Iteration 3 - Test Document

Team PA-PI-a

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Table 1: Team

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1 Introduction

The purpose of this document is to gather all information necessary for testing of the MyMoney application. This document describes the testing approach and overall framework that will be used to test the MyMoney application.

The following pages will identify the requirements that will be tested, the testing strategy used, the test cases and their results, and the description of input files.

2 Test Plan

We will be performing system level, integration and unit testing based on the use case scenarios. We are performing black box testing for system level testing, as we are more concerned with the whole system working as a whole, and not necessarily "how" it works. Integration tests will focus on the integration of *Transactions* in *Accounts* and the integration of *Budgets* across all *Accounts* with respect to their *Transactions*. Unit testing will focus on testing specific methods within subsystems to ensure they function properly, which satisfies usability.

The following functional requirements will be tested:

- Add Account
- Update Account
- Delete Account
- Add Transaction
- Import Transaction
- Update Transaction
- Delete Transaction
- View Account Transactions
- Add Budget
- Update Budget
- Delete Budget
- Apply Transaction to Budget
- View Budget Transactions

2.1 System Level Test Cases

2.1.1 Test Case 1

Purpose
The purpose of the test is to verify the user is able to add a bank account into the application's database. It satisfies the requirement of the user being able to create a bank account.

Input Specification
The application displays a graphical user interface on the screen. Optionally, it shows a list of pre-existing bank accounts in the window's top-right corner. MyMoney accepts any kind of characters and of any length as input in the *Bank* and *Nickname* fields while the *Balance* field accepts non-negative integers. The *Bank* and *Balance* fields cannot be empty. The user presses *Add* on the interface to add the account.

Expected Output
The application displays the window. A created bank account with the information the user entered now exists in the application.

Traces to Use Cases
This test case satisfies the main scenario of use case 1 - *AddAccount*.

2.1.2 Test Case 2

Purpose
The test verifies that for an existing bank account its bank name, nickname and balance can be modified. This satisfies the requirement that the user is able to adjust account information in case of an account transfer to another financial institution.

Input Specification
MyMoney displays a graphical user interface on the screen. For this operation, MyMoney accepts any kind of characters and of any length as input in the *Bank* and *Nickname* fields while the *Balance* field accepts non-negative integers. The *Bank* and *Balance* fields cannot be empty. The user presses the *Update* to update the account information.

Expected Output
The application displays the window. The system displays updated information of the bank account in the top-right window.

Traces to Use Cases
This satisfies the main scenario of use case 2 - *UpdateAccount*.

2.1.3 Test Case 3

Purpose
This test verifies the user is able to delete their own account. This satisfies the requirement that the user is able to remove their account when their is no longer associated with a bank.

Input Specification
MyMoney displays a graphical user interface on the screen. For this operation, the user selects their account with the mouse and presses *Delete*.

Expected Output
The application displays the window. Also it display a list of accounts in the top-right corner except the one that was deleted.

Traces to Use Cases
This satisfies the main scenario of use case 3 - *DeleteAccount*.

2.1.4 Test Case 4

Purpose
This test verifies the user is able to add a transaction into their existing account. This satisfies the requirement that the user can complete an addition of a transaction into their account.

Input Specification
MyMoney displays a graphical user interface on the screen. For this operation, MyMoney accepts a transaction *type* - withdraw or deposit, a *date* which is selected via the date picker, an *Amount*, a integer, a *Budget* which is chosen from a drop-down list, and a *description* - a string composed of any characters and of non-negative length. To register the action, the user presses *Add* located in the bottom left of the window.

Expected Output
The application displays the window. The transaction is added to the account. If the user selects his account in the top-right corner of the window then the bottom-right window displays the newly created transaction.

Traces to Use Cases
This satisfies the main scenario of use case 4 - *AddTransaction*.

2.1.5 Test Case 5

Purpose
This test verifies the user is able to import a transaction into their existing account. This satisfies the requirement that the user can import a transaction into their account.

Input Specification
MyMoney displays a graphical user interface on the screen. For this operation, the user selects their account with the mouse, clicks the import button, chose the csv file.

Expected Output
The transaction is added to the user's account. The bottom-right corner displays the transaction.

Traces to Use Cases
This satisfies use case 5 - *ImportTransactions*

2.1.6 Test Case 6

Purpose
This test verifies the user is able to update an existing transaction in their account. This satisfies the requirement that the user can change information of a transaction in their account.

Input Specification
MyMoney displays a graphical user interface on the screen. For this operation, the user selects their account with the mouse, chose the appropriate transaction to modify in the bottom-right window. The user can modify the transaction fields on the transactions pane. In the pane, transaction *type* - withdraw or deposit, a *date* which is selected via the date picker, an *Amount*, a integer, a *Budget* which is chosen from a drop-down list, and a *description* - a string composed of any characters and of non-negative length. The register the action, the user presses *Add* located in the bottom left of the window.

Expected Output
The application displays the window. The fields in the transaction are updated. If selected, the bottom-right corner displays the updated transaction.

Traces to Use Cases
This satisfies use case 6 - *ImportTransactions*

2.1.7 Test Case 7

Purpose
This test verifies the user is able to delete an existing transaction in their account. This satisfies the requirement that the user can changeremove a transaction from their account.

Input Specification
MyMoney displays a graphical user interface on the screen. For this operation, the user selects their account with the mouse, chose the appropriate transaction to remove in the bottom-right window. The user presses *Delete* in the Transactions pane.

Expected Output
The application displays the window. The transaction does not show in the bottom-right window.

Traces to Use Cases
This satisfies use case - 7 *DeleteTransactions*

2.1.8 Test Case 8

Purpose
This test verifies that the user is able to view the selected account's transactions.

Input Specification
MyMoney displays a graphical user interface on the screen. For this operation, the user selects their account with the mouse.

Expected Output
The application displays the window. The transaction window is visible. The selected account's transactions shows up in the transaction table.

Traces to Use Cases
This satisfies use case 8 - *ViewTransactions*

2.1.9 Test Case 9

Purpose

Input Specification

Expected Output

Traces to Use Cases
This satisfies use case 9 - *AddBudget*

2.1.10 Test Case 10

Purpose

Input Specification

Expected Output

Traces to Use Cases
This satisfies use case 10 - *UpdateBudget*

2.1.11 Test Case 11

Purpose

Input Specification

Expected Output

Traces to Use Cases
This satisfies use case 11 - *DeleteBudget*

2.1.12 Test Case 12

Purpose

Input Specification

Expected Output

Traces to Use Cases
This satisfies use case 12 - *ApplyTransactionToBudget*

2.1.13 Test Case 13

Purpose

Input Specification

Expected Output

Traces to Use Cases
This satisfies use case 13 - *ViewBudgetTransactions*

2.2 Subsystem Level Test Cases

2.2.1 Subsystem X

2.3 Unit Test cases

2.3.1 Unit Test Case 1

Table 2: UT-1

Test Case Number	UT-1
Test Case Description	This test case is used to ensure that transactions are properly saved or updated to their repository
Input	1. A Transaction object populated with generic data 2. A second Transaction object with the ID of the first one. 3. A test transaction database.
Expected Output	1. Transaction details are printed to console.
Expected Post-Conditions	A transaction database is created and a transaction is inserted. The balance of this transaction is then updated to a new value.
Execution History	1. 04/03/2018 — Colin Greczkowski — Executed test successfully.

2.3.2 Unit Test Case 2

Table 3: UT-2

Test Case Number	UT-2
Test Case Description	This test verifies that the deleteItem method works as intended, and deletes a Transaction record for a given ID
Input	1. A generic account ID 2. A Transaction object populated with generic data, associated to the generic account. 3. A test transaction database.
Expected Output	1. "Delete Transaction 1"
Expected Post-Conditions	The test transaction database should be empty.
Execution History	1. 04/07/2018 — Colin Greczkowski — Executed test successfully.

2.3.3 Unit Test Case 3

Table 4: UT-3

Test Case Number	UT-3
Test Case Description	This test case is used to make sure all Transactions associated to an account are properly purged from the repository.
Input	1. A generic account ID 2. Two Transaction objects populated with generic data, associated to the generic account. 3. A test transaction database.
Expected Output	1. "Delete Transaction 1" 2. "Delete Transaction 2"
Expected Post-Conditions	The test transaction database does not contain the two transactions that had the generic account ID.
Execution History	1. 04/03/2018 — Colin Greczkowski — Executed test successfully.

2.3.4 Unit Test Case 4

Table 5: UT-4

Test Case Number	UT-4
Test Case Description	This tests the RepositoryContainer's ability to save a variety of types of objects (Transactions, Accounts, Budgets).
Input	1. Test Transaction, Budget and Account Databases 2. A test Transaction 3. A test Account 4. A test Budget
Expected Output	1. The test transaction's details are printed to console.
Expected Post-Conditions	The account,transaction and budget items are saved to their respective test databases. Balances are updated correctly.
Execution History	1. 04/07/2018 — Colin Greczkowski — Executed test successfully.

2.3.5 Unit Test Case 5

Table 6: UT-5

Test Case Number	UT-5
Test Case Description	TO BE COMPLETED: BudgetContainer test
Input	1. A Budget object populated with generic data 2. A test Account database with transactions 3. A test Budget database
Expected Output	1. The test budget's details are printed to console.
Expected Post-Conditions	A budget database is created and a budget is inserted. The recorded budget amount is updated according to transactions made across all accounts for that budget.
Execution History	1. 04/08/2018 — Melanie Taing — Not executed

2.3.6 Unit Test Case 6

Table 7: UT-6

Test Case Number	UT-6
Test Case Description	This test case is used to ensure created accounts are saved in the database. Also it verifies that accounts can be deleted from it.
Input	1. An account database 2. An account repository 3. An account with non-null values for *nickname*, *bankName* and a non-negative value for *balance*
Expected Output	1. Tuples in Account repository test before delete: 2 2. Tuples in Account repository test after delete: 1 3. Current items loaded in repo:1 4. 1
Expected Post-Conditions	The system has a single account in the account database.
Execution History	1. 04/07/2018 — Wayne Yiel Leung — Executed test failed.

2.4 Test Case Templates

2.4.1 System Level Test Case Template

Purpose
State the purpose of the test. Indicate which requirement and which aspect of that requirement is being tested.

Input Specification
State the context for the test in terms of system state. State the input test data. You may need to mention operations invoked as well as data for the operation. You can cross-reference to actual file data specified in an appendix.

Expected Output
State the expected system response and output. You can cross-reference to actual file data specified in an appendix.

Traces to Use Cases
State which requirements (at the level of use case and scenario) are tested by this test case.

2.4.2 Unit Test Case Template

Table 8: Template Test Case

Test Case Number	
Test Case Description	
Input	1.
Expected Output	1.
Expected Post-Conditions	
Execution History	1. mm/dd/yyyy — Tester's name — Execution result

3 Test Results

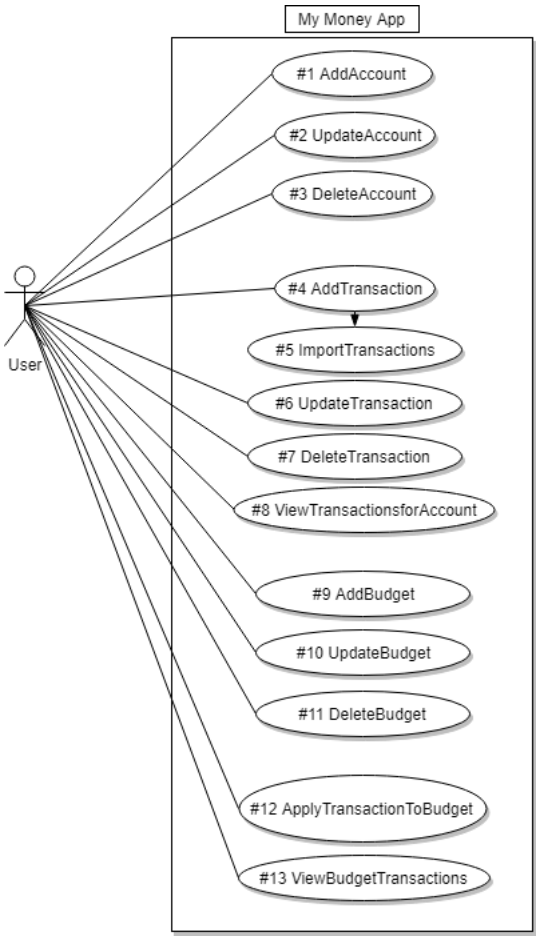
4 References

Sinnig, D., "Introduction to Software Testing" (Current April 8, 2018)

Larman, C. Applying UML and Patterns: An Introduction to Object-Oriented Analysis and Design and Iterative Development, 3rd edition, Prentice-Hall, 2005.

5 Addendum

Figure 1: Updated use case diagram



6 Description of Input Files