

# **Functional Requirement Document (FRD)**

**Project:** Personal Loan Application System

**Version:** 1.0

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## 2. Purpose of the Document

The purpose of this document is to define the functional requirements of the LoanEase platform in detail. It ensures all stakeholders have a common understanding of how the system should behave, helping guide design, development, and testing activities effectively.

## 3. Scope of the Project

This document covers the **core functional requirements** for the LoanEase application, focusing on both user-facing and admin-side capabilities required for personal loan processing. It includes:

### In Scope

- User registration and OTP-based login
- KYC submission and verification (auto/manual)
- Loan product listing and filtering
- Loan application submission and status tracking
- Auto/manual loan approval workflows
- EMI plan generation and repayment tracking
- Support ticket and help chat integration
- Admin panel for loan management and reporting

### Out of Scope

- Credit card, mortgage, or business loan modules
- Integration with third-party lenders (phase 2)
- Multi-language or multi-currency support
- Credit score enhancement tools
- Cross-border loan disbursement features

## 4. Introduction

LoanEase is a digital platform designed to simplify and automate the personal loan application process. It allows users to register, complete KYC verification, explore available loan products, submit applications, and manage EMI repayments—all within a secure and user-friendly interface.

The system also provides administrative capabilities for loan officers and backend staff to review, approve, or reject applications, track EMI performance, and handle customer support requests. By streamlining the end-to-end loan lifecycle, LoanEase aims to reduce manual intervention, increase processing speed, and ensure compliance with regulatory standards.

This document introduces the project and outlines its key features and business objectives to ensure alignment among all stakeholders during the system's design, development, and deployment phases.

## 5. Background

In India, applying for a personal loan still involves significant manual processes, paperwork, and in-person verification steps—leading to delays, customer dissatisfaction, and high operational overhead for financial institutions.

The client aims to modernise this experience by introducing **LoanEase**, a digital loan management system tailored for personal loan customers. The platform will support full digital onboarding, secure document uploads, and intelligent approval workflows that reduce turnaround time and improve accessibility.

LoanEase is being developed as a mobile-first and web-responsive solution to reach a broader user base, especially in semi-urban areas where physical bank visits are difficult. The system also ensures compliance with regulatory frameworks such as RBI lending guidelines and KYC norms, making it viable for long-term scaling in the FinTech space.

## 6. Objectives

The key objectives of the **LoanEase – Personal Loan Application System** are:

- To enable users to apply for personal loans through a completely digital, paperless process.
- To automate user onboarding, KYC verification, and loan approval workflows to reduce processing time.
- To provide a transparent and real-time loan tracking experience for customers.
- To ensure secure handling of user data and compliance with all applicable financial regulations.
- To offer an admin dashboard for managing loan applications, repayments, and support tickets efficiently.
- To minimise manual errors and reduce dependency on offline processes through intelligent workflow automation.
- To make personal credit more accessible, especially to users in underserved or semi-urban regions.

## 7. Scope of Project.

The scope of the **LoanEase** system is to build a secure, scalable, and compliant platform that enables individuals to apply for personal loans online and manage their loan lifecycle digitally. The system will include both **user-facing features** and an **admin interface** for internal operations and compliance management.

### In Scope:

- User registration using mobile/email with OTP verification.
- KYC submission and verification (PAN, Aadhaar, income proof).
- Display and filtering of personal loan products based on eligibility.
- Loan application submission and real-time status tracking.
- Auto and manual loan approval workflows.
- EMI plan generation and payment tracking.
- Transaction history and downloadable loan summary.
- Support ticket submission and resolution tracking.
- Admin portal to manage loan products, applications, user KYC, and EMI collection.

### Out of Scope:

- Credit card, mortgage, or business loan modules.
- Multi-language and multi-currency features (planned for future).
- Integration with external credit bureaus or alternate lenders (Phase 2).
- Physical branch-based loan processing.
- Advanced BI dashboards or predictive risk analytics.

## 8. Known Business Rules

The following business rules must be enforced across the LoanEase application to ensure operational integrity, consistency, and compliance:

### User Registration & KYC

- Each user must register with a **unique mobile number and email**.
- OTP verification is **mandatory** before account activation.
- KYC (PAN + Aadhaar + income proof) is required before loan application submission.
- Incomplete or invalid KYC must be flagged for **manual review**.

### Loan Application Rules

- A user may have **only one active loan application** at a time.
- Loan amount must fall within the product's defined **minimum and maximum limits**.
- Loan tenure and interest rates are **predefined per product** and non-editable by users.
- Loan application can only proceed once KYC is verified.

### Approval Workflow Rules

- If all eligibility conditions (e.g., income threshold, valid KYC) are met, the application is auto-approved.
- If conditions are partially met or system flags risk, the case is sent for **manual review by an admin**.
- Admins may approve, reject, or request more documents before decision.

### Repayment Rules

- EMI due dates are fixed and recur monthly on the same date.
- Missed EMI results in a **late penalty** and notification.
- After three consecutive EMI defaults, the case is marked **critical** and escalated.
- Loan cannot be pre-closed unless all dues and penalties are cleared.

### Support & Admin Control Rules

- Support tickets must be responded to within **48 hours**.
- Admins can **override application decisions** only with a justification.

## 9. Exclusions from Scope

The following features and functionalities are **not included** in the current release (MVP) of the **LoanEase – Personal Loan Application System**:

### Loan Product Exclusions

- Business loans, vehicle loans, mortgage/home loans, and education loans.
- Credit card issuance or limit management.
- Multi-lender integration or third-party loan partnerships.

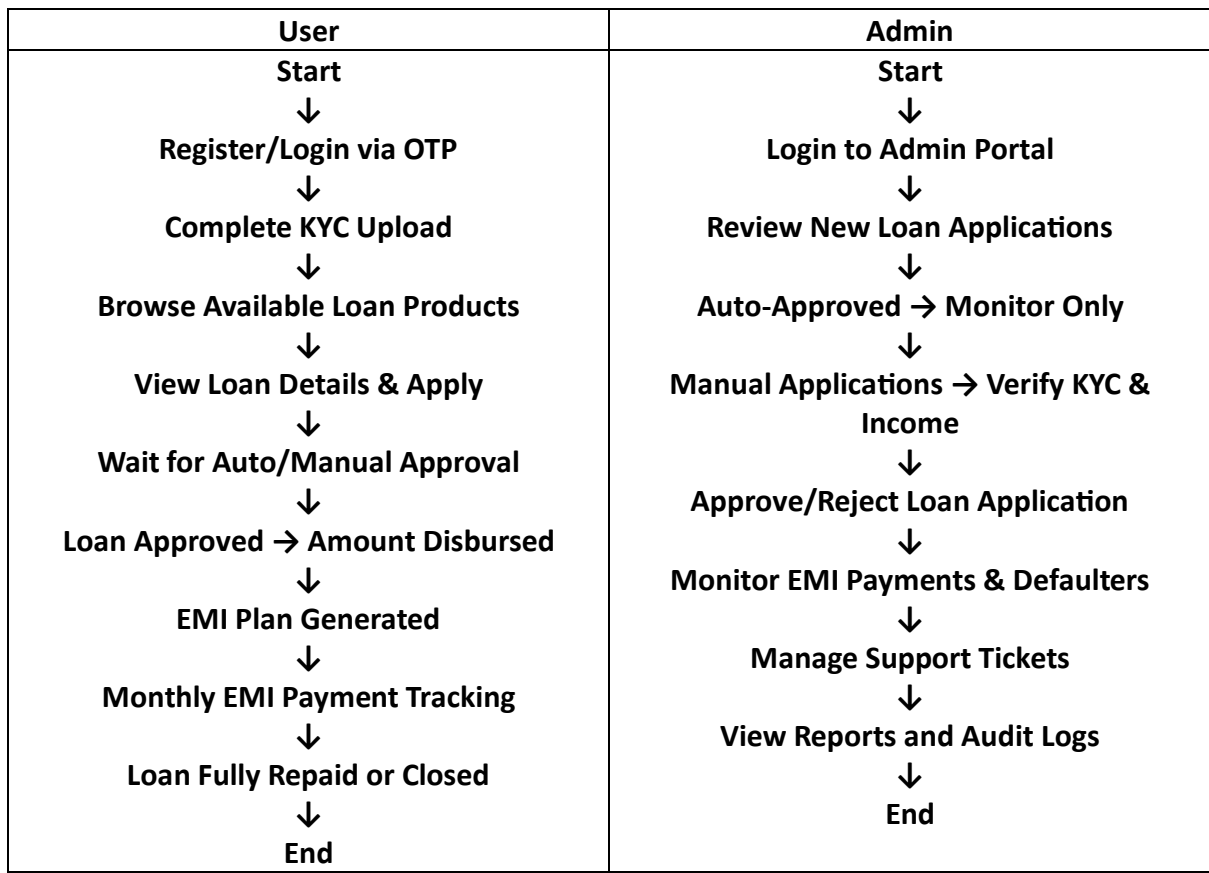
### Platform & Feature Exclusions

- Multi-language support (only English supported in MVP).
- Multi-currency handling (INR only).
- Desktop-specific application (mobile app + responsive web only).
- Real-time integration with credit bureaus (e.g., CIBIL, Experian) planned for Phase 2.

### Advanced Capabilities

- AI-based credit risk assessment and scoring models.
- Loyalty rewards, referral systems, or cashback programmes.
- Chatbot or live AI support (only basic ticketing is included).
- Advanced analytics or BI dashboards for admin users.

### 10. Process Flow Diagram (User & Admin)





## 11. Business Requirements

The following high-level business requirements define what the LoanEase system must deliver to meet the objectives of the project. These requirements form the foundation for the detailed functional requirements listed later in the document.

BR ID	Business Requirement Description
BR-001	The system shall allow users to register using a mobile number or email with OTP verification.
BR-002	The system shall allow users to complete digital KYC using PAN, Aadhaar, and income proof documents.
BR-003	The system shall display a list of loan products with filtering and comparison features.
BR-004	The system shall allow users to apply for a selected loan product by filling a digital form.
BR-005	The system shall process loan applications via auto-approval or manual admin review.
BR-006	The system shall generate an EMI plan post-approval and allow users to track monthly payments.
BR-007	The system shall maintain a detailed transaction history for each user.
BR-008	The system shall provide users with a ticket-based help/support feature.
BR-009	The system shall include an admin dashboard to manage loan applications and verify documents.
BR-010	The system shall comply with RBI regulations and KYC data protection guidelines.

## **12. Business Process Overview**

The LoanEase – Personal Loan Application System enables a fully digital loan lifecycle for both users and administrators. The process is divided into two primary flows: Customer Side and Admin Side, each supporting different stages of the loan journey.

### **Customer Side Process**

1. The user registers with a mobile number or email and verifies via OTP.
2. The user uploads KYC documents including PAN, Aadhaar, and income proof.
3. After successful KYC verification, the user can browse available loan products.
4. The user selects a suitable loan product and submits an online application.
5. The system either auto-approves the application or routes it for manual review.
6. Upon approval, the loan amount is disbursed to the user's bank account.
7. An EMI plan is generated, and the user begins monthly repayments.
8. The user receives reminders, tracks payments, and accesses transaction history.
9. After completing all EMIs, the loan is marked as closed and a closure certificate is issued.

### **Admin Side Process**

1. The admin logs in to the LoanEase Admin Dashboard.
2. Pending loan applications are automatically or manually assigned for review.
3. Admin verifies KYC documents, validates income details, and checks eligibility.
4. Admin approves, rejects, or requests clarification from the applicant.
5. Post-approval, the admin monitors EMI repayments and user performance.
6. Admin handles escalated support tickets and oversees compliance flags.
7. Admins can generate reports, audit logs, and track system-wide loan activity.

## 13. Detailed Business Requirements.

This section outlines the specific functional modules of the LoanEase – Personal Loan Application System. Each sub-section (13.1 to 13.8) describes a key functionality in detail, including what the system must do, how users interact with it, and how the admin supports and manages those workflows.

Sub-section	Feature Title	Description
13.1	User Registration & KYC	Covers OTP-based registration, profile setup, and KYC document upload.
13.2	Loan Product Listing	Enables users to browse, search, and compare loan products.
13.3	Loan Application Submission	Allows users to apply for a selected loan with pre-filled KYC and income data.
13.4	Loan Approval Workflow	Describes auto/manual loan approval logic and admin intervention.
13.5	EMI Plan and Repayment Tracking	Details how EMIs are calculated, displayed, and tracked.
13.6	Transaction History	Provides visibility of loan disbursements, EMIs paid, penalties, etc.
13.7	Support Ticket / Help Chat	Ticketing mechanism for customer issues and admin replies.
13.8	Admin Panel for Loan Management	Backend module for managing users, KYC, loans, repayments, and reports.

### 13.1 User Registration & KYC (FR-001)

Section	Details
Description	<ul style="list-style-type: none"><li>• Enables new users to create an account using OTP verification and submit KYC documents for system or manual verification.</li><li>• Ensures secure onboarding before loan application.</li></ul>
Trigger	<ul style="list-style-type: none"><li>• User clicks the “Register” or “Sign Up” button on the welcome/login screen.</li></ul>
Actors	<ul style="list-style-type: none"><li>• User</li><li>• System</li><li>• KYC Verifier (Admin/System)</li></ul>
Preconditions	<ul style="list-style-type: none"><li>• User is not already registered.</li><li>• Valid mobile number/email is available.</li><li>• Internet connection is active.</li></ul>
Inputs	<ul style="list-style-type: none"><li>• Mobile number and/or email</li><li>• OTP</li><li>• Password</li><li>• Full Name, DOB, Address</li><li>• PAN Card</li><li>• Aadhaar Card</li><li>• Income Proof (e.g., salary slip)</li></ul>
Main Process Flow	<ul style="list-style-type: none"><li>• User enters contact info → receives OTP</li><li>• OTP is verified → user sets password</li><li>• User fills in personal details</li><li>• KYC documents uploaded</li><li>• System validates format</li><li>• Auto-KYC attempted → manual fallback if needed</li><li>• On approval → user is marked “KYC Verified” and dashboard is unlocked</li></ul>
Outputs	<ul style="list-style-type: none"><li>• User account marked as Registered and KYC Verified</li><li>• KYC status: Verified / Pending / Rejected</li><li>• System logs audit trail</li></ul>
Validation Rules	<ul style="list-style-type: none"><li>• Mobile: 10 digits</li><li>• Email: valid format</li><li>• PAN: [A-Z]{5}[0-9]{4}[A-Z]{1}</li><li>• Aadhaar: 12 digits</li></ul>

	<ul style="list-style-type: none"> <li>• File types: JPG, PNG, PDF</li> <li>• Max size: 5MB</li> </ul>
<b>Error Handling</b>	<ul style="list-style-type: none"> <li>• Duplicate mobile/email → “Account already exists”</li> <li>• Invalid OTP → “Incorrect OTP”</li> <li>• Weak password → “Must be 8+ characters”</li> <li>• KYC failed → “Re-upload”</li> <li>• Server/API issues → “Try again later”</li> </ul>
<b>Dependencies</b>	<ul style="list-style-type: none"> <li>• OTP service provider</li> <li>• KYC verification API</li> <li>• Secure file storage</li> <li>• Admin dashboard for manual verification</li> </ul>
<b>Alternate Flows</b>	<ul style="list-style-type: none"> <li>• OTP not received → Resend OTP option</li> <li>• KYC auto-verification fails → Sent for manual review</li> <li>• Session interrupted → resume saved step</li> <li>• KYC pending → restrict dashboard access</li> </ul>

### 13.2 Loan Product Listing (FR-002)

Section	Details
<b>Description</b>	<ul style="list-style-type: none"> <li>• Displays a list of available loan products based on pre-configured product details.</li> <li>• Allows filtering and sorting based on amount, tenure, interest rate, and eligibility.</li> <li>• Helps users compare and choose the most suitable loan product.</li> </ul>
<b>Trigger</b>	<ul style="list-style-type: none"> <li>• User logs in and navigates to the “Loan Products” or “Browse Loans” section.</li> </ul>
<b>Actors</b>	<ul style="list-style-type: none"> <li>• User</li> <li>• System</li> </ul>
<b>Preconditions</b>	<ul style="list-style-type: none"> <li>• User is logged in and KYC is verified.</li> <li>• Loan products are configured and published by the admin.</li> <li>• System is connected to the product database.</li> </ul>
<b>Inputs</b>	<ul style="list-style-type: none"> <li>• Selected filter criteria (e.g., tenure, interest rate)</li> <li>• Search keywords (optional)</li> </ul>
<b>Main Process Flow</b>	<ul style="list-style-type: none"> <li>• User clicks on “Browse Loans”</li> <li>• System fetches active loan products from the database</li> <li>• User applies filters or enters keywords</li> <li>• System</li> </ul>

	displays results • User selects a product to view details • System shows interest rate, tenure, amount range, and eligibility
<b>Outputs</b>	• List of matching loan products • Selected loan product details • Eligibility messages
<b>Validation Rules</b>	• Filters must match defined values • Keywords must be at least 2 characters • Products must not be expired or deactivated
<b>Error Handling</b>	• No products found → “No loans match your criteria” • Server/database failure → “Unable to load products” • Invalid filter → “Invalid value”
<b>Dependencies</b>	• Product database • Filtering engine • Admin loan product configuration module
<b>Alternate Flows</b>	• Filters yield no results → system suggests reset • Product page fails → error message • Product deactivated → “Product Unavailable”

### 13.3 Loan Application Submission (FR-003)

Section	Details
<b>Description</b>	<ul style="list-style-type: none"> <li>• Allows a user to apply for a personal loan by selecting a product, reviewing eligibility, and submitting required details.</li> <li>• Captures user consent and locks application for review.</li> </ul>
<b>Trigger</b>	• User clicks on “Apply Now” from the selected loan product details screen.
<b>Actors</b>	<ul style="list-style-type: none"> <li>• User</li> <li>• System</li> </ul>
<b>Preconditions</b>	<ul style="list-style-type: none"> <li>• User is logged in and KYC is verified.</li> <li>• User has viewed and selected an active loan product.</li> <li>• Loan application feature is enabled.</li> </ul>
<b>Inputs</b>	<ul style="list-style-type: none"> <li>• Selected loan product ID</li> <li>• Desired loan amount (within allowed range)</li> <li>• Loan tenure</li> <li>• Purpose of loan</li> <li>• Consent to terms &amp; conditions</li> </ul>

<b>Main Process Flow</b>	<ul style="list-style-type: none"> <li>• User selects a loan product and clicks "Apply Now"</li> <li>• System shows loan summary and eligibility</li> <li>• User selects amount and tenure</li> <li>• System validates limits</li> <li>• User submits loan application with purpose and consent</li> <li>• System records the application and sends for approval</li> </ul>
<b>Outputs</b>	<ul style="list-style-type: none"> <li>• Loan application status: Submitted</li> <li>• Unique loan application ID</li> <li>• Acknowledgement notification sent to user</li> </ul>
<b>Validation Rules</b>	<ul style="list-style-type: none"> <li>• Loan amount must be within product limits</li> <li>• Tenure must match allowed values (e.g., 6, 12, 24 months)</li> <li>• Consent checkbox must be ticked before submission</li> </ul>
<b>Error Handling</b>	<ul style="list-style-type: none"> <li>• Amount out of range → "Enter amount between ₹X and ₹Y"</li> <li>• Tenure not selected → "Please select loan duration"</li> <li>• Consent not given → "Accept terms to proceed"</li> <li>• Backend failure → "Application failed. Try again."</li> </ul>
<b>Dependencies</b>	<ul style="list-style-type: none"> <li>• Loan product configuration database</li> <li>• Loan eligibility rules engine</li> <li>• Application database or workflow queue</li> </ul>
<b>Alternate Flows</b>	<ul style="list-style-type: none"> <li>• User cancels application mid-way → data discarded or saved as draft</li> <li>• System times out during submission → retry prompt</li> <li>• Duplicate application attempt → "You already have an active application."</li> </ul>

#### 13.4 Loan Approval Workflow (FR-004)

<b>Section</b>	Details
<b>Description</b>	<ul style="list-style-type: none"> <li>• Handles the approval of submitted loan applications using system-driven (auto) or manual review logic.</li> <li>• Ensures only eligible and verified users are granted loans.</li> </ul>
<b>Trigger</b>	<ul style="list-style-type: none"> <li>• A loan application is successfully submitted by the user.</li> </ul>
<b>Actors</b>	<ul style="list-style-type: none"> <li>• System</li> <li>• Admin / Loan Officer</li> </ul>

<b>Preconditions</b>	<ul style="list-style-type: none"> <li>• Loan application is in “Submitted” status.</li> <li>• KYC is verified and user meets basic eligibility criteria.</li> </ul>
<b>Inputs</b>	<ul style="list-style-type: none"> <li>• Loan application data</li> <li>• User profile and KYC details</li> <li>• System-configured approval rules</li> </ul>
<b>Main Process Flow</b>	<ul style="list-style-type: none"> <li>• System evaluates application against auto-approval rules (e.g., income, KYC, loan amount)</li> <li>• If eligible → auto-approve</li> <li>• If flagged → sent to admin for manual review</li> <li>• Admin reviews documents, income, and credit risk</li> <li>• Admin selects approve or reject with remarks</li> <li>• System updates status and notifies user</li> </ul>
<b>Outputs</b>	<ul style="list-style-type: none"> <li>• Loan application status: Approved / Rejected</li> <li>• Reason (if rejected)</li> <li>• Approval timestamp and remarks</li> </ul>
<b>Validation Rules</b>	<ul style="list-style-type: none"> <li>• Only one active application per user</li> <li>• Auto-approval rules must be fully met to bypass manual step</li> <li>• Manual decisions must include justification remarks</li> </ul>
<b>Error Handling</b>	<ul style="list-style-type: none"> <li>• System rule mismatch → “Sent for manual review”</li> <li>• Admin submission missing remarks → “Remarks required”</li> <li>• Internal error → “Approval failed. Retry.”</li> </ul>
<b>Dependencies</b>	<ul style="list-style-type: none"> <li>• Approval rules engine</li> <li>• Admin review interface</li> <li>• Notification system</li> </ul>
<b>Alternate Flows</b>	<ul style="list-style-type: none"> <li>• Application auto-approved → instantly marked approved, no admin intervention</li> <li>• Admin rejects → user notified with rejection reason</li> <li>• Application held → user asked to submit additional documents</li> </ul>



### 13.5 EMI Plan and Repayment Tracking (FR-005)

Section	Details
<b>Description</b>	<ul style="list-style-type: none"><li>• Generates an EMI schedule for approved loans and tracks monthly repayments.</li><li>• Provides reminders, payment status, and penalty tracking for overdue payments.</li></ul>
<b>Trigger</b>	<ul style="list-style-type: none"><li>• A loan application is approved and the loan amount is disbursed.</li></ul>
<b>Actors</b>	<ul style="list-style-type: none"><li>• User</li><li>• System</li></ul>
<b>Preconditions</b>	<ul style="list-style-type: none"><li>• Loan is in “Approved” and “Disbursed” status.</li><li>• EMI start date and duration are configured.</li></ul>
<b>Inputs</b>	<ul style="list-style-type: none"><li>• Loan amount</li><li>• Interest rate</li><li>• Loan tenure</li><li>• EMI start date</li></ul>
<b>Main Process Flow</b>	<ul style="list-style-type: none"><li>• System calculates EMI using configured formula</li><li>• EMI plan is generated with due dates, amounts, and total interest</li><li>• Plan is displayed to the user</li><li>• System sends reminders before due dates</li><li>• User makes payment manually or via auto-debit</li><li>• System updates EMI status (Paid, Missed, Partial)</li></ul>
<b>Outputs</b>	<ul style="list-style-type: none"><li>• EMI plan with due dates and status</li><li>• Updated repayment history</li><li>• Payment confirmation receipts</li></ul>
<b>Validation Rules</b>	<ul style="list-style-type: none"><li>• EMI must be paid on or before due date</li><li>• EMI amount cannot be modified by the user</li><li>• Auto-debit requires consent and setup</li></ul>
<b>Error Handling</b>	<ul style="list-style-type: none"><li>• Missed payment → status marked “Overdue”, late fee applied</li><li>• Payment failure → “Transaction Failed. Please retry.”</li><li>• Auto-debit failed → fallback to manual</li></ul>
<b>Dependencies</b>	<ul style="list-style-type: none"><li>• EMI calculation logic</li><li>• Payment gateway</li><li>• Notification and reminder system</li></ul>

<b>Alternate Flows</b>	<ul style="list-style-type: none"> <li>• User misses EMI → reminder sent, penalty shown</li> <li>• User pays EMI early → still marked against current cycle</li> <li>• Loan pre-closure initiated → remaining EMIs recalculated</li> </ul>
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### 13.6 Transaction History (FR-006)

Section	Details
<b>Description</b>	<ul style="list-style-type: none"> <li>• Displays a chronological record of all financial transactions related to the user's loan(s), including disbursements, EMIs paid, penalties, and refunds.</li> </ul>
<b>Trigger</b>	<ul style="list-style-type: none"> <li>• User navigates to the “Transaction History” or “My Loans” section from the dashboard.</li> </ul>
<b>Actors</b>	<ul style="list-style-type: none"> <li>• User</li> <li>• System</li> </ul>
<b>Preconditions</b>	<ul style="list-style-type: none"> <li>• At least one loan is approved and disbursed.</li> <li>• Transaction records exist for that user.</li> </ul>
<b>Inputs</b>	<ul style="list-style-type: none"> <li>• User session (authenticated)</li> <li>• Optional date range filter or loan reference ID</li> </ul>
<b>Main Process Flow</b>	<ul style="list-style-type: none"> <li>• User opens the transaction history screen</li> <li>• System fetches all transactions linked to user’s loans</li> <li>• Transactions are listed with date, type, amount, and status</li> <li>• User can apply filters or download statements</li> </ul>
<b>Outputs</b>	<ul style="list-style-type: none"> <li>• List of loan-related transactions</li> <li>• Downloadable payment summary or statement</li> <li>• Status indicators (e.g., Paid, Failed, Overdue)</li> </ul>
<b>Validation Rules</b>	<ul style="list-style-type: none"> <li>• Only authenticated users can view their own data</li> <li>• Transactions must be sorted by date by default</li> <li>• Filters must match system-defined formats</li> </ul>
<b>Error Handling</b>	<ul style="list-style-type: none"> <li>• No transactions found → “No records available for the selected period.”</li> <li>• Fetch failure → “Unable to load history. Please try again.”</li> </ul>

<b>Dependencies</b>	<ul style="list-style-type: none"> <li>• Loan disbursement module</li> <li>• EMI payment tracking system</li> <li>• Transaction database</li> </ul>
<b>Alternate Flows</b>	<ul style="list-style-type: none"> <li>• User applies date filter → only matching transactions shown</li> <li>• Download request fails → error shown with retry option</li> </ul>

### 13.7 Support Ticket / Help Chat (FR-007)

Section	Details
<b>Description</b>	<ul style="list-style-type: none"> <li>• Allows users to raise support queries related to their loan, KYC, or payments.</li> <li>• Supports a ticket-based system with optional live chat integration (Phase 2).</li> </ul>
<b>Trigger</b>	<ul style="list-style-type: none"> <li>• User clicks on the “Support” or “Help” section from the app or web dashboard.</li> </ul>
<b>Actors</b>	<ul style="list-style-type: none"> <li>• User</li> <li>• System</li> <li>• Customer Support Executive (Admin)</li> </ul>
<b>Preconditions</b>	<ul style="list-style-type: none"> <li>• User is logged in.</li> <li>• Support module is active.</li> </ul>
<b>Inputs</b>	<ul style="list-style-type: none"> <li>• Support category (e.g., KYC, EMI, General)</li> <li>• Description of the issue</li> <li>• Optional screenshot or attachment</li> </ul>
<b>Main Process Flow</b>	<ul style="list-style-type: none"> <li>• User selects support category and enters issue description</li> <li>• User submits ticket</li> <li>• System generates ticket ID and sends confirmation</li> <li>• Support team reviews and responds via dashboard</li> <li>• User receives update/response notification</li> </ul>
<b>Outputs</b>	<ul style="list-style-type: none"> <li>• Ticket ID and status (Open, In Progress, Closed)</li> <li>• Support resolution message or follow-up instructions</li> </ul>
<b>Validation Rules</b>	<ul style="list-style-type: none"> <li>• Ticket description must not be empty</li> <li>• Category must be selected from dropdown</li> <li>• Max 3 active tickets per user at a time</li> </ul>

<b>Error Handling</b>	<ul style="list-style-type: none"> <li>• Description missing → “Please enter a message to proceed”</li> <li>• Ticket submission failure → “Something went wrong. Try again.”</li> </ul>
<b>Dependencies</b>	<ul style="list-style-type: none"> <li>• Ticketing system backend</li> <li>• Admin support dashboard</li> <li>• Notification engine</li> </ul>
<b>Alternate Flows</b>	<ul style="list-style-type: none"> <li>• User replies to an existing ticket → system appends message to ticket thread</li> <li>• Ticket escalated → routed to supervisor/admin</li> </ul>

### 13.8 Admin Panel for Loan Management (FR-008)

Section	Details
<b>Description</b>	<ul style="list-style-type: none"> <li>• Provides admin users with tools to manage user profiles, review loan applications, verify KYC documents, track repayments, and handle support tickets.</li> </ul>
<b>Trigger</b>	<ul style="list-style-type: none"> <li>• Admin logs in to the back-office dashboard via secure credentials.</li> </ul>
<b>Actors</b>	<ul style="list-style-type: none"> <li>• Admin</li> <li>• System</li> </ul>
<b>Preconditions</b>	<ul style="list-style-type: none"> <li>• Admin account exists and access is role-based.</li> <li>• Admin is authenticated successfully.</li> </ul>
<b>Inputs</b>	<ul style="list-style-type: none"> <li>• Loan application ID</li> <li>• KYC documents</li> <li>• User and loan status filters</li> <li>• Support ticket data</li> </ul>
<b>Main Process Flow</b>	<ul style="list-style-type: none"> <li>• Admin logs into the portal</li> <li>• Dashboard displays metrics and pending actions (KYC, applications, EMIs)</li> <li>• Admin selects module (Loans, KYC, Users, Support)</li> <li>• Admin views and filters data, takes action (Approve/Reject/Edit)</li> <li>• Changes are saved and reflected in real-time</li> </ul>
<b>Outputs</b>	<ul style="list-style-type: none"> <li>• Updated loan statuses</li> <li>• KYC verification outcomes</li> <li>• Support ticket replies</li> <li>• Performance reports</li> </ul>

<b>Validation Rules</b>	<ul style="list-style-type: none"><li>• Only users with admin role can access sensitive modules</li><li>• All manual loan decisions require remarks</li><li>• KYC verification must follow compliance checklist</li></ul>
<b>Error Handling</b>	<ul style="list-style-type: none"><li>• Insufficient permissions → “Access denied”</li><li>• Action failed → “Unable to save changes. Please retry.”</li><li>• Data fetch error → “Error loading dashboard data.”</li></ul>
<b>Dependencies</b>	<ul style="list-style-type: none"><li>• Admin authentication system</li><li>• Loan application and user database</li><li>• Audit trail logging system</li></ul>
<b>Alternate Flows</b>	<ul style="list-style-type: none"><li>• Admin delegates case to another officer → Reassignment logged</li><li>• Admin overrides decision → justification required</li><li>• Support ticket escalated to compliance</li></ul>

## 14. Business Rules & Validation Logic

This section outlines key business rules and validation logic enforced throughout the LoanEase platform to ensure secure, consistent, and compliant operations.

### User Registration & KYC

- Each user must register with a unique mobile number and email address.
- OTP verification is mandatory before account activation.
- PAN, Aadhaar, and income proof must be uploaded for KYC.
- KYC must be completed and verified before applying for a loan.
- Only valid file types (JPG, PNG, PDF) under 5MB are accepted.

### Loan Application

- A user may have only one active loan application at a time.
- Loan amount and tenure must be within the configured range of the selected product.
- Application can only proceed after successful KYC.
- User must provide explicit consent before submitting a loan application.

### Loan Approval Workflow

- Auto-approval is applied if all eligibility rules (KYC, income, loan amount, risk flags) are satisfied.
- Manual review is triggered if rules fail or edge cases are detected.
- Admin must provide justification for approval or rejection during manual review.
- A rejected application must include a reason visible to the user.

### EMI Repayment

- EMI due dates are fixed monthly on the agreed schedule.
- EMI payments can be made via UPI, cards, or auto-debit (if enabled).
- Late payments result in penalty charges and overdue status.
- After 3 consecutive missed EMIs, the loan is marked as “At Risk” for escalation.

### Transaction History

- Only authenticated users may view their own transaction records.
- Transactions must be sorted by most recent first.
- Downloadable statements are available in PDF format.

### **Support & Admin Rules**

- A user can raise a maximum of 3 active tickets at a time.
- Tickets must include a valid category and issue description.
- Admins can override system decisions but must record justification.
- All actions (approvals, ticket replies, status changes) are logged with timestamp and user ID.

## 15. Regulatory & Compliance Requirements

The LoanEase platform must comply with all applicable laws and regulations governing digital lending, personal data handling, and financial transactions in India. The following regulatory and compliance standards will be enforced throughout the system.

Compliance Area	Requirement
<b>RBI Guidelines – Digital Lending</b>	<ul style="list-style-type: none"><li>• Follow RBI's digital lending norms.</li><li>• Clearly disclose interest rates, fees, and loan terms.</li><li>• No hidden charges or unlawful recovery practices.</li></ul>
<b>KYC Compliance</b>	<ul style="list-style-type: none"><li>• PAN and Aadhaar must be verified via government APIs or manually.</li><li>• Compliance with PMLA (Prevention of Money Laundering Act).</li><li>• Support re-verification if required.</li></ul>
<b>Data Privacy &amp; Security</b>	<ul style="list-style-type: none"><li>• Use AES-256 encryption at rest and HTTPS in transit.</li><li>• Comply with IT Act 2000 and the DPDP Bill.</li><li>• Process data only with user consent.</li></ul>
<b>Loan Agreement &amp; E-Sign</b>	<ul style="list-style-type: none"><li>• Provide digital loan agreement with unique loan ID and timestamp.</li><li>• Capture user consent via OTP or checkbox.</li><li>• Allow users to download their agreement.</li></ul>
<b>Audit &amp; Logging</b>	<ul style="list-style-type: none"><li>• Log all user and admin activities with timestamps.</li><li>• Maintain audit logs for at least 7 years.</li><li>• Ensure logs are tamper-proof and secure.</li></ul>



## 16.Non-functional requirement.

Category	Requirement
Performance	<ul style="list-style-type: none"><li>• The system should support up to 100,000 concurrent users.</li><li>• Response time for major user actions should be <math>\leq 3</math> seconds.</li></ul>
Availability	<ul style="list-style-type: none"><li>• Ensure 99.9% uptime SLA for core modules including registration, loan application, and repayment tracking.</li></ul>
Scalability	<ul style="list-style-type: none"><li>• System should be horizontally scalable to support growing user base and transaction volume.</li></ul>
Security	<ul style="list-style-type: none"><li>• All data must be encrypted using AES-256 at rest and TLS 1.2 or higher in transit.</li><li>• Role-based access control must be enforced.</li></ul>
Maintainability	<ul style="list-style-type: none"><li>• Codebase must support modular updates without impacting existing functionality.</li><li>• Logs and configurations should be externalised.</li></ul>
Auditability	<ul style="list-style-type: none"><li>• All critical actions must be logged with timestamp, user ID, and action detail for traceability.</li></ul>
Usability	<ul style="list-style-type: none"><li>• UI must follow a mobile-first design and be accessible via all modern browsers.</li><li>• Interface must support clear error messages and tooltips.</li></ul>
Accessibility	<ul style="list-style-type: none"><li>• Ensure partial WCAG 2.1 compliance for visually impaired users.</li><li>• Support dynamic font scaling on mobile.</li></ul>
Backup & Recovery	<ul style="list-style-type: none"><li>• Automated daily backups must be configured.</li><li>• System should recover from failure within 30 minutes using latest backup.</li></ul>

## 17. Glossary of Terms.

Term	Definition
<b>KYC</b>	Know Your Customer – a mandatory process of verifying a user's identity using government documents.
<b>EMI</b>	Equated Monthly Instalment – a fixed payment made by the borrower to repay the loan with interest.
<b>PAN</b>	Permanent Account Number – a unique 10-character alphanumeric identifier issued by the Indian IT Dept.
<b>Aadhaar</b>	A 12-digit unique identity number issued by the UIDAI for residents of India.
<b>DPDP Bill</b>	Digital Personal Data Protection Bill – Indian law governing user data privacy and consent.
<b>Auto-Approval</b>	System-based loan approval if user meets all configured rules automatically.
<b>Manual Review</b>	Admin-based approval process when system is unable to auto-approve a loan application.
<b>Disbursement</b>	The process of transferring the approved loan amount to the borrower's bank account.
<b>Dashboard</b>	User or admin interface showing loan, KYC, and transaction summaries.
<b>OTP</b>	One-Time Password – used to verify the identity of the user during registration and login.
<b>Loan Tenure</b>	The duration over which a loan is to be repaid, usually in months.
<b>Interest Rate</b>	The percentage charged on the borrowed amount, calculated annually.
<b>PMLA</b>	Prevention of Money Laundering Act – Indian law that governs anti-money laundering practices.
<b>Ticket</b>	A customer support request raised by a user for system or loan-related assistance.
<b>SLA</b>	Service Level Agreement – defines the expected response or resolution time for a service.

## 18. Appendix

This section includes supplementary information and artefacts referenced throughout the document. These materials support the business analysis process and provide additional context to stakeholders.

Appendix ID	Item	Description
A-01	User Registration Flow (Diagram)	Visual diagram showing user registration, OTP verification, and KYC submission process.
A-02	Loan Lifecycle Diagram	Illustrates the end-to-end process from application to repayment and closure.
A-03	Sample Loan Agreement Format	Draft version of the digital agreement shared with the user upon approval.
A-04	EMI Calculation Formula	Mathematical breakdown of how EMI is calculated based on principal, tenure, and interest rate.
A-05	Compliance Checklist	Summary of mandatory checks aligned with RBI, PMLA, and data privacy laws.
A-06	Notification Templates	Standard SMS/email messages for KYC, application status, EMI reminders, and support updates.
A-07	Support Ticket Flow	Diagram of how a user submits a ticket and how it's resolved through admin intervention.
A-08	Admin Role Access Matrix	Defines which roles (e.g., reviewer, supervisor) have access to specific modules in the system.

## 19.Reference

Reference ID	Reference Title / Source	Description / Usage
R-01	RBI Guidelines on Digital Lending	Regulatory framework followed for loan approval, disbursal, and data handling.
R-02	UIDAI KYC API Documentation	API used for Aadhaar-based identity verification.
R-03	PAN Verification API (NSDL)	Used for validating submitted PAN card details during KYC.
R-04	Prevention of Money Laundering Act (PMLA)	Legal compliance for user due diligence and document retention.
R-05	Digital Personal Data Protection Bill (DPDP), 2023	Data protection law governing user consent, privacy, and access controls.
R-06	ISO 27001:2013 – Information Security Standards	Referenced for system security, encryption, and access control best practices.
R-07	UI/UX Guidelines – Google Material Design	Used to guide the interface design for mobile-first accessibility and usability.
R-08	Project Stakeholder Interviews & Meeting Notes	Internal documentation that informed business requirements and flows.