to continue development of my project and make future developments. To make my program run more efficiently I would have even got rid of the images database as in the end I barely used it and that was only for the logo which appeared a couple of times throughout the program, as I kept encountering errors when trying to get the image to appear more. Another future development that I would have made if I was to continue development of my project would be the inclusion of the logo throughout the program with a different method of inserting images as it was easier and did not throw any errors when executing. Another future development of the program could be that I should have implemented the basket feature earlier into development as it made life difficult when coding later as it kept throwing errors when being executed and meant I had to do a lot of scrolling to get to the two different parts of code. Another future development that could be changed in my project is that I could of reused functions instead of remaking the functions for each button as it would have made my code more concise and easier to understand.