Test Cases for Banking System

Test Case ID	1	Passed/Failed
Test Case	Successful Admin log in	
Steps	**Expected**	**Actual Result**
1. Run programme	Banking system will start, display's welcome message and ask the user to enter username	(base) vishaljiodedra@Vishaljis-Air ~ % /Users/vishaljiodedra/opt/anaconda3 /bin/python "/Users/vishaljiodedra/OneDrive – Birmingham City University/CM P4266/base code – banking_system/run.py" ------ Welcome to V – Banking System ------ Enter your username: []
2. Enter: "Arthur"	After taking username it will ask the user to enter password	------ Welcome to V – Banking System ------ Enter your username: Arthur Enter your password:
3. Enter: "123"	Log in successful as Admin and admin menu will be displayed.	------ Welcome to V – Banking System ------ Enter your username: Arthur Enter your password: 123 You are Admin and loged in as Arthur. Please select an option: 1 – Customer Summary 2 – Financial Forecast 3 – Transfer Money – GUI 4 – Account management – GUI Enter a number to select your option:

Instructions:
- I. programme starts to run
- II. Enter "Arthur" in the text prompt "Enter your username:"
- III. Enter "aBC" in the text prompt "Enter your password:"
- IV. Log in successful as Admin and displays admin menu and test passed

Test Case ID	2	Passed/Failed
Test Case	Log in with incorrect username/password.	
Steps	**Expected**	**Actual Result**
1. Run programme	Banking system will start, display's welcome message and ask the user to enter username	(base) vishaljiodedra@Vishaljis-Air ~ % /Users/vishaljiodedra/opt/anaconda3/bin/python "/Users/vishaljiodedra/OneDrive - Birmingham City University/CMP4266/base code - banking_system/run.py" ------ Welcome to V - Banking System ------ Enter your username:
2. Enter: "haha"	After taking username it will ask the user to enter password	------ Welcome to V - Banking System ------ Enter your username: haha Enter your password:
3. Enter: "123"	Log in unsuccessful and displays the message "Username or Password is wrong. Please log in again..." again ask the user enter correct details. such as username	------ Welcome to V - Banking System ------ Enter your username: haha Enter your password: 123 Username or Password is wrong. Please log in again... Enter your username:
4. Enter: "Boris"	After taking username it will ask the user to enter password	Username or Password is wrong. Please log in again... Enter your username: Boris Enter your password:

5. Enter: "ABC"	Log in successful and Customer menu will be displayed.	Username or Password is wrong.
		Please log in again...
		Enter your username: Boris
		Enter your password: ABC
		You are loged in as Boris.
		Please select an option:
		  1 - View account
		  2 - View summary
		  3 - Quit
		Enter a number to select your option:

Instructions:
I.   programme starts to run
II.   Enter "haha" in the text prompt "Enter your username:"
III. Enter "123" in the text prompt "Enter your password:"

IV. **Log in unsuccessful** Displays message of incorrect username or password and it ask the user to enter again correct details to log in and Test failed.

V. Enter "Boris" in the text prompt "Enter your username:"

VI. Enter "aBC" in the text prompt "Enter your password:"

VII. Log in successful and customer menu will be displayed.

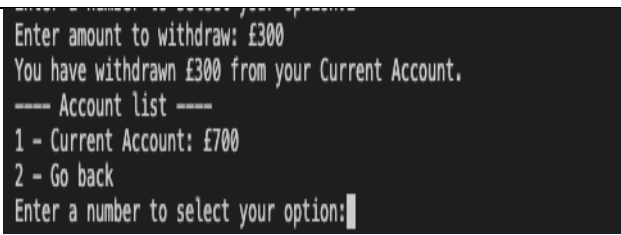| Test Case ID	3	Passed/Failed
Test Case	User deposits money (must verify the new balance).	
Steps	Expected	Actual Result
1. Run programme	Displays welcome message and ask to enter username	(base) vishaljiodedra@Vishaljis-MacBook-Air ~ % /Users/vishaljiodedra/opt/anaconda3/bin/python "/Users/vishaljiodedra/OneDrive - Birmingham City University/CMP4266/base code - banking_system/run.py" ===== Welcome to V - Banking System ===== Enter your username: ▊
2. Enter: "Boris"	After entering username, ask for the password	(base) vishaljiodedra@Vishaljis-MacBook-Air ~ % /Users/vishaljiodedra/opt/anaconda3/bin/python "/Users/vishaljiodedra/OneDrive - Birmingham City University/CMP4266/base code - banking_system/run.py" ===== Welcome to V - Banking System ===== Enter your username: Boris Enter your password: ▊

3. Enter: "ABC"	Displays log in message with logged in username, show the Customer menu, and ask to choose an option from given menu	===== Welcome to V - Banking System =====
		Enter your username: Boris
		Enter your password: ABC
		You are loged in as Boris.
		Please select an option:
		  1 - View account
		  2 - View summary
		  3 - Quit
		Enter a number to select your option:▊

4. Enter: "1"	This shows, all the active accounts of customer in the bank.	You are loged in as Boris.
		Please select an option:
		  1 - View account
		  2 - View summary
		  3 - Quit
		Enter a number to select your option:1
		===== Account list =====
		1 - Current Account: £1000
		2 - Go back
		Enter a number to select your option:▊

5. Enter: "1"	Then, ask the customer to select the account. After selecting account, it displays the message of selected account and operation menu will appear and prompt user to enter input	===== Account list =====
		1 - Current Account: £1000
		2 - Go back
		Enter a number to select your option:1
		You selected 1 - Current Account: £1000.
		Please select an option:
		  1 - Deposit
		  2 - Withdraw
		  3 - Go back
		Enter a number to select your option:▊

6. Enter: "1"	As we need to deposit so we will enter input "1". It prompt user to enter the amount to be deposited.	`You selected 1 - Current Account: £1000.`
		`Please select an option:`
		`  1 - Deposit`
		`  2 - Withdraw`
		`  3 - Go back`
		`Enter a number to select your option:1`
		`Enter amount to deposit: £`

7. Enter "500"	It will display a message that amount has been deposited and after verifying new balance and updating the balance of all accounts it will print the list of all account and prompt user to enter input., Programme keep on running and Test passed	`Enter a number to select your option:1`
		`Enter amount to deposit: £500`
		`You have deposited £500 to your Current Account.`
		`---- Account list ----`
		`1 - Current Account: £1500`
		`2 - Go back`
		`Enter a number to select your option:`

Instructions:

I. programme starts to run
II. Enter "Boris" in the text prompt "Enter your username:"
III. Enter "ABC" in the text prompt "Enter your password:"
IV. After logging in successfully, it displays "You are logged in as Boris." And prints the customer menu, and prompt user to input,
V. Enter "1" in the text prompt "Enter a number to select your option:" to see all the active accounts
VI. After entering "1", it displays all the active account of Boris. Ask to select account,
VII. After selecting account, it prints out operational menu and prompt customer to select operation.
VIII. As this is depositing test, we enter "1"and select deposit.
IX. Then system will prompt Boris to enter amount to be deposited, here we have entered "500"
X. After, it will display the message of amount has been deposited successfully and after checking and updating new balance it will print all the active account of the Boris with updated balance and prompt user to select account and programme continue to run and Test passed

Test Case ID	4	**Passed**/Failed
Test Case	User withdraws money - successful (must verify the new balance).	
Steps	**Expected**	**Actual Result**
1. Run programme	Displays welcome message and ask to enter username	(base) vishaljiodedra@Vishaljis-MacBook-Air ~ % /Users/vishaljiodedra/opt/a naconda3/bin/python "/Users/vishaljiodedra/OneDrive - Birmingham City Unive rsity/CMP4266/base code - banking_system/run.py" ===== Welcome to V - Banking System ===== Enter your username:
2. Enter: "Boris"	After entering username, ask for the password	(base) vishaljiodedra@Vishaljis-MacBook-Air ~ % /Users/vishaljiodedra/opt/a naconda3/bin/python "/Users/vishaljiodedra/OneDrive - Birmingham City Unive rsity/CMP4266/base code - banking_system/run.py" ===== Welcome to V - Banking System ===== Enter your username: Boris Enter your password:

3. Enter: "ABC"	Displays log in message with logged in username, show the Customer menu, and ask to choose an option from given menu	===== Welcome to V - Banking System =====
		Enter your username: Boris
		Enter your password: ABC
		You are loged in as Boris.
		Please select an option:
		  1 - View account
		  2 - View summary
		  3 - Quit
		Enter a number to select your option:

4. Enter: "1"	This shows, all the active accounts of customer in the bank.	You are loged in as Boris.
		Please select an option:
		  1 - View account
		  2 - View summary
		  3 - Quit
		Enter a number to select your option:1
		==== Account list ====
		1 - Current Account: £1000
		2 - Go back
		Enter a number to select your option:

5. Enter: "1"	Then, ask the customer to select the account.	==== Account list ====
		1 - Current Account: £1000
		2 - Go back
		Enter a number to select your option:1
		You selected 1 - Current Account: £1000.
		Please select an option:
		  1 - Deposit
		  2 - Withdraw
		  3 - Go back
		Enter a number to select your option:

6. Enter: "2"	After, asking account it will print selected account and it will ask for the	You selected 1 - Current Account: £1000.
		Please select an option:
		  1 - Deposit
		  2 - Withdraw
		  3 - Go back
		Enter a number to select your option:2
		Enter amount to withdraw: £

		operation, here its withdraw	
7. Enter amount "300"	After selecting operation, system ask for the amount to be withdrawn, here, if withdrawn amount > balance or new balance <= balance + overdraft. Then it will not withdraw. displays ==amount withdrawn successfully== and displays list of account with updated balance. ==Test passed==	``Enter amount to withdraw: £300`` ``You have withdrawn £300 from your Current Account.`` ``---- Account list ----`` ``1 - Current Account: £700`` ``2 - Go back`` ``Enter a number to select your option:``	

Instructions:

XI. programme starts to run

XII. Enter "Boris" in the text prompt "Enter your username:"

XIII. Enter "ABC" in the text prompt "Enter your password:"

XIV. After logging in successfully, it displays "You are logged in as Boris." And prints the customer menu, and ask for the input,

XV. Enter "1" in the text prompt "Enter a number to select your option:"

XVI. After entering "1", it displays all the active account of Boris. Ask to select account,

XVII. After selecting account, it prints out operational menu and prompt customer to select operation.

XVIII. As this is withdrawal test, we enter "2"and select withdraw.

XIX. Then system will prompt customer to enter amount to be withdrawn, here we have entered "300"

XX. Here, it checks amount > balance or amount>new balance + overdraft, if any of this true then it will not withdraw and give message of insufficient balance.

XXI. Else withdraw and prints ==successfully withdrawn== and display all the account with updated balance. ==Test pasted==

Test Case ID	5	Passed/<mark>Failed</mark>
Test Case	User withdraws money - no sufficient money (must verify the new balance).	
Steps	Expected	Actual Result
Here program continues from test case 4, to show the insufficient balance when user withdraws money		
1. Enter: "1"	This shows, all the active accounts of customer in the bank.	=== Account list === 1 - Current Account: £700 2 - Go back Enter a number to select your option:

2. Enter: "1"	Then, ask the customer to select the account.	You selected 1 - Current Account: £700.
		Please select an option:
		  1 - Deposit
		  2 - Withdraw
		  3 - Go back
		Enter a number to select your option:

3. Enter: "2"	After, asking account it will print selected account and it will ask for the operation, here it is withdrawn	Please select an option:
		  1 - Deposit
		  2 - Withdraw
		  3 - Go back
		Enter a number to select your option:2
		Enter amount to withdraw: £

4. Enter amount "1000"	After selecting operation, system ask for the amount to be withdrawn, here, if withdrawn amount > balance or new balance <= balance + overdraft. Then <mark>it will not withdraw</mark>.	Enter amount to withdraw: £1000 The ammount is large compared to balance. You can withdraw only £800. === Account list === 1 - Current Account: £700 2 - Go back Enter a number to select your option:

Instructions:
   I. After doing successful withdrawal in test case 4, it shows all the account of customer with updated balance and again ask for selecting account, here we will select same account of same
   II. After selecting account, it prints out operational menu and prompt customer to select operation.
   III. As this is withdrawal test, we enter "2"and select withdraw.

IV.   Then system will prompt customer to enter amount to be withdrawn, here we have entered "1000"

V.   Here, it checks amount > balance or amount>new balance + overdraft, if any of this true then it will not withdraw and give message of insufficient balance.

VI.   As here withdrawn amount is large then the balance and verify the new balance as per step 4. So, prints out "Amount is large compared to balance". It also displays how much customer can withdraw. Test failed.

Test Case ID	6	<mark>Passed</mark>/Failed
Test Case	Verify the account balances are saved and loaded correctly by restarting the application.	
Steps	**Expected**	**Actual Result**
1. Start app	Prints the welcome message and ask for username (restarting the programme)	(base) vishaljiodedra@Vishaljis-MacBook-Air ~ % /Users/vishaljiodedra/opt/anaconda3/bin/python "/Users/vishaljiodedra/OneDrive - Birmingham City University/CMP4266/base code - banking_system/run.py" —————— Welcome to V - Banking System —————— Enter your username: ▮
2. Enter: "Boris"	After entering username, prompt user for password	(base) vishaljiodedra@Vishaljis-MacBook-Air ~ % /Users/vishaljiodedra/opt/anaconda3/bin/python "/Users/vishaljiodedra/OneDrive - Birmingham City University/CMP4266/base code - banking_system/run.py" —————— Welcome to V - Banking System —————— Enter your username: Boris Enter your password: ▮

3. Enter: "ABC"	After entering password, it displays logged in message and the customer menu	You are logged in as Boris.
		Please select an option:
		  1 - View account
		  2 - View summary
		  3 - Quit
		Enter a number to select your option: ▮

4. Enter: "1"	Prompt customer to enter option	Enter a number to select your option:1 ——— Account list ——— 1 - Current Account: £700 2 - Go back Enter a number to select your option: ▮

5. Enter: "1"	<mark>Yes, it checks the balance is updated</mark>, prompt user to select account	Enter a number to select your option:1
		You selected 1 - Current Account: £700.
		Please select an option:
		  1 - Deposit
		  2 - Withdraw
		  3 - Go back
		Enter a number to select your option: ▮

6. Enter: "1"	Displays selected account, prompt user to enter operation, here it is deposit	Please select an option:
		  1 - Deposit
		  2 - Withdraw
		  3 - Go back
		Enter a number to select your option:1
		Enter amount to deposit: £▮

7. Enter: "300"	Displays message of successfully deposited amount and show list of account with updated balance, prompt user to enter	Enter amount to deposit: £300 You have deposited £300 to your Current Account. ——— Account list ——— 1 - Current Account: £1000 2 - Go back Enter a number to select your option: ▮
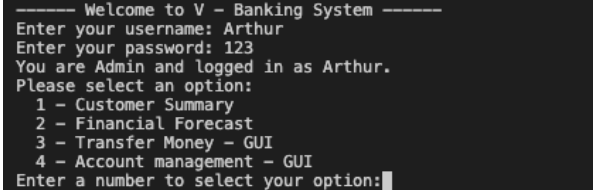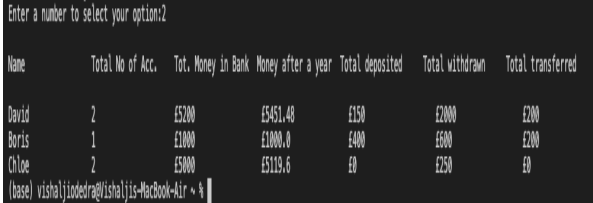
| 8. | Enter: "2" | It will go back and prints the Customer menu ask for the input | ```
Enter a number to select your option:2
Please select an option:
  1 - View account
  2 - View summary
  3 - Quit
Enter a number to select your option:
``` |
| 9. | Enter: "2" | Print outs the customer details such as address, total balance of all account and total number of accounts and programme ends with updates data. | ```
Enter a number to select your option:2
Total accounts: 1
Total balance: £1000
address: 10 London Road
(base) vishaljiodedra@Vishaljis-MacBook-Air ~ %
``` |

Instructions:

    I.   Restarting application and programme starts to run

    II.   Enter "Boris" in the text prompt "Enter your username:"

    III.   Enter "ABC" in the text prompt "Enter your password:"

    IV.   After logging in successfully, it displays "You are logged in as Boris." And prints the customer menu, and ask for the input

    V.   Enter "1" in the text prompt "Enter a number to select your option:"

    VI.   After entering "1", it displays all the active account of Boris. Prompt Boris to select account,

    VII.   After selecting account, it prints out operational menu and prompt Boris to select operation.

    VIII.   Here we have selected deposit so, entered "1"and selected deposit.

    IX.   Then system will prompt customer to enter amount to be deposited, here we have entered "300".

    X.   It will deposit the amount to the balance and print the message of successfully deposited and displays all account with updated balance and prompt Boris to enter input

    XI.   Here it is "2" it will go back and prints the customer menu and prompt Boris to enter input

    XII.   Again it's "2", which display all the updated data of the Boris. And programme end. All the data are saved and updated, and Test passed

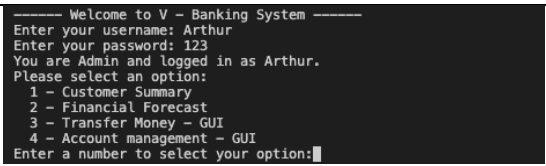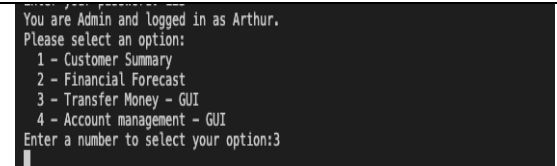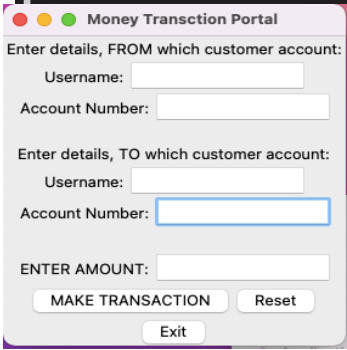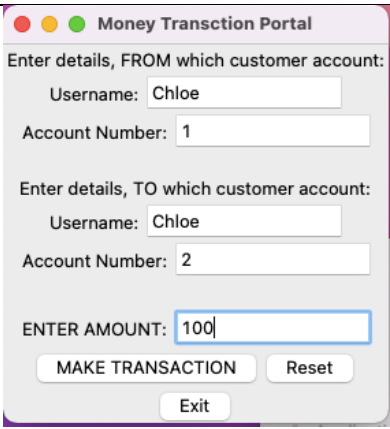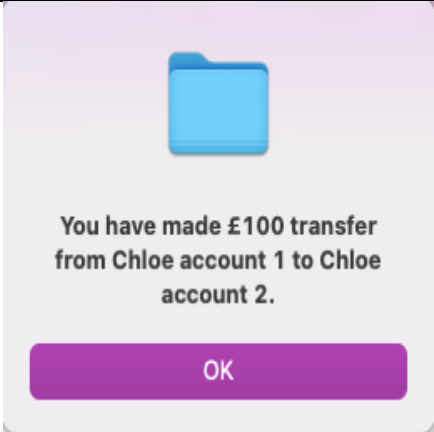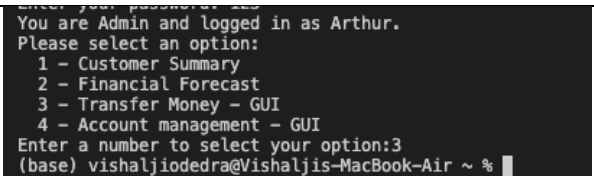| Test Case ID	7	==Passed==/Failed
Test Case	Admin views the customer Summary.	
Steps	Expected	Actual Result
1. Run programme	Prints welcome message and prompt user to enter username	(base) vishaljiodedra@vishaljis-MacBook-Air ~ % /Users/vishaljiodedra/opt/anaconda3/bin/python "/Users/vishaljiodedra/OneDrive - Birmingham City Universi ty/CMP4266/base code - banking_system/run.py" ------ Welcome to V - Banking System ------ Enter your username: []
2. Enter: "Arthur"	After username, prompt user to enter password	(base) vishaljiodedra@vishaljis-MacBook-Air ~ % /Users/vishaljiodedra/opt/anaconda3/bin/python "/Users/vishaljiodedra/OneDrive - Birmingham City Universi ty/CMP4266/base code - banking_system/run.py" ------ Welcome to V - Banking System ------ Enter your username: Arthur Enter your password: ▌
3. Enter: "123"	After password, it displays message logged in as admin and print the admin menu and prompt user to enter input	------ Welcome to V - Banking System ------ Enter your username: Arthur Enter your password: 123 You are Admin and logged in as Arthur. Please select an option: 1 - Customer Summary 2 - Financial Forecast 3 - Transfer Money - GUI 4 - Account management - GUI Enter a number to select your option:▌
4. Enter: "1"	As we need to ==display customer summary==, so input is "1". And ==display all the details of all the customer== and ==programme end successfully== and ==test passed==.	Enter a number to select your option:1 Name Address Account type Balance Overdraft Interest rate David 2 Birmingham Street Saving Account £200 £0 0.99% Saving Account £5000 £0 4.99% Boris 10 London Road Current Account £1000 £100 0% Chloe 99 Queens Road Current Account £1000 £100 0% Saving Account £4000 £0 2.99% (base) vishaljiodedra@vishaljis-MacBook-Air ~ % ▌

Instructions:

I. Programme start to run

II. Enter "Arthur" in the text prompt "Enter your username:"

III. Enter "123" in the text prompt "Enter your password:"

IV. After logging successfully, it displays the message of logged in as admin with the username "Arthur" and displays customer menu and prompt Arthur to enter input

V. To get Customer summery, here we have entered "1", that will display ==all the data of all the active accounts of all customers in the bank== and ==programme end successfully== and ==test passed==.

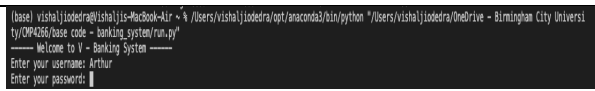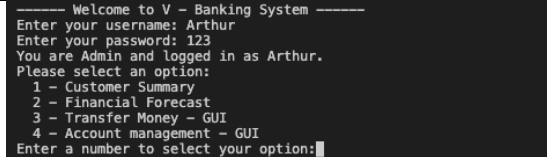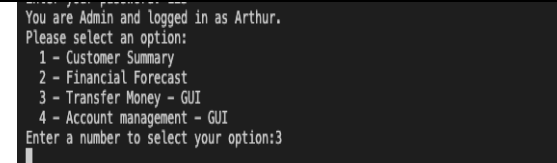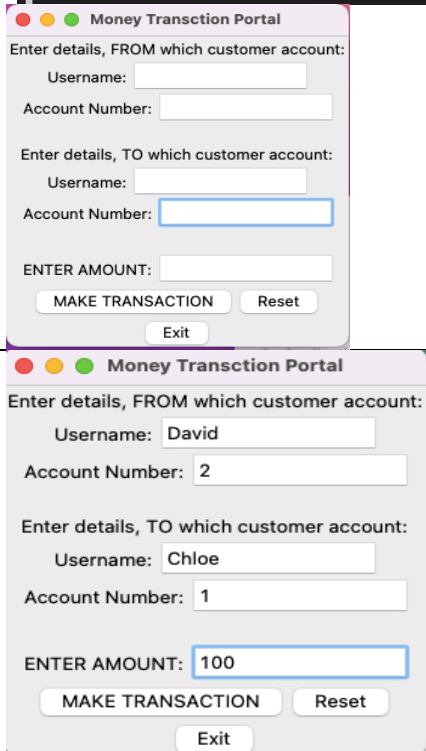| Test Case ID	8	Passed/Failed
Test Case	Admin views the Financial Forecast.	
Steps	Expected	Actual Result
1. Run programme	Prints welcome message and prompt user to enter username	
2. Enter: "Arthur"	After username, prompt user to enter password	
3. Enter: "123"	After password, it displays message logged in as admin and print the admin menu and prompt user to enter input	
4. Enter: "2"	As we need to display the financial forecast so input is "2" and it display the financial forecast of all users and program successfully ends and test passed.	

Instructions:
I. Programme start to run
II. Enter "Arthur" in the text prompt "Enter your username:"
III. Enter "123" in the text prompt "Enter your password:"
IV. After logging successfully, it displays the message of logged in as admin with the username "Arthur" and displays customer menu and prompt Arthur to enter input
V. To get financial forecast, here we have entered "2", that will display all the data of financial forecast of all customers in the bank, data like total balance on the bank, total accounts, total balance after year with interest, total deposited, total withdrawn and total transferred amount programme end successfully and test passed.
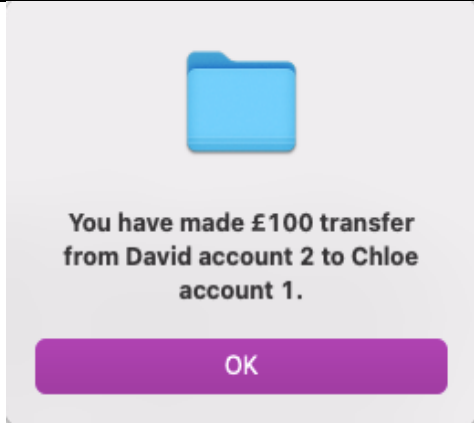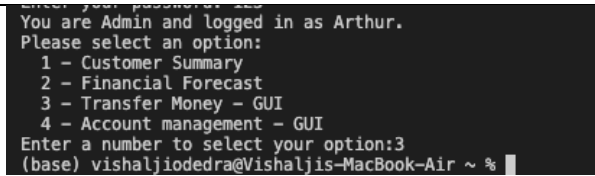
Test Case ID	9	<mark>Passed</mark>/Failed
Test Case	Admin transfers money - same customer, different accounts.	
Steps	Expected	Actual Result
1. Run programme	Prints welcome message and prompt user to enter username	
2. Enter: "Arthur"	After username, prompt user to enter password	
3. Enter: "123"	After password, it displays message logged in as admin and print the admin menu and prompt user to enter input	
4. Enter: "3"	Here, we need to transfer money so, input is "3". It will take to the GUI window named as "Money Transaction Portal" and ask for the "FROM" and "TO" account details like username and account number and amount to be transferred	
5. Enter all the required details to make transaction	As required, we need transfer to the money in same customer but different account, so here username in "FROM" and "TO" section is same but account number is different due to different account, now to make Transaction click button "MAKE TRANSACTION"	

6. Click "MAKE TRANSACTION"	After clicking button, it displays pop up message saying that "**You have made £100 transfer from Chloe account 1 to Chloe account 2.**" That mean <mark>transaction is successful</mark> and says to click "OK"	You have made £100 transfer from Chloe account 1 to Chloe account 2. OK
7. Click "OK"	When click "OK", the GUI window is closed, and <mark>Programme end successfully,</mark> and <mark>Test passed</mark>	You are Admin and logged in as Arthur. Please select an option: 　1 - Customer Summary 　2 - Financial Forecast 　3 - Transfer Money – GUI 　4 - Account management – GUI Enter a number to select your option:3 (base) vishaljiodedra@Vishaljis-MacBook-Air ~ %

Instructions:
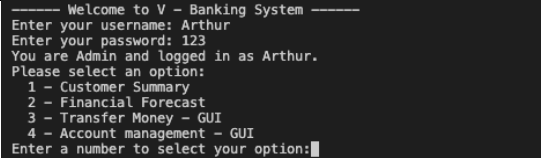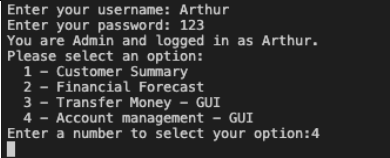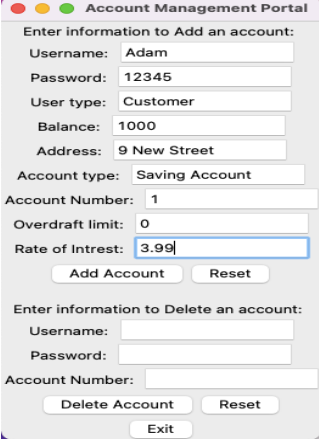
I. Programme start to run

II. Enter "Arthur" in the text prompt "Enter your username:"

III. Enter "123" in the text prompt "Enter your password:"

IV. After logging successfully, it displays the message of logged in as admin with the username "Arthur" and displays customer menu and prompt Arthur to enter input

V. Here we make transaction of money, so input is "3". After entering "3", this will take to GUI window name as "Money Transaction Portal" and ask Arthur to enter the details, such as username and password for the "FROM" and "TO" accounts and amount to be transferred.

VI. As per requirement we need to make transaction for the same customers different account, so username will be same, but account number will not be same.

VII. After entering all the details of "FROM" account and "TO" account, to make transaction click "MAKE TRANSACTION".

VIII. After clicking button "MAKE TRANSACTION", new pop-up window will appear which will give message of money transaction. In this case message is "**You have made £100 transfer from Chloe account 1 to Chloe account 2.**" And says to click "OK" button.

IX. <mark>After clicking "OK"</mark> button, The <mark>GUI window will close</mark>, and <mark>programme end successfully</mark> and <mark>Test Pass</mark>
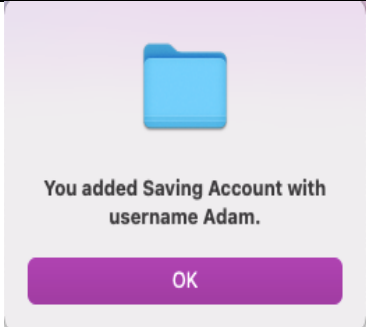
Test Case ID	10	<mark>Passed</mark>/Failed
Test Case	Admin transfers money - between two customers.	
Steps	Expected	Actual Result
1. Run programme	Prints welcome message and prompt user to enter username	
2. Enter: "Arthur"	After username, prompt user to enter password	
3. Enter: "123"	After password, it displays message logged in as admin and print the admin menu and prompt user to enter input	
4. Enter: "3"	Here, we need to transfer money so, input is "3". It will take to the GUI window named as "Money Transaction Portal" and ask for the "FROM" and "TO" account details like username and account number and amount to be transferred	
5. Enter all the required details to make transaction	As required, we need transfer to the money in two customers' accounts, so here username in "FROM" and "TO" section is different but account number can be same or different, now to make Transaction click button "MAKE TRANSACTION"	

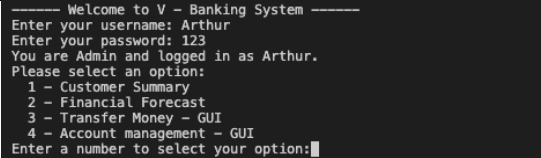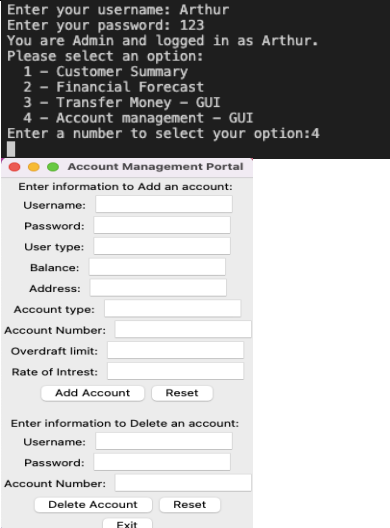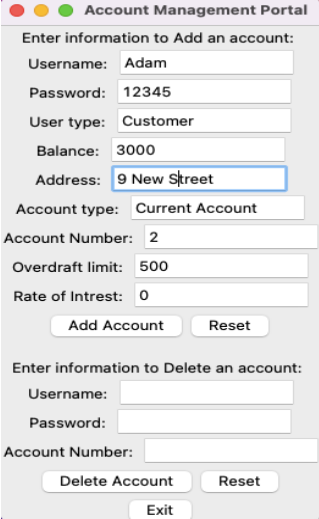|		
6. Click "MAKE TRANSACTION"	After clicking button, it displays pop up message saying that "**You have made £100 transfer from David account 2 to Chloe account 1.**" That mean ==transaction is successful== and says to click "OK"	You have made £100 transfer from David account 2 to Chloe account 1. OK

7. Click "OK"	When click "OK", the GUI window is closed, and ==Programme end successfully,== and ==Test passed==	Enter your password: 123
		You are Admin and logged in as Arthur.
		Please select an option:
		  1 – Customer Summary
		  2 – Financial Forecast
		  3 – Transfer Money – GUI
		  4 – Account management – GUI
		Enter a number to select your option:3
		(base) vishaljiodedra@Vishaljis-MacBook-Air ~ %

Instructions:
  I.   Programme start to run
  II.   Enter "Arthur" in the text prompt "Enter your username:"
  III. Enter "123" in the text prompt "Enter your password:"
  IV.   After logging successfully, it displays the message of logged in as admin with the username "Arthur" and displays customer menu and prompt Arthur to enter input
  V.   Here we make transaction of money, so input is "3". After entering "3", this will take to GUI window name as "Money Transaction Portal" and ask Arthur to enter the details, such as username and password for the "FROM" and "TO" accounts and amount to be transferred.
  VI.   As per requirement we need to make transaction for the different customers, so username will not be same, but account numbers can be same.
  VII. After entering all the details of "FROM" account and "TO" account, to make transaction click "MAKE TRANSACTION".
  VIII. After clicking button "MAKE TRANSACTION", new pop-up window will appear which will give message of money transaction. In this case message is "**You have made £100 transfer from David account 2 to Chloe account 1.**" And says to click "OK" button.
  IX.   ==After clicking "OK"== button, The ==GUI window will close==, and ==programme end successfully== and ==Test Pass==
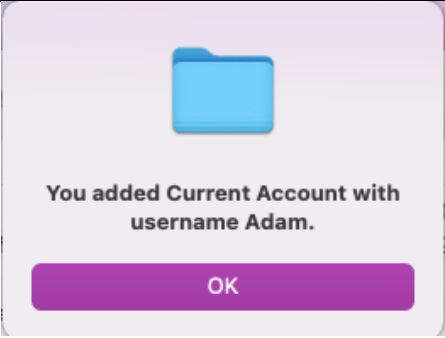
Test Case ID	11	Passed/Failed
Test Case	Admin adds a saving account to a customer.	
Steps	Expected	Actual Result
1. Run programme	Prints welcome message and prompt user to enter username	
2. Enter: "Arthur"	After username, prompt user to enter password	
3. Enter: "123"	After password, it displays message logged in as admin and print the admin menu and prompt user to enter input	
4. Enter: "4"	As per requirement, here we must add saving account so, here input will be "4", this will take to GUI window named "Account Management Portal", it will ask the admin for the details of customer to add saving account	
5. Enter all the required details	As asked here to enter all details of customer such as username, password, balance, address, account number, overdraft, and interest, here user type will "Customer" and as we need to add saving account so account type will be "Saving Account", then to add account click "Add Account"	

6. Click "Add Account"	After clicking "Add Account", a pop-up window will appear, and it display message that ==account has been added successfully with username and account type==. After, it will say to click "OK'	You added Saving Account with username Adam. [OK]

7. Click "OK"	After clicking "OK", the GUI window will close, and ==programme will end successfully==, and ==Test passed==	Enter your username: Arthur
		Enter your password: 123
		You are Admin and logged in as Arthur.
		Please select an option:
		  1 – Customer Summary
		  2 – Financial Forecast
		  3 – Transfer Money – GUI
		  4 – Account management – GUI
		Enter a number to select your option:4
		(base) vishaljiodedra@Vishaljis-Air ~ %

Instructions:
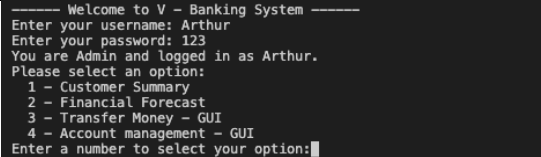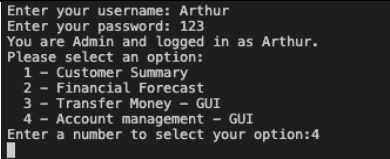
I. Programme start to run

II. Enter "Arthur" in the text prompt "Enter your username:"

III. Enter "123" in the text prompt "Enter your password:"

IV. After logging successfully, it displays the message of logged in as admin with the username "Arthur" and displays customer menu and prompt Arthur to enter input

V. Now as requirement we need to add saving account so we will go to Account management by giving input "4", it will take to new GUI window name as "Account Management Portal" and ask Arthur to enter details of new customer

VI. After entering details as requirement and as we are adding saving account so account type will be "Saving Account" and we are adding customer account so user type will be "Customer", then to add account please click "Add Account"

VII. Then it will give new pop-up window, ==displaying message of account successfully added with username and account type==. Then say to click "OK"

VIII. After clicking "OK" the GUI window will close and ==programme successfully ends== and ==Test passed==

Test Case ID	12	**Passed**/Failed
Test Case	Admin adds a current account to a customer.	
Steps	**Expected**	**Actual Result**
1. Run programme	Prints welcome message and prompt user to enter username	
2. Enter: "Arthur"	After username, prompt user to enter password	
3. Enter: "123"	After password, it displays message logged in as admin and print the admin menu and prompt user to enter input	
4. Enter: "4"	As per requirement, here we must add current account so, here input will be "4", this will take to GUI window named "Account Management Portal", it will ask the admin for the details of customer to add current account	
5. Enter all the required details	As asked, enter all details of customer such as username, password, balance, address, account number, overdraft, and interest, here user type will "Customer" and as we need to add current account so account type will be "Current Account", then to add account click "Add Account"	

6. Click "Add Account"	After clicking "Add Account", a pop-up window will appear, and it display message that <mark>account has been added successfully with username and account type</mark>. After, it will say to click "OK'	You added Current Account with username Adam. OK

7. Click "OK"	After clicking "OK", the GUI window will close, and <mark>programme will end successfully</mark>, and <mark>Test passed</mark>	Enter your username: Arthur
		Enter your password: 123
		You are Admin and logged in as Arthur.
		Please select an option:
		  1 – Customer Summary
		  2 – Financial Forecast
		  3 – Transfer Money – GUI
		  4 – Account management – GUI
		Enter a number to select your option:4
		(base) vishaljiodedra@Vishaljis-Air ~ %

Instructions:

I. Programme start to run

II. Enter "Arthur" in the text prompt "Enter your username:"

III. Enter "123" in the text prompt "Enter your password:"

IV. After logging successfully, it displays the message of logged in as admin with the username "Arthur" and displays customer menu and prompt Arthur to enter input

V. Now as requirement we need to add current account so we will go to Account management by giving input "4", it will take to new GUI window name as "Account Management Portal" and ask Arthur to enter details of new customer

VI. After entering details as requirement and as we are adding current account so account type will be "Current Account" and we are adding customer account so user type will be "Customer", then to add account please click "Add Account"

VII. Then it will give new pop-up window, <mark>displaying message of account successfully added with username and account type</mark>. Then say to click "OK"

VIII. After clicking "OK" the GUI window will close, and <mark>programme successfully ends</mark> and <mark>Test passed</mark>
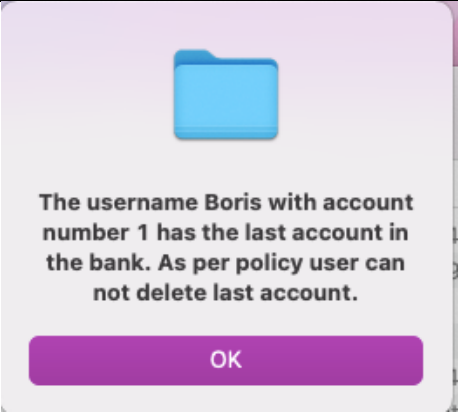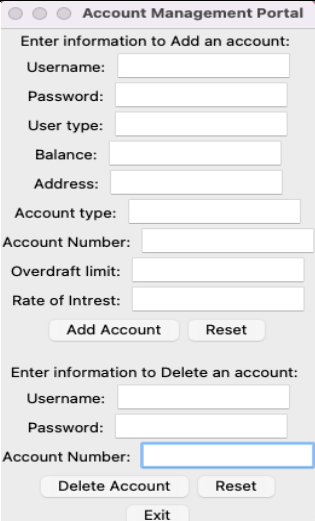
Test Case ID	13	<mark>Passed</mark>/Failed
Test Case	Admin deletes the last account from a customer.	
Steps	Expected	Actual Result
1. Run programme	Prints welcome message and prompt user to enter username	
2. Enter: "Arthur"	After username, prompt user to enter password	
3. Enter: "123"	After password, it displays message logged in as admin and print the admin menu and prompt user to enter input	
4. Enter: "4"	As per requirement, here we must last account so, here input will be "4", this will take to GUI window named "Account Management Portal", it will ask the admin for the details of customer to delete the last account.	
5. Enter all the required details	For deleting account, it will ask for the username, password, and account number, to delete the last account, we try to delete the Boris account, he has last account in the bank, then to delete the account click "Delete Account"	

6. Click "Delete Account"	After click "Delete Account" it will give message that this user has the last account in the bank and last account cannot be deleted with username and account number, after that it says to click "OK",	The username Boris with account number 1 has the last account in the bank. As per policy user can not delete last account. OK
7. Click "OK"	After clicking ok it will clear the deleting form and again will ask enter details to add account or to delete account, so last account will not be deleted, and Test passed to close the GUI window you can click "Exit" button.	

Instructions:

I.   Programme start to run

II. Enter "Arthur" in the text prompt "Enter your username:"

III. Enter "123" in the text prompt "Enter your password:"

IV. After logging successfully, it displays the message of logged in as admin with the username "Arthur" and displays customer menu and prompt Arthur to enter input

V.   As test case we must delete the last account of user, but only one user has the last account that is Boris, here we will select account management for deleting account by giving input "4", it will take to new GUI window name "Account Management Portal" and ask Arthur to enter details like username, password, and account number, after to delete account please click "Delete Account"

VI. Then new pop-up window appears, and it will display message that user cannot delete last account from the bank and account will not be deleted, then it will say to click "OK",

VII. After clicking "OK", it will clear the delete form and ask Arthur to enter again the details to add account or to delete account, the programme continues to run, and Account will not be deleted, and Test passed, then to exit the GUI window click "EXIT" and programme will end

Test Case ID	14	**Passed**/Failed
Test Case	Verify the newly added account is saved and loaded correctly by restarting the application.	
To verify the details, we will log in with new customer details and check summary.		
Steps	**Expected**	**Actual Result**
1. Restart app and Run programme	Prints welcome message and prompt user to enter username	(base) vishaljiodedra@Vishaljis-Air ~ % /Users/vishaljiodedra/opt/anaconda3/bin/python "/Users/vishaljiodedra/OneDrive - Birmingham City University/CMP4266/base code - banking_system/run.py" ------ Welcome to V - Banking System ------ Enter your username:
2. Enter: "Adam"	After username, prompt user to enter password	(base) vishaljiodedra@Vishaljis-Air ~ % /Users/vishaljiodedra/opt/anaconda3/bin/python "/Users/vishaljiodedra/OneDrive - Birmingham City University/CMP4266/base code - banking_system/run.py" ------ Welcome to V - Banking System ------ Enter your username: Adam Enter your password:
3. Enter: "12345"	After password, it displays message logged in as Adam and print the Customer menu and prompt user to enter input	------ Welcome to V - Banking System ------ Enter your username: Adam Enter your password: 12345 You are logged in as Adam. Please select an option: 1 - View account 2 - View summary 3 - Quit Enter a number to select your option:
4. Enter: "2"	As we need verify the details of newly added customer are saved and loaded correctly, so we go for view summary by giving input "2", It displays correct details like total account, total balance and address that means account details are saved and loaded correctly and programme ends successfully, and Test passed	You are logged in as Adam. Please select an option: 1 - View account 2 - View summary 3 - Quit Enter a number to select your option:2 Total accounts: 2 Total balance: £4000 address: 9 New Street (base) vishaljiodedra@Vishaljis-Air ~ %

Instructions:

I. Restarting application and programme starts to run (To verify that newly added account is saved and loads correctly, we see the account summary by logging in to that account)

II. Enter "Adam" in the text prompt "Enter your username:"

III. Enter "12345" in the text prompt "Enter your password:"

IV. After logging in successfully, it displays "You are logged in as Adam." And prints the customer menu, and ask for the input

V. To verify the account is saved and loaded correctly, we check summary of account by giving input "2"

VI. It is ==displaying all the correct details of the active accounts of the Adam== in the Bank such as, total number of accounts, total balance in the bank of all account and address, by this we can say that ==newly added account is saved and loaded correctly==. After that ==programme successfully ends== and ==Test passed==

Test Case ID	15	<mark>Passed</mark>/Failed
Test Case	Verify the newly removed account is saved and loaded correctly by restarting the application.	
To check that new removed account saved and loaded correctly, we will try to log in with that account details, as we deleted Boris Account so we will log in with Boris Account details.		
Steps	Expected	Actual Result
1. Restart app and Run programme	Prints welcome message and prompt user to enter username	(base) vishaljiodedra@Vishaljis-Air ~ % /Users/vishaljiodedra/opt/anaconda3/bin/python "/Users/vishaljiodedra/OneDrive - Birmingham City University/CMP4266/base code - banking_system/run.py" ——— Welcome to V - Banking System ——— Enter your username:
2. Enter: "Boris"	After username, prompt user to enter password	(base) vishaljiodedra@Vishaljis-Air ~ % /Users/vishaljiodedra/opt/anaconda3/bin/python "/Users/vishaljiodedra/OneDrive - Birmingham City University/CMP4266/base code - banking_system/run.py" ——— Welcome to V - Banking System ——— Enter your username: Boris Enter your password:

3. Enter: "ABC"	After password, it displays message logged in as Boris and print the Customer menu, as <mark>here customer menu is loaded correctly that mean the last account Boris was not deleted</mark>. and prompt user to enter input	——— Welcome to V - Banking System ———
		Enter your username: Boris
		Enter your password: ABC
		You are logged in as Boris.
		Please select an option:
		  1 - View account
		  2 - View summary
		  3 - Quit
		Enter a number to select your option:

4. Enter: "3"	Here we will Quit the giving input "3", As <mark>it was unsuccessful to remove the last account of Boris in</mark> "Test case 13" so it is <mark>not removed</mark>, and data saved and loaded correctly, and <mark>programme end successfully</mark>, and <mark>Test passed.</mark>	You are logged in as Boris.
		Please select an option:
		  1 - View account
		  2 - View summary
		  3 - Quit
		Enter a number to select your option:3
		Thank you for using V - Banking
		——— Bye ———
		(base) vishaljiodedra@Vishaljis-Air ~ %

Instructions:
I. Restarting application and programme starts to run (To verify that newly deleted account is saved and loads correctly, we will verify this by logging in to that account)

II. As in ==Test case 13, we have deleted the last account of Boris so, we will log in Boris account to verify.==

III. Enter "Boris" in the text prompt "Enter your username:"

IV. Enter "ABC" in the text prompt "Enter your password:"

V. It is ==logging in successfully== and it displays "You are logged in as Boris." And prints the customer menu, and ask for the input, ==by this we can say that the last account of Boris is not deleted== and as per specification the user cannot delete the last account and it is not deleted.

VI. Here we will Quit the system by entering "3" and ==programme end successfully==, and ==Test passed==