**Para Bank Software Test Design**

**Project Name:** Para Bank Web App Software Test Design (STD)

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**Software Test Design (STD)**

The Software Test Design (STD) document outlines the detailed design of the test cases and includes:

**1. Introduction**

* **Objective**: Creating a plan or strategy to test an entire software application, including all of its features and functions. Test design aims to identify software defects early in the development cycle and ensures that the Para bank application meets its requirements and functions correctly before it is deployed to production.
* **Scope**: Test design aims to ensure that the testing process is efficient and effective and identify all the bugs, errors, and future mistakes in the software. Functional testing will be the main goal in this project with a focus on automated tests.

**2. Approach**

#### 2.1 Testing Levels

The following testing levels will be employed:

1. **Unit Testing**
   * Performed by developers to test individual components and ensure they function correctly.
   * Focus on testing methods and functions within classes.
2. **Integration Testing**
   * Test the interaction between integrated components.
   * Ensure that modules work together as expected.
   * Use of stubs and drivers if necessary.
3. **System Testing**
   * End-to-end testing of the entire application.
   * Verify that the system meets functional and non-functional requirements.
   * Conducted by the QA team.
4. **Acceptance Testing**
   * Performed to ensure the system meets the business requirements.
   * Involves end-users and stakeholders.
   * User Acceptance Testing (UAT) will be conducted before the release.

#### 2.2 Testing Types

The following types of testing will be conducted:

1. **Functional Testing**
   * Validate that the application functions according to requirements.
   * Includes testing of user authentication, account management, fund transfers, bill payments, account services, customer service, transaction management, and security features.
2. **Regression Testing**
   * Ensure that new changes do not negatively impact existing functionality.
   * Automated regression tests will be run after each new build.
3. **Performance Testing**
   * Assess the application's responsiveness, stability, and scalability under load.
   * Includes load testing and stress testing.
4. **Usability Testing**
   * Evaluate the user interface and user experience.
   * Ensure the application is intuitive and user-friendly.
5. **Security Testing**
   * Identify vulnerabilities and ensure the application is secure from threats.

**3. Test Identification**

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| Test Case 001 | **Test case name:**  Register New User | **Pre-conditions:** Internet connection, Chrome browser , Para Bank login page |
| **Test Objective:** Verifying successful registering a new user with valid registration inputs | **Test Designed by:** Ehab khalil |
| **Date:** 10/07/2024 |
| **Data:** Registration inputs | **Test Priority:** 1 |
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| **Action** | **Step** | **Expected Result** |
| 3 | Click on the "Register" link located in the left side of the page under the login button | Browser directs the user to the ParaBank registration page |
| 4 | Insert the first name in the first name input | the text will appear in the first name input field |
| 5 | Insert the last name in the first name input | the text will appear in the last name input field |
| 6 | Insert the address in the address input | the text will appear in the address input field |
| 7 | Insert the city in the city input | the text will appear in the city input field |
| 8 | Insert the state in the state input | the text will appear in the state input field |
| 9 | Insert the zip code in the zip code input | the number will appear in the zip code input field |
| 10 | Insert the phone number in the phone number input | the number will appear in the phone number input field |
| 12 | Insert the ssn in the ssn input | the number will appear in the ssn input field |
| 13 | Insert the user name in the user name input | the text will appear in the user name input field |
| 14 | Insert the password in the password input | the text will appear in the password input field |
| 15 | Insert the password again in the confirm password input | the text will appear in the confirm password input field |
| 16 | Click on the "Register" button | Browser directs the user to the ParaBank successful registration page |
| 17 | Verify the successful registration page welcome message | The user should get a welcome message " Welcome 'the user name' " |

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| Test Case 002 | **Test case name:**  Register New User | **Pre-conditions:** Internet connection, Chrome browser , Para Bank login page |
| **Test Objective:** Verifying registering a new user is unsuccessful due to a password mismatch | **Test Designed by:** Ehab khalil |
| **Date:** 10/07/2024 |
| **Data:** Registration inputs | **Test Priority:** 1 |
|  |  |  |
| **Action** | **Step** | **Expected Result** |
| 3 | Click on the "Register" link located in the left side of the page under the login button | Browser directs the user to the ParaBank registration page |
| 4 | Insert the first name in the first name input | the text will appear in the first name input field |
| 5 | Insert the last name in the first name input | the text will appear in the last name input field |
| 6 | Insert the address in the address input | the text will appear in the address input field |
| 7 | Insert the city in the city input | the text will appear in the city input field |
| 8 | Insert the state in the state input | the text will appear in the state input field |
| 9 | Insert the zip code in the zip code input | the number will appear in the zip code input field |
| 10 | Insert the phone number in the phone number input | the number will appear in the phone number input field |
| 11 | Insert the ssn in the ssn input | the number will appear in the ssn input field |
| 12 | Insert the user name in the user name input | the text will appear in the user name input field |
| 13 | Insert the password in the password input | the text will appear in the password input field |
| 14 | Insert password that mismatch with the password before | the text will appear in the confirm password input field |
| 15 | Click on the "Register" button | An error message with red text will appear next to the confirm password input field |
| 16 | Verify the Error message | The error message should be 'Passwords did not match.' |

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| Test Case 003 | **Test case name:**  Testing login with a registered user and valid password | **Pre-conditions:** Internet connection, Chrome browser, browser at Para Bank log in page |
| **Test Objective:** Verifying successful log in with registered user and valid password | **Test Designed by:** Ehab khalil |
| **Date:** 10/07/2024 |
| **Data:** Registered user and valid password | **Test Priority:** 1 |
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| **Action** | **Step** | **Expected Result** |
| 1 | Insert the username | The text will appear in the Username input field |
| 2 | insert the password | The text will appear in the password input field as black dots each dot represents a character from the password |
| 3 | Click on the "LOG IN" button located under the password input field | The browser directs the user to the logged in page |
| 4 | Verify the welcome message | The user should see a welcome message in the top left side in the next structure "Welcome {first name} {last name}" |

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| Test Case 004 | **Test case name:**  testing login with a registered user and invalid password | **Pre-conditions:** Internet connection, Chrome browser, browser at Para Bank log in page |
| **Test Objective:** Verifying successful error message with logging in with registered user and invalid password | **Test Designed by:** Ehab khalil |
| **Date:** 10/07/2024 |
| **Data:** Registered user and invalid password | **Test Priority:** 1 |
|  |  |  |
| **Action** | **Step** | **Expected Result** |
| 1 | Insert the username in the username input field | The text will appear in the Usernam input field |
| 2 | Insert invalid password in the password input field | The text will appear in the password input field as black dots each dot represents a character from the password |
| 3 | Click on the "LOG IN" button located under the password input field | The browser directs the user to the logged in page |
| 4 | Verify the error message for unsuccessful log in | The user should see in the right side of the log in area an error message "Error!" and under it a message "The username and password could not be verified." with a red colored text |

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| Test Case 005 | **Test case name: T**est successful logout from login page | **Pre-conditions:** Internet connection, Chrome browser , logged in user |
| **Test Objective:** Verifying successful log out after clicking log out button in the log in page | **Test Designed by:** Ehab khalil |
| **Date:** 10/07/2024 |
| **Data:** Registered user and valid password | **Test Priority:** 1 |
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| **Action** | **Step** | **Expected Result** |
| 1 | click on the "Log Out" button located in the left panel under the account services title | Browser directs the user to the log in page |
| 2 | Verify the title of the left panel | The user should see "Customer Login" in the title of the left panel of the page above the username input field |

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| Test Case 006 | **Test case name: T**est open new account in the logged in page | **Pre-conditions:** Internet connection, Chrome browser , logged-in user |
| **Test Objective:** Verifying the successful opening of a new account on the logged-in page. | **Test Designed by:** Ehab khalil |
| **Date:** 10/07/2024 |
| **Data:** Registered user and valid password. | **Test Priority:** 1 |
|  |  |  |
| **Action** | **Step** | **Expected Result** |
| 1 | click on the "open new account" button located in the left panel under the account services title. | Browser directs the user to the open new account page. |
| 2 | Select the type "SAVINGS" in the account type dropdown menu | The text "SAVINGS" appears in the dropdown menu as selected option. |
| 3 | Select the first account number in the existing account dropdown menu. | The account number will appear as selected in the existing account dropdown menu. |
| 4 | Click "OPEN NEW ACCOUNT" button located under the existing account dropdown menu. | The user will get a message and the account number. |
| 5 | Verify the message that appeared after clicking the "OPEN NEW ACCOUNT" button . | The user should see "Account Opened! " message. |

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| Test Case 007 | **Test case name: T**est updating the first name in the user data | **Pre-conditions:** Internet connection, Chrome browser , logged-in user |
| **Test Objective:** Verifying successful update of the first name in the update contact info section | **Test Designed by:** Ehab khalil |
| **Date:** 10/07/2024 |
| **Data:** Registered user and valid password, first name to update | **Test Priority:** 1 |
|  |  |  |
| **Action** | **Step** | **Expected Result** |
| 1 | click on the "update contact info" button located in the left panel under the account services title. | Browser directs the user to the update contact info page. |
| 2 | Insert the first name to update in the first name input field | The text should apper in the first name input field |
| 3 | Click on the "UPDATE PROFILE" button | A message will appear in the right section of the page |
| 4 | Verify the message | The user should see "Profile Updated " in the title of the right section of the page |

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| Test Case 008 | **Test case name: T**est updating contact profile without the first name | **Pre-conditions:** Internet connection, Chrome browser , logged-in user |
| **Test Objective:** Verifying successful error message for updating contact profile with missing first name input | **Test Designed by:** Ehab khalil |
| **Date:** 10/07/2024 |
| **Data:** Registered user and valid password. | **Test Priority:** 1 |
|  |  |  |
| **Action** | **Step** | **Expected Result** |
| 1 | click on the "update contact info" button located in the left panel under the account services title. | Browser directs the user to the update contact info page. |
| 2 | Delete the first name in the first name input field | The first name input field will appear empty "No text will appear in the input field" |
| 3 | Click on the "UPDATE PROFILE" button | An error message will appear next to the first name input field |
| 4 | Verify the message | The user should see "First name is required." in red color next to the first name input field |

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| [Test](STD(Para_Bank).docx" \l "test9) Case 009 | **Test case name:** Testing successful funds transfer | **Pre-conditions:** Internet connection, Chrome browser , logged-in new registered user, newly opened account, transfer funds page |
| **Test Objective:** Verifying the functionality of the funds transfer process for a newly registered user by ensuring that a user can successfully transfer funds between accounts and receive the appropriate confirmation message. | **Test Designed by:** Ehab khalil |
| **Date:** 10/07/2024 |
| **Data:** Register inputs and valid password. | **Test Priority:** 1 |
|  |  |  |
| **Action** | **Step** | **Expected Result** |
| 1 | Insert the transfer amount in the "Amount: $" input field | The amount should appear in the "Amount: $" input field |
| 2 | Select a random account from the "From account #" select dropdown menu | The user should see the chosen account as selected in the "From account #" select dropdown menu |
| 3 | Select a random account exclude the first account in the previous step from the "to account #" select dropdown menu | The user should see the chosen account as selected in the "to account #" select dropdown menu |
| 4 | Click "TRANSFER" button | A message will appear in the right section of the page |
| 5 | Verify the message | The user should see "Transfer Complete!"  in the title of the right section of the page |

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| Test Case 010 | **Test case name:** Testing funds transfer with no amount input | **Pre-conditions:** Internet connection, Chrome browser , logged-in user in the transfer funds page, the user has 2 accounts |
| **Test Objective:** Verifyingappropriate error message when clicking TRANSFER button with no amount input | **Test Designed by:** Ehab khalil |
| **Date:** 10/07/2024 |
| **Data:** Registered user and valid password. | **Test Priority:** 1 |
|  |  |  |
| **Action** | **Step** | **Expected Result** |
| 1 | Clear the "Amount: $" field (if it contains any text) | The "Amount: $" field will have no text in it |
| 2 | Select a random account from the "From account #" select dropdown menu | The user should see the chosen account as selected in the "From account #" select dropdown menu |
| 3 | Select a random account exclude the first account in the previous step from the "to account #" select dropdown menu | The user should see the chosen account as selected in the "to account #" select dropdown menu |
| 4 | Click "TRANSFER" button | A message will appear in the right section of the page |
| 5 | Verify the message | The user should see "Error!"  in the title of the right section of the page |

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| Test Case 011 | **Test case name:** Testing funds transfer with no amount input | **Pre-conditions:** Internet connection, Chrome browser , logged-in user in the transfer funds page, the user has 2 accounts |
| **Test Objective:** Verifyingappropriate error message when clicking TRANSFER button with invalid amount input | **Test Designed by:** Ehab khalil |
| **Date:** 10/07/2024 |
| **Data:** Registered user and valid password. | **Test Priority:** 1 |
|  |  |  |
| **Action** | **Step** | **Expected Result** |
| 1 | Clear the "Amount: $" field (if it contains any text) | The "Amount: $" field will have no text in it |
| 2 | Select a random account from the "From account #" select dropdown menu | The user should see the chosen account as selected in the "From account #" select dropdown menu |
| 3 | Select a random account exclude the first account in the previous step from the "to account #" select dropdown menu | The user should see the chosen account as selected in the "to account #" select dropdown menu |
| 4 | Click "TRANSFER" button | A message will appear in the right section of the page |
| 5 | Verify the message | The user should see "Error!"  in the title of the right section of the page |

#### 4. Pass/Fail Criteria

#### Pass Criteria

1. **Functional Requirements Met**:
   * The test item meets all specified functional requirements.
   * All test cases for the feature are executed and pass without any critical or high-severity defects.
2. **Performance Criteria Met**
3. **Usability Criteria Met**
4. **Security Criteria Met**
5. **Compatibility Criteria Met**
6. **No Critical Defects**

#### Fail Criteria

1. **Functional Requirements Not Met**:
   * The test item fails to meet one or more specified functional requirements.
   * Any critical or high-severity defects are identified in the feature.
2. **Performance Criteria Not Met**
3. **Usability Criteria Not Met**
4. **Security Criteria Not Met**

#### 5. Summary

#### Software Test Design (STD) consists of a number of stages which progressively elaborate the design of tests from an initial high level strategy to detailed test procedures. The design of tests has to be driven by the specification of the software. At the highest level this means that tests will be designed to verify that the software faithfully implements the requirements of the Requirements Specification. At lower levels tests will be designed to verify that items of software implement all design decisions made in the Architectural Design Specification and Detailed Design Specifications. As with any design process, each stage of the test design process should be subject to informal and formal review. The ease with which tests can be designed is highly dependent on the design of the software. It is important to consider testability as a key (but usually undocumented) requirement for any software development.