### COMP 354 Test Document for the project myMoney

## Team PA-PK

April 2, 2018

Table 1: Team

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Table 2: Revision history

Version	Date	Changes
1.0	15 March 2018	Completed test document

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#### 1 Introduction

The aim of this document is to ensure that a coherent and accurate testing strategy is used by each member of the testing team. It seeks to test the implementation of the system described in the Design Plan, testing its validity, robustness, and reliableness as a software, as well as ensuring that the requirements in the Requirements Specification are met. It seeks to do this in a rigorous and justified manner. This document contains an overarching test plan, which seeks to outline each test subsystem, its strategy with regards to testing the associated requirements, and its execution strategy. This document then contains, for each subsystem, a detailed explanation of the set of tests included, and a test case for each individual test. Put together, the test subsystems group into a entire system test.

### 2 Test Plan

The system test plan has been split into five subsystems:

- Functional Testing: This test subsystem seeks to certify the functionality of the software against the requirements set in the Requirements Specification. This category will use black-box testing as its strategy, ignoring the design document and instead purely basing itself off of what the software is expected to do. In its execution, a test will typically first identify how the software should perform, verifying the functionality and reliability of the software given valid user behaviour, and then robustness given invalid user behaviour.
- Structural Testing: This test subsystem seeks to verify the structure and code logic of the software. We ensure here that each part of the code functions as expected given both valid and invalid input, and test the behaviour of the system in unexpected states. This will let us confirm the valid flow of our code, and ensure logic faults are caught. For the execution of the test, we will use JUnit to create individual tests for each case. Each test will have an initial setup phase, a test phase, and a teardown phase, to ensure independence of state between each test. A test will also use Mockito, a mocking library, to ensure that the failure of some other, unrelated component of the code does not affect the performance of the tested component in each test.
- **Performance Testing:** This test subsystem seeks to measure the behaviour of the software in extreme states, when under particular workloads or dealing with extremely large datasets. It is useful for testing a number of our non-functional requirements, notably reliability, scalability, and, obviously, performance. In its execution, The tests measure performance statistics given a normal or 'control' environment, then compare it to the performance statistic given a particular dataset or workload.
- Acceptance Testing: This test subsystem seeks to meet the requirements of the use cases in the requirements set in the Requirements Specification. This is also a black-box

testing category, as in functional testing, but unlike the aforementioned, we are instead performing a validation of the system: is our system actually what the user needs? In its execution, each test will typically follow a use case and verify that the needs of the user are met and further usability in the domain of the use case is available.

• Installation Testing: This test subsystem seeks to verify that the installation process is both successful and easy in the platforms to be supported. This means ensuring that the choices taken by the user are respected (location of installation, installation just for one user or for whole computer...), verify that all dependent files and libraries are successfully linked and loaded, and valid configurations and connectivity to the database. The execution of this category is simply an activity wherein the installation process is attempted in a particular environment, testing all decisions and options available in the installation.

### 3 Functional Testing

#### Create User Account

Test Case	First name, last name, username and password are mandatory
Description	The user cannot sign up without providing a valid first name, last name,
	a username and a password
	1. Go to 'Sign Up'
Input/Steps	2. Leave all the input fields blank
	3. Click 'Sign up'
Ontonet /Bassita	• Sign up fails, the account is not created
Output/Results	• An error window displays all the errors

Test Case	The username must be unique	
Description	The user cannot sign up with an already existing username	
Input/Steps	1. Successfully sign	
	2. Log out	
	3. Go to 'Sign up'	
	4. Fill in all the input fields	
	5. Set the username field to be the username of the user created in the fi	rst stej
	6. Click 'Sign Up'	
Output/Results	• Sign up failed, the account is not created	
	• An error window notifies that the username already exists	

Test Case	The password must be valid
Description	The user cannot sign up with a password not matching the required
	format, as specified in the business rules

Input/Steps	<ol> <li>Go to 'Sign up'</li> <li>Fill in all the input fields</li> <li>Set the password to an alpha-numeric sequence of length less than 4</li> <li>Set the repeat password field to match the password field</li> <li>Click 'Sign Up'</li> </ol>
Output/Results	<ul> <li>Sign up failed, the account is not created</li> <li>An error window notifies that the password is not valid</li> </ul>

Test Case	The user account is successfully created
Description	The user must be able to successfully create an account provided that all
	input information is valid
	1. Go to 'Sign up'
	2. Fill in all the input fields with valid data
Input/Steps	3. Click 'Sign Up'
	4. Moved to the login page: input the username and the passowrd
	5. Click 'Login'
Ott /D1t	• Sign up successful, the account is created
Output/Results	• The user is logged-in to the newly created account

### Delete User Account

Test Case	Password required
Description	The program asks for the user's password before to delete the account
Input/Steps	<ol> <li>Go to 'Update User Account'</li> <li>Click 'Delete user'</li> </ol>
Output/Results	• A an input window appears asking for the user password

Test Case	The password must be valid	
Description	The user cannot delete the account if the password is invalid	
	1. Go to 'Update User Account'	
Input/Steps	2. Click 'Delete user'	
	3. Enter a wrong password	
Output/Results	• The account is not deleted	
	• An error window must appear notifying the user that the password was	invali

Test Case	The account is successfully deleted
Description	The user account is successfully deleted if the password is correct
Input/Steps	<ol> <li>Go to 'Update User Account'</li> <li>Click 'Delete user'</li> <li>Enter the correct password</li> </ol>

Output/Results	• The account is not deleted	
Output/Results	• An error window must appear notifying the user that the password was	s invali

Test Case	The user account is successfully created		
Description	The user must be able to successfully create an account provided that all		
	input information is valid		
	1. Go to 'Sign up'		
	2. Fill in all the input fields with valid data		
Input/Steps	3. Click 'Sign Up'		
	4. Moved to the login page: input the username and the passowrd		
	5. Click 'Login'		
Output/Results	• Sign up successful, the account is created		
	• The user is logged-in to the newly created account		

## 4 Structural Testing

### 4.1 Unit Test cases

com.github.comp354 project.model.account. Account Service. add Account (request, user)

Table 11: addAccount(request, user)

Tester Name	Hrachya	
Test Date	2/7/18	
Class Name	com.github.comp354project.model.account.AccountService	
Method Name	addAccount(request, user)	
Purpose	This test suite tests the functionality of adding a new bank account	
Use Cases	03	
Test Scenarios		
$testAddAccount\_withIr$	nvalidParameters_shouldThrow	
Input Specification	request accountOwner	
	null null	
Expected Output	ValidationException is thrown	
Expected Output	The number of ValidationErrors is equal to 2	
Actual Output	ValidationException is thrown	
Actual Output	The number of ValidationErrors is equal to 2	
Bug Found	false	
Purpose	Adding an account with invalid request or user should fail	
$testAddAccount\_withN$	TonexistentRemoteAccount_shouldThrow	
	request accountOwner	

		ID: 1		
	ID: 1	firstName: Hrachya		
		lastName: Hakobyan		
Input Specification		username: admin		
		password: admin		
		email: sample@email.com		
		address: address		
		phone: 111111		
Expected Output		DoestNotExistException is thrown		
Actual Output		DoestNotExistException is thrown		
Bug Found	false			
Purpose		st for adding a nonexistent account should fail		
testAddAccount_withIn	validUser			
	request	accountOwner		
		ID: 1		
		firstName: Hrachya		
		lastName: Hakobyan		
Input Specification	ID: 1	username: admin		
	110.1	password: admin		
		email: sample@email.com		
		address: address		
		phone: 111111		
Expected Output	Validation	ValidationException is thrown		
Actual Output	ValidationException is thrown			
Bug Found	false			
Purpose		an account with an invalid owner should throw		
testAddAccount_withE	xistingAc			
	request	accountOwner		
		ID: 1		
		firstName: Hrachya		
		lastName: Hakobyan		
Input Specification	ID: 1	username: admin		
	110.1	password: admin		
		email: sample@email.com		
		address: address		
		phone: 111111		
Expected Output	AccountExistsException is thrown			
Actual Output	AccountExistsException is thrown			
Bug Found	false			
Purpose	· · ·			
testAddAccount_withV	$test Add Account\_with Valid Account\_should Return Valid Account$			
	request	accountOwner expectedAccount		

Input Specification	ID: 1	ID: 1 firstName: Hrachya lastName: Hakobyan username: admin password: admin email: sample@email.com address: address phone: 111111	ID: 1 user: accountOwner bankName: TD type: Checking balance: 15823.12
Expected Output  Actual Output	The account is fetched and persisted in the database The persisted account is equal to the 'expectedAccount' object The returned account is equal to the 'expectedAccount' object The account is fetched and persisted in the database The persisted account is equal to the 'expectedAccount' object		
	The retu	arned account is equal to the	- · · · · · · · · · · · · · · · · · · ·
Bug Found	false		
Purpose	Adding a valid account with a valid owner must succeed		

### com.github.comp354 project.model.account. Account Service. delete Account (account) account (account

Table 12: deleteAccount(account)

Tester Name	Anne-Laure
Test Date	3/5/18
Class Name	com.github.comp354project.model.account.AccountService
Method Name	deleteAccount(account)
Purpose	This test suite tests the functionality of removing a user's bank account
Use Cases	04
Test Scenarios	
testDeleteAccount_with	NullAccount_shouldThrow
Input Specification	account
input specification	null
Expected Output	ValidationException is thrown
Actual Output	ValidationException is thrown
Bug Found	false
Purpose	Delete a null account should fail
$testDeleteAccount\_with$	AccountWithNullID_shouldThrow
	account
	ID: null
Input Specification	user: null
input specification	bankName:
	type:
	balance: 0

Expected Output	ValidationException is thrown
Actual Output	ValidationException is thrown
Bug Found	false
Purpose	Deleting an account with null ID should fail
testDeleteAccount_with	NonExistentAccount_shouldThrow
	account
	ID: 1
Input Specification	user: accountOwner
input specification	bankName: TD
	type: Checking
	balance: 15823.12
Expected Output	ValidationException is thrown
Actual Output	ValidationException is thrown
Bug Found	false
Purpose	Deleting an nonexistent account should fail
testDeleteAccount_with	ValidAccount_shouldSucceed
	account
	ID: 1
Input Specification	user: accountOwner
input specification	bankName: TD
	type: Checking
	balance: 15823.12
Expected Output	The account is deleted from the database
Actual Output	The account is deleted from the database
Bug Found	false
Purpose	Deleting an existing account should succeed
testDeleteAccount_with	ValidAccount_shouldDeleteAllAssociatedTransactionsAndAccount
	account
	ID: 1
T	user: accountOwner
Input Specification	bankName: TD
	type: Checking
	balance: 15823.12
	transactions: [object Object]
Expected Output	The account is deleted from the database
• •	All the associated transactions are deleted from the database
Actual Output	The account is deleted from the database
_	All the associated transactions are deleted from the database
Bug Found	false
Purpose	Deleting an existing account should delete all associated transactions

 ${\bf Table~13:~delete Accounts For User (user)}$ 

Test Date 4/2/18 Class Name com_github.comp354project.model.account.AccountService Method Name deleteAccountsForUser(user)  Purpose This test suite tests the functionality of removing a user's bank accounts and associated transactions  Use Cases 04  Test Scenarios  testDeleteAccountsForUser_withNullUserID_shouldThrow  Input Specification  Expected Output ValidationException is thrown  Actual Output ValidationException is thrown  Bug Found false  Purpose Deleting accounts with null user ID should fail  testDeleteAccountsForUser_withNonexistentUser_shouldSucceed  Input Specification  Expected Output No accounts are deleted. The system state is not changed.  Actual Output No accounts are deleted. The system state is not changed.  Bug Found false  Purpose Deleting a nonexistent user's accounts should succeed and should not inflict any changes to the system.  testDeleteAccountsForUser_withValidUserAndEmptyAccounts_shouldSucceed  user  ID: 1  firstName: Hrachya lastName: Hakobyan username: admin password: admin p				
Class Name	Tester Name	Hrachya		
Method Name   delete-AccountsForUser(user)		4/2/18		
This test suite tests the functionality of removing a user's bank accounts and associated transactions	Class Name	com.github.comp354project.model.account.AccountService		
and associated transactions   194	Method Name	deleteAccountsForUser(user)		
Test Scenarios   User Localization   User ID   Should Throw   User ID   Input Specification   Input Specificatio	Purpose	This test suite tests the functionality of removing a user's bank accounts		
Test Scenarios testDeleteAccountsForUser_withNullUserID_shouldThrow  Input Specification Input Specification Expected Output ValidationException is thrown  Actual Output ValidationException is thrown  Bug Found False Purpose Deleting accounts with null user ID should fail testDeleteAccountsForUser_withNonexistentUser_shouldSucceed  Input Specification Input Specification Expected Output No accounts are deleted. The system state is not changed.  Actual Output No accounts are deleted. The system state is not changed.  Bug Found False Purpose Deleting a nonexistent user's accounts should succeed and should not inflict any changes to the system.  testDeleteAccountsForUser_withValidUserAndEmptyAccounts_shouldSucceed  user ID: 1 firstName: Hrachya lastName: Hakobyan username: admin password: a		and associated transactions		
Input Specification  Expected Output ValidationException is thrown  Actual Output ValidationException is thrown  Bug Found false  Purpose Deleting accounts with null user ID should fail testDeleteAccountsForUser_withNonexistentUser.shouldSucceed  Input Specification  Expected Output No accounts are deleted. The system state is not changed.  Actual Output No accounts are deleted. The system state is not changed.  Bug Found false  Purpose Deleting a nonexistent user's accounts should succeed and should not inflict any changes to the system.  testDeleteAccountsForUser_withValidUserAndEmptyAccounts_shouldSucceed  user  ID: 1 firstName: Hrachya lastName: Hakobyan username: admin password: admin email: sample@email.com address: address phone: 111111  Expected Output No accounts are deleted. The system state is not changed.  Actual Output No accounts are deleted. The system state is not changed.  Actual Output No accounts are deleted. The system state is not changed.  Actual Output No accounts are deleted. The system state is not changed.  Actual Output No accounts are deleted. The system state is not changed.  Bug Found false  Purpose Deleting the accounts of a user who does not have any accounts should succeed and inflict no changes to the system  testDeleteAccountsForUser_withAssociatedTransactions.shouldDeleteAccountAndTransactions		04		
Input Specification				
mull	testDeleteAccountsForU			
Expected Output ValidationException is thrown  Actual Output ValidationException is thrown  Bug Found false  Purpose Deleting accounts with null user ID should fail testDeleteAccountsForUser_withNonexistentUser_shouldSucceed  Input Specification 1  Expected Output No accounts are deleted. The system state is not changed.  Actual Output No accounts are deleted. The system state is not changed.  Bug Found false  Purpose Deleting a nonexistent user's accounts should succeed and should not inflict any changes to the system.  testDeleteAccountsForUser_withValidUserAndEmptyAccounts_shouldSucceed  user ID: 1 firstName: Hrachya lastName: Hakobyan username: admin passit: sample@email.com address: address phone: 111111  Expected Output No accounts are deleted. The system state is not changed.  Actual Output No accounts are deleted. The system state is not changed.  Actual Output Specification false  Purpose Deleting the accounts of a user who does not have any accounts should succeed and inflict no changes to the system testDeleteAccountsForUser_withAssociatedTransactions_shouldDeleteAccountAndTransactions	Input Specification	userID		
Actual Output         ValidationException is thrown           Bug Found         false           Purpose         Deleting accounts with null user ID should fail           testDeleteAccountsForUser_withNonexistentUser_shouldSucceed           Input Specification         userID           Expected Output         No accounts are deleted. The system state is not changed.           Actual Output         No accounts are deleted. The system state is not changed.           Bug Found         false           Purpose         Deleting a nonexistent user's accounts should succeed and should not inflict any changes to the system.           testDeleteAccountsForUser_withValidUserAndEmptyAccounts_shouldSucceed           user         ID: 1           firstName: Hrachya         lastName: Hakobyan           lastName: Hakobyan         username: admin           password: admin         email: sample@email.com           address: address         phone: 111111           Expected Output         No accounts are deleted. The system state is not changed.           Actual Output         No accounts are deleted. The system state is not changed.           Bug Found         false           Purpose         Deleting the accounts of a user who does not have any accounts should succeed and inflict no changes to the system	Input Specification	null		
Bug Found   false   Deleting accounts with null user ID should fail	Expected Output	ValidationException is thrown		
Deleting accounts with null user ID should fail testDeleteAccountsForUser_withNonexistentUser_shouldSucceed   userID	Actual Output	ValidationException is thrown		
testDeleteAccountsForUser_withNonexistentUser_shouldSucceed  Input Specification  Expected Output  No accounts are deleted. The system state is not changed.  Actual Output  No accounts are deleted. The system state is not changed.  Bug Found  Purpose  Deleting a nonexistent user's accounts should succeed and should not inflict any changes to the system.  testDeleteAccountsForUser_withValidUserAndEmptyAccounts_shouldSucceed  user  ID: 1 firstName: Hrachya lastName: Hakobyan username: admin password: admin email: sample@email.com address: address phone: 111111  Expected Output  No accounts are deleted. The system state is not changed.  Actual Output  No accounts are deleted. The system state is not changed.  Bug Found  False  Purpose  Deleting the accounts of a user who does not have any accounts should succeed and inflict no changes to the system  testDeleteAccountsForUser_withAssociatedTransactions_shouldDeleteAccountAndTransactions	Bug Found	false		
Input Specification  Expected Output No accounts are deleted. The system state is not changed.  Actual Output No accounts are deleted. The system state is not changed.  Bug Found Found Purpose Deleting a nonexistent user's accounts should succeed and should not inflict any changes to the system.  testDeleteAccountsForUser_withValidUserAndEmptyAccounts_shouldSucceed  user ID: 1 firstName: Hrachya lastName: Hakobyan username: admin password: admin email: sample@email.com address: address phone: 111111  Expected Output No accounts are deleted. The system state is not changed.  Actual Output No accounts are deleted. The system state is not changed.  Bug Found Found False  Purpose Deleting the accounts of a user who does not have any accounts should succeed and inflict no changes to the system testDeleteAccountsForUser_withAssociatedTransactions_shouldDeleteAccountAndTransactions	_			
Expected Output	testDeleteAccountsForU	User_withNonexistentUser_shouldSucceed		
Expected Output No accounts are deleted. The system state is not changed.  Actual Output No accounts are deleted. The system state is not changed.  Bug Found false  Purpose Deleting a nonexistent user's accounts should succeed and should not inflict any changes to the system.  testDeleteAccountsForUser_withValidUserAndEmptyAccounts_shouldSucceed  user  ID: 1 firstName: Hrachya lastName: Hakobyan username: admin password: admin email: sample@email.com address: address phone: 111111  Expected Output No accounts are deleted. The system state is not changed.  Actual Output No accounts are deleted. The system state is not changed.  Bug Found false  Purpose Deleting the accounts of a user who does not have any accounts should succeed and inflict no changes to the system testDeleteAccountsForUser_withAssociatedTransactions_shouldDeleteAccountAndTransactions	Input Specification	userID		
No accounts are deleted. The system state is not changed.	input specification	1		
Bug Found false  Purpose Deleting a nonexistent user's accounts should succeed and should not inflict any changes to the system.  testDeleteAccountsForUser_withValidUserAndEmptyAccounts_shouldSucceed  user ID: 1 firstName: Hrachya lastName: Hakobyan username: admin password: admin email: sample@email.com address: address phone: 111111  Expected Output No accounts are deleted. The system state is not changed.  Actual Output No accounts are deleted. The system state is not changed.  Bug Found false  Purpose Deleting the accounts of a user who does not have any accounts should succeed and inflict no changes to the system testDeleteAccountsForUser_withAssociatedTransactions_shouldDeleteAccountAndTransactions	Expected Output	No accounts are deleted. The system state is not changed.		
Purpose Deleting a nonexistent user's accounts should succeed and should not inflict any changes to the system.  testDeleteAccountsForUser_withValidUserAndEmptyAccounts_shouldSucceed  user ID: 1 firstName: Hrachya lastName: Hakobyan username: admin password: admin email: sample@email.com address: address phone: 111111  Expected Output No accounts are deleted. The system state is not changed.  Actual Output No accounts are deleted. The system state is not changed.  Bug Found false  Purpose Deleting the accounts of a user who does not have any accounts should succeed and inflict no changes to the system testDeleteAccountsForUser_withAssociatedTransactions_shouldDeleteAccountAndTransactions	Actual Output	No accounts are deleted. The system state is not changed.		
inflict any changes to the system.  testDeleteAccountsForUser_withValidUserAndEmptyAccounts_shouldSucceed    user   ID: 1	Bug Found	false		
Input Specification Input	Purpose	Deleting a nonexistent user's accounts should succeed and should not		
Input Specification Input		inflict any changes to the system.		
ID: 1 firstName: Hrachya lastName: Hakobyan username: admin password: admin email: sample@email.com address: address phone: 111111  Expected Output No accounts are deleted. The system state is not changed.  Actual Output No accounts are deleted. The system state is not changed.  Bug Found false  Purpose Deleting the accounts of a user who does not have any accounts should succeed and inflict no changes to the system testDeleteAccountsForUser_withAssociatedTransactions_shouldDeleteAccountAndTransactions	testDeleteAccountsForU	Jser_withValidUserAndEmptyAccounts_shouldSucceed		
Input Specification  Input Spe		user		
Input Specification  Input Spe		ID: 1		
Input Specification  username: admin password: admin email: sample@email.com address: address phone: 111111  Expected Output  No accounts are deleted. The system state is not changed.  Actual Output  No accounts are deleted. The system state is not changed.  Bug Found  false  Purpose  Deleting the accounts of a user who does not have any accounts should succeed and inflict no changes to the system  testDeleteAccountsForUser_withAssociatedTransactions_shouldDeleteAccountAndTransactions		firstName: Hrachya		
password: admin email: sample@email.com address: address phone: 111111  Expected Output No accounts are deleted. The system state is not changed.  Actual Output No accounts are deleted. The system state is not changed.  Bug Found false  Purpose Deleting the accounts of a user who does not have any accounts should succeed and inflict no changes to the system  testDeleteAccountsForUser_withAssociatedTransactions_shouldDeleteAccountAndTransactions		lastName: Hakobyan		
email: sample@email.com     address: address     phone: 111111  Expected Output No accounts are deleted. The system state is not changed.  Actual Output No accounts are deleted. The system state is not changed.  Bug Found false  Purpose Deleting the accounts of a user who does not have any accounts should succeed and inflict no changes to the system  testDeleteAccountsForUser_withAssociatedTransactions_shouldDeleteAccountAndTransactions	Input Specification			
address: address phone: 111111  Expected Output No accounts are deleted. The system state is not changed.  Actual Output No accounts are deleted. The system state is not changed.  Bug Found false  Purpose Deleting the accounts of a user who does not have any accounts should succeed and inflict no changes to the system  testDeleteAccountsForUser_withAssociatedTransactions_shouldDeleteAccountAndTransactions		password: admin		
phone: 111111  Expected Output No accounts are deleted. The system state is not changed.  Actual Output No accounts are deleted. The system state is not changed.  Bug Found false  Purpose Deleting the accounts of a user who does not have any accounts should succeed and inflict no changes to the system  testDeleteAccountsForUser_withAssociatedTransactions_shouldDeleteAccountAndTransactions				
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Actual Output No accounts are deleted. The system state is not changed.  Bug Found false  Purpose Deleting the accounts of a user who does not have any accounts should succeed and inflict no changes to the system  testDeleteAccountsForUser_withAssociatedTransactions_shouldDeleteAccountAndTransactions		phone: 111111		
Bug Found false  Purpose Deleting the accounts of a user who does not have any accounts should succeed and inflict no changes to the system  testDeleteAccountsForUser_withAssociatedTransactions_shouldDeleteAccountAndTransactions	Expected Output	No accounts are deleted. The system state is not changed.		
Purpose Deleting the accounts of a user who does not have any accounts should succeed and inflict no changes to the system testDeleteAccountsForUser_withAssociatedTransactions_shouldDeleteAccountAndTransactions	Actual Output	No accounts are deleted. The system state is not changed.		
succeed and inflict no changes to the system testDeleteAccountsForUser_withAssociatedTransactions_shouldDeleteAccountAndTransactions	Bug Found	false		
$test Delete Accounts For User\_with Associated Transactions\_should Delete Account And Transactions$	Purpose	Deleting the accounts of a user who does not have any accounts should		
		· ·		
ugon account	testDeleteAccountsForU	${\tt Jser\_with Associated Transactions\_should Delete Account And Transactions}$		
user account		user account		

	ID: 1		
	firstName: Hrachya	ID: 1	
	lastName: Hakobyan	user: user	
Input Specification	username: admin	bankName: TD	
	password: admin	type: Checking	
	email: sample@email.com	balance: 15823.12	
	address: address	transactions: [object Object]	
	phone: 111111		
Expected Output	The accounts are deleted from the database		
Expected Output	All the associated transactions are deleted from the database		
Actual Output	The accounts are deleted from the database		
Actual Output	All the associated transactions are deleted from the database		
Bug Found	false		
Purpose	Deleting the accounts of t	Deleting the accounts of the user should also delete all the associated	
	transactions.		

# com. github. comp 354 project. model. auth. Authentication Service. authenticate (username, password)

Table 14: authenticate(username, password)

Tester Name	Hrachya		
Test Date	2/3/18		
Class Name	com.github.comp354projec	t.model.auth.AuthenticationService	
Method Name	authenticate (username, par	ssword)	
Purpose	This test suite tests the au	thentication of the user	
Use Cases	01		
Test Scenarios			
testAuthenticate_withIn	nvalidUsernameOrPassword	shouldThrow	
Input Specification	username	password	
	null	null	
Expected Output	ValidationException is thrown		
Expected Output	The number of ValidationErrors is equal to 2		
Actual Output	ValidationException is thrown		
Actual Output	The number of ValidationErrors is equal to 2		
Bug Found	false		
Purpose	A user with invalid credentials should not be able to authenticate		
$test Authenticate\_with Nonexistent Username\_should Throw$			
Input Specification	username	password	
input specification	username	password	
Expected Output	ValidationException is three	ValidationException is thrown	
Actual Output	ValidationException is thrown		

Purpose A user with a nonexistent username should not be able to authenticate testAuthenticate_withIncorrectPassword_shouldThrow  testUser username password  ID: 1 firstName: Hrachya lastName: Hakobyan username: admin password: admin email: sample@email.com address: address phone: 111111  Expected Output ValidationException is thrown
Input Specification  Incorrect Password  Incorrect Password
Input Specification  Incorrect Password
Input Specification  Input Specification  Input Specification  Input Specification  Input Specification  Input Specification  Incorrect Password
Input Specification  lastName: Hakobyan username: admin password: admin email: sample@email.com address: address phone: 111111  Expected Output  lastName: Hakobyan username: admin password: admin email: sample@email.com address: address phone: 111111  ValidationException is thrown
Input Specification username: admin password: admin email: sample@email.com address: address phone: 111111  Expected Output ValidationException is thrown
password: admin email: sample@email.com address: address phone: 111111  Expected Output ValidationException is thrown
password: admin email: sample@email.com address: address phone: 111111  Expected Output ValidationException is thrown
address: address phone: 111111  Expected Output ValidationException is thrown
phone: 111111  Expected Output ValidationException is thrown
Expected Output ValidationException is thrown
Actual Output UserLoggedInException is thrown
Bug Found false
Purpose Authentication with a valid username but an incorrect password should
fail
$test Authenticate\_with Correct Credentials\_should Return User$
testUser username password
ID: 1
firstName: Hrachya
lastName: Hakobyan
Input Specification   username: admin
password: admin admin admin
email: sample@email.com
address: address
phone: 111111
The authentication is successful and the authenticated user is returned
Expected Output  The authenticated user is equal to the 'testUser' object
The authentication is successful and the authenticated user is returned
Actual Output  The authenticated user is equal to the 'testUser' object
Bug Found false
Purpose Authentication with a valid username but an incorrect password should
fail

### com.github.comp354 project.model.auth. Session Manager.login (username, password)

Table 15: login(username, password)

Tester Name	Hrachya
Test Date	2/7/18
Class Name	com.github.comp354project.model.auth.SessionManager

Method Name	login(username, password)	login(username, password)			
Purpose	This test suite tests the log	gin of a user			
Use Cases	02				
Test Scenarios					
testLogin_withInvalidC	redentials_shouldThrow				
Input Specification	username	password			
input specification					
Expected Output	ValidationException is three	own			
Actual Output	ValidationException is three	own			
Bug Found	false				
Purpose	A user with invalid credent	tials should	not be able	to login	
testLogin_withValidCre	edentials_shouldReturnUser				
	testUser	username	password	loggedIn	authenticateInvoc
	ID: 1				
	firstName: Hrachya				
Input Specification	lastName: Hakobyan				
	username: admin			true	1
	password: admin			orac	1
	email: sample@email.com				
	address: address				
	phone: 111111				
	The method authenticate i	s invoked 1	time		
Expected Output	The user is logged in				
	The logged in user is equal		*		
	The method authenticate i	s invoked 1	time		
Actual Output	The user is logged in				
	The logged in user is equal	to 'testUse	r' object		
Bug Found	false				
Purpose	A user with valid credentials should be able to login				
testLogin_withLoggedInUser_shouldThrow					
Input Specification username password					
Expected Output	UserLoggedInException is thrown				
Actual Output	UserLoggedInException is thrown				
Bug Found	false				
Purpose	A user that is already logged in should not be able to login again				

### com.github.comp354 project.model.auth.SessionManager.logout()

Table 16: logout()

Tester Name	Hrachya

Test Date	2/7/18			
Class Name	com.github	o.comp354pi	roject.model.a	auth.SessionManager
Method Name	logout()			
Purpose	This test s	uite tests th	ne function to	logout
Use Cases	02			
Test Scenarios				
testLogin_withInvalidC	testLogin_withInvalidCredentials_shouldThrow			
Input Specification	username	password	isLoggedIn	currentUser
input specification			false	null
Expected Output	After logou	it, the login	status shoule	d be false
Expected Output	After logou	ut, the curre	ent user shoul	ld be null
Actual Output	After logout, the login status should be false			
Actual Output	After logout, the current user should be null			
Bug Found	false			
Purpose	A user sho	uld be comp	pletely logged	out of the application

# com. github. comp 354 project. model. account. Transaction Service. update Transaction Category (total category) and the project of the compact of the com

Table 17: updateTransactionCategory(transactionID, category)

Tester Name	Hrachya		
Test Date	3/4/18		
Class Name	com.github.com	np354project.model.account.TransactionService	
Method Name	updateTransac	tionCategory(transactionID, category)	
Purpose	This test suite	tests the functionality of updating the category of a trans-	
	action		
Use Cases	08		
Test Scenarios			
testUpdateCategory_wi	th Null Transaction	onID_shouldThrow	
Input Specification	transactionID	category	
Input Specification	null	Leisure	
Expected Output	ValidationException is thrown		
Actual Output	ValidationException is thrown		
Bug Found	false		
Purpose	Updating a null transaction ID should fail		
testUpdateCategory_wi	thNonexistentTr	ansaction_shouldThrow	
Input Specification	transactionID	category	
input specification	111111 Leisure		
Expected Output	ValidationException is thrown		
Actual Output	ValidationException is thrown		

Bug Found	false				
Purpose	Updating a nonexistent transaction should fail				
testUpdateCategory_wi	testUpdateCategory_withNullCategory_shouldSucceed				
Input Specification	transactionID	category			
input specification	10	null			
Expected Output		of the transaction with the specified ID is set to null			
Actual Output	The 'category'	of the transaction with the specified ID is set to null			
Bug Found	false				
Purpose		category of a valid transaction to null must succeed			
testUpdateCategory_wi	thEmptyCategor	ry_shouldSucceed			
Input Specification	transactionID	category			
input specification	10				
Expected Output		of the transaction with the specified ID is set to "			
Actual Output	0 0	of the transaction with the specified ID is set to "			
Bug Found	false				
Purpose	Updating the category of a valid transaction to an empty string m				
succeed					
testUpdateCategory_wi	ateCategory_withValidCategory_shouldSucceed				
Input Specification	transactionID	category			
	10	Leisure			
Expected Output	_ ~ ~	of the transaction with the specified ID is set to 'Leisure'			
Actual Output		of the transaction with the specified ID is set to 'Leisure'			
Bug Found	false				
Purpose		eategory of a valid transaction must succeed			
testUpdateCategory_wi		-			
Input Specification	transactionID	category			
	10	AAAAAAAAAAAAA			
Expected Output	ValidationException is thrown				
Actual Output		eption is thrown			
Bug Found	false				
Purpose	Updating the category of a valid transaction to a an invalid value as				
	determined by the business rules must fail				

### com.github.comp354 project.model.user.UserService.createUser(User)

### Table 18: createUser(User)

Tester Name	Hrachya
Test Date	1/31/18
Class Name	com.github.comp354project.model.user.UserService
Method Name	createUser(User)
Purpose	This test suite tests the creation of a user

Use Cases	01			
Test Scenarios				
createUser_withNullUse	er_shouldThrow			
	user			
Input Specification	null			
Expected Output	ValidationException is thrown			
Actual Output	ValidationException is thrown			
Bug Found	false			
Purpose	No null user can be saved in the database			
$testCreateUser\_withInv$	alidUser_shouldThrow			
Input Specification	user errors			
input specification				
Expected Output	ValidationException is thrown			
Expected Output	4 exceptions are thrown because missing fields: username, password, first name,			
Actual Output	ValidationException is thrown			
	4 exceptions are thrown because missing fields: username, password, first name,			
Bug Found	false			
Purpose	No empty value user can be saved in the database			
$testCreateUser\_withVal$	idUser_shouldReturnUser			
	user			
	username: USERNAME			
Input Specification	password: PASSWORD			
	firstName: FIRSTNAME			
	lastName: LASTNAME			
Expected Output  User ID was autogenerated upon save The saved user is the same as the inputted user				
		Actual Output	User ID was autogenerated upon save	
Dum Found	The saved user is the same as the inputted user			
Bug Found	false A valid user should be inserted in the database			
Purpose test Create Hear with Evi	stingUsername_shouldThrow			
testOreateOser_withExt	user			
	username: USERNAME			
Input Specification	password: PASSWORD			
input specification	firstName: FIRSTNAME			
	lastName: LASTNAME			
Expected Output	ValidationException is thrown			
Actual Output	ValidationException is thrown			
Bug Found	false			
Purpose	A user cannot be created if the username is already taken			
<b>F</b>				

### com.github.comp354 project.model.user.UserService.deleteBankAccount(Account)

Table 19: deleteBankAccount(Account)

Tester Name	Anne-Laure				
Test Date	3/7/18				
Class Name	com.github.comp354project.model.user.UserService				
Method Name	deleteBankAccount(Account				
Purpose	This test suite tests the de		nt		
Use Cases	04				
Test Scenarios					
testDeleteBankAccount	z_withNullAccount_ShouldTh	nrow			
T	account				
Input Specification	null				
Expected Output	ValidationException is three	own			
Actual Output	ValidationException is three	own			
Bug Found	false				
Purpose	No null account can be pas	ssed to the function			
testDeleteBankAccount	$_{ m L}$ without Being Logged In_Sho	ouldThrow			
	account	testUser			
Input Specification	ID: 1 user: testUser bankName: TD type: Checking balance: 15823.12	ID: 1 firstName: Hrachya lastName: Hakobyan username: admin password: admin email: sample@email.com address: address phone: 111111			
Expected Output	AuthenticationException is	*			
Actual Output	Authentication Exception is				
Bug Found	false				
Purpose	A user that is not authenti	cated cannot delete his	accounts		
testDeleteBankAccount	_withoutProperAuthorisatio	n_ShouldThrow			
	testUser	user2	testAccount		
Input Specification	ID: 1 firstName: Hrachya lastName: Hakobyan username: admin password: admin email: sample@email.com address: address phone: 111111	username: username password: password firstName: firstname lastName: lastname ID: 999	ID: 1 user: testUser bankName: TD type: Checking balance: 15823.12		

Expected Output	AuthorisationException is thrown				
Actual Output	AuthorisationException is	AuthorisationException is thrown			
Bug Found	false				
Purpose	A user cannot modify the	accounts of another use	er		
testDeleteBankAccount	WithProperAuthorisation_3	ShouldSucceed			
	testUser	testAccount	invocationCount		
Input Specification	ID: 1 firstName: Hrachya lastName: Hakobyan username: admin password: admin email: sample@email.com address: address phone: 111111	ID: 1 user: testUser bankName: TD type: Checking balance: 15823.12	1		
Expected Output	Execution of the deletion of the account once				
Actual Output	Execution of the deletion of the account once				
Bug Found	false				
Purpose	An authenticated user should succeed in deleting his own bank accounts				

### com.github.comp354 project.model.user.UserService.deleteUser(User)

Table 20: deleteUser(User)

Tester Name	Abed Jawhar	
Test Date	3/13/18	
Class Name	com.github.comp354project.model.user.UserService	
Method Name	deleteUser(User)	
Purpose	This test suite tests the deletion of a user	
Use Cases	02	
Test Scenarios		
testDeleteUser_withNul	llUser_shouldThrow	
Input Specification	user	
input specification	null	
Expected Output	ValidationException is thrown	
Actual Output	ValidationException is thrown	
Bug Found	false	
Purpose	A null user can't be deleted	
$test Delete User\_with Nonexistant User\_should Throw$		
	testUser	

	ID: 1 firstName: Hrachya				
T (Consideration	lastName: Hakobyan				
Input Specification	username: admin				
	password: admin				
	email: sample@email.com address: address				
	phone: 111111				
Expected Output	ValidationException is thro	วนฑ			
Actual Output	ValidationException is three				
Bug Found	false				
Purpose	A user that does not exist of	can't be deleted			
	istingtUser_shouldSucceed				
	testUser	returnSize			
	ID: 1				
	firstName: Hrachya	l		ļ	
	lastName: Hakobyan	I		ļ	
Input Specification	username: admin	0			
	password: admin	U			
	email: sample@email.com	I			
	address: address	l			
	phone: 111111	<u> </u>			
Expected Output		The number of users with ID 1 is 0			
Actual Output	The number of users with I	<u>D 1 is 0</u>			
Bug Found	false				
Purpose	A valid user should be dele				
testDeleteUser_witiiExi	stingtUser_shouldDeleteAsso	1	1 Cigo	1 1 d A s s compt I parco	
	testUser ID: 1	testAccount	returnSize	deleteAccountInvo	
Input Specification	firstName: Hrachya lastName: Hakobyan username: admin	ID: 1 user: testUser bankName: TD		1	
	password: admin email: sample@email.com address: address phone: 111111	type: Checking balance: 15823.12	0	1	
Expected Output	The number of users with I				
Expected Output	Delete account should be in				
	4 m 1	The number of users with ID 1 is 0 Delete account should be invocated 1 time			
Actual Output	Delete account should be in				
Actual Output  Bug Found  Purpose		nvocated 1 time			

### com.github.comp354 project.model.user.UserService.updateUser(User)

Table 21: updateUser(User)

Tester Name	Abed Jawhar				
Test Date	3/13/18				
Class Name	com.github.comp354project.model.user.UserService				
Method Name	updateUser(User)				
Purpose	This test suite tests the up	date of a us	er		
Use Cases	02				
Test Scenarios					
testUpdateUser_withNu	ullUser_shouldThrow				
Innut Chasification	user				
Input Specification	null				
Expected Output	ValidationException is three	own			
Actual Output	ValidationException is three	own			
Bug Found	false				
Purpose	A null user can't be update				
testUpdateUser_withNo	$onexistenttUser\_shouldThrow$	V			
	testUser				
	ID: 1				
	firstName: Hrachya				
	lastName: Hakobyan				
Input Specification	username: admin				
	password: admin				
	email: sample@email.com				
	address: address				
	phone: 111111				
Expected Output	ValidationException is three	own			
Actual Output	ValidationException is three	own			
Bug Found	false				
Purpose	A user that does not exist	can't be upo	dated		
testUpdateUser_withVa					
	testUser	firstName	lastName	password	
	ID: 1				
	firstName: Hrachya				
	lastName: Hakobyan				
Input Specification	username: admin	Abed	iowhor	admin2	
	password: admin	Abed	jawhar	admin2	
	email: sample@email.com				
	address: address				
	phone: 111111				

	The firstName is updated to 'Abed'
Expected Output	The lastName is updated to 'jawhar'
	The password is updated to 'admin2'
	The firstName is updated to 'Abed'
Actual Output	The lastName is updated to 'jawhar'
	The password is updated to 'admin2'
Bug Found	false
Purpose	A valid user should be updated

### 5 Performance Testing

- 6 Acceptance Testing
- 7 Installation Testing
- 8 References

### A Description of Input Files

Describe/include test data from input files.

### B Description of Output Files

Describe/include test expected output that are output files.