**GUI Based Testing – Fixed issues**

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| **Test case ID** | **System Features** | **Input** | **Expected Output** | **Observed Output** |
| TC-1 | Search for a particular customer | Input text in the text field:  Customer name | Displaying the customer menu | Figure 1: TC-1 error  Figure 2: TC-1 error |
| Figure 1: TC-1 error Figure 2: TC-1 error  Although the customer is existed in the database as shown that in the figure 2. In the code I have used another  Object of customer so, it gives that the customer does not exist. To fix the error I have used the same customer’s  Object which I have created in the importing customers’ data. | | | | |
| TC-2 | Deposit money into a customer account | Input amount in the text field: deposit | The amount money will be added to the current balance of a customer | Figure 3: TC-2 error  Figure 4: TC-2 error |
| Figure 3: TC-2 error Figure 4: TC-2 error  If accidentally, a user entered letters in the amount text box, the system will display above message to inform that the text box cannot convert string to float. I have fixed the problem by adding try exception in case was the input is letters instead of numbers. | | | | |
| TC-3 | Withdraw money from a customer account | Input amount in the text field: withdraw | The amount money will be deducted from the current balance of a customer | Figure 5: TC-3 error  Figure 6: TC-3 error  Figure 7: TC-3 error |
| *Figure 5: TC-3 error Figure 6: TC-3 error Figure 7: TC- 3 error*  As shown above I have retreived an interet account has overdraft limit 140,000. The current balance of  the account is 1000, so the customer should use the overdraft amount available and the system allow  him to withdraw 5000. To fix the error, I have checked the account type beore executing the withdraw  procedure to use a proper procdeure to complete the operation. | | | | |
| TC-4 | Check current balance for a customer | Pressing the button “Check balance” in the customer menu form | Displaying the current amount of the account with over draft details, in case the account is interest account | Figure 8: TC-4 error  Figure 9: TC-4 error |
| Figure 8: TC-4 error Figure 9: TC-4 error  When I have pressed check balance button, it gives the above error. I have used the proper object for the function to display the balance and over draft limit and amount for a customer. If the account of the customer is interest account. | | | | |
| TC-5 | Update Admin information e.g. name and address | Pressing the button “Update Admin name” then press “submitting” button | Updating the name in the database. | Figure 10: TC-4 error  Figure 11: TC-4 error |
| Figure 10: TC-5 error Figure 11: TC-5 error  Sometimes if we have updated either first or last names more than one time at the same time, without closing the above form, the old name being apart from the new name, so we need to empty the text name while loading the form then make the required updating. | | | | |
| TC-6 | Checking login function | Input the user name and password in the login form at “User name” and input wrong “Password” at the text field | Displaying error message without login to the system | Figure 12: TC-6 error  Figure 13: TC-6 error  Figure 14: TC-6 error |
| Figure 2: TC-6 error Figure 3: TC-6 error Figure 4: TC-6 error  The system was logging without entering the password or even the password is incorrect. I have updated the login function to verify the user name and password. | | | | |
| TC-7 | Display all customer information | Pressing the button “Print all customers details” | Displaying all information with scrollbar. | Figure 15: TC-6 error  Figure 16: TC-6 error |
| Figure 5: TC-7 error Figure 6: TC-7 error  The system was displaying the customer information without scrolling to show all customers’ information. I have shown the scrollbar to notice a user to use the scrollbar to see the information for all customers in the database. | | | | |
| TC-8 | Create management report | Pressing the button “Management report” | Displaying all customers’ accounts with summation of overdraft ...etc | Figure 17: TC-6 error  Figure 18: TC-6 error |
| Figure 16: TC-8 error Figure 17: TC-8 error  In the management’s report there were two errors, no scrollbar in the report to explore all the data and the summations of overdraft for all customers was calculating incorrect. | | | | |
| TC-9 | Importing from file | Pressing the button “Import customers data” | Importing all customer data into the system | Figure 19: TC-6 error  Figure 20: TC-6 error |
| Figure 18: TC- 9 error Figure 19: TC- 9 error Figure 20: TC- 9 error    When the system faces errors while importing the customer data from a text file, as you shown the above error so, we need to use try and catch to handle the prospect errors. | | | | |
| TC-10 | Exporting to file | Pressing the button “Export customers data” | Exporting all customer data into a file | Figure 21: TC-6 error  Figure 22: TC-6 error  Figure 23: TC-6 error |
| Figure 21: TC-10 error Figure 22: TC-10 error Figure 23: TC-10 error  To fix the problem, I have used the object which we have created while importing the file. To get the interest rate and over draft amount, limit. | | | | |
| TC-11 | Create log file collects all unformatted customer data | Pressing the button “Import customers data” | Importing all unformatted customer data if exist | Figure 24: TC-6 error  Figure 25: TC-6 error |
| Figure 24: TC-11 error Figure 25: TC-11 error  I have used (lstrip, rstrip) functions to remove all spaces either on the right or the left of a text. These spaces caused some errors in the customer field’s value. | | | | |
| TC-12 | Calling a form | Creating an object from the class of the calling form (window) | Displaying the calling form | Figure 26: TC-6 error  Figure 27: TC-6 error |
| Figure 26: TC-12 error Figure 27: TC-12 error  If send parameters to the calling class (form), you need to pass these parameters to variables and send it with creating an object. If you have used local parameters for a class within creating the object, the message above will display. | | | | |
| TC-14 | Transferring money between different accounts | Pressing the button “Transferring Money” | Transfer money to the receiver account | Figure 28: TC-6 error  Figure 29: TC-6 error |
| Figure 28: TC-13 error Figure 29: TC-13 error  In the transferring operation I have validated many criteria for instance,   * The sender name should be existed in the data base. * The transferring amount should be numbers. * The transferring amount should be available at an account. * In case the account is interest account can be accepted the amount that over the current balance and within the overdraft limit range. * The receiver name as well should be existed in the data base. * The receiver account number should be related the receiver account number. * The sender and receiver names should be different.   All of these restrictions have been applied in the system to complete the transfer money operation successfully. | | | | |

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| **Test case ID** | **System Features** | **Input** | **Expected Output** | **Observed Output** |
| TC-15 | Testing the deposit operation. | Entering onto the customer account by entering his name for example **Smith**. Press “deposit” button then enter the amount. | Update the customer current balance. | Figure 30: TC-15-1  Figure 31: TC-15-2  Figure 32: TC-15-3  Figure 33: TC-15-4 |
| Figure 30: TC-15-1 Figure 31: TC-15-2    *Figure 32: TC-15-3 Figure 33: TC-15-4*  To deposit money into a customer account, we need to specify the customer account by pressing “Customer account operations & profile settings” then enter the intended customer name as shown that in the figure 30. In the figure 31 above, we have checked the customer balance before depositing the money. The balance was £5000.00. Press “deposit money” button to insert the deposit amount as shown that in the figure 32 above. Press “Deposit” button, after inserting the amount. In the last figure 33, we have found the current balance has been updated. | | | | |
| TC-16 | Testing the withdraw operation. | Entering into the customer account by entering his name for example **Smith**. Press “Withdraw money” button then enter the amount. | The withdrawal amount will be deducted by the current balance. | Figure 34: TC-16-1  Figure 35: TC-16-2  Figure 36: TC-16-3  Figure 37: TC-16-4 |
| *Figure 34: TC-16-1 Figure 35: TC-16-2*    *Figure 36: TC-16-3 Figure 37: TC-16-4*  To withdraw money, we need to specify the customer account by pressing “Customer account operations & profile settings” then enter the intended customer name as shown that in the figure 34. In the figure 35 above, we have checked the customer balance before withdrawing the money. The balance was £5750.00. Press “Withdraw money” button to withdraw the money as shown that in the figure 36 above. Press “Withdraw” button, the amount will be deducted from the current balance. We have withdrawn £4000.00 so, the current balance will be £1750.00 as shown that in the figure 37. | | | | |
| TC-17 | Testing the delete account  function. | Input the account number would you delete it | The account number with all details will be deleted from the database. | Figure 38: TC-17-1  Figure 39: TC-17-2  Figure 40: TC-17-3 |
| *Figure 38: TC-17-1 Figure 39: TC-17-2 Figure 40: TC-17-3*  Press “Delete customer” button from Admin menu as shown that in the figure 38. The Admin should have a full privilege to do it. Press “Submit” button to delete the customer account after inserting the account number, see figure 39. The message will appear to confirm the delete customer. | | | | |
| TC-18 | Testing the Admin privilege | Pressing the button “Delete customer” in the Admin menu form | The message will display “The Admin has no full privilege”. | Figure 41: TC-18-1 |
| *Figure 41: TC-18-1*  Once the admin has no full privilege, the system will avoid him to delete the customer for example and the message will appear as shown that in the figure 41. | | | | |
| TC-19 | Updating Admins and customers data files | Pressing “Submit” button to update customer name or any data belongs to either customers or admins | Reflected all updates in all forms. | Figure 42: TC-19-1  Figure 43: TC-19-2  Figure 44: TC-19-3 |
| *Figure 42: TC-19-1 Figure 43: TC-19-2*    *Figure 44: TC-19-3*  Updates has been submitted in three phases:   1. All updates are done immediately in the system database, see figures 42,43 above. 2. Customer data file is updated once the session has been closed. 3. In case the system got crashed or got log off inappropriate way, all updates had been done are stored, in the next login into the system the message will display to notice the user to restore all unsaved data as shown that in the figure 44. If a user pressed “OK”, the system will generate a procedure to update the system database just for those customers who are data had updated not whole data customers.   **How (BANK SYSTEM) works:**  For starting the system has two admins/passwords as the following:   1. Admin1/1441 2. Admin2/2442   Admin1 has full privilege, his can execute the deletion for a customer. Customer and admins data files are included in the project file. (Customer\_accounts.txt, Admins). The file includes some examples for log files which are generated from importing “CUSTOMER\_ACCOUNTS” in case happened some error while importing data. As well as the system will generate transaction’s file to restore all the unsaved data in case the system got crash or log off in inappropriate way. | | | | |