Test Plan

1. Introduction

The purpose of this test plan is to validate the functionality of SMS notifications for loan request approvals and rejections. This includes testing the accurate delivery of SMS for both approval and rejection scenarios with specific conditions.

2. Scope

In Scope:

- Timely SMS notifications for loan approval and rejection statuses.
- Notifications to the loan requester and relationship manager.
- Validation of rejection reasons communicated via SMS.

Out of Scope:

- Loan application process (submission, tracking).
- Detailed review of department approval workflows.
- SMS system performance testing.

3. Objectives

- Ensure loan requesters receive timely and accurate SMS notifications for approvals.
- Validate SMS content for rejections with specified reasons.
- Confirm notification to the relationship manager upon rejection at any stage.
- Verify SMS triggers only after the final approval/rejection process.

4. Test Approach

Testing Levels:

1. **Functional Testing:** Verify SMS triggers for approval and rejection statuses.
2. **Integration Testing:** Ensure proper interaction between the loan approval system and the SMS notification service.
3. **Negative Testing:** Test invalid scenarios, e.g., missing rejection reasons or SMS delivery failure.
4. **UI/UX Validation:** Ensure proper notification displays in the relation manager's interface for rejections.

Testing Types:

- **Manual Testing:** To validate SMS content and triggers for unique scenarios.
- **Automation Testing:** To test repetitive approval/rejection scenarios.

5. Test Deliverables

- Test Cases (Functional, Negative, Edge Cases).
- Test Execution Results.
- Defect Reports.
- Test Summary Report

6. Resources

Test Environment:

- Loan management system (UI and backend).
- SMS gateway integration.

Test Data:

- Loan requests (approved, rejected, different stages).
- Valid and invalid rejection reasons.

Tools:

- Postman (API Testing).
- Selenium WebDriver (Automation Testing).
- Twilio/Mock SMS Gateway (SMS testing).

7. Roles and Responsibilities

Role	Responsibility
QA Lead	Create and review test plans and cases.
Test Engineers	Execute test cases, identify defects.
Developers	Fix defects and ensure system meets requirements.
Product Manager	Verify business logic for approval/rejection flows.

8. Risks and Mitigation

Risk	Mitigation Plan
SMS delivery failure due to gateway issues.	Monitor SMS gateway logs and implement retry mechanisms.
Rejection reasons not displayed accurately.	Validate rejection reasons via logs and test cases.
Duplicate SMS sent to loan requester.	Test for duplicate triggers and ensure proper de-duplication.

9. Test Execution Plan

Phase 1: Functional Testing

- Verify SMS content and triggers for both approval and rejection scenarios.
- Ensure the system processes rejection reasons accurately.

Phase 2: Integration Testing

- Test interactions between the loan approval system and SMS gateway.
- Verify rejection notifications are sent to the relationship manager.

Phase 3: Negative Testing

- Trigger rejection scenarios without specified reasons and validate system behavior.
- Test SMS delivery failures and retry logic.

Phase 4: UI/UX Validation

- Verify the relationship manager's interface displays accurate rejection reasons.

10. Test Scenarios and Test Cases

Scenario 1: Approval Notification

Test Case	Expected Outcome
Verify SMS is sent after the final approval process.	SMS sent to loan requester with approval status.
Verify SMS content for approval status.	SMS contains accurate approval details.
Ensure SMS is not sent before final approval.	No SMS is sent before final approval processing.

Scenario 2: Rejection Notification with Reasons

Test Case	Expected Outcome
Verify SMS is sent to the loan requester after final rejection.	SMS sent with rejection status and specified reasons.
Verify rejection reasons from intermediate departments.	Reasons are communicated to the relationship manager.
Verify relation manager's rejection triggers the SMS.	Loan requester receives SMS with rejection reasons only.
Test rejection without specified reasons.	System prompts to provide reasons before sending SMS.
Verify SMS content for rejection status.	SMS contains accurate rejection details with reasons.

Edge Cases

1. Test SMS delivery when the phone number is invalid.
   - System should log an error and retry or notify admin.
2. Test system behavior when no rejection reasons are provided.
   - Relationship manager is prompted to provide reasons before rejecting.
3. Verify simultaneous rejections from multiple departments.
   - Only one SMS is sent to the loan requester with consolidated reasons.

11. Test Closure

- Validate all test cases are executed, and critical defects are resolved.
- Confirm SMS notifications meet the acceptance criteria.
- Document results in the Test Summary Report.

Risk-Based Testing (RBT)

Objective: Focus testing efforts on high-risk areas to ensure the most critical functionalities are validated effectively.

Risk Assessment for "Approvals Notifications | SMS"

Risk	Impact	Likelihood	Priority	Mitigation Plan
SMS not sent for approved loan requests.	High	Medium	High	Ensure SMS is triggered only after final approval.
Incorrect rejection reasons communicated.	High	High	High	Validate rejection reasons from all departments.

SMS delivery failure to the requester.	Medium	Medium	Medium	Retry failed SMS and log issues for resolution.
SMS sent to the wrong user.	High	Low	Medium	Validate user data before sending notifications.
Duplicate SMS sent for the same event.	Medium	Medium	Medium	Test de-duplication mechanisms during SMS triggers.

Test Cases for Each User Story (Acceptance and Edge Cases)

Acceptance Test Cases

Scenario 1: Approval Notification

Test Case ID	Test Scenario	Test Steps	Expected Result
TC-01	Validate SMS for loan approval	1. Submit a loan request. 2. Approve all stages. 3. Final approval is processed.	Loan requester receives an SMS indicating approval status.
TC-02	Validate SMS content for approval	1. Approve the loan request. 2. Verify the SMS content.	SMS contains accurate details about the loan approval.
TC-03	Validate SMS trigger only after final approval	1. Submit loan request. 2. Approve partially. 3. Check if SMS is sent.	SMS is sent only after final approval.

Scenario 2: Rejection Notification with Reasons

Test Case ID	Test Scenario	Test Steps	Expected Result
TC-04	Validate rejection notification with reasons	1. Reject a loan request at a stage. 2. Check rejection reasons are communicated.	Relationship manager is notified with rejection reasons.
TC-05	Validate SMS for final rejection	1. Submit a loan request. 2. Final rejection by manager. 3. Verify SMS.	Loan requester receives SMS with specified rejection reasons.
TC-06	Validate rejection reasons are mandatory	1. Attempt to reject a loan without providing reasons.	System does not allow rejection without reasons.

Edge Test Cases

Test Case ID	Test Scenario	Test Steps	Expected Result
TC-07	SMS delivery to invalid phone number	1. Submit approval/rejection. 2. Use invalid phone number.	System logs an error and retries delivery or notifies admin.
TC-08	Simultaneous approvals/rejections	1. Process approvals/rejections from multiple departments concurrently.	Only one consolidated notification is sent.
TC-09	Validate SMS not sent twice for the same event	1. Trigger approval/rejection multiple times for the same request.	System ensures only one SMS is sent.
TC-10	System behavior during SMS gateway downtime	1. Submit approval/rejection. 2. Simulate SMS gateway downtime.	System retries or logs an issue and notifies admin.
TC-11	Validate notifications for partial approvals	1. Approve partially at a stage. 2. Check for SMS notifications.	No SMS is sent for partial approvals.

Test Runs

Test Run 1: Happy Path

Objective: Verify that the loan approval/rejection notifications are sent successfully in ideal scenarios.
Test Cases: TC01, TC04, TC05.

Test Run 2: Input Validation

Objective: Test the robustness of the input validation process for rejection reasons and notification details.
Test Cases: TC03, TC06, TC07.

Test Run 3: Edge Case Testing

Objective: Test uncommon scenarios, such as SMS gateway failures, invalid phone numbers, or multiple approvals/rejections.
Test Cases: TC07, TC08, TC09, TC10.

Test Run 4: Notification Delivery and Security

Objective: Ensure that notifications are delivered on time and that there are no duplicate or unintended notifications.
Test Cases: TC02, TC09, TC11.