

## (CSCI 3060/SOFE 3980U - Winter 2016)

### Course Project Assignment #1 - Front End Requirements

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*Note: The test environment for all test cases is Linux Operating System.*

**Test Case Name:** Login

**Description:** Starts a Front end session. Should ask for the kind of session.

#	OBJECTIVE	INPUT <small>**Will only show all options when relevant to the process**</small>		EXPECTED OUTPUT
1 (1)	Check if command is login	login admin logout	login standard acc_holder logout	If command is login, continue.  If it is not an existing command, show error message. User may use the help command.
2 (2)	Check if there is an account already in session.			If there is a user already logged in, display an error message.  Otherwise, prompt user to enter the account mode.
3 (3)	Check if account mode (admin or standard) is valid.	login admin logout	login standard acc_holder logout	If admin is the input, login is successful. Inform the user they are now logged in and start reading in the current bank accounts file and as well as start accepting transactions.  If standard is the input, prompt for acc_holder.  If the input is neither admin nor standard, show an error message. User is taken back to the previous step and may attempt to login again.
4 (4)	Check if the acc_holder exists in the Bank System in the case of a standard user only. acc_holder may not be "END_OF_FILE".	<i>Doesn't apply.</i>	login standard acc_holder logout	If acc_holder exists and is valid, login is successful. Inform the user they are now logged in and start reading in the current bank accounts file and as well as start accepting transactions.  Otherwise, user is taken back to the previous step and may attempt to login again.

**Test Case Name:** Logout

**Description:** Ends a Front End session.

#	OBJECTIVE	INPUT **Will only show all options when relevant to the process**	EXPECTED OUTPUT
1 (5)	Check if command is logout	login admin logout	If command is logout, continue.  If it is not an existing command, show error message. User may use the help command.
2 (6)	Check if there is an account in session.		If there is a user already logged in, successfully logout.  Otherwise, display an error message.

**Test Case Name:** Create

**Description:** Create a new bank account with an initial balance. Privileged transaction.

#	OBJECTIVE	INPUT **Will only show all options when relevant to the process**	EXPECTED OUTPUT
1 (7)	Check if the command is create.	login admin create new_acc_holder init_balance logout	If command is create, continue.  If it is not an existing command, show error message. User may use the help command.
2 (8)	Check that user is logged in.	login admin create new_acc_holder init_balance logout	If user is logged in, continue.  Otherwise, display an error message.
3 (9)	Check that current logged in user is an administrator.	login admin create new_acc_holder init_balance logout	If account mode is admin, prompt user for new_acc_holder.  Otherwise, display an error message.
4 (10)	Check that new_acc_holder is a valid name: - No longer than 20 characters. - Only letters,	login admin create new_acc_holder init_balance	If new_acc_holder is valid, then continue.  If new_acc_holder is longer than 20 characters, truncate account name and then continue.

	numbers and hyphens. - Can not be "admin" - No underscores	logout	Otherwise, display an error message. User gets taken back to the login scope and may attempt to create an account again.
5 (11)	Check that new_acc_holder is unique; hasn't been used before.		If new_acc_holder is valid, prompt user for init_balance.  Otherwise, display an error message. User gets taken back to the login scope and may attempt to create an account again.
6 (12)	Check that init_balance is a valid amount. - No more than 99999.99	login admin create new_acc_holder init_balance logout	If init_balance is valid, create new account. Inform the user they have successfully created an account and save the information provided to the bank account transaction file.  Otherwise, display an error message. User gets taken back to the login scope and may attempt to create an account again.

### Test Case Name: Delete

**Description:** Delete a bank account. Privileged transaction.

#	OBJECTIVE	INPUT **These are templates for valid input only**		EXPECTED OUTPUT
1 (13)	Check that the command is delete.	login admin delete acc_holder acc_number yes logout	login admin delete acc_holder acc_number no logout	If command is delete, continue.  If it is not an existing command, show error message. User may use the help command.
2 (14)	Check that user is logged in.	login admin delete acc_holder acc_number yes logout	login admin delete acc_holder acc_number no logout	If user is logged in, continue.  Otherwise, display an error message.
3 (15)	Check that current logged in user is an administrator.	login admin delete acc_holder acc_number	login admin delete acc_holder acc_number	If account mode is admin, prompt user for acc_holder.  Otherwise, display an error message.

		<b>yes</b> logout	<b>no</b> logout	
4 (16)	Check that acc_holder exists in the Bank System.	login admin <b>delete</b> <b>acc_holder</b> <b>acc_number</b> <b>yes</b> logout	login admin <b>delete</b> <b>acc_holder</b> <b>acc_number</b> <b>no</b> logout	If acc_holder exists, prompt user for acc_number.  Otherwise, display an error message. User gets taken back to the login scope and may attempt to delete an account again.
5 (17)	Check that acc_number corresponds to acc_holder.	login admin <b>delete</b> <b>acc_holder</b> <b>acc_number</b> <b>yes</b> logout	login admin <b>delete</b> <b>acc_holder</b> <b>acc_number</b> <b>no</b> logout	If they match, prompt user for deletion confirmation prompt.  Otherwise, display an error message. User gets taken back to the login scope and may attempt to delete an account again.
6 (18)	Check if the input for the confirmation prompt is valid (yes/y or no/n)	login admin <b>delete</b> <b>acc_holder</b> <b>acc_number</b> <b>yes</b> logout	login admin <b>delete</b> <b>acc_holder</b> <b>acc_number</b> <b>no</b> logout	If yes or y, then account is deleted successfully and the user is informed of this. save the information provided to the bank account transaction file.  If no or n, then the deletion process gets cancelled. User gets taken back to the login scope and may attempt to delete an account again.  If none of the above, display an error message stating the 4 options available. User gets taken back to the login scope and may attempt to delete an account again.

**Test Case Name:** Disable

**Description:** Disable a bank account. Privileged transaction.

#	OBJECTIVE	INPUT **Will only show all options when relevant to the process**	EXPECTED OUTPUT
1 (19)	Check that the command is disable.	login admin <b>disable</b> <b>acc_holder</b> <b>acc_number</b> logout	If command is disable, continue.  If it is not an existing command, show error message. User may use the help command.
2 (20)	Check that user is logged in.	<b>login</b> admin <b>disable</b> <b>acc_holder</b>	If user is logged in, continue.  Otherwise, display an error message.

		acc_number logout	
3 (21)	Check that current logged in user is an administrator.	login admin disable acc_holder acc_number logout	If account mode is admin, prompt user for acc_holder.  Otherwise, display an error message.
4 (22)	Check that acc_holder exists in the Bank System.	login admin disable acc_holder acc_number logout	If acc_holder exists, continue.  Otherwise, display an error message. User gets taken back to the login scope and may attempt to disable an account again.
5 (23)	Check that the account hasn't already been disabled.		If it is not disabled, prompt user for acc_number.  Otherwise, display an error message. User gets taken back to the login scope and may attempt to disable an account again.
6 (24)	Check that acc_number corresponds to acc_holder.	login admin disable acc_holder acc_number logout	If they match, then account is disabled successfully and the user is informed of this. Save the information provided to the bank account transaction file <i>immediately</i> . Change bank account from active (A) to disabled (D).  Otherwise, display an error message and abort disablement. User is taken back to the login scope and may attempt to disable an account again.

**Test Case Name:** Enable

**Description:** Enable a bank account. Privileged transaction.

#	OBJECTIVE	INPUT **Will only show all options when relevant to the process**	EXPECTED OUTPUT
1 (26)	Check that the command is enable.	login admin enable acc_holder acc_number logout	If command is enable, continue.  If it is not an existing command, show error message. User may use the help command.
2	Check that user is	login	If user is logged in, continue.

(27)	logged in.	admin <b>enable</b> <b>acc_holder</b> <b>acc_number</b> logout	Otherwise, display an error message.
3 (28)	Check that current logged in user is an administrator.	login <b>admin</b> <b>enable</b> <b>acc_holder</b> <b>acc_number</b> logout	If account mode is admin, prompt user for acc_holder.  Otherwise, display an error message.
4 (29)	Check that acc_holder exists in the Bank System.	login admin <b>enable</b> <b>acc_holder</b> <b>acc_number</b> logout	If acc_holder exists, then continue.  Otherwise, display an error message. User gets taken back to the login scope and may attempt to enable an account again.
5 (30)	Check that the account is actually disabled.		If the account is disabled, then prompt user for acc_number.  Otherwise, display an error message. User gets taken back to the login scope and may attempt to enable an account again.
6 (31)	Check that acc_number corresponds to acc_holder.	login admin <b>enable</b> <b>acc_holder</b> <b>acc_number</b> logout	If they match, then the account is enabled successfully and the user is informed of this. Save the information provided to the bank account transaction file <i>immediately</i> . Change bank account from disabled (D) to active (A).  Otherwise, display an error message and abort enablement. User is taken back to the login scope.

### Test Case Name: Change Plan

**Description:** Change the transaction payment plan for an account. Privileged transaction.

#	OBJECTIVE	INPUT  **Will only show all options when relevant to the process**	EXPECTED OUTPUT
1 (33)	Check that the command is changeplan.	login admin <b>changeplan</b> <b>acc_holder</b> <b>acc_number</b>	If command is changeplan, continue.  If it is not an existing command, show error message. User may use the help command.

		logout	
2 (34)	Check that user is logged in.	login admin changeplan acc_holder acc_number logout	If user is logged in, continue.  Otherwise, display an error message.
3 (35)	Check that current logged in user is an administrator.	login admin changeplan acc_holder acc_number logout	If account mode is admin, prompt user for acc_holder.  Otherwise, display an error message.
4 (36)	Check that acc_holder exists in the Bank System.	login admin changeplan acc_holder acc_number logout	If acc_holder exists, then continue.  Otherwise, display an error message. User gets taken back to the login scope and may attempt to change plans on an account again.
	Check that acc_holder is enabled/active.		If acc_holder is enabled/active, then prompt user for acc_number.  Otherwise, display an error message. User gets taken back to the login scope and may attempt to change plans on an account again.
5 (37)	Check that acc_number corresponds to acc_holder.	login admin changeplan acc_holder acc_number logout	If they match, changes plans successfully and the user is informed of this. Save the information provided to the bank account transaction file <i>immediately</i> . Change account payment plan from non-student (N - default) to student (S) or vice versa.  Otherwise, display an error message. User gets taken back to the login scope and may attempt to change plans on an account again.

**Test Case Name:** Deposit

**Description:** Deposit money into an account.

#	OBJECTIVE	INPUT **Will only show all options when relevant to the process**		EXPECTED OUTPUT
1 (38)	Check that the command is deposit.	login admin	login standard	If command is deposit, continue.

		deposit acc_holder acc_number amount_dep logout	acc_holder deposit acc_number amount_dep logout	If it is not an existing command, show error message. User may use the help command.
2 (39)	Check that user is logged in.	login admin deposit acc_holder acc_number amount_dep logout	login standard acc_holder deposit acc_number amount_dep logout	If user is logged in, continue.  Otherwise, display an error message.
3 (40)	Check account mode (admin or standard)	login admin deposit acc_holder acc_number amount_dep logout	login standard acc_holder deposit acc_number amount_dep logout	If account mode is admin, prompt user for acc_holder.  if account mode is standard, skip acc_holder and prompt user for acc_number.  Otherwise, display an error message.
4 (41)	Check that acc_holder exists in the Bank System.	login admin deposit acc_holder acc_number amount_dep logout	<i>Doesn't apply.</i>	If acc_holder exists, then continue.  Otherwise, display an error message. User gets taken back to the login scope and may attempt to deposit funds into an account again.
	Check that the account is enabled/active		login standard acc_holder deposit acc_number amount_dep logout	If the account is enabled/active, then continue.  Otherwise, display an error message. User gets taken back to the login scope and may attempt to deposit funds into an account again.
	Check that the account was not created in the same day.			If the account was not created in the same day, then prompt user for acc_number.  Otherwise, display an error message. User gets taken back to the login scope and may attempt to deposit funds into an account again.
5 (42)	For administrators, check that acc_number corresponds to acc_holder.  For standard users, check that the acc_number	login admin deposit acc_holder acc_number amount_dep logout	login standard acc_holder deposit acc_number amount_dep logout	If they match, then account changes plans successfully and the user is informed of this. Save the information provided to the bank account transaction file. Change account payment plan from student (SP) to non-student (NP) or vice versa.



	corresponds to the currently logged in acc_holder.			Otherwise, display an error message. User gets taken back to the login scope and may attempt to deposit funds into an account again.
8 (45)	Check that amount_dep is valid. - Must be in the form of #####.##. No dollar (or any other) signs. 99999.99 - Only positive numerical values <i>bigger</i> than 0.	login admin <b>deposit</b> acc_holder acc_number <b>amount_dep</b> logout	login standard acc_holder <b>deposit</b> acc_number <b>amount_dep</b> logout	If amount_dep is valid, then continue.  Otherwise, display an error message. User gets taken back to the login scope and may attempt to deposit funds into an account again.
9 (46)	Check that the total amount to be withdrawn is valid. - For standard users: amount_dep + balance - fee <= 99999.99 - For administrators: amount_dep <=			If the total amount to be deposited is valid, then the amount specified is deposited into the account and the user is informed of this. Save the information provided to the bank account transaction file.  In the case of a standard user <i>only</i> , a deposit fee is deducted.  Otherwise, display an error message. User gets taken back to the login scope and may attempt to deposit funds into an account again.

### Test Case Name: Withdrawal

**Description:** Withdraws money from an account.

#	OBJECTIVE	INPUT **Will only show all options when relevant to the process**		EXPECTED OUTPUT
1 (47)	Check that the command is withdrawal.	login admin <b>withdrawal</b> acc_holder acc_number amount_wit logout	login standard acc_holder <b>withdrawal</b> acc_number amount_wit logout	If command is withdrawal, continue.  If it is not an existing command, show error message. User may use the help command.
2 (48)	Check that user is logged in.	<b>login</b> admin <b>withdrawal</b> acc_holder acc_number amount_wit logout	<b>login</b> standard acc_holder <b>withdrawal</b> acc_number amount_wit logout	If user is logged in, continue.  Otherwise, display an error message.

3 (49)	Check account mode (admin or standard)	login admin withdrawal acc_holder acc_number amount_wit logout	login standard acc_holder withdrawal acc_number amount_wit logout	If account mode is admin, prompt user for acc_holder.  if account mode is standard, skip acc_holder and prompt user for acc_number.  Otherwise, display an error message.
4 (50)	Check that acc_holder exists in the Bank System.	login admin withdrawal acc_holder acc_number amount_wit logout	<i>Doesn't apply.</i>	If acc_holder exists, then continue.  Otherwise, display an error message. User gets taken back to the login scope and may attempt to transfer funds to an account again.
	Check that the account is enabled/active.		login standard acc_holder withdrawal acc_number amount_wit logout	If the account is enabled/active, then continue.  Otherwise, display an error message. Withdrawal gets aborted.
	Check that the account was not created in this same day.			If the account is was not created in this same day, prompt user for acc_number.  Otherwise, display an error message. Withdrawal gets aborted.
5 (51)	For administrators, check that acc_number corresponds to acc_holder.  For standard users, check that the acc_number corresponds to the currently logged in acc_holder.	login admin withdrawal acc_holder acc_number amount_wit logout	login standard acc_holder withdrawal acc_number amount_wit logout	If they match, then the user is prompted for amount_wit.  Otherwise, display an error message. User gets taken back to the login scope and may attempt to transfer funds to an account again.
8 (54)	Check that amount_wit is valid. - Must be in the form of #####.00. No dollar (or any other) signs. - No decimals (pennies) - Multiple of 5 - Only positive numerical values <i>bigger</i> than 0. - No funds that were deposited in this same day.	login admin withdrawal acc_holder acc_number amount_wit logout	login standard acc_holder withdrawal acc_number amount_wit logout	If amount_wit is valid, then continue.  Otherwise, display an error message. User gets taken back to the login scope and may attempt to transfer funds to an account again.

9 (55)	Check that the total amount to be withdrawn is valid. - amount_wit + fee <= balance			<p>If the total is valid, then the amount specified is withdrawn from the account and the user is informed of this. Save the information provided to the bank account transaction file.</p> <p>Otherwise, display an error message. User gets taken back to the login scope and may attempt to transfer funds to an account again.</p>
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**Test Case Name:** Transfer

**Description:** Transfer money between two accounts.

#	OBJECTIVE	INPUT <small>**Will only show all options when relevant to the process**</small>		EXPECTED OUTPUT
1 (56)	Check that the command is transfer.	login admin <b>transfer</b> acc_holder acc_num_f acc_num_t amount_tra logout	login standard acc_holder <b>transfer</b> acc_num_f acc_num_t amount_tra logout	<p>If command is transfer, continue.</p> <p>If it is not an existing command, show error message. User may use the help command.</p>
2 (57)	Check that user is logged in.	login admin <b>transfer</b> acc_holder acc_num_f acc_num_t amount_tra logout	login standard acc_holder <b>transfer</b> acc_num_f acc_num_t amount_tra logout	<p>If user is logged in, continue.</p> <p>Otherwise, display an error message.</p>
3 (58)	Check account mode (admin or standard)	login admin <b>transfer</b> acc_holder acc_num_f acc_num_t amount_tra logout	login <b>standard</b> acc_holder <b>transfer</b> acc_num_f acc_num_t amount_tra logout	<p>If account mode is admin, prompt user for acc_holder.</p> <p>if account mode is standard, skip acc_holder and prompt user for acc_number.</p> <p>Otherwise, display an error message.</p>
4 (59)	Check that acc_holder exists in the Bank System.	login admin <b>transfer</b> <b>acc_holder</b> acc_num_f acc_num_t amount_tra	<i>Doesn't apply.</i>	<p>If acc_holder exists, prompt user for acc_num_f.</p> <p>Otherwise, display an error message. Prompt user for acc_holder again.</p>
	Check that the current	amount_tra	login	If the current account is

	account is enabled/active.	logout	standard <b>acc_holder</b> <b>transfer</b> <b>acc_num_f</b> <b>acc_num_t</b> <b>amount_tra</b> logout	enabled/active, continue.  Otherwise, display an error message. Transfer gets aborted.
	Check that the current account was not created in this same day.			If the current account was not created in this same day, then continue.  Otherwise, display an error message. Transfer gets aborted.
5 (60)	For administrators, check that acc_num_f corresponds to acc_holder.  For standard users, check that the acc_num_f corresponds to the currently logged in acc_holder.	login admin <b>transfer</b> <b>acc_holder</b> <b>acc_num_f</b> <b>acc_num_t</b> <b>amount_tra</b> logout	login standard <b>acc_holder</b> <b>transfer</b> <b>acc_num_f</b> <b>acc_num_t</b> <b>amount_tra</b> logout	If they match, then the user is prompted for acc_num_t.  Otherwise, display an error message. Prompt user for acc_num_f again.
8 (63)	Check that acc_num_t exists in the Bank System.	login admin <b>transfer</b> <b>acc_holder</b> <b>acc_num_f</b> <b>acc_num_t</b> <b>amount_tra</b> logout	login standard acc_holder <b>transfer</b> <b>acc_num_f</b> <b>acc_num_t</b> <b>amount_tra</b> logout	If acc_num_t exists, then continue.  Otherwise, display an error message. Prompt user for acc_num_t again.
9 (64)	Check that the destination account is enabled/active.			If the destination account is enabled/active, then continue.  Otherwise, display an error message. Transfer gets aborted.
10 (65)	Check that the destination account was not created in this same day.			If it was not created in this same day, then prompt the user for amount_tra.  Otherwise, display an error message. Transaction gets aborted.
11 (66)	Check that amount_tra is valid. - Must be in the form of #####.##. No dollar (or any other) signs. - No more than 1000.00 for current session (for standard users only) 1000.00 <= total transferred in this session + amount_tra - Only positive numerical values	login admin <b>transfer</b> <b>acc_holder</b> <b>acc_num_f</b> <b>acc_num_t</b> <b>amount_tra</b> logout	login standard acc_holder <b>transfer</b> <b>acc_num_f</b> <b>acc_num_t</b> <b>amount_tra</b> logout	If amount_tra is valid, then continue.  Otherwise, display an error message. Prompt user for amount_tra again.

	<i>bigger</i> than 0. - No funds that were deposited in this same day			
12 (67)	Check that the total amount to be transferred is valid. - amount_tra + fee <= balance			<p>If the total is valid, then the amount specified is transferred from acc_num_f into acc_num_t and the user is informed of this. Save the information provided to the bank account transaction file.</p> <p>In the case of a standard user <i>only</i>, a transfer fee is deducted.</p> <p>Otherwise, display an error message. Prompt user for amount_tra again.</p>

### Test Case Name: Paybill

**Description:** Pay bill with money from an account.

#	OBJECTIVE	INPUT <small>**Will only show all options when relevant to the process**</small>		EXPECTED OUTPUT
1 (68)	Check that the command is paybill.	login admin <b>paybill</b> acc_holder acc_num company amount_pay logout	login standard acc_holder <b>paybill</b> acc_num company amount_pay logout	<p>If command is paybill, continue.</p> <p>If it is not an existing command, show error message. User may use the help command.</p>
2 (69)	Check that user is logged in.	<b>login</b> admin <b>paybill</b> acc_holder acc_num company amount_pay logout	<b>login</b> standard acc_holder <b>paybill</b> acc_num company amount_pay logout	<p>If user is logged in, continue.</p> <p>Otherwise, display an error message.</p>
3 (70)	Check if account mode (admin or standard) is valid.	login <b>admin</b> <b>paybill</b> acc_holder acc_num company amount_pay logout	login <b>standard</b> acc_holder <b>paybill</b> acc_num company amount_pay logout	<p>If account mode is admin, prompt user for acc_holder.</p> <p>If account mode is standard, skip acc_holder and prompt user for acc_number.</p> <p>Otherwise, display an error message.</p>

4 (71)	Check that acc_holder exists in the Bank System.	login admin paybill acc_holder acc_num	Doesn't apply.	If acc_holder exists, then continue.  Otherwise, display an error message. Prompt user for acc_holder again.
	Check that the account is enabled/active	company amount_pay logout	login standard acc_holder paybill acc_num	If the account is enabled/active, then continue.  Otherwise, display an error message. Bill payment gets aborted.
	Check that the account was not created in this same day.		company amount_pay logout	If the account was not created in this same day, prompt user for acc_num.  Otherwise, display an error message. Bill payment gets aborted.
5 (72)	For administrators, check that acc_num corresponds to acc_holder.  For standard users, check that the acc_num corresponds to the currently logged in acc_holder.	login admin paybill acc_holder acc_num company amount_pay logout	login standard acc_holder paybill acc_num company amount_pay logout	If they match, then prompt the user for company.  Otherwise, display an error message. Prompt user for acc_num again.
8 (75)	Check that company is valid. Must be one of the following: EC, CQ, or TV.	login admin paybill acc_holder acc_num company amount_pay logout	login standard acc_holder paybill acc_num company amount_pay logout	If company is valid, prompt the user for amount_pay.  Otherwise, display an error message. Prompt user for company again.
9 (76)	Check that amount_pay is valid. - No more than 2000.00 (for standard users only, per day per company) 2000.00 <= total paid in this same day + amount_pay - Only positive numerical values - No funds that were deposited this same day.	login admin paybill acc_holder acc_num company amount_pay logout	login standard acc_holder paybill acc_num company amount_pay logout	If amount_pay is valid, then continue.  Otherwise, display an error message. Prompt user for amount_pay again.
10 (77)	Check that the total amount to be paid is valid.			If the total is valid, then the amount specified is paid to the corresponding company and the user

	- amount_pay + fee <= balance			<p>is informed of this. Save the information provided to the bank account transaction file.</p> <p>Otherwise, display an error message. Prompt user for amount_pay again.</p>
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**Test Case Name:** Help

**Description:** Displays all available commands with their corresponding descriptions and arguments

#	OBJECTIVE	INPUT **Will only show all options when relevant to the process**	EXPECTED OUTPUT
1 (78)	Check if command is help	help	<p>If command is help, display command details.</p> <p>If it is not an existing command, show error message. User may use the help command.</p>

**Test Case Name:** Quit

**Description:** Terminates the program

#	OBJECTIVE	INPUT **Will only show all options when relevant to the process**	EXPECTED OUTPUT
1 (79)	Check if command is quit	quit	<p>If command is quit, continue.</p> <p>If it is not an existing command, show error message. User may use the help command.</p>
2 (80)	Check if user is currently logged in		<p>If not logged in, then terminate the system.</p> <p>Otherwise, display an error message.</p>