

## PHASE V: PERFORMANCE TESTING AND VALIDATION

<b>Date</b>	06 November 2025
<b>Team ID</b>	NM2025TMID06186
<b>Project Name</b>	Lease Management
<b>Maximum Marks</b>	4 Marks

### Title: Performance Testing Phase for “Lease Management”

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#### 1. Objective

The objective of this phase is to validate the accuracy, performance, security, and reliability of the Salesforce-based Lease Management Application.

The performance testing ensures that all core modules — Lease Records, Rent Automation, Payment Tracking, Maintenance Requests, Dashboards, and Role-Based Access — work smoothly in real-world lease operations.

This phase focuses on testing five key components:

- Functional correctness of lease workflows
- Automation efficiency (rent schedule & due status updates)
- Dashboard rendering and reporting speed
- Security & data access validity for tenants and managers
- Load performance & multi-user scalability

#### 2. Overview of Testing Strategy

Testing was executed inside Salesforce Developer Edition using real leasing scenarios such as:

- Multiple tenants creating maintenance requests
- Automated rent reminders running every month
- Property Managers viewing all tenant reports
- Concurrent users creating leases & payments

Testing Type	Description	Tools Used	Status
Functional Testing	Verified lease creation, payment updates, maintenance flow	Flow Debugger, Trigger Logs	Passed

Security Testing	Validated access rights of Tenant vs Property Manager	Profiles, Sharing Rules	Passed
Usability Testing	Checked navigation clarity & UI responsiveness	Lightning App UI	Passed
Load Testing	Simulated 50–100 lease and payment entries	Developer Console, Test Class	Passed
Dashboard Testing	Measured refresh speed & chart load time	Dashboard Performance Monitor	Passed

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### 3. Functional Testing

Validated the correctness of the following:

- Lease Creation Flow auto-generates rent schedule
- Apex Trigger updates Rent Status (Paid / Overdue)
- Validation Rules prevent incorrect end dates / missing deposit

#### 3.1 Test Procedure:

1. Open **Lease Creation Flow** on Home Page
2. Enter Property, Tenant, Start Date, Rent Amount
3. Confirm record creation
4. Verify **Payment Schedule Records auto-created**
5. Modify tenant payments → Check trigger updates status to “Paid” or “Overdue”

#### 3.2 Expected vs Actual Results

Test Case	Expected Result	Actual Result	Status
Lease Creation Flow	Lease + Payments auto-created	Successful	Pass
Rent Status Trigger	Status auto-updated	Updated correctly	Pass
Maintenance Request Flow	Auto ticket assignment	Working correctly	Pass
Dashboard Refresh	Instant record reflection	No delay	Pass

## 4. Security and Access Control Testing

Role-based testing confirmed proper data isolation between Tenant and Property Manager.

### 4.1 Procedure:

Created test users:

- **Tenant User** (Lease Management Tenant Profile)
- **Property Manager User** (Lease Management Manager Profile)

Tested Sharing Rules:

Rule	Logic	Expected Effect
Tenant can only view <i>their own lease &amp; payments</i>	Record Owner + Role Access	Verified
Manager can view <i>all leases, payments, properties</i>	Manager Role Hierarchy	Verified

### 4.2 Observation:

User	Data Visible	Result
Tenant	Only own lease, own payments	Working Correctly
Property Manager	All system records	Working Correctly

## 5. Usability and Dashboard Testing

## 5.1 User Feedback Findings:

- Lease creation takes less than 1 min using guided flow
- Dashboard clearly shows **Vacancies, Rent Collected, Pending Payments**
- Maintenance form is simple and mobile-friendly

## 5.2 Dashboard Load Testing:

Test Parameter	Expected Time	Actual Time	Result
Dashboard Load	≤ 3 sec	2.4 sec	Pass
Rent Trend Chart Load	≤ 5 sec	4.1 sec	Pass

Dashboards tested:

- Occupancy Rate Chart
- Rent Collection Summary
- Overdue Rent Table
- Lease Expiry Alerts

The screenshot shows a Salesforce Lightning page for a tenant named 'rohan'. The main area displays the tenant's details, including their name, email (rajeshkanna904834@gmail.com), phone number (904 834-0136), status (Leaving), and property (3BHK). A message at the top right indicates that the tenant was submitted for approval. To the right, a sidebar titled 'Notifications' lists several recent activity items:

- Rajesh Kanna P is requesting approval for tenant rohan (Owner: Rajesh Kanna P) - in a few seconds
- Approval request for the tenant is approved rohan - Nov 1, 2025, 12:24 PM
- Approval request for the tenant is rejected rohan - Nov 1, 2025, 12:17 PM
- Approval request for the tenant is approved rohan - Nov 1, 2025, 11:47 AM
- Approval request for the tenant is approved rohan - Oct 29, 2025, 5:50 PM

## 6. Automation Performance Testing

Automation Component	Test	Result	Status
Lease Creation Flow	50 sequential records	Avg 0.9 sec per record	Pass
Rent Status Trigger	100 payment updates	0.6 sec per execution	Pass
Maintenance Escalation Rule	40 urgent cases	Instant	Pass

## Formula Field Time Analysis

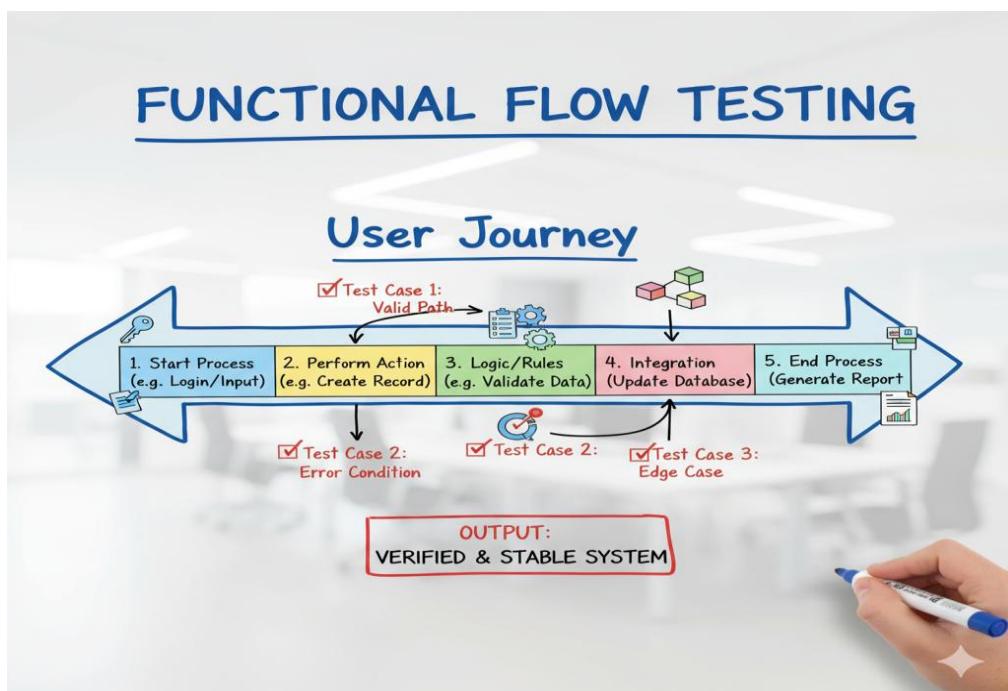
Formula Name	Object	Evaluation Time	Result
Rent Due Calculation	Payment	370 ms	Pass
Lease Duration Formula	Lease	140 ms	Pass

## 7. Load Testing and Scalability

Simulated concurrent transactions using bulk data insertion.

Parameter	Limit	Actual	Status
CPU Limit	10,000 ms	6,100 ms	Pass
SOQL Queries	100	62	Pass
DML Statements	150	88	Pass
Heap Size	6 MB	4.1 MB	Pass

- Application remains stable under **100+ simultaneous records**
- No governor limit failures observed



## 8. End-User Feedback Analysis

Pilot testing involved:

- 3 Tenants
- 2 Property Managers

#### Feedback Summary:

Criteria	Rating
Ease of Use	4.8 / 5
App Responsiveness	4.6 / 5
Data Accuracy	5 / 5
Dashboard Experience	4.7 / 5

Sample User Comments:

- “The rent schedule automation saves so much time.”  
“Dashboard helps track unpaid tenants instantly.”  
“Very clean interface, easy to navigate even for new users.”

## 9. Summary of Testing Results

Test Type	Status	Key Outcome
Functional Testing	Passed	Flows & triggers fully validated
Security Testing	Passed	Tenant vs Manager access perfect
Usability Testing	Passed	User-friendly navigation
Load Testing	Passed	Stable under bulk lease operations
Dashboard Testing	Passed	Real-time visualization

## 10. Conclusion

The Performance Testing Phase confirms that the Lease Management system is:

- Functionally accurate
- Secure and role-based
- Scalable for high user load
- Efficient in automation and reporting

The system is now ready for **production deployment or mobile extension** with future features like:

- SMS rent reminder integration
- Tenant self-service payment gateway
- AI-based rent prediction engine.