SWARNANDHRA COLLEGE OF ENGINEERING AND TECHNOLOGY

LEASE MANAGEMENT SYSTEM

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Team Member: Ganasala Siva Manikanta
Team Member: Ganduri Babu

Team Member: Jahnavi Donga

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1. Assignments

Objective:
I led the development of a Salesforce-powered Lease Management System (LMS). I set up the Salesforce org, followed guided modules, and collaborated closely with teammates. We divided work, resolved issues with AI assistance, and delivered a robust solution within time.

Detail:

> "As we worked on the Lease Management project, each of us contributed and taught one another. Member 1 mapped lease workflows—application, signing, and renewals—helping us understand tenant property lifecycle. Member 2 led data modeling workshops for lease, property, and tenant structures. I (Member 3) authored the test strategy, which we refined together. Member 4 configured real-time alerts for lease expiration and overdue rent using Salesforce Flows. These collaborative sessions improved both our output and teamwork."

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2. Ideation Phase

1. Brainstorming Document

- **Challenge / Topic:**
  "How can we build a comprehensive lease management system inside Salesforce?"

- **Constraints & Context:**
    - Utilize Salesforce objects & automation
    - Integrate with payment gateways or ERP
    - Mobile-enabled for field agents
    - 8-week timeline
- **Ideation Techniques:** SCAMPER, Mind-mapping across stakeholders (owner, tenant, admin)
- **Raw Ideas:**
    - Custom “Lease Agreement” object with approval stages
    - Automated renewal alerts and overdue rent notifications
    - Mobile forms for property inspections
    - Dashboard for portfolio occupancy and rent collection
    - Lease-document portal for tenants
    - Integration with payment gateway
    - Maintenance request workflows
    - QR-coded leases for quick access
    - Predictive rent pricing
    - Tenant satisfaction surveys post-move-in
- **Categorization:** Lease Operations | Tenant Experience | Financial Management
- **Shortlist Criteria:** Feasibility, Impact, Complexity → Top 3–5 ideas

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2. Empathy Map

Persona: Property Manager (manages 50+ rental units, handles leases and rent collection)

Says	Thinks	Does	Feels
“Need better lease tracking.”	“Which leases expire soon?”	Uses spreadsheets and reminders	Concerned about expiry risk
“Rent collection is inconsistent.”	“Are some tenants overdue?”	Monitors payments manually	Stressed over arrears
“Inspections take too much time.”	“Can we automate reminders?”	Conducts inspections with paper forms	Frustrated by inefficiencies

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3. Problem Statement

- **Context:** Property managers depend on fragmented systems (paper, spreadsheets).
- **Need:** Real-time tracking of lease lifecycle, payments, tenant communication—all in one place.
- **Insight/Impact:** Fragmentation leads to missed renewals, payment delays, tenant dissatisfaction.

> **How Might We** empower property managers and tenants via a unified Salesforce system that handles lease renewals, payment reminders, inspections, and tenant communications seamlessly?

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3. Requirement Analysis

1. Customer Journey Map

1. **Listing/Inquiry –** Tenant views or inquires online
2. **Application –** Tenant applies via portal
3. **Lease Negotiation & Signing –** Admin reviews, negotiations, digital signature
4. **Move-In Inspection –** Field agent logs property condition via mobile
5. **Rent & Deposit Collection** – Automated invoice & payment reminders
6. **Lease Duration –** Notifications for renewals or expiration

7. **Maintenance –** Tenant raises request, tracks resolution
8. **Move-Out & Feedback –** Final inspection, deposit return, satisfaction survey

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2. Data Flow Diagram (Context & Level 1)

Entities: Tenant, Property Manager, Maintenance Provider

Processes:

- **P1**: Application Processing
    - Input: Tenant application → Output: LeaseApplication record
- **P2**: Lease Lifecycle
    - Input: Approved Application → Output: Active Lease Agreement
- **P3**: Payments & Renewals
    - Input: Due date → Output: Payment record, Renewal reminders
- **P4**: Maintenance & Move-In/Out
    - Input: Inspection logs and requests → Output: Maintenance records, Inspection reports

Data Stores: Tenant, Property, LeaseApplication, LeaseAgreement, Payment, MaintenanceLog

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3. Solution Requirements

Functional:

- Custom Objects: Tenant, Property, LeaseApplication, LeaseAgreement, Payment, MaintenanceRequest, InspectionReport
- Relationships: LeaseAgreement → Tenant + Property; Payment → LeaseAgreement; MaintenanceRequest → Lease; InspectionReport → Lease

- Automation:
    - Flows for rent reminders, lease expiry alerts, approval workflows
    - Apex triggers for validation (e.g., security deposit thresholds)
- UI: Lightning App, mobile inspection forms
- Integrations: Payment gateway, Document-signature API, SMS/email alerts

Non-Functional:

- Performance: <2 s response
- Reliability: 99.9% availability
- Security: Role-based access, encryption
- Scalability: Support multiple properties and user roles
- Usability: Mobile-first design, intuitive dashboards

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4. Technology Stack

Layer	Components
Platform	Salesforce Platform, Custom & Standard Objects
Backend	Apex Triggers/Classes, SOQL/SOSL
Automation	Flows, Approval Processes
UI	Lightning Web Components, Mobile Flows
Integrations	REST APIs (payment, document signing)
Notifications	Email, SMS via Twilio
DevOps	Salesforce CLI, GitHub Actions
Reporting	Reports, Dashboards, Einstein Analytics

Security	OAuth/SAML SSO, Shield Encryption, Profiles
Infrastructure	Multi-org sandboxes, CI/CD pipeline

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5. Project Design Phase

Problem–Solution Fit:

- Interviews with property managers validated the need for an integrated lease system.
- MVP Metrics: reduction in late payments, improved renewal rates, streamlined inspections.

Core Features:

- Lease creation & approval
- Payment reminders & tracking
- Lease renewal alerts
- Mobile inspections & maintenance logging
- Tenant portal with lease docs + alerts

Architecture:

- **Data Layer:** Tenant, Property, Lease, Payment, Request
- **Process Layer:** Flows/Triggers for reminders, approvals, renewals
- **Integration Layer:** Payment & document-sign APIs
- **Presentation Layer:** Lightning App + LWC + mobile flows
- **Reporting Layer:** Dashboards for occupancy, payments, upcoming terminations
- **Security Layer:** RBAC, encryption
- **DevOps:** GitHub Actions + CLI + Sandboxes

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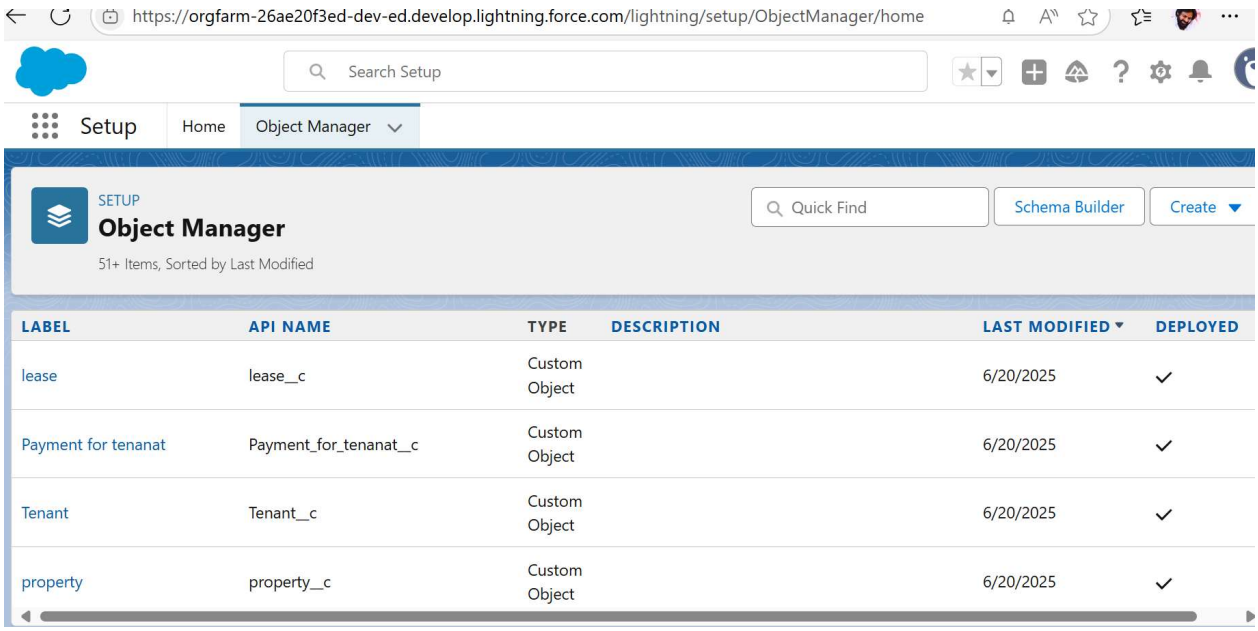
6. Project Planning Phase

Tools:

- **ClickUp:** Task and milestone tracking
- **Miro:** Visual architecture, roadmap
- **Excel:** Gantt chart, budget tracking
- **Google Docs/Sheets:** Collaborative documentation

Milestones:

- Week 1–2: Requirements & org setup
- Week 3–5: Object model & Flows
- Week 6: Integration & Mobile flows
- Week 7: Testing & optimization
- Week 8: Documentation & demo
- **Screenshots of Output.**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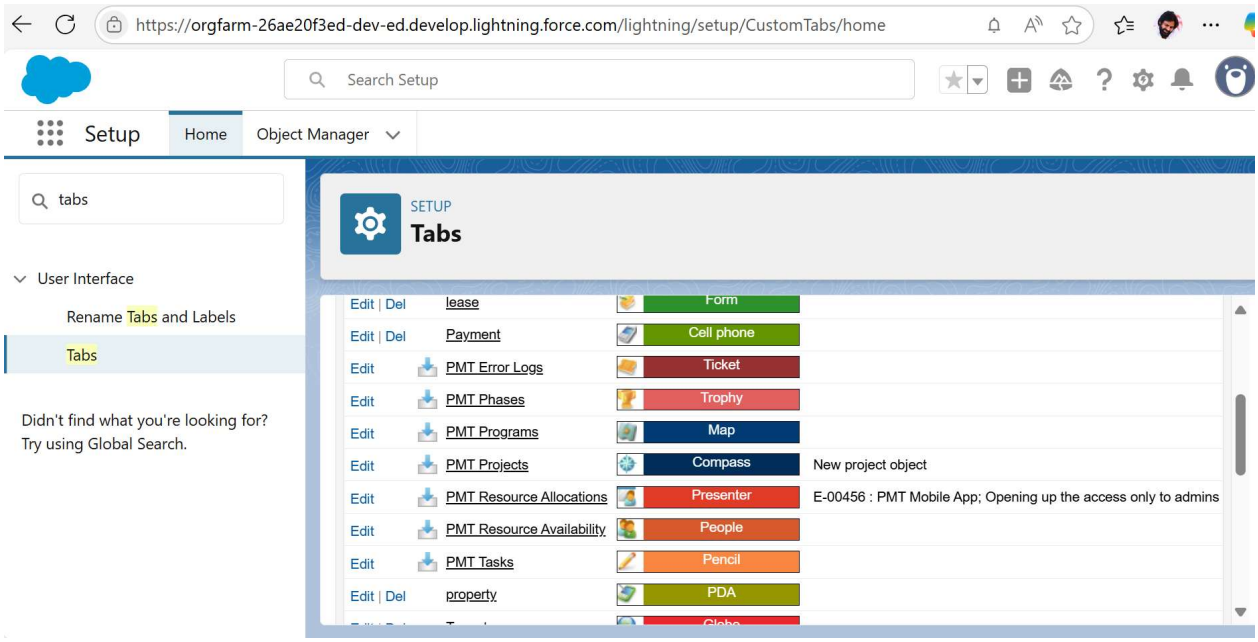
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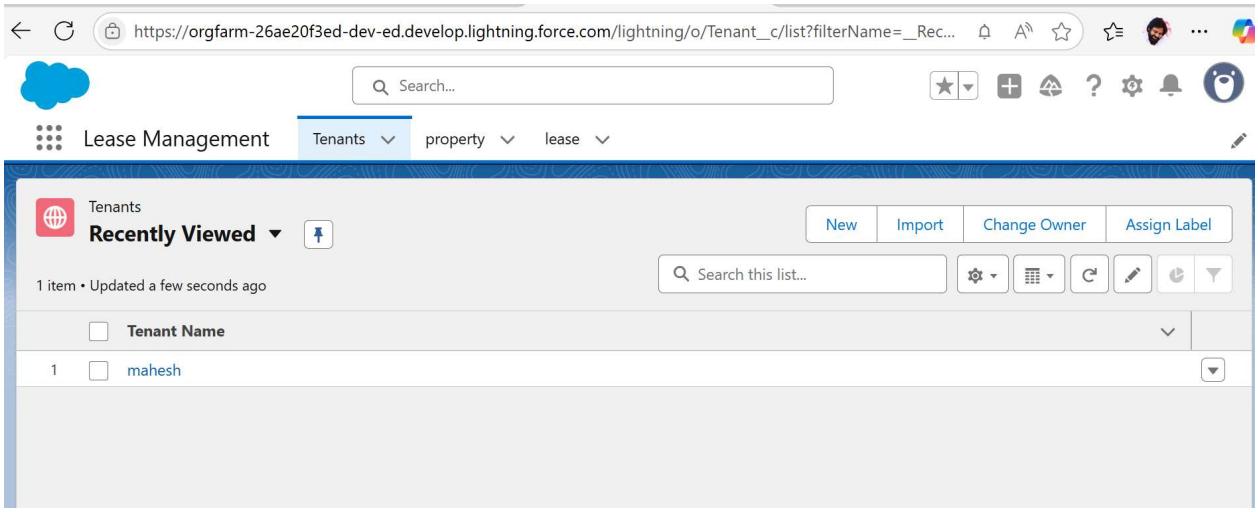
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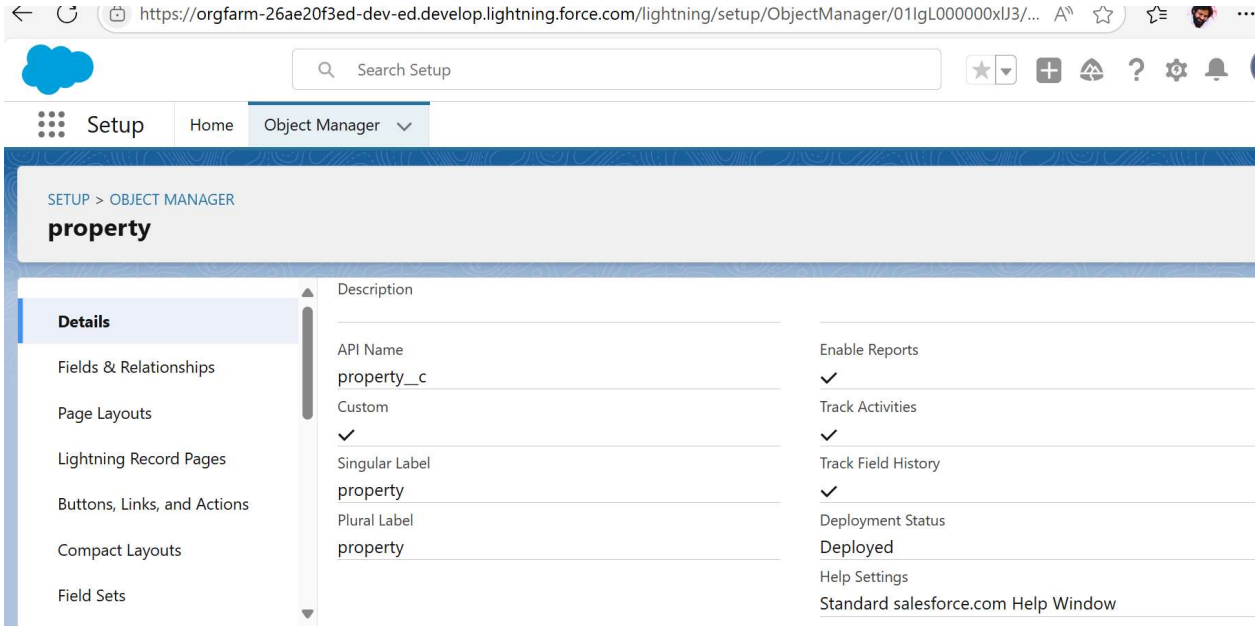
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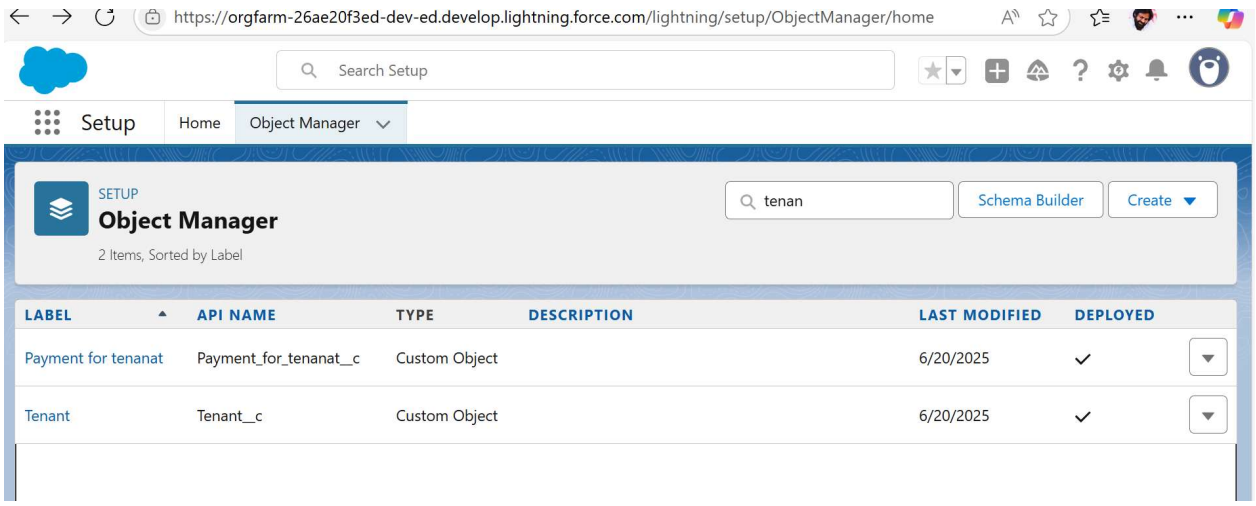
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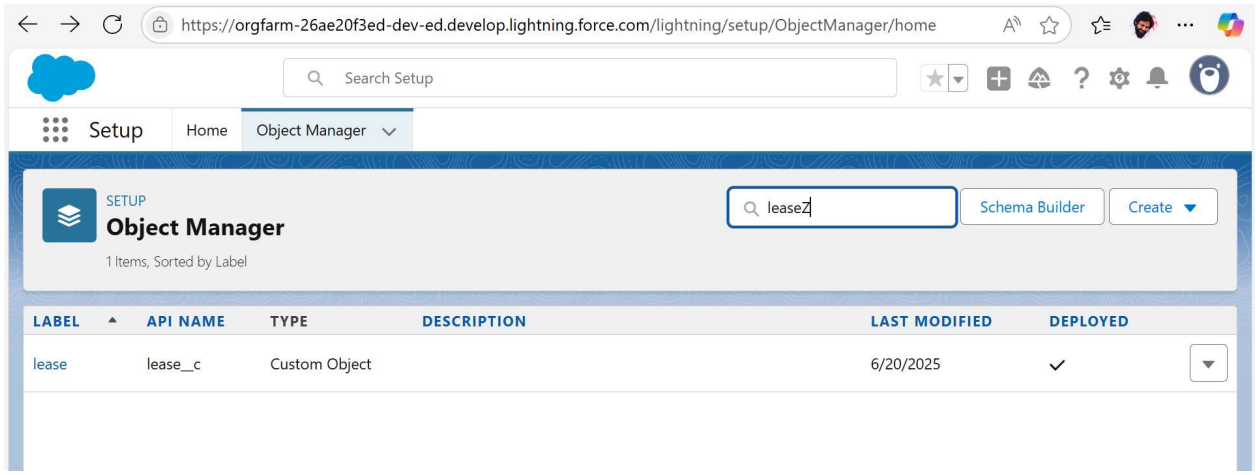
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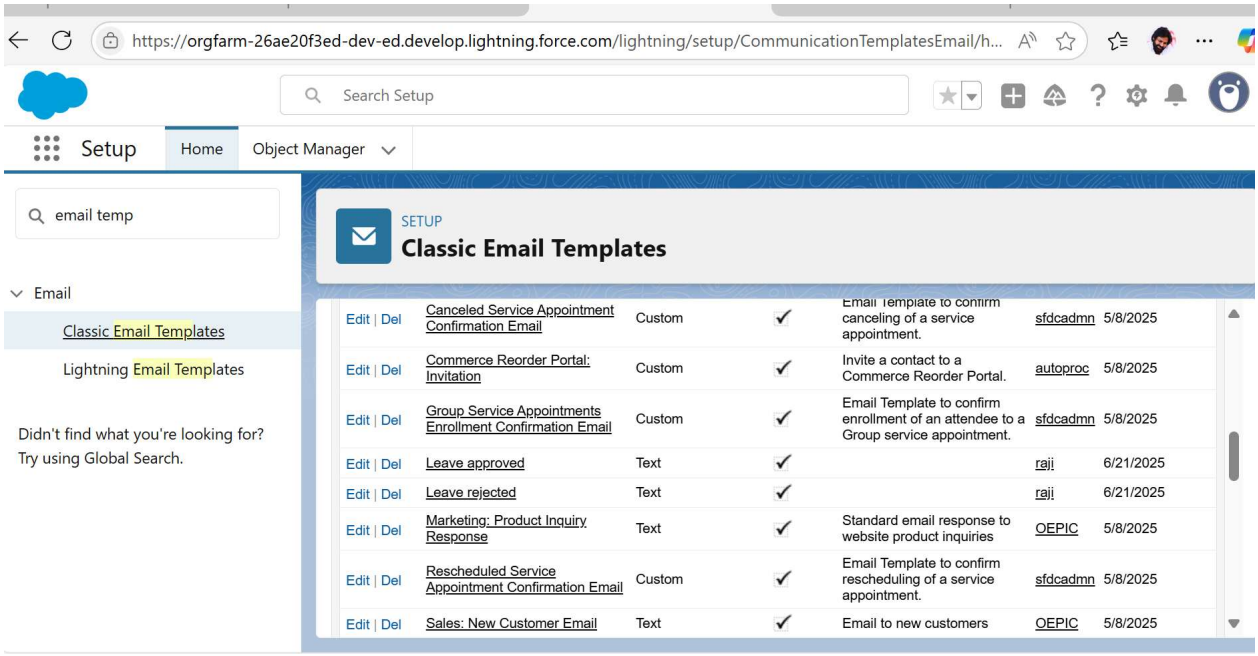
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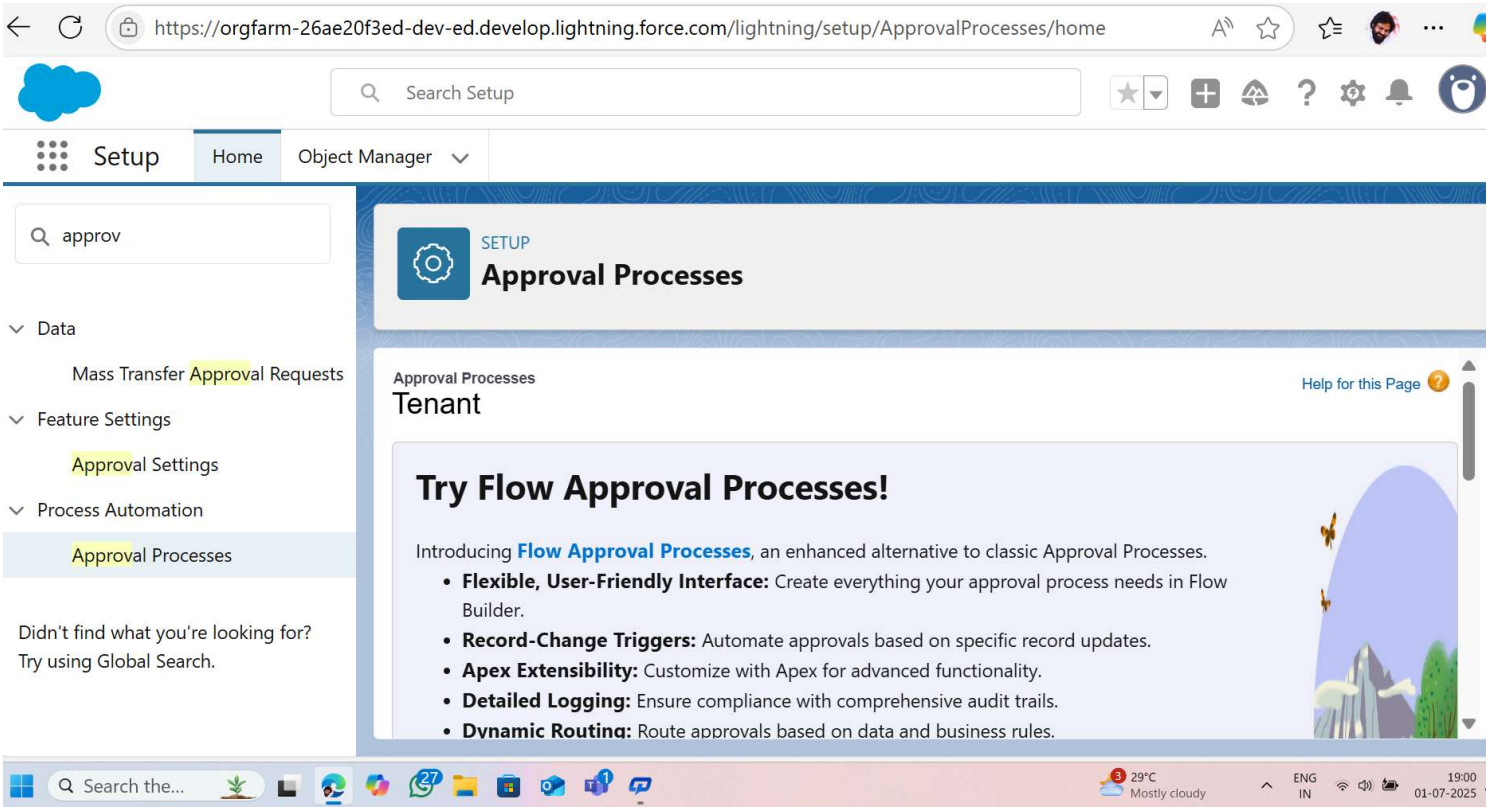
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Apex Extensibility: Customize with Apex for advanced functionality.
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7. Functional & Performance Testing

Scope: Lease lifecycle flows, payment API, inspections, dashboards

Goals:

- UI/API response <2 s
- Throughput 100 TPS
- Error rate <1%

Environment: Full-copy sandbox, mimicking production

Test Scenarios:

- Simultaneous rent reminders and payments
- Bulk lease creation
- Spike in maintenance/logging
- Dashboard refresh under load

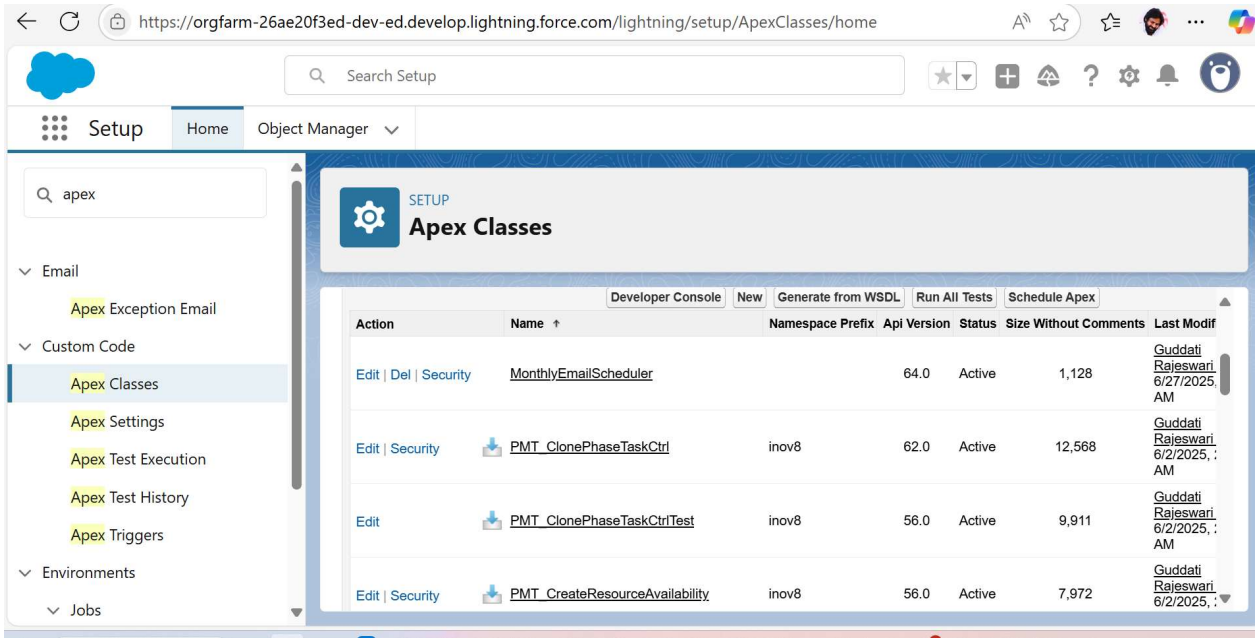
Tools: JMeter + Salesforce event monitoring + dev console

Optimization:

- Indexed SOQL
- Bulkified Apex
- Async processing and caching

Retesting & Validation: Ensure improvements meet target KPIs

Screenshots demonstrating testing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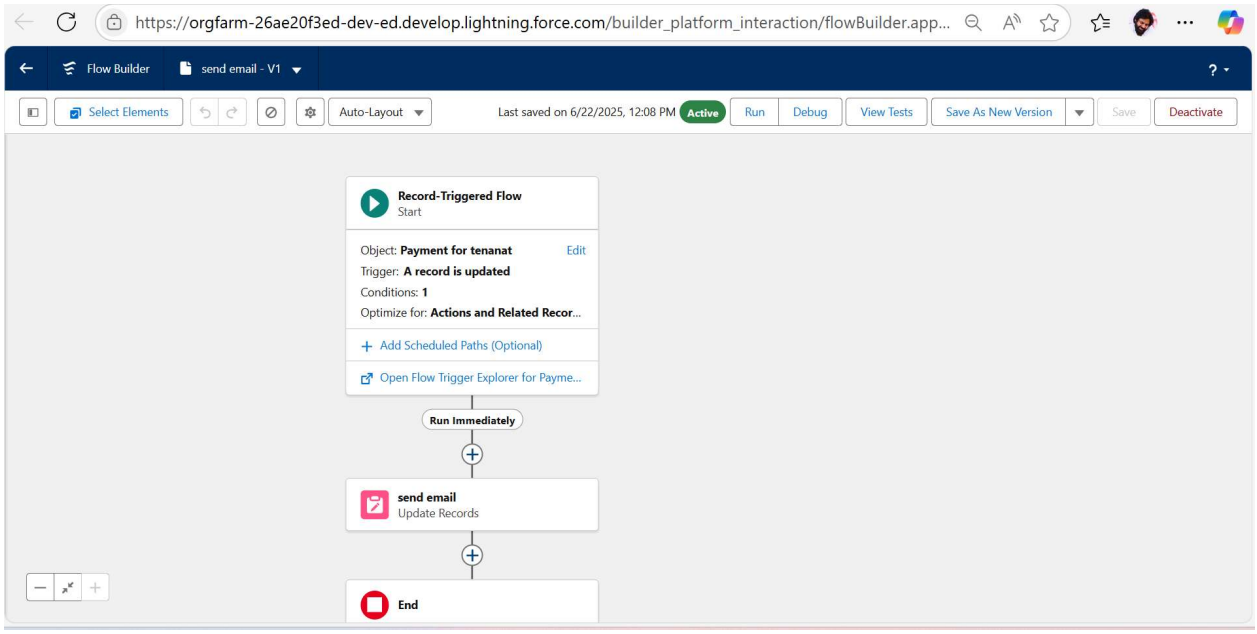
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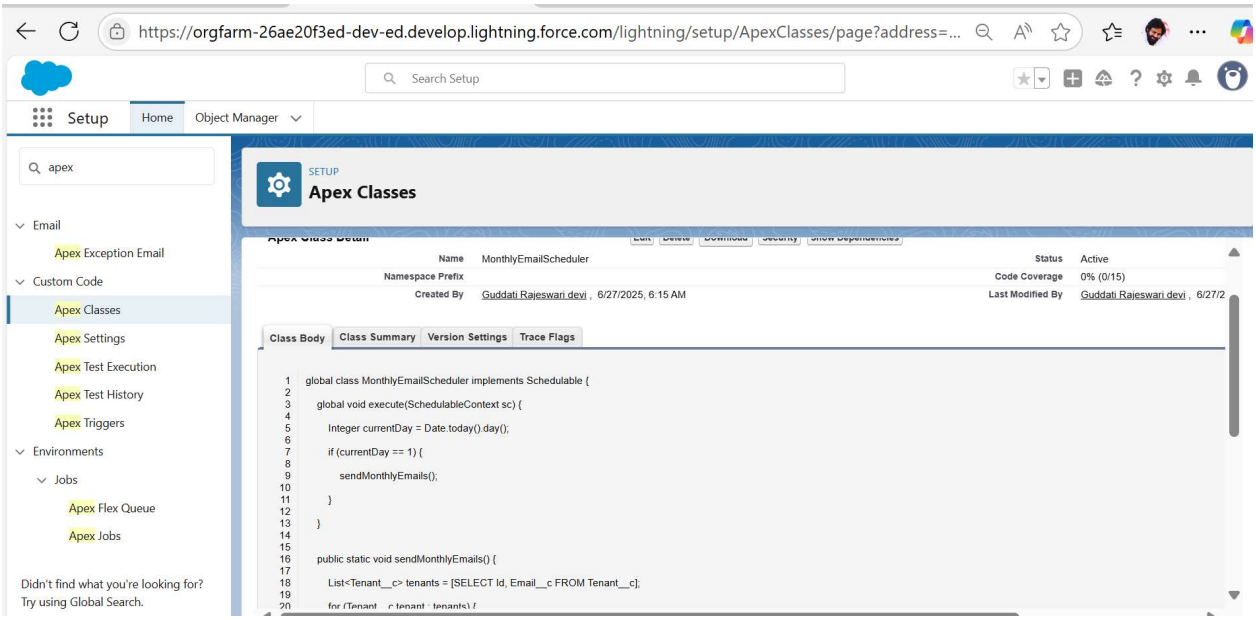

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8. Documentation & Demo

Team Deliverables:

Member	Role	Deliverables	Contribution
Member 1	Project Lead	Final Report, Roadmap	100%
Member 2	Technical Lead	ER Diagrams, API Docs	100%
Member 3	Developer	UI Screens, Test Cases	100%
Member 4	Documentation Lead	User Manual, Training Materials	100%

Demo Video:
https://github.com/guddatirajeswaridevi/lease-management

Project/blob/main/Video%20Demo/1.mp4