PROJECT DESIGN PHASE

PROBLEM-SOLUTION FIT TEMPLATE

Date: 07 NOVEMBER 2025

Team ID: NM2025TMID08510

Maximum Marks: 4 Marks

PROJECT NAME LEASE MANAGEMENT SYSTEM

Problem — Solution Fit Template

The Problem—Solution Fit ensures that the identified problem faced by users Or administrators in the leasing process is. effectively addressed by your proposed system. It helpsalign your digital solution with user needs and operational workflovvs to ensure efficiency. transparency, and ease Of management.

Purpose:
- •Z Simplify and automate the lease tracking and management process.
- ✓ Enhance efficiency by eliminating manual errors and delays in lease renewals or payments.
- ✓ Improve transparency for both tenants and property managers.
- •Z Provide timely alerts, payment tracking. and renewal rerninders.
- ✓ Support decision—making through reai-time reports and dashboards.

Prevent Lease Mismanagement or Delays

1. Requirement Gathering Understand issues like missed payments, expired leases, and manual tracking difficulties

2. Plan Development Design a cloud-based Salesforce application to automate lease creation. payment tracking, and renewal alerts

4. Tree-inmanagemen Develop the Lease Object, add custom fields. and automate processes using Flows and Validation Rules

5. Testing & Validation Test lease creation, renewal alerts, and payment updates to ensure relliability and reporting efficiency

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Proposed solution template:

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	In real estate and asset leasing, managing leases manually or across disparate systems leads to inefficiencies, data errors, compliance risks, and difficulty tracking lease agreements.
2.	Idea / Solution Description	A Salesforce-based lease management system that automates tracking of properties, tenants, payments, and leases. It leverages custom objects, validation rules, flows, and approval processes to streamline lease workflows and ensure data integrity.
3.	Novelty / Uniqueness	Integrates leasing processes into a single platform with native Salesforce tools, no external plugins, customizable for different asset types, and supports automated alerts, approvals, and reporting.

4.	Social Impact / Customer Satisfaction	Promotes accountability and transparency among property managers, tenants, and finance teams, reducing lease violations, missed payments, and errors that impact customer satisfaction.
5.	Business Model (Revenue Model)	While not directly revenue-generating, the system saves administrative costs, reduces lease disputes, and enhances property utilization efficiency, delivering financial benefits indirectly.

6.	Scalability of the Solution	Can be extended to manage various asset classes beyond real estate, integrate role-based access controls for teams, support multinational lease regulations, and expand reporting capabilities.

Project Design Phase-Il

Data Flow Diagram & User Stories

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Data Flow Diagrams

A Data Flow Diagram (DFD) is a traditional visual representation of the information flows within a system. A neat and clear DFD can depict the right amount of the system requirement graphically. It can be manual, automated or a combination of both. It shows how information enters and leaves the system, what changes the information, and where data is stored.

For the project "Lease Management System", Data Flow Diagrams (DFDs) illustrate how user deletion requests are processed within the system. The DFD shows the interaction between the admin, the system, and the incident database to validate whether a user is assigned to any active matters. If a user is linked to an incident, the system blocks deletion and sends a notification explaining why the user cannot be deleted.

Example Data Flow Diagram

Context Diagram (Level O DFD)

The context diagram shows the Lease Management System as a single process with external entities:

External Entities:

- Admin/Manager
- Tenant
- Property Owner
- Payment Gateway

Data Flows:

- Property & Tenant Information —+ System
- Lease Contracts & Approvals —+ System
- Payment Records —+ System
- Notifications & Reports €— System

Level 1 DFD - Lease Management System

Main Processes:

1. Manage Properties: Admin creates and updates property records (property details, address, type, sqft)
2. Manage Tenants: Admin adds, edits tenant information (name, email, phone, status)
3. Create Lease Contracts: Manager initiates lease agreements linking tenants to properties
4. Process Payments: System records payment data and validates payment status
5. Send Notifications: Automated email alerts for approvals, payments, and lease expiry
6. Generate Reports: Dashboard and analytics for occupancy, revenue, and payment tracking

Data Stores:

- Property Database

- Tenant Database

- Lease Database

- Payment Database

Data Flow Example:

- Admin Property Info Manage Properties Property Database

- Tenant —+ Payment Info Process Payments Payment Database Email Notification —Y Tenant

- Manager Lease Request Create Lease Lease Database Approval Notification Manager

Level 2 DFD - Payment Processing Module

Sub-processes:

1. Validate Payment Data: Check tenant ID, property ID, amount, and payment date
2. Record Payment: Store payment record in Payment Database
3. Update Payment Status: Mark as "Paid" or "Not Paid"
4. Trigger Notification: Send confirmation email to tenant if payment successful
5. Generate Payment Report: Create payment history for tenant

Data Flows:

- Tenant submits payment Validate Payment Data —+ Check Tenant & Property Database

- Valid payment Record Payment Payment Database

- Payment successful Update Status —+ Trigger Email Notification Tenant receives confirmation

User Stories

User stories define what different users need from the system in simple, goal-focused language. In this project, they help ensure the system blocks unnecessary operations (like user deletion when a user is assigned to an incident) and fulfills stakeholder needs effectively.

IJser Type	Functional Requirement	User Number	IJser Story / Task	Acceptance Criteria	Priority	Release
Administrator	User Management (Delete Prevention)	USN-I	As an admin, I want to create a user from the system	The system should allow account only if the user is NOT assigned to any incident	High	Sprint-I
Property	Lease Contract		As a property manager, I want to create lease	The system restricts lease creation if a tenant is already		

| Manager | Creation | USN-2 | contracts by assigning a tenant to a | assigned to an active lease for a property | High | Sprint-I |

User Stories Table

| Tenant | Notifications | USN-3 | As a tenant, I want to receive an alert when my lease is close to expiry or when deadlines due | The system sends email notifications before lease expiry and payment is due | Medium | Sprint-2 |

Detailed User Stories

USN-I: Prevent User Deletion if property Assigned to an Incident

As an admin, I want to create a user from the system
Task Description:
An administrator attempts to delete a user account. The system checks if the user is currently assigned to any active property, tenant record, or lease agreement. If the user is linked to any active record, the system prevents deletion and displays an error message: "User cannot be deleted as they are assigned to active records. "

Acceptance Criteria:

- The system validates user assignment status before deletion

- If assigned, deletion is blocked and an appropriate message is shown

- If not assigned, user is successfully deleted

Priority: High
Sprint: Sprint-I

USN-2: Lease Contract Creation with Validation

As a property manager, I want to create lease contracts by assigning a tenant to a property
Task Description:
A property manager initiates a new lease agreement. The system validates that the property does not already have an active lease assigned. If validation fails, the system blocks lease creation and notifies the manager.

Acceptance Criteria:
- Only one active lease per property is allowed

- Validation occurs before lease is saved

- Error message displayed if property already has active lease
Priority: High
Sprint: Sprint-I

USN-3: Tenant Alert Notifications

As a tenant, I want to receive an alert when my lease is close to expiry or when payment is due
Task Description:

The system automatically sends email notifications to tenants 30 days before lease expiration and on the 1 st of every month for payment reminders.

Acceptance Criteria:

- Email sent automatically based on scheduled triggers
- Email contains lease/payment details
- Tenant receives notification at registered email address

Priority: Medium
Sprint: Sprint-2

Benefits of DFD and User Stories

Data Flow Diagrams:

- Provide a clear visual representation of system processes
- Identify data inputs, outputs, and storage requirements
- Help stakeholders understand system workflows

User Stories:

- Focus on user needs and business value
- Written in plain language for easy understanding
- Serve as basis for development and testing

References ● https://www.visual-paradigm.com/tutorials/data-flow-diaqram-example-video-rental-

svstem.isp ● https://www.atlassian.com/agile/prqiect-management/user-stories ●

https://www.cs.uct.ac.za/mit_notes/software/pdfs/ChpQ6.pdf ●

https://depextechnoloqies.com/bloq/lease-manaqement-software-development-a-complete-quide/

Project Planning Phase

(Product Backlog, Sprint Planning, Stories, Story points)

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1. Project Overview

The Lease Management System streamlines real estate operations by automating property, tenant, lease, and payment workflows for property managers. The system offers features such as property/tenant management, lease contract creation and approval, payment recording, validation, and notifications. Agile methodology with sprints is used for iterative delivery and clear tracking of project goals.
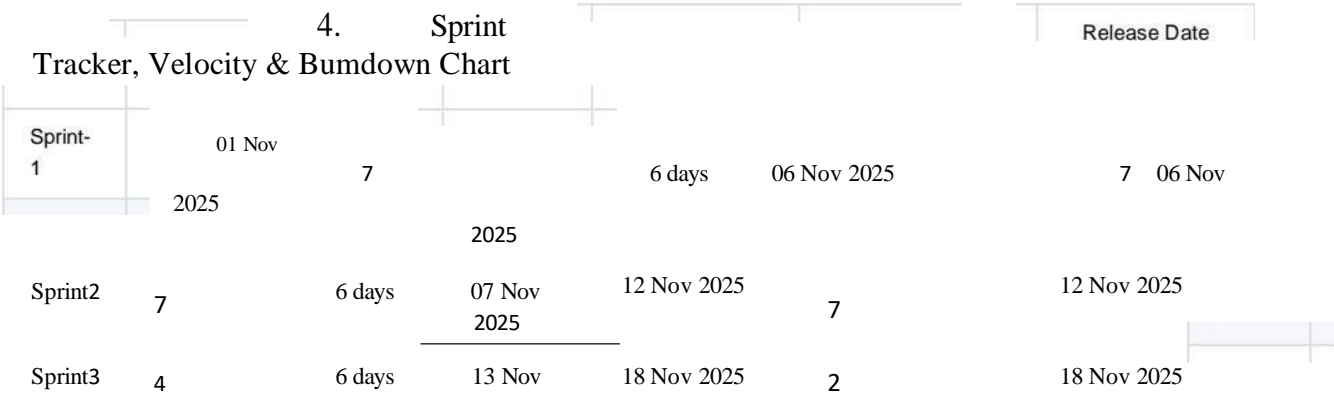
2. Product Backlog, Sprint Schedule, and Estimation

Sprint	Requirement	Story ID	User Story / Task	Story Points	Priority	Team Members
Sprint-1	User Management	USN-I	As an admin, I can create and manage property and tenant records	3	High	N. Project Lead
	Payment Processing	USN-2	As a user, I can record payments for each tenant	4	High	Project Member 1
Sprint-2	Lease Contracts	USN-3	As a manager, I can create/manage lease agreements	4	High	Project Member 2
Sprint2	Validation Logic	USN-4	System prevents multiple active leases for a property	3	High	Project Member 3
Sprint-3	Automated Reminders	USN-5	System sends notifications for payment due and contract expiry	2	Medium	Project Member 1
Sprint3	Documentation	USN-6	Complete user and developer documentation	2	Medium	N. Project Lead

3. User Stories (Examples)

- USN-I: As an admin, I can add, edit, or delete property and tenant records so I can maintain accurate data.
- USN-2: As a tenant, I can view my payment history and see upcoming payment due dates.
- USN-3: As a manager, I can initiate, approve, and terminate lease agreements to streamline the contract process.
- USN-4: As a user, I am prevented from assigning more than one active lease per property, ensuring business rules compliance.
- USN-5: As a manager, I receive timely notifications about due payments and expiring leases for better decisionmaking.
- USN-6: As a developer, I document all modules and workflows for future maintenance and handover.

4. Sprint Tracker, Velocity & Burndown Chart

Sprint	Total story Points	Duration	Start Date	End Date (Planned)	Story Points Completed	(Actual) Release Date
Sprint-1	7	6 days	01 Nov 2025	06 Nov 2025	7	06 Nov 2025
Sprint2	7	6 days	07 Nov 2025	12 Nov 2025	7	12 Nov 2025
Sprint3	4	6 days	13 Nov	18 Nov 2025	2	18 Nov 2025

• Average velocity: (16 completed SP) / (9 days) = 1.78 points/day

Burndown Chart:

A burndown chart displays story points remaining over project days, providing a visual indicator of progress and helping teams stay on schedule.

5. Major Features & Modules

- Property Management: Add, edit, view properties, addresses, types. ●Tenant Management: Manage tenants, statuses, contact info.

- Lease Contracts: Initiate, approve, terminate leases; validation rules.

- Payment Life Cycle: Record, track payments; send payment reminders & confirmations.

- Notifications: Email alerts for approvals, rejections, payment due/successful, and expiring contracts.

- Security & Validation: Custom validation, permissions, approval process logic.

- Reporting: Dashboards for property status, payment history, vacancy rate, revenue per property.

- Documentation: User and technical documentation for all functional modules.

6. Technology Stack

- Platform: Salesforce (Lightning, Apex, Flows, Approval Process, Email Templates)

- Database: Salesforce Custom/Standard Objects

- Frontend: Salesforce Lightning UI

- Automation: Flows, Apex Scheduler, Validation Rules

- Reporting: Salesforce Reports and Dashboards

7. Stakeholders

- Admin/Management: Oversees data and approvals

- Coordinator/Clerk: Manages tenant and contract data

- Tenants: End-users accessing payment/status info

8. References

- https://www.smartsheet.com/content/sprint-planning-templates
- https://www.atlassian.com/agile/project-management/templates
- https://tangoanalytics.com/blog/lease-management/
- https://1000projects.org/lease-managament-system-salesforce-project.html

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	Property Manager	Lease Contract Creation	USN-2	As a property manager, I want to create lease contracts by assigning a tenant to a property	The system restricts lease creation if a tenant is already assigned to an active lease for a property	High	Spr 1
	Functional					

			As a tenant, I	The system sends		
Tenant		USN-3	want to receive an alert when my lease is close to and	email notifications before lease expiry or when deadlines	Medium	Sprint-2
	Notifications		payment expiry or payment is due			

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- https://www.cs.uct.ac.za/mit_notes/software/pdfs/Chp06.pdf
- https://depextechn I i . m/bl