**8 – Testing**

To make sure my program works I will create a test plan to demonstrate that every aspect of my project works. This is my testing plan:

1. Put invalid data into the login page to see if it works correctly.
2. Open the create an account window and put invalid data into the entries and observe the outcome.
3. Create an account of each type and see if they are put into the database correctly.
4. After each account type has been created, enter the details into the login page and see if the correct page is displayed.
5. Press each button on the page and see if the program responds as intended i.e., The log out button logs the user out and takes them to the log in page.
6. Make sure the relevant data is displayed on each page is presentable.
7. See if the program is executed quickly, if not figure out why.
8. Observe how the databases react with each function, i.e. The submit button on the contact page sends the user data to the contact database.

I am using a database browser to easily demonstrate how the databases in my project are being manipulated and reacting to certain functions.

**Testing Strategy**

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| Test Number | Description | Type of test | Test data and variable | Expected result | Actual Result | Evidence |
| 1 | I am going to test the initial login screen to see if it works correctly. | Valid data | Username – “Shaun”  Password – “George”  Account Type – “Customer” | I expect the program to react with giving the user access to the shop page. | When conducted, the user gained access to the shop page. Exactly how I expected the program to respond. |  |
| 2 | I am going to test the login screen again to see if the program accepts incorrect information in the authentication process. | Invalid Data | Username – “scsfscsjcfs”  Password – “ashgfahgaxc”  Account Type – “Manager” | I expect the program to display an error message saying the user has given the program invalid information. | When conducted the program responded in the way I intended and displayed an error message saying invalid username or password. |  |
| 3 | I am going to see if putting in the correct data will take the user to the employee section of the program. | Valid data | Username – “Dom”  Password – “Employee” | I expect to see the program direct the user to the employee page. | Like expected the program directs the user to the correct page when the data is entered correctly. |  |
| 4 | I am going to see if putting in the correct data will take the user to the manager section of the program. | Valid data | Username – “Ellie”  Password – “Manager”  Account Type – “Manager” | I expect the program to take the user to the manager section of the program. | As expected, when the correct data is typed in the user has access to the manager section of the program. |  |
| 5 | I am going to see if the create an account window is opened when the “Create an Account” button is pressed. | Acceptance Test | create\_an\_account function | I expect the button to take the user to the create an account window. | Like expected, the button takes the user straight to the account creater. |  |
| 6 | I am going to see what happens when the user enters regular data into the account creator. | Valid Data | Username – “Peter”  Password – “Customer”  Email – [peter@gmail.com](mailto:peter@gmail.com)  Account Type – “Customer” | I expect for the program to accept the data that the user has provided and take that data and add an additional row onto the orders database. | The program behaved exactly how I thought it would making this section running correctly. | Before    After |
| 7 | I am going to next insert an account type that already exists and see how the program and databases react. | Valid Data | Username – “Peter”  Password – “Customer”  Email – [peter@gmail.com](mailto:peter@gmail.com)  Account Type – “Customer” | I expect the program to reject the data and display a message saying that the account already exists on the database. | The program did not react how I expected as it created an identical account and inserted it into the database, which is a major flaw within my project. | Before    After |
| 8 | I am now going to see how the program reacts if I put integers in the username and password and if I don’t include an @ in the email address. I want to see how it reacts. | Invalid data | Username – “1245”  Password – “765635”  Email – [4252](mailto:peter@gmail.com)  Account Type – “Customer” | I expect the program to provide an error message saying the data provided is in the wrong format and not insert the data into the user database. | After conducting testing, it is clear to me that the program excepted the data and inserted it into the database. Which is bad as it is in the incorrect format. | Before    After |
| 9 | I am going to see what happens when I try and make an employee account to see how secure it is. | Valid Data | Username – “employeetest”  Password – “test123”  Email – e[mployee@gmail.com](mailto:mployee@gmail.com)  Account Type – Employee  Passkey – type2passkey | I expect the user to be able to create an account and have it inserted into the database if all the data is typed in correctly. | After conducting this test, it is clear that the pass key validation and authentication worked for the employee account. Which is important as it eliminates some vulnerabilities in the system. | Before    After |
| 10 | I am going to see what happens if a user tries to create an employee account and enters the wrong passkey. | Invalid data | Username – “hacker”  Password – “hacker123”  Email – [hacker@gmail.com](mailto:hacker@gmail.com)  Account Type – Employee  Pass key - sgdsfg | I expect the program to give an error message when the wrong pass key is entered and the user database to remain the same. | After conducting the testing on this part of the program I believe it was a success as an error message was displayed and the database remains the same which makes the employee account more secure. | Before    After |
| 11 | I am going to see what happens when I create a manager account to see how secure it is. | Valid data | Username – “managertest”  Password – “test123”  Email – manager@gmail.com  Account Type – Manager  Passkey – type3passkey | I expect the program to accept the pass key and create a new manager account in the user database. | As expected the code was executed perfectly and it inserted a new manager account into the user database. | Before    After |
| 12 | I am going to see what happens when a user tries to create a manager account with the incorrect pass key to see how secure my program is. | Invalid Data | Username – “hacker”  Password – “hacker123”  Email – [hacker@gmail.com](mailto:hacker@gmail.com)  Account Type – Manager  Pass key - sgdsfg | I expect the program to behave exactly the same as the employee account creation test. To throw up an error message saying that the pass key is incorrect and the database will not insert the account in the user database. | As expected when conducting this test it came back with the same results as when I tested the employee pass key authentication. It displayed an error message and did not insert the account in the user database. | Before    After |
| 13 | I am going to check the Contact Us Button to make sure it displays the necessary information. | Acceptance Test | contact\_us function | I believe that when I press the Contact Us button it will take the user to a new tkinter page displaying a few widgets. | After conducting this test it is clear that the button does work and takes the user to the correct page. |  |
| 14 | Next I am going to check whether the contact the company feature works as I think it’s a vital feature that the company could benefit from. | Valid data | Email – [Shaun@gmail.com](mailto:Shaun@gmail.com)  Message – “This is a test.” | I believe that the message and email will be inserted into the contact us database. | After conducting the test to see if the function works with regular data, it is clear to me that the process works perfect with regular data as it inserts the data into the correct database and columns within the table. | Before    After |
| 15 | I am going to test the contact us feature further by putting random data into the entries and observe how the program reacts. | Invalid data | Email – 31265431465  Message - 31265431465 | I believe that the data in the entries will be inserted into the contact database because I did not set up the correct validation for the program to detect whether the format of the inputs is correct or not. | As I feared, the invalid data I inserted into the entries was inserted into the contact database because it was excepted by the program. | Before    After |
| 16 | I am going to next test the FAQ page button and see if it behaves how it should. | Acceptance Test | faq function | I believe that the FAQ button will work and will display the correct information on a new tkinter window. | As expected the FAQ button behaved correctly and displayed all the required information. |  |
| 17 | Next I am going to test the about us button which I think is important as it is another feature on my program. | Acceptance test | about\_us function | I believe that the about us button will work and will display the correct information on a new tkinter window. | As expected the about us button works flawlessly and displayed all the correct information. |  |
| 18 | I am going to test if the view basket button works so that I can further test my program and because it is an integral part of my project. | Acceptance Test | view\_basket function | I believe that the view basket function will work and display the correct information on a new tkinter window. | As I expected, the program executes correctly and the basket window displays the correct information such as the credit card information entries, basket list, place order buttons. This is important as it will be the most used part of the entire program. |  |
| 19 | I am going to test if the add to basket button works for the super glue item, I will further test this by inputting an integer as the quantity. | Acceptance Test / Valid Data | glue\_add\_basket function  Quantity = 1 | I believe that this button works and will display the item in a python list which is then displayed in the view basket window. | As expected the item was added successfully to the basket and displayed on the webpage. | Before After |
| 20 | I am going to test what happens when the user puts a alphabetical character into the quantity pop up window to see how the program reacts. | Acceptance Test / Invalid Data | Glue\_add\_basket  Quantity = w | I believe that this will throw some kind of error message in the terminal as I don’t recall coding an error message to pop up in this section. | Interestingly, the program did not react how I thought it would, the program reacted by not accepting the data and not processing anything and remained the same as before. | Before After |
| 21 | Next I am going to test when the user presses the place order button to see if the my program can be used for ecommerce. This will involve me populating the card information as well. | Acceptance Test | place\_order function  Item Ordered – Super Glue Twin Pack  Quantity – 1  Price – 4  Long Card Number -  88917628716128765  Expiry Date -  1234  CVV -  463  Name on Card - Ralph Longly | I believe that when the button is pressed, it will gather the relevant information and populate the order and payments database with the correct information. And easily accessible to anyone that requires access to that information. | After conducting testing, it is clear to see that both databases have been clearly had all the relevant data populated into both the payment and shipping databases meaning that the function works as intended on my program. | Before  A screenshot of a computer  Description automatically generated with medium confidence  A screenshot of a computer  Description automatically generated with medium confidence  After  A screenshot of a computer  Description automatically generated with medium confidence  A screenshot of a computer  Description automatically generated with medium confidence |
| 22 | I want to see the behaviour of my program if I do not provide the program with any card details. | Invalid Data | place\_order function  Item Ordered – Super Glue Twin Pack  Quantity – 1  Price – 4 | I believe that the program will not accept the order as payment must be acquired. Meaning if there isn’t any card information for payment, this will mean that order won’t be executed. | After conducting this test. I found that the program does not respond in the way that I intended it to. You can see through the screenshots that the order is still placed into the database, Additionally, the program tries to fill out the payment section but doesn’t populate, the variables it doesn’t have. For example, name\_on\_card, CVV, etc, in this case. This is a massive design flaw as it could be used to cheat the system and get free products which would detrimental to the company. | Before  A screenshot of a computer  Description automatically generated  A screenshot of a computer  Description automatically generated  After  A screenshot of a computer  Description automatically generated  A screenshot of a computer  Description automatically generated |
| 23 | Next I am going to see what happen s when I only insert card data in the entries and do not put any items in the basket. | Invalid data | Long Card Number -  88917628716128765  Expiry Date -  1234  CVV -  463  Name on Card - Ralph Longly | I believe that when I test this code I will get a similar result to the previous test where it will insert the payment and will insert an order of some description incorrectly. | Surprisingly, the program did not react how I thought it would. The program inserted the payment details into the payment database. And did not insert any data into the shipping database. However, it does not produce any error messages which suggests to me that the program is still broken. | Before  A screenshot of a computer  Description automatically generated with medium confidence  A screenshot of a computer  Description automatically generated with medium confidence  After  A screenshot of a computer  Description automatically generated with medium confidence  A screenshot of a computer  Description automatically generated with medium confidence |
| 24 | I am next going to test the manage product information button to make sure it can be used by employees of Wye Camping & Leisure. | Acceptance Test | manage\_products function | I am expecting this button will work because it uses simple code to execute. | As expected the code has run fine and the button does exactly as I intended. | A screenshot of a computer  Description automatically generated with medium confidence |
| 25 | Next I am going to test the add product button on the manage products page to observe if its working correctly. | Valid data | Product name – Awning  Quantity – 20  Price - £1000 | I am expecting this function to execute and add the data I have put in the input screen into the products database. | As expected the function retrieved the data from the entry widgets and inserted the data in the right columns in the stockroom database. | A screenshot of a computer  Description automatically generated with medium confidenceBefore After  A screenshot of a computer  Description automatically generated with medium confidence |
| 26 | Next I am going to check the update product button and function within the manage product information screen to see if it works. | Valid Data | Product Name – Awning  Quantity -25  Price - 1500 | I am expecting to change the product that I have mentioned with whatever data I have inserted in the data entries. | Surprisingly, the testing did not go as I initially thought and was expecting. The program updated the quantity but not the price. I then looked further into the terminal and saw this error message which shows why the code does not execute. However, if I click the update price button, I get the desired result. So the program did run as expected. | Before After  A screenshot of a computer  Description automatically generated with medium confidenceA screenshot of a computer  Description automatically generated with medium confidenceTerminal ErrorA screenshot of a computer  Description automatically generated  A screenshot of a computer  Description automatically generated with medium confidence 🡨After Pressing update price button |
| 27 | The next button I wanted to test was the view stockroom information function and button as this would be another crucial part to the success of project with the employees. | Acceptance Test | display\_stockroom function | I am expecting this function and button to work by gathering the data from the stockroom database and display it in a new tkinter window within a listbox widget presented nicely. | As expected the program retrieved the successfully from the stockroom database and displayed it in a listbox for the user to see. | A screenshot of a computer  Description automatically generated with medium confidence |
| 28 | I then tested the view shop function in the employee section of the program to make sure it works. | Acceptance Test | view\_shop function | I am expecting the button to take the user to the shop and let the user order items the company is selling. | Surprisingly, the code for that button did not run, meaning the button just closed the employee workstation. I checked the terminal to see if there were any errors that were created and this is what was there. Meaning I should have altered the code to make it work in a different way then intended. | Terminal Error  A screenshot of a computer  Description automatically generated with medium confidence |
| 29 | My next testing task was to ensure that the contact a customer feature was working on the employee section. | Acceptance Data | contact\_customers function | I believe that the code will execute and will take the user to a new tkinter page with an entry, a few labels and a button. | As expected the button took the user to the exact page that was intended and everything is presented correctly. | A screenshot of a computer  Description automatically generated with medium confidence |
| 30 | My next task was to test the contact a customer function to make sure that it worked. | Valid data | Username - Shaun | I am expecting the function to browse the user database, and find the email of the user that I provided in the tkinter entry. It will then be displayed on the page. | After testing the function with the test data, the function works properly and is presented perfectly on the tkinter page. | Before  A screenshot of a computer  Description automatically generated with medium confidence  After |
| 31 | I am next going to check whether the program will display an email address when the wrong data is entered. | Invalid Data | Username - hacker | I think that the tkinter page will try and produce an error message saying that I can find an email for that user. | After testing, the function worked perfectly and was executed exactly as expected. | Before  A screenshot of a computer  Description automatically generated with medium confidence  After  A screenshot of a computer  Description automatically generated with medium confidence |

I only tested the employee section of code because both account types have the same functions as I was unable to code more complex functions I had planned for the manager accounts. Additionally, the code used in the manager account section is identical to the code used in the employee account section.