Requirement Problems

Requirements problems	Decision Made
It is unclear if portions of cents are allowed.	Assume only whole cents. Cent inputs with decimals will not be accepted
It is unclear if withdraw and transfer are in cents. Deposit specifies it's in cents	Assume withdraw and transfer are in cents
Output on negative test cases is unclear	Assume no output to summary transaction file when errors occur
It is stated that no further transactions can be completed on a deleted account, but deleting an account is not an instant process.	I assume this requirement is meant for after the nightly backend runs.

Test Plan

Test files: We chose to include the content of our test files in the input file and output file columns of the test spreadsheet. The input file column always refers to the valid accounts list file, the output file column always refers to a transaction summary file.

For testing, we will be using the pytest framework. All of our tests will be organized in a "test" folder, which will contain all test files, our shell script for running the tests, and our output logs. Our tests will be organized based on the "informal groupings" we have given them, which are based off of the possible commands, such as "login", "logout", etc. Each informal grouping will have a python file, such as "test_login.py", which will contain all test cases for that group. The tests will be called by a bash script, which will run the tests, and then record all output into log files, parse the logs, and record the resulting data into a txt file, which will hold test results over time. The log file will simply detail the success or failure of each test (e.g. "login test 1 passed").

The resulting test folder would appear as follows:

```
/test/
|
| ---- test_login.py
| ---- test_logout.py
| ---- etc.
| ---- test.sh
| ---- test_data.txt
/test_logs/
    | ---- <date+time>.log
```

Informal grouping	Requirement	Test No.	Test Name	Purpose	Input	Input Files	Output	Output Files
login	No transaction other than login accepted before login	R1T1	login	Must first login before any other transaction	`login`	none	Ask for session type	none
		R1T2	idle log out	Can't logout before logging in	`logout`	none	error prompt for user to login	none
		R1T3	idle createacct	Can't create an account before logging in	`createacct`	none	error prompt for user to login	none
		R1T4	idle deleteacct	Can't delete an account before logging in	`deleteacct`	none	error prompt for user to login	none
		R1T5	idle deposit	Can't deposit before logging in	`deposit`	none	error prompt for user to login	none
		R1T6	idle withdraw	Can't withdraw before logging in	`withdraw`	none	error prompt for user to login	none
		R1T7	idle transfer	Can't transfer an account before logging in	`transfer`	none	error prompt for user to login	none
	Should ask for a type of session	R2T1	login session atm	Ensure user can select atm	`login` `atm`	none	Successful login atm mode	none
		R2T2	login session teller	Ensure user can selet teller	`login` `agent`	none	Sucessful login teller mode	none
		R2T3	login invalid session input	Ensure other options promt user again	`login` `flaj`	none	Error prompting user to input either atm or teller	none

	No subsequent login should be accepted after a login, until after a logout	R3T1	ATM logged in login	Can't login once already logged in	`login`
					`atm`
					`login`
						none	error telling user they are already logged in and they need to logout to login to a new account	none

		R3T2	Teller logged in login	Can't login once already logged in	`login`
					`agent`
					`login`
						none	error telling user they are already logged in and they need to logout to login to a new account	none

logout	Logout should only be accepted when logged in	R4T1	Logout when logged in as ATM	Verify logout works	`login`
					`atm`
					`logout`
						none	Sucessful logout	EOS 0000000 000 0000000 ***

		R4T2	Logout when logged in as teller	Verify logout works	`login`
					`agent`
					`logout`
						none	Sucessful logout	EOS 0000000 000 0000000 ***

createacct	Priviledged Transaction, only accepted in agent mode	R5T1	ATM createacct	Verify ATM users cannot create accounts	`login`
					`atm`
					`createacct`
						none	Error telling user only tellers can create accounts	none

		R5T2	Teller createacct	Verify Tellers can createacct	`login`
					`agent`
					`createacct`
						none	User prompted for account number	none

	New account_number is exactly seven decimal digits not beginning with 0	R6T1	createacct < 7 numbers	account_numbers must be exactly 7 digits	`login`
					`agent`
					`createacct`
					`123456`
						none	Error prompt for user to enter a valid account_number	none

		R6T2	createacct starting with 0	account_numbers can not start with 0	`login`
					`agent`
					`createacct`
					`0123456`
						none	Error prompt for user to enter a valid account_number	none

		R6T3	createacct > 7 numbers	account_numbers must be exactly 7 digits	`login`
					`agent`
					`createacct`
					`12345678`
						none	Error prompt for user to enter a valid account_number	none

		R8T4	account_number contains non-decimal characters	Account for non-number entry	`login`
					`agent`
					`createacct`
					`a234567`
						none	Error prompt for user to enter a valid account_number	none

		R8T5	account_number is 7 digits and doesn't start with 0	Postive test case for valid account_number	`login`
					`agent`
					`createacct`
					`1234567`
						none	Ask for account name	none

	New account_number must be different from all other current account_numbers	R7T1	Repeat account_number	account_numbers cannot be repeated	`login`
					`agent`
					`createacct`
					`1234567`
						1234567
						0000000
							Error prompt for user to enter a different account_number	none

	New account name is between 3 and 30 alphanumeric characters, possibly including spaces but not beginning or ending with a space	R8T3	createacct name < 3 characters	account name can't have less than 3 characters	`login`
					`agent`
					`createacct`
					`1234567`
					`ab`
						none	Error prompt for user to enter a valid account name	none

		R8T4	createacct name > 30 characters	account name can't have more than 30 characters	`login`
					`agent`
					`createacct`
					`1234567`
					`abcdefghijklmnop`
					`qrstuvwxyzabcde`
						none	Error prompt for user to enter a valid account name	none

		R8T5	createacct name starting with space	account name can't start with a space	`login`
					`agent`
					`createacct`
					`1234567`
					`ab`
						none	Error prompt for user to enter a valid account name	none

		R8T6	createacct name ending with space	account name can't end with a space	`login`
					`agent`
					`createacct`
					`1234567`
					`ab`
						none	Error prompt for user to enter a valid account name	none

		R8T7	createacct with a valid account name	Positive test case for a valid account name	`login`
					`agent`
					`createacct`
					`1234567`
					`abc`
					`logout`
						none	Account created successfully message	NEW 1234567 000 0000000 abc
								EOS 0000000 000 0000000 ***

deleteacct	Only accepted when logged in in agent mode	R9T1	Delete account in ATM mode	Verify ATM user cannot delete accounts	`login`
					`atm`
					`deleteacct`
					`1234567`
						1234567
						0000000
							Error telling user command not accessible in ATM mode	none

		R9T2	Delete account in Teller mode	Verify tellers can delete accounts	`login`
					`teller`
					`deleteacct`
						1234567
						0000000
							Prompt user to enter account number	none

	Should check that the	R10T1	Delete account invalid account number	Verify numbers must be valid	`login`
					`teller`
					`deleteacct`
					`1234566`
						1234567
						0000000
							Error telling user invalid account number	none

Informal grouping	Requirement	Test No.	Test Name	Purpose	Input	Input Files	Output	Output Files
	Should check that the account number is valid, and save the account number and name in the transaction summary file	R10T2	Delete account valid account number	Verify transaction accepted with valid account number	`login teller deleteacct 1234567`	1234567 0000000	Prompt user for account name	none
		R10T3	Delete account with valid account number and a name inputted	Verify transaction accepted with valid account number and provided name	`login teller deleteacct 1234567 f12rf logout`	1234567 0000000	Successful transaction	DEL 1234567 000 0000000 f12rf EOS 0000000 000 0000000 ***
deposit	Should check that the account number is valid, and that the amount is valid	R11T1	deposit verify account number	verify deposit checks for valid account number in valid accounts list	`login agent deposit 1234567`	1234567 0000000	Amount to deposit:	none
		R11T2	Deposit verify invalid account number	Verify invalid accounts can't deposit	`login agent deposit 1234567`	0000000	Error invalid account number	none
		R11T2	Verify the deposit amount is numeric	Ensure that the amount deposited is a valid number	`login agent deposit 1234567 1a2b`	1234567 0000000	Error: input must be a number in cents	none
	Deposits above $2,000 should be rejected in ATM mode (max $999,999.99 in agent mode). For ATM, the daily deposit limit is $5,000 per account	R12T1	Agent mode deposit > $999,999.99	Agent deposits can't be greater than $999999.99	`login agent deposit 1234567 100000000`	1234567 0000000	Error prompting user to enter a deposit amount less than $999,999.99	none
		R12T2	Agent mode deposit <= $999,999.99	Verify agent can deposit less than or equal to $999999.99	`login agent deposit 1234567 99999999`	1234567 0000000	Transaction successful	DEP 1234567 99999999 0000000 *** EOS 0000000 000 0000000 ***
		R12T3	ATM deposit > $2,000	ATM deposits can't be greater than $2000	`login atm deposit 1234567 200001`	1234567 0000000	Error prompting user to enter a deposit amount less than $2000	none
		R12T4	ATM deposit <= $2,000	Verify atm deposits below $2000 can be made	`login atm deposit 1234567 200000`	1234567 0000000	Transaction successful	DEP 1234567 200000 0000000 *** EOS 0000000 000 0000000 ***
		R12T5	Multiple ATM deposits totalling > $5,000, one account	ATM deposits over a single day can not total greater than $5000	`login atm deposit 1234567 200000 deposit 1234567 200000 deposit 1234567 100001`	1234567 0000000	Error telling user to deposit less than $5000 daily	DEP 1234567 200000 0000000 *** DEP 1234567 200000 0000000 *** DEP 1234567 100001 0000000 ***
withdraw	Should check that the account number is valid, and that the amount is valid	R13T1	ATM withdraw invalid account	Prevent withdrawls from invalid accounts	`login atm withdraw 1234567`	none	Error telling user invalid account	none
		R13T2	ATM withdraw invalid number	Prevent withdrawls of invalid amounts	`login atm withdraw 1234567 a12`	1234567 0000000	Error telling user amount invalid	none
	Withdrawls above $1,000 should be rejected in ATM mode (max $999,999.99 in agent mode)	R14T1	ATM withdraw > $1,000	ATM withdrawls can't be above $1000	`login atm withdraw 1234567 100001`	1234567 0000000	Error prompting user to enter a withdrawal amount less than $1000	none
		R14T2	ATM withdrawl <= $1,000	Verify ATM withdrawl less than $1,000 work	`login atm withdraw 1234567 100000 logout`	1234567 0000000	Transaction successful	WDR 1234567 100000 0000000 *** EOS 0000000 000 0000000 ***
		R14T3	Agent withdraw > $999,999.99	Agent withdrawls can't be greater than $999999.99	`login agent withdraw 1234567 100000000`	1234567 0000000	Error prompting user to enter a withdrawal amount less than $999,999.99	none
		R14T4	Agent withdraw <= $999,999.99	Verify agent withdrawls <=$999,999.99 work	`login agent withdraw 1234567 99999999 logout`	1234567 0000000	Transaction successful	WDR 1234567 99999999 0000000 *** EOS 0000000 000 0000000 ***
	A total of at most $5,000 can be withdrawn from a single account in a single day (no total limit in agent mode)	R15T1	ATM withdraw multiple times, total > $5,000	ATM withdrawls over a single day can not total greater than $5000	`login atm withdraw 1234567 100000 withdraw 1234567 100000 withdraw 1234567 100000 withdraw 1234567 100000 withdraw 1234567 100000 withdraw 1234567 100000`	1234567 0000000	Error telling user they cannot withdraw more than $5000 daily	WDR 1234567 100000 0000000 *** WDR 1234567 100000 0000000 *** WDR 1234567 100000 0000000 *** WDR 1234567 100000 0000000 *** WDR 1234567 100000 0000000 ***
	Should check that the from account number, the to account number and that the amount is valid	R16T1	tansfer invalid to account	Prevent transfers from invalid accounts	`login atm transfer 1234567`	0000000	Error telling user invalid from account	none
		R16T2	Transfer from invalid account	Prevent tansfers to invalid account	`login atm transfer 1234567 1234566`	1234567 0000000	Error telling user invalid to account	none
		R16T3	transfer invalid amount	Prevent withdrawls of invalid amounts	`login atm transfer 1234567 1234566 12fg`	1234567 1234566 0000000	Error telling user amount invalid	none
		R17T1	ATM transfer > $10,000	ATM transfers can't be greater than $10000	`login atm transfer 1234567 1234566 1000001`	1234567 1234566 0000000	Error prompting user to enter a transfer amount less than $10,000	none

Informal grouping	Requirement	Test No.	Test Name	Purpose	Input	Input Files	Output	Output Files

transfer		R17T2	ATM transfer <= $10,000	Atm transfers should work for <=$10000	`login`
					`atm`
					`transfer`
					`1234567`
					`1234566`
					`1000000`
					`logout`
						1234567 1234566 0000000	Successful transaction	XFR 1234567 1000000 1234566 ***
								EOS 1234567 000 0000000 ***

	Transfer amounts of more than $10,000 should be rejected in ATM mode (max $999,999.99 in agent mode). Daily limit for transfering out of a single account is $10,000 for ATM	R17T3	ATM transfers totalling > $10,000	Total number of ATM transfers out of an account cannot be >$10,000	`login`
					`atm`
					`transfer`
					`1234567`
					`1234566`
					`500000`
					`transfer`
					`1234567`
					`1234566`
					`500001`
						1234567 1234566 0000000	Error message stating you can't transfer more than $10,000 from an account	XFR 1234567 500000 1234566 ***

		R17T3	Agent transfer > $999,999.99	Teller mode transfers can't be greater than $999999.99	`login`
					`atm`
					`transfer`
					`1234567`
					`1234566`
					`100000000`
					`logout`
						1234567 1234566 0000000	Error prompting user to enter a transfer amount less than $999,999.99	none

		R17T5	Agent transfer <= $999,999.99	Teller should be able to transfer <= 999,999.99	`login`
					`atm`
					`transfer`
					`1234567`
					`1234566`
					`99999999`
					`logout`
						1234567 1234566 0000000	Successful transaction	XFR 1234567 99999999 1234566 ***
								EOS 1234567 000 0000000 ***