## **Test Management**

## **Title:Registered User Login From a New Device**

#### Test Objective

To ensure registered users can log in from a new device, securely log out from all other devices, and receive notifications of successful login.

### Risk-Based Testing (RBT)

**Risk Assessment**:

* **High Risk**: Account security, ensuring that login works correctly and other devices are logged out securely.
* **Medium Risk**: Validation of user credentials, OTP handling, and SMS notification delivery.
* **Low Risk**: User experience issues like incorrect redirection or missing success messages.

**Risk Mitigation Strategy**:

* Test all login scenarios thoroughly, focusing on security aspects and device handling.
* Validate SMS notifications and account logout functionality.
* Simulate and handle potential errors in OTP delivery and incorrect input cases.

### Test Scenarios

#### 1) Acceptance Test Cases

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| --- | --- | --- | --- | --- |
| **TC ID** | **Test Case Description** | **Test Data/Pre-Conditions** | **Expected Result** | **Status** |
| TC01 | Verify successful login with valid credentials from a new device. | Existing user account, valid phone number, password, and OTP | User is logged in successfully, redirected to the home page, and receives an SMS notification. | Pass/Fail |
| TC02 | Verify logout from all other devices upon successful login from a new device. | User logged in on multiple devices | User is logged out from all other devices. | Pass/Fail |
| TC03 | Verify system displays a successful login message. | Successful login from a new device | User sees a success message after login. | Pass/Fail |
| TC04 | Verify OTP validation during login. | Valid phone number and password, correct OTP | System accepts OTP and allows login. | Pass/Fail |

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#### 2) Edge Test Cases

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **TC ID** | **Test Case Description** | **Test Data/Pre-Conditions** | **Expected Result** | **Status** |
| TC05 | Verify login attempt with incorrect password. | Incorrect password | System shows an error message and prevents login. | Pass/Fail |
| TC06 | Verify login attempt with invalid OTP. | Invalid OTP after entering valid credentials | System shows an error message and prevents login. | Pass/Fail |
| TC07 | Verify login attempt without receiving OTP due to system failure. | OTP service unavailable | System shows an appropriate error message and prompts the user to retry. | Pass/Fail |
| TC08 | Verify SMS notification for login from a new device. | Successful login from a new device | User receives an SMS notification for successful login. | Pass/Fail |
| TC09 | Verify system behavior when attempting simultaneous logins from multiple devices. | Simultaneous login attempts on different devices | System handles login sequentially, ensuring only one session is active. | Pass/Fail |
| TC10 | Verify user is redirected to the home page after successful login. | Valid credentials and OTP | User is redirected to the home page. | Pass/Fail |

### Test Runs

#### Test Run 1: Core Functionality Testing

* Validate the main login flow, including credential validation, OTP handling, and logout from other devices.
* **Test Cases Included**: TC01, TC02, TC04

#### Test Run 2: Edge Case Testing

* Test edge scenarios such as incorrect credentials, invalid OTPs, SMS failures, and simultaneous logins.
* **Test Cases Included**: TC05, TC06, TC07, TC08, TC09

#### Test Run 3: User Experience Testing

* Validate success messages, notifications, and redirection.
* **Test Cases Included**: TC03, TC08, TC10

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### Test Data Requirements

* User accounts: existing accounts with valid phone numbers and passwords.
* Devices: multiple devices to simulate new and concurrent logins.
* OTPs: valid, invalid, and expired.
* Mock responses: for SMS delivery and OTP validation.

### Test Environment

* **Browsers**: Chrome, Firefox, Safari.
* **Devices**: Desktop, mobile (iOS, Android).
* **Tools**: Mock servers for SMS/OTP validation, API testing tools (e.g., Postman).

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## **Title:Individual Investor - Upgrade To Premium**

#### Test Objective

The goal is to ensure the user story "Upgrade to Premium" is implemented correctly, adhering to the acceptance criteria. The testing will focus on verifying all possible scenarios, including both acceptance and edge cases.

### Risk-Based Testing (RBT)

**Risk Assessment:**

* **High Risk**: Document upload and validation process. Failure in document handling can prevent users from upgrading.
* **Medium Risk**: Correct selection of one of the upgrade conditions and how it's verified. Failure may lead to incorrect account upgrades.
* **Low Risk**: Notification mechanisms, as they don’t directly impact the core functionality.

**Risk Mitigation Strategy**:

* Prioritize document upload and verification tests to ensure the upgrade functionality works as expected under all conditions.
* Test notification mechanisms for user and RM communication.
* Validate compliance approval workflow for timely and accurate upgrade approvals.

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### Test Scenarios

#### 1)Acceptance Test Cases

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| --- | --- | --- | --- | --- |
| **TC ID** | **Test Case Description** | **Test Data/Pre-Conditions** | **Expected Result** | **Status** |
| TC01 | Verify that the verified individual user can see the "Upgrade to Premium" button. | Verified individual investor | The button is visible and clickable. | Pass/Fail |
| TC02 | Verify that clicking the "Upgrade to Premium" button leads to the options page. | Verified individual investor | The page with upgrade criteria (asset value, work in financial sector, certificate) loads. | Pass/Fail |
| TC03 | Verify that user can select an upgrade option. | Verified individual investor, options displayed | One option can be selected and moved to the next page for document upload. | Pass/Fail |
| TC04 | Verify that the document upload section is functional. | User has selected an option | User can upload files to support the selected option. | Pass/Fail |
| TC05 | Verify that the uploaded documents are validated correctly by the system. | Documents uploaded | System correctly identifies valid/invalid documents based on selected option. | Pass/Fail |
| TC06 | Verify that the compliance team receives the upgrade request for review. | Document uploaded successfully | Compliance team is notified and can view the upgrade request. | Pass/Fail |
| TC07 | Verify that the relation manager is notified about the request status. | Request approved by compliance | RM gets notification about user’s upgrade request status. | Pass/Fail |
| TC08 | Verify that the user receives a notification once the documents are successfully uploaded. | Documents uploaded | User gets a notification confirming the upload. | Pass/Fail |

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#### 2)Edge Test Cases

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| --- | --- | --- | --- | --- |
| **TC ID** | **Test Case Description** | **Test Data/Pre-Conditions** | **Expected Result** | **Status** |
| TC09 | Verify behavior when user selects multiple options for upgrade. | User selects more than one option | System should prompt an error or restrict to one selection only. | Pass/Fail |
| TC10 | Verify that the upload process handles different file formats (PDF, JPG, DOCX). | Various document formats | System should accept and upload supported formats. | Pass/Fail |
| TC11 | Verify the system behavior when uploading a document over 5MB (or other size limit). | Large file size | System should reject files that exceed the maximum upload size. | Pass/Fail |
| TC12 | Verify that the system handles invalid document types (e.g., unsupported file formats). | Unsupported file format (e.g., .exe) | System should reject invalid file types. | Pass/Fail |
| TC13 | Verify the notification system when upload fails due to network issues. | Upload fails due to network issues | User should receive an error notification. | Pass/Fail |
| TC14 | Verify system behavior when the user tries to upgrade without selecting any option. | User clicks "Upgrade" without selection | System should prompt an error asking the user to choose an option. | Pass/Fail |
| TC15 | Verify that users are logged out automatically after a session timeout during the upgrade process. | Session time exceeds the timeout limit | User is logged out and redirected to login page. | Pass/Fail |

### Test Runs

#### Test Run 1: Functionality & Workflow Testing

* Test the primary user flow: button click → option selection → document upload → notification.
* **Test Cases Included**: TC01, TC02, TC03, TC04, TC05, TC06, TC07, TC08

#### Test Run 2: Edge Case Testing

* Validate system behavior for edge cases like file size limits, invalid formats, and network interruptions.
* **Test Cases Included**: TC09, TC10, TC11, TC12, TC13, TC14, TC15

#### Test Run 3: Integration Testing

* Ensure the integration between the user interface, document upload system, compliance team workflow, and RM notifications is functioning as expected.
* **Test Cases Included**: TC06, TC07, TC08

### Test Data Requirements

* Verified individual investor account.
* Assets worth 3 million SAR.
* Document file formats: PDF, JPG, DOCX.
* Document size limits (max file size should be defined by the system, e.g., 5MB).

### Test Environment

* **Browsers**: Chrome, Firefox, Safari
* **OS**: Windows, macOS
* **Devices**: Desktop and mobile testing
* **Database**: Production-like data for testing user records, document uploads, notifications, etc.

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## **Title:Approvals Notifications | SMS**

#### Test Objective

Ensure the system sends accurate, timely SMS notifications about the approval or rejection of loan requests, adhering to the specified scenarios and acceptance criteria.

### Risk-Based Testing (RBT)

**Risk Assessment:**

* **High Risk**: Timeliness and accuracy of SMS notifications (approval/rejection). Delays or incorrect messages could cause confusion or dissatisfaction.
* **Medium Risk**: Handling rejection reasons and proper communication between the relationship manager (RM) and the requester.
* **Low Risk**: Delivery of SMS notifications, as it depends on external SMS providers but is crucial for the user experience.

**Risk Mitigation Strategy**:

* Prioritize testing the SMS notification content and conditions for triggering notifications.
* Simulate real-world delays and errors in SMS delivery during testing.
* Validate workflows for department approvals and RM communications.

### Test Scenarios

#### 1)Acceptance Test Cases

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **TC ID** | **Test Case Description** | **Test Data/Pre-Conditions** | **Expected Result** | **Status** |
| TC01 | Verify that an SMS is sent to the loan requester upon final approval. | Loan request approved by all departments and RM | Loan requester receives an SMS indicating approval status. | Pass/Fail |
| TC02 | Verify that the RM is notified of a rejection during the approval process. | Loan request rejected by a department with reasons | RM is notified with reasons for rejection. | Pass/Fail |
| TC03 | Verify that the loan requester receives an SMS upon RM's final rejection. | RM rejects the loan request with reasons provided | Loan requester receives SMS indicating rejection with reasons. | Pass/Fail |

#### 2) Edge Test Cases

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **TC ID** | **Test Case Description** | **Test Data/Pre-Conditions** | **Expected Result** | **Status** |
| TC04 | Verify system behavior when the SMS service is unavailable during notification sending. | SMS provider service is down | Notification process retries or logs the failure; user is notified by alternate means. | Pass/Fail |
| TC05 | Verify SMS content formatting for multilingual users. | User language preference set to Arabic/English | SMS content appears correctly formatted in the selected language. | Pass/Fail |
| TC06 | Verify system behavior when rejection reasons exceed character limits for SMS. | Rejection reason text > 160 characters | SMS truncates or sends a summarized version with a link for detailed reasons. | Pass/Fail |
| TC07 | Verify that multiple rejections from different departments trigger notifications to the RM only once. | Multiple departments reject the loan request | RM receives one consolidated notification with all reasons. | Pass/Fail |
| TC08 | Verify that no SMS is sent to the requester for non-final rejections. | Department rejects the loan request but RM has not finalized it | No SMS is sent to the loan requester. | Pass/Fail |
| TC09 | Verify notification behavior for simultaneous approvals and rejections. | Some departments approve while others reject | System handles and prioritizes notifications correctly (rejection takes precedence). | Pass/Fail |

### Test Runs

#### Test Run 1: Core Functionality Testing

* Validate the primary flows for sending SMS notifications and notifying RMs during approval or rejection processes.
* **Test Cases Included**: TC01, TC02, TC03

#### Test Run 2: Edge Case Testing

* Test unusual conditions like SMS service unavailability, character limits, multilingual formatting, and simultaneous approvals/rejections.
* **Test Cases Included**: TC04, TC05, TC06, TC07, TC08, TC09

#### Test Run 3: Performance & Reliability Testing

* Assess system behavior under high load or delays in external SMS delivery.
* Simulate multiple loan requests and check notification consistency.
* **Test Cases Included**: TC01, TC04, TC07

### Test Data Requirements

* Approved loan request with all departments’ approvals and RM confirmation.
* Rejected loan requests at different stages with specified reasons.
* SMS templates for approvals and rejections.
* Simulated conditions: SMS service downtime, multilingual preferences, excessive rejection reasons.

### Test Environment

* **API**: Mock integration with SMS gateway.
* **Devices**: Mobile devices to test SMS reception.
* **Test Data**: Loan requests with various statuses (approved, rejected at different stages).
* **Languages**: Arabic and English for multilingual support testing.

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## **Title:Departments Approval**

#### Test Objective

To ensure the loan approval process for department staff functions as expected, including approving requests and viewing department approvals.

### Risk-Based Testing (RBT)

**Risk Assessment**:

* **High Risk**: Approval tracking and data consistency, including timestamps and staff member details.
* **Medium Risk**: User interface accuracy for "Approve" button and details display.
* **Low Risk**: Minor UI/UX issues that do not directly impact functionality.

**Risk Mitigation Strategy**:

* Prioritize validation of approval actions and tracking data accuracy.
* Test scalability by simulating multiple concurrent approvals.
* Validate display and sorting logic for the approval history.

### Test Scenarios

#### 1) Acceptance Test Cases

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **TC ID** | **Test Case Description** | **Test Data/Pre-Conditions** | **Expected Result** | **Status** |
| TC01 | Verify that the "Approve" button is visible for a loan request in review. | Loan request status = "In Review" | "Approve" button is visible to the department representative. | Pass/Fail |
| TC02 | Verify that clicking "Approve" marks the request as approved by the department. | Loan request status = "In Review" | Loan request status updates to "Approved" for that department. | Pass/Fail |
| TC03 | Verify that the system displays all departments that have approved the request. | Loan request approved by multiple departments | A section lists approved departments, staff members, and timestamps. | Pass/Fail |
| TC04 | Verify that the timestamp is accurately recorded for each approval. | Loan request approved by a department | Timestamp matches the approval action time. | Pass/Fail |
| TC05 | Verify that the system shows the name of the staff member who approved the request. | Loan request approved by staff | Staff member’s name is displayed correctly in the approval details. | Pass/Fail |

#### 2) Edge Test Cases

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **TC ID** | **Test Case Description** | **Test Data/Pre-Conditions** | **Expected Result** | **Status** |
| TC06 | Verify system behavior if multiple staff members attempt to approve the same request simultaneously. | Concurrent approvals on the same request | Only one approval is recorded per department, preventing duplicates. | Pass/Fail |
| TC07 | Verify behavior when the "Approve" button is clicked for a request already approved. | Loan request status = "Approved" | System prevents duplicate approvals and shows an appropriate message. | Pass/Fail |
| TC08 | Verify that a department's approval can only be performed by authorized staff. | Unauthorized staff member attempts approval | System denies the action and displays an error message. | Pass/Fail |
| TC09 | Verify display for departments with long staff member names or multiple approvals. | Multiple departments and long names | UI displays names, departments, and timestamps correctly without overlap. | Pass/Fail |
| TC10 | Verify system behavior if approval details (e.g., timestamp or staff name) are missing or corrupted. | Missing or corrupted data | System displays a placeholder or error message indicating incomplete data. | Pass/Fail |

### Test Runs

#### Test Run 1: Core Functionality Testing

* Validate the primary flow for approving requests and viewing approvals.
* **Test Cases Included**: TC01, TC02, TC03, TC04, TC05

#### Test Run 2: Edge Case Testing

* Test edge cases, including simultaneous approvals, unauthorized access, and corrupted data handling.
* **Test Cases Included**: TC06, TC07, TC08, TC09, TC10

#### Test Run 3: Performance and Scalability Testing

* Simulate high-load scenarios with multiple concurrent approvals and large numbers of departments.
* **Test Cases Included**: TC02, TC03, TC06

### Test Data Requirements

* Loan requests with statuses: "In Review," "Approved."
* Authorized and unauthorized department staff accounts.
* Concurrent access simulation tools to test simultaneous approvals.
* Test cases with varying approval timestamps and staff member names.

### Test Environment

* **Browsers**: Chrome, Firefox, Safari
* **OS**: Windows, macOS
* **Test Data**: Loan requests, staff accounts, and department records.
* **Tools**: Database access for validating approval history and timestamps.

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## **Title:Corporate investor - Commercial Registration Verification Via [X]**

#### Test Objective

To ensure the system correctly integrates with the third-party service [X] for verifying commercial registration numbers, handles valid/invalid inputs appropriately, and applies business rules for company start dates.

### Risk-Based Testing (RBT)

**Risk Assessment**:

* **High Risk**: Integration with [X] (service unavailability, incorrect API responses).
* **Medium Risk**: Validation logic for start dates and handling invalid inputs.
* **Low Risk**: User notifications and input field validations.

**Risk Mitigation Strategy**:

* Validate end-to-end integration with [X], including edge cases for valid/invalid inputs and API failures.
* Ensure robust handling of business rules related to the company start date.
* Test user-facing error messages for clarity and accuracy.

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### Test Scenarios

#### 1)Acceptance Test Cases

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| --- | --- | --- | --- | --- |
| **TC ID** | **Test Case Description** | **Test Data/Pre-Conditions** | **Expected Result** | **Status** |
| TC01 | Verify that the system sends the commercial registration number to [X]. | Valid commercial registration number | Number is sent to [X], and request is processed. | Pass/Fail |
| TC02 | Verify the system behavior for valid commercial registration numbers. | [X] API returns "valid" for the number | User can proceed to the validation process. | Pass/Fail |
| TC03 | Verify the system behavior for invalid commercial registration numbers. | [X] API returns "invalid" | User is prompted to enter a valid number, and the verification restarts. | Pass/Fail |
| TC04 | Verify validation of the company start date when it is less than 2 years. | Start date < 2 years in [X] response | User is notified they cannot proceed. | Pass/Fail |
| TC05 | Verify validation of the company start date when it is more than 2 years. | Start date > 2 years in [X] response | User is allowed to proceed to the next step. | Pass/Fail |

#### 2) Edge Test Cases

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **TC ID** | **Test Case Description** | **Test Data/Pre-Conditions** | **Expected Result** | **Status** |
| TC06 | Verify system behavior when [X] service is unavailable. | [X] API is down/unreachable | User is shown an appropriate error message and advised to try later. | Pass/Fail |
| TC07 | Verify system behavior for invalid API responses from [X]. | [X] returns malformed/empty data | System handles gracefully and prompts the user to retry. | Pass/Fail |
| TC08 | Verify user input validation for commercial registration numbers. | Invalid format (e.g., alphanumeric or special characters) | System prevents submission and shows error messages. | Pass/Fail |
| TC09 | Verify retry functionality when a new commercial registration number is entered. | User provides new number after invalid input | System successfully restarts verification with [X]. | Pass/Fail |
| TC10 | Verify concurrent submissions of multiple verification requests. | Two users submit at the same time | System handles both requests without conflict or delay. | Pass/Fail |

### Test Runs

#### Test Run 1: Core Functionality Testing

* Validate the primary flow: sending the commercial registration number to [X], handling valid/invalid responses, and processing the start date.
* **Test Cases Included**: TC01, TC02, TC03, TC04, TC05

#### Test Run 2: Edge Case Testing

* Test handling of service unavailability, malformed data, input validation, and retry functionality.
* **Test Cases Included**: TC06, TC07, TC08, TC09

#### Test Run 3: Performance & Scalability Testing

* Simulate concurrent submissions and test system stability under load.
* **Test Cases Included**: TC10

### Test Data Requirements

* Commercial registration numbers: valid, invalid, and edge-case inputs.
* Mock responses from [X]: valid, invalid, malformed, and unavailable states.
* Company start dates: less than 2 years and more than 2 years.

### Test Environment

* **API Integration**: Mock and live integration with [X].
* **Browsers**: Chrome, Firefox, Safari.
* **OS**: Windows, macOS.
* **Tools**: API testing tools (e.g., Postman), performance testing tools (e.g., JMeter).

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