Duri.an

College of Computer Science & Information Technology

CSEB424 / Software Testing

Test Design Specifications

Project Title :	Transfer		Universiti Tenaga Nasional /
Date : 13/11/2018		Test Design Specification ID: [ATMS_TDS_1]	Duri.an

Document Control

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Name	Position	Contact Number
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TEST DESIGN SPECIFICATION

Table of Content

Project Title :	Transfer		
Date : 13/11/2018	Test Design Specification ID: ATMS_TDS_1)		Duri.an

1.0 Introduction

1.1 Purpose

This test design specification support the following objectives:

- i. To identify the test items covered
- ii. To further refine the test approach from Test Plan
- iii. To define the sources of the Information used to prepare the plan
- iv. To identify the general cases of test to be executed

1.2 Scope

This test design specification covers Session Transfer features developed in ATMS.

1.3 References

The following IEEE standards have been referenced in preparation of this document:

- i. IEEE 829-2008 Standard for Software and System Test Documentation

The following documents provide the test basis for this test design:

- i. ATMS Software Requirement Specifications (ATMS_SRS_1.0)
- ii. ATMS System Design Specifications (ATMS_SDS_1.0)

2.0 Test Design

2.1 Features To Be Tested

The following table contains the features to be tested based on ATMS Software Requirement Specifications (SRS) for this iteration. Listed together are the function ID and its corresponding functions and estimated risk level.

Feature ID	Description	Risk Level	Test level
F007	Transfer Interface	High	

2.2 Approach Refinements

As discussed in Test Plan (ATMS_TP_1.0.0), test cases for ATMS will be designed using five techniques which are covered in this section. Techniques are applied based on suitability of techniques according to nature of features.

The techniques that will be applied are as follows:
  i.   Equivalence Partitioning
  ii.   Boundary Value Analysis
  iii. Decision Table Testing
  iv.   State Transition Testing (0-switch: Only valid transitions are tested.)
  v.   Use Case Testing

Nature of feature as below:
  • F007 Transfer Interface - To allow user to perform a fund transfer.

2.2.1 Equivalence Partitioning

i. REQ_IO701

Figure 2.2.1a Account Type (From) Equivalence Partitions

Test Condition ID	Test Condition	Test Coverage ID	Test Coverage	Example of Test Data
TCON-07-001	1 <= Account Type <= 3	TCOV-07-001	1 <= Account Type <= 3 (Valid)	1
TCON-07-002	Account Type < 1	TCOV-07-002	Account Type < 1 (Invalid)	0
TCON-07-003	Account Type > 3	TCOV-07-003	Account Type > 3 (Invalid)	4

Table 2.2.1a Account Type (From) Equivalence Partitioning Test Conditions & Coverage
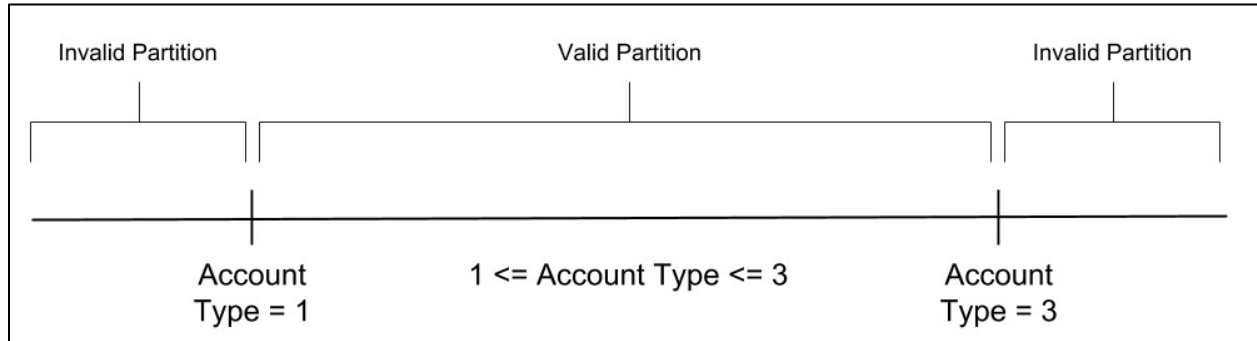
ii.   REQ_IO702

Figure 2.2.1b Account Type (To) Equivalence Partitions

Test Condition ID	Test Condition	Test Coverage ID	Test Coverage	Example of Test Data
TCON-07-004	1 <= Account Type <= 3	TCOV-07-004	1 <= Account Type <= 3 (Valid)	1
TCON-07-005	Account Type < 1	TCOV-07-005	Account Type < 1 (Invalid)	0
TCON-07-006	Account Type > 3	TCOV-07-006	Account Type > 3 (Invalid)	4

Table 2.2.1b Account Type (To) Equivalence Partitioning Test Conditions & Coverage

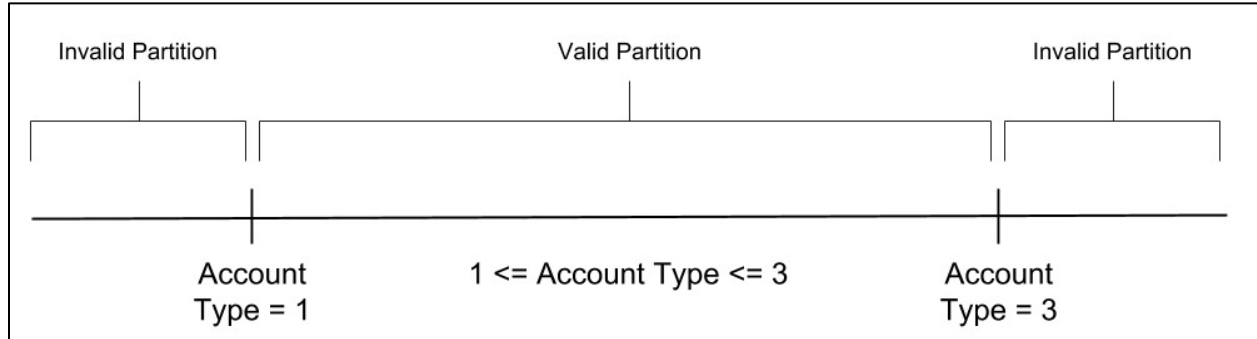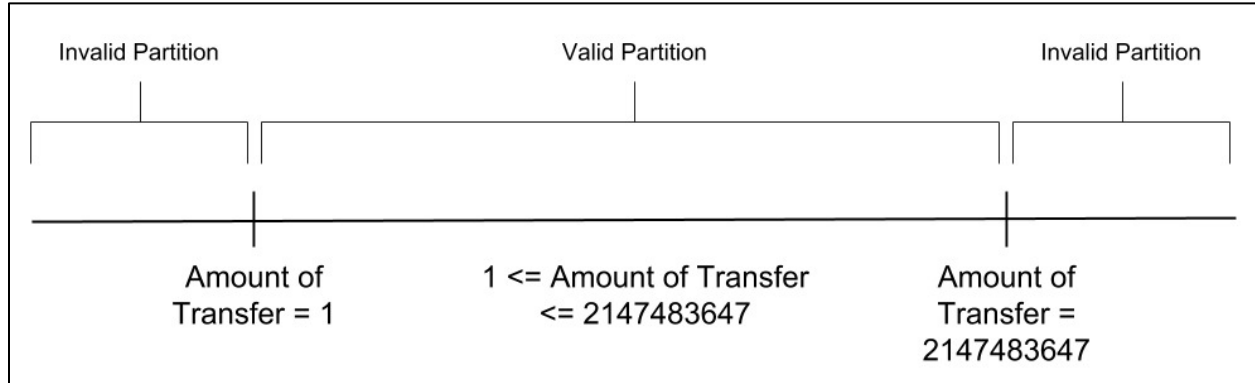| Project Title :	Transfer		Universiti Tenaga Nasional /
Date : 13/11/2018		Test Design Specification ID: [ATMS_TDS_1)	Duri.an

iii.   REQ_10703

Figure 2.2.1c Amount of Transfer Equivalence Partitions

Test Condition ID	Test Condition	Test Coverage ID	Test Coverage	Example of Test Data
TCON-07-007	1 <= Amount of Transfer <= 2147483647	TCOV-07-007	1 <= Amount of Transfer <= 2147483647 (Valid)	1
TCON-07-008	Amount of Transfer < 1	TCOV-07-008	Amount of Transfer < 1 (Invalid)	0
TCON-07-009	Amount of Transfer > 2147483647	TCOV-07-009	Amount of Transfer > 2147483647 (Invalid)	5123467890

Table 2.2.1c Amount of Transfer Equivalence Partitioning Test Conditions & Coverage

TEST DESIGN SPECIFICATION   5

2.2.2 Boundary Value Analysis

i. REQ_IO701

Figure 2.2.2a Account Type (From) Boundary Value Analysis

Test Condition ID	Test Condition	Test Coverage ID	Test Coverage	Example of Test Data
TCON-07-010	Account Type = 0	TCOV-07-010	Account Type = 0 (Invalid)	0
TCON-07-011	Account Type = 1	TCOV-07-011	Account Type = 1 (Valid)	1
TCON-07-012	Account Type = 2	TCOV-07-012	Account Type = 2 (Valid)	2
TCON-07-013	Account Type = 3	TCOV-07-013	Account Type = 3 (Valid)	3
TCON-07-014	Account Type = 4	TCOV-07-014	Account Type = 4 (Invalid)	4

Table 2.2.2a Account Type (From) Boundary Value Analysis Test Conditions & Coverage

TEST DESIGN SPECIFICATION

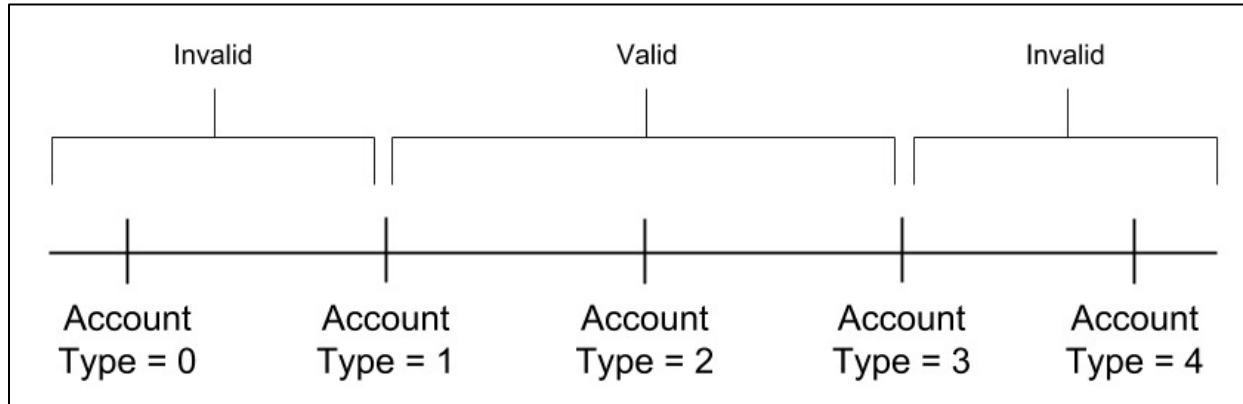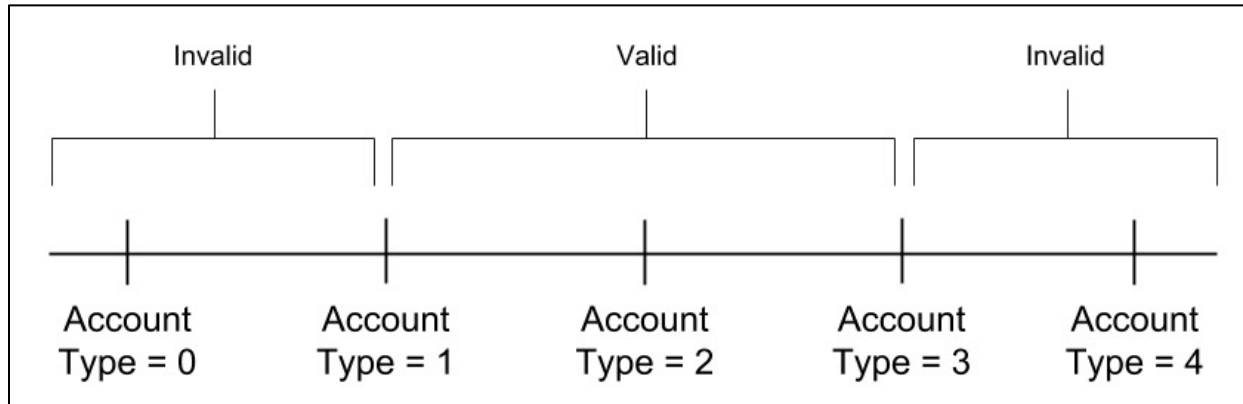| Project Title :	Transfer		Universiti Tenaga Nasional /
Date :	13/11/2018	Test Design Specification ID: [ATMS_TDS_1)	Duri.an

ii.   REQ_IO702

Figure 2.2.2b Account Type (To) Boundary Value Analysis

Test Condition ID	Test Condition	Test Coverage ID	Test Coverage	Example of Test Data
TCON-07-015	Account Type = 0	TCOV-07-015	Account Type = 0 (Invalid)	0
TCON-07-016	Account Type = 1	TCOV-07-016	Account Type = 1 (Valid)	1
TCON-07-017	Account Type = 2	TCOV-07-017	Account Type = 2 (Valid)	2
TCON-07-018	Account Type = 3	TCOV-07-018	Account Type = 3 (Valid)	3
TCON-07-019	Account Type = 4	TCOV-07-019	Account Type = 4 (Invalid)	4

Table 2.2.2b Account Type (To) Boundary Value Analysis Test Conditions & Coverage

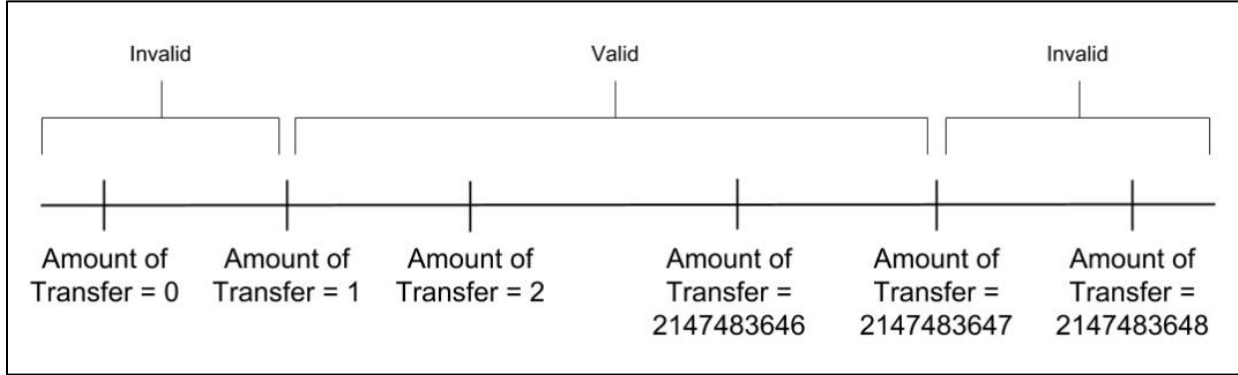TEST DESIGN SPECIFICATION   7

iii.   REQ_IO703

Figure 2.2.2c Amount of Transfer Boundary Value Analysis

	Project Title :	Transfer		Universiti Tenaga Nasional /
	Date : 13/11/2018		Test Design Specification ID: ATMS_TDS_1)	Duri.an

Test Condition ID	Test Condition	Test Coverage ID	Test Coverage	Example of Test Data
TCON-07-020	Amount of Transfer = 0	TCOV-07-020	Amount of Transfer = 0	0
TCON-07-021	Amount of Transfer = 1	TCOV-07-21	Amount of Transfer = 1	1
TCON-07-022	Amount of Transfer = 2	TCOV-07-022	Amount of Transfer = 2	2
TCON-07-023	Amount of Transfer = 2147483646	TCOV-07-023	Amount of Transfer = 2147483646	2147483646
TCON-07-024	Amount of Transfer = 2147483647	TCOV-07-24	Amount of Transfer = 2147483647	2147483647
TCON-07-025	Amount of Transfer = 2147483648	TCOV-07-25	Amount of Transfer = 2147483648	2147483648

Table 2.2.2c Amount of Transfer Boundary Value Analysis Test Conditions & Coverage

Project Title :	Transfer		Universiti Tenaga Nasional /
Date : 13/11/2018		Test Design Specification ID: ATMS_TDS_1)	Duri.an

2.2.3 Use Case Testing

Use Case ID	UC006	
Use Case	Transfer	
Purpose	To allow users to perform a transfer between accounts.	
Actor	User	
Trigger	User chooses "Transfer" in Transaction Menu.	
Precondition	ATMS is in "On" and at Transaction Menu.	
Scenario Name	**Step**	**Action**
Main Flow	1	User chooses "Transfer" in Transaction Menu.
	2	System requests for type of account to transfer from.
	3	User chooses valid type of account to transfer from.
	4	System verifies type of account to transfer from.
	5	System requests for type of account to transfer to.
	6	User chooses valid type of account to transfer to.
	7	System verifies type of account to transfer to.
	8	System requests for amount to transfer.
	9	User enters valid amount to transfer.
	10	System verifies amount of money in account.
	11	System records in log and prints receipt.
	12	System asks whether user wants to perform another transaction.
	13	User chooses "No".
	14	System terminates session and ejects card.
	15	System enters "Idle" state and displays message "Please insert your card".
Alternate Flow – Invalid Account Type (From)	3.1.1	User chooses invalid type of account to transfer from.
	3.1.2	Back to Main Flow Step 2.
Alternate Flow – Cancel Transfer at Account Type Selection (From)	3.2.1	User presses "Cancel" button.
	3.2.2	Back to Main Flow Step 12.
Alternate Flow – Invalid Account Type (To)	6.1.1	User chooses invalid type of account to transfer to.
	6.1.2	Back to Main Flow Step 5.
Alternate Flow – Cancel Transfer at Account Type Selection (To)	6.2.1	User presses "Cancel" button.
	6.2.2	Back to Main Flow Step 12.

Alternate Flow – Invalid Transfer Amount (Amount More Than Account Balance)	9.1.1	User inputs invalid amount to transfer. (Amount more than daily account balance)
	9.1.2	System displays error message "Insufficient balance in account".
	9.1.3	Back to Main Flow Step 12.
Alternate Flow – Cancel when Entering Transfer Amount	9.2.1	User presses "Cancel" button.
	9.2.2	Back to Main Flow Step 12.
Alternate Flow – Perform Another Transaction	13.1	User chooses "Yes".
	13.2	System displays the Transaction Menu and waits for user's transaction request.
Rules	i.	Minimum transfer amount is $1.00.
	ii.	Maximum transfer amount is $2,147,483,647.
Author		Oh Jiin Yeong, Najah Rashid

2.3 Test Identification

This section should contain information at least as below:

Test Condition ID	Test Condition	Test Coverage ID	Test Coverage	Example of Test Data

TCON-07-026	Main Flow	TCOV-07-026	Main Flow	• Account Type (From) = 1 • Account Type (To) = 2 • Amount of Transfer = 2147483647
TCON-07-027	Alternate Flow 1 - Invalid Account Type (From)	TCOV-07-027	Alternate Flow 1 - Invalid Account Type (From)	Invalid Account Type (From) = 4
TCON-07-028	Alternate Flow 2 - Cancel Transfer at Account Type Selection (From)	TCOV-07-028	Alternate Flow 2 - Cancel Transfer at Account Type Selection (From)	Press "Cancel"
TCON-07-029	Alternate Flow 3 - Invalid Account Type (To)	TCOV-07-029	Alternate Flow 3 - Invalid Account Type (To)	Invalid Account Type (To) = 4
TCON-07-030	Alternate Flow 4 - Cancel Transfer at Account Type Selection (To)	TCOV-07-030	Alternate Flow 4 - Cancel Transfer at Account Type Selection (To)	Press "Cancel"
TCON-07-031	Alternate Flow 5 - Invalid Transfer Amount	TCOV-07-031	Alternate Flow 5 - Invalid Transfer Amount	Invalid Transfer Amount = 5123467890
TCON-07-032	Alternate Flow 6 - Cancel when Entering Transfer Amount	TCOV-07-032	Alternate Flow 6 - Cancel when Entering Transfer Amount	Press "Cancel"
TCON-07-033	Alternate Flow 7 - Perform Another Transaction	TCOV-07-033	Alternate Flow 7 - Perform Another Transaction	Press "Yes"

2.4 Feature Pass/Fail Criteria

This section should contain information at least as below:

Feature ID	Pass/Fail Criteria

2.5 Test Deliverable