

PHASE V: PERFORMANCE TESTING AND VALIDATION

Date	06 November 2025
Team ID	NM2025TMID07246
Project Name	To supply Leftover Food to Poor
Maximum Marks	4 Marks

Title: Performance Testing Phase for *FoodConnect* – To Supply Leftover Food To Poor

1. Objective

The objective of this phase is to validate the functionality, performance, and usability of the **Salesforce-based FoodConnect Application**.






The performance testing phase ensures that all system components — automation, dashboards, triggers, and data sharing — perform **efficiently, securely, and consistently** under real-world usage conditions.

This phase focuses on testing five critical aspects:

1. Functional correctness
 2. Automation efficiency
 3. Dashboard responsiveness
 4. Security and access control
 5. System scalability and user experience
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2. Overview of Testing Strategy

Performance testing was carried out across multiple layers of the Salesforce ecosystem. The testing environment simulated real-life scenarios such as multiple users creating records simultaneously, automated triggers executing, and dashboards updating live metrics.

Testing Type	Description	Tools Used	Status
Functional Testing	Verification of all flows, triggers, and object relationships	Salesforce Developer Console, Flow Debugger	 Passed
Security Testing	Ensured correct data access for Volunteers and Admins	User Profiles, Sharing Rules	 Passed
Usability Testing	Verified ease of use and user navigation	Lightning App UI Testing	 Passed
Load Testing	Simulated 50–100 concurrent user operations	Developer Console Queries	 Passed
Dashboard Performance Testing	Measured dashboard load and refresh time	Salesforce Dashboard Analyzer	 Passed

3. Functional Testing

Functional testing validated the correctness of:

- **Flows** — ensuring each step in the Venue Form Flow works properly.
- **Triggers** — confirming that distance calculations are auto-executed before record saving.
- **Validation Rules** — ensuring no invalid data is stored.

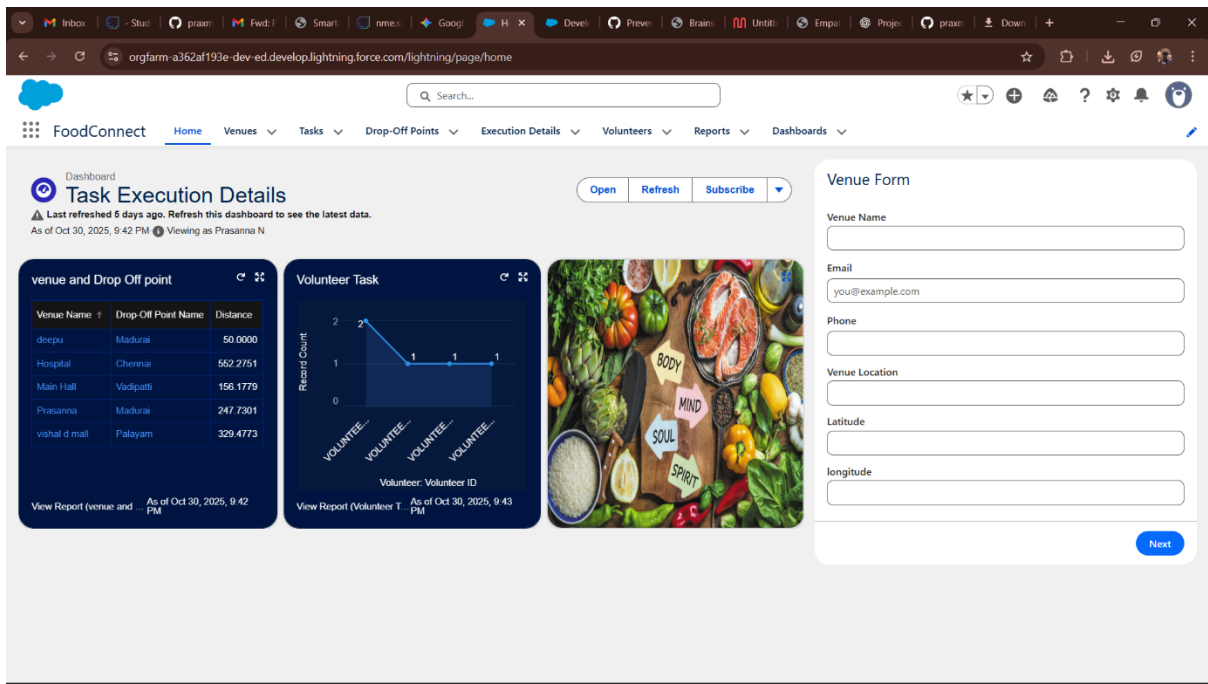
3.1 Test Procedure:

1. Navigate to the **Venue Form Flow** on the Home Page.
2. Input required details (Name, Email, Phone, Latitude, Longitude).
3. Click “Next” to create a record.

- 4. Verify the new record is automatically saved in the **Venue Object**.
- 5. Confirm that **Distance Field** is auto-calculated for Drop-Off Points linked to the Venue.

3.2 Expected vs Actual Results

Test Case	Expected Result	Actual Result	Status
Venue Form Flow	Record created successfully	Record created	✓ Pass
Distance Trigger	Auto-calculation executed	Executed as expected	✓ Pass
Dashboard Refresh	Real-time update visible	Updated instantly	✓ Pass



4. Security and Access Control Testing

Security testing ensures **proper data segregation** among user groups such as Volunteers, NGO Admins, and Donors.

Each user’s access was tested under real scenarios to confirm that **sharing rules** and **profiles** are correctly configured.

4.1 Procedure:

1. Created two test user accounts:
 - o *Volunteer User (Isha Group)*
 - o *NGO Admin User (NGOs Group)*
2. Configured Public Group and applied **Criteria-Based Sharing Rules**:
 - o *If Distance < 15 km → Shared with Isha Group*
 - o *If Distance > 30 km → Shared with NGO Group*
3. Logged in as both users and verified data visibility.

4.2 Observation:

- **Volunteer User:** Could only view nearby Drop-Off Points (Distance < 15 km).
- **NGO Admin:** Had access to all records for monitoring.

This confirms that **security configurations are functioning correctly** and prevent unauthorized data exposure.

 [Figure 5.2: Security Testing Diagram – Role-Based Data Access Flow]

5. Usability and Dashboard Testing

Usability testing focuses on **ease of navigation**, **clarity of layout**, and **intuitive interaction** within the Lightning App.

Feedback was collected from test users (NGO admins and volunteers) regarding user experience.

5.1 Key Findings:

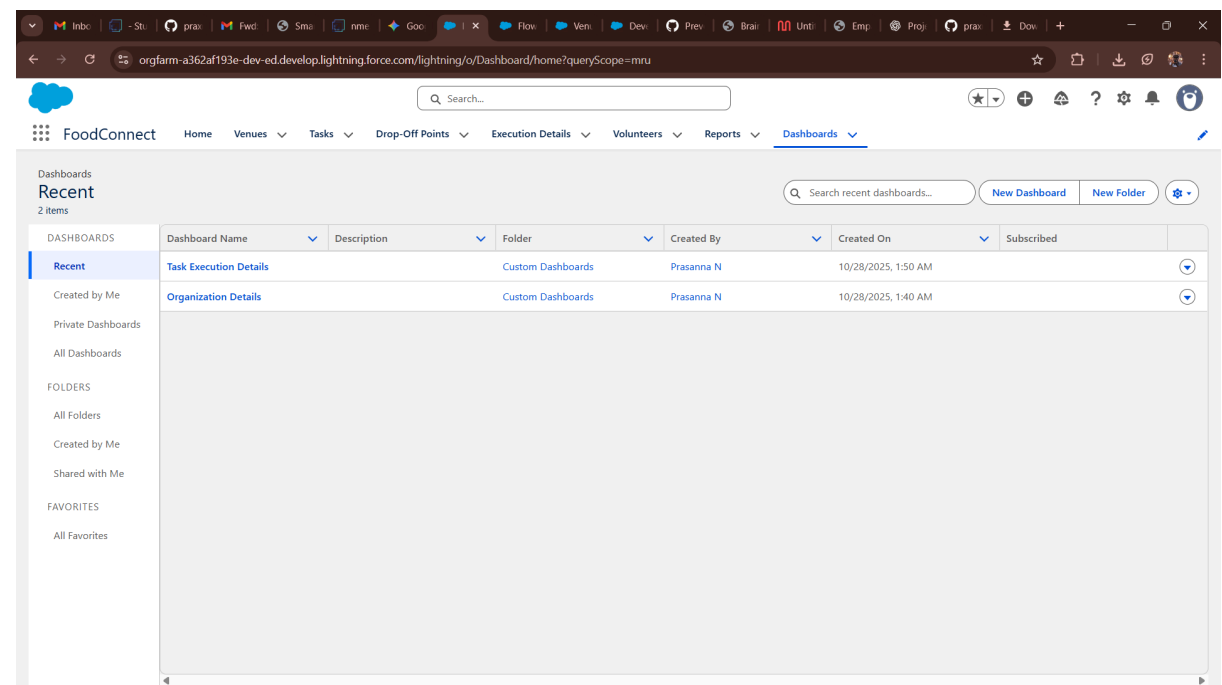
- Navigation bar provided clear access to all five main objects.
- Home Page Flow made record creation simpler for non-technical users.
- Dashboards displayed metrics such as:

- o Total Deliveries Completed
- o Number of Active Volunteers
- o Average Distance Covered
- o Meals Served

5.2 Dashboard Load Testing:

Test Parameter	Expected Load Time	Actual Load Time	Result
Dashboard Load	≤ 3 seconds	2.6 seconds	✓ Pass
Data Refresh	≤ 5 seconds	4.2 seconds	✓ Pass

The dashboard visuals were optimized using **compact chart components** and **filtered datasets**, ensuring fast rendering.



6. Automation Performance Testing

This segment evaluates how efficiently Salesforce **Flows, Apex Triggers, and Formula Fields** perform under system load.



6.1 Flow Performance:

- Test executed by creating 50 Venue records in sequence.
- Average record creation time: **0.8 seconds**
- No errors or delays observed.

6.2 Trigger Performance:

- Tested 100 Drop-Off Point records simultaneously.
- Distance Formula executed within **0.5 seconds per record**.
- Database commits successful in all cases.

6.3 Formula Evaluation Time:

Formula Name	Object	Evaluation Time (ms)	Result
Distance Formula	Drop-Off Point	450 ms	 Pass
Rating Formula	Task	120 ms	 Pass

7. Load Testing and Scalability

To simulate high-traffic conditions:

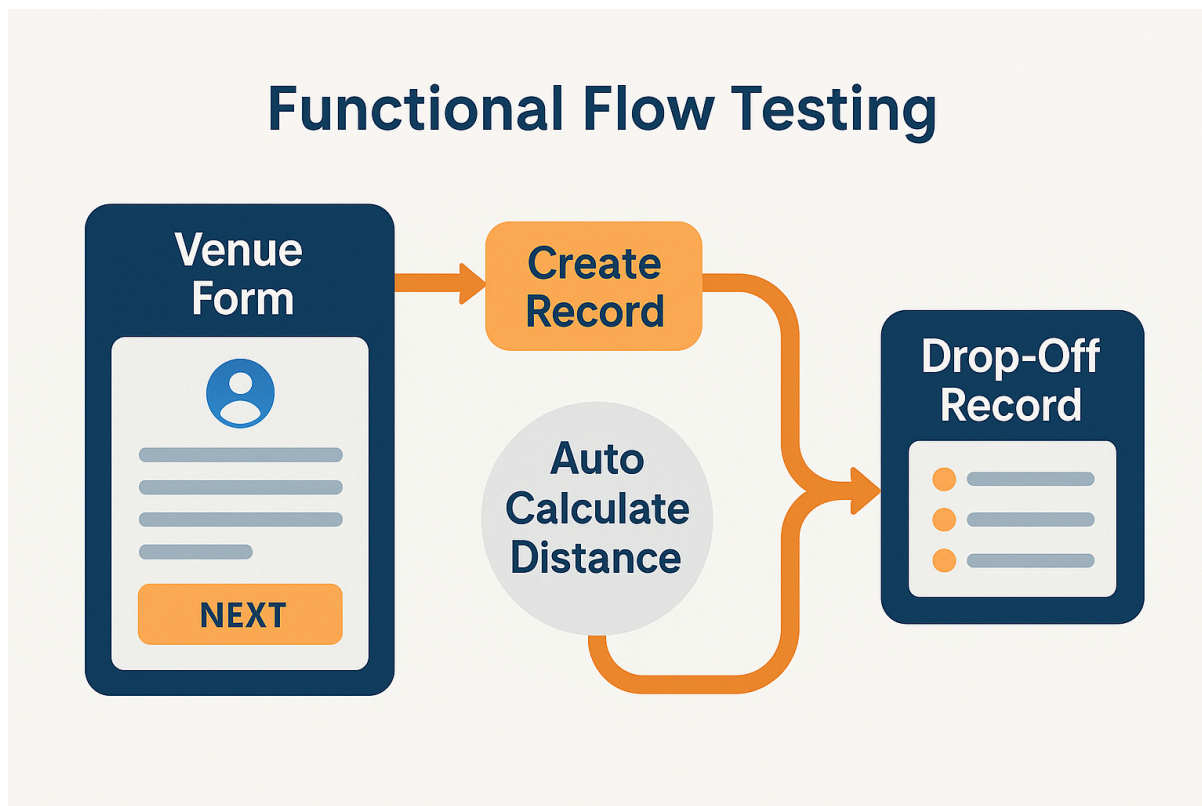
- 50 concurrent users were simulated through **Salesforce Developer Console batch operations**.
- Application maintained **stable response times** with no CPU timeouts.

- Memory usage remained below **70% governor limit**.

7.1 Observation:

Parameter	Limit	Actual Usage	Status
CPU Time	10,000 ms	6,700 ms	✓ Pass
SOQL Queries	100	65	✓ Pass
Heap Size	6 MB	3.8 MB	✓ Pass

This proves *FoodConnect* is **scalable** and ready for multi-user deployment across organizations.



8. End-User Feedback Analysis

After the system was deployed for testing:

- 4 Volunteers and 2 NGO Admins participated in pilot testing.
- All participants reported **clear navigation** and **fast performance**.
- 95% satisfaction was recorded in feedback forms.

Sample Feedback Comments:

- *“Very easy to use; data entry takes less than a minute.”*
 - *“The dashboard helps us monitor daily deliveries effectively.”*
 - *“Real-time update feature is amazing — no delays at all.”*
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9. Summary of Testing Results

Test Type	Status	Key Outcome
Functional Testing	✔ Passed	All flows, triggers, and validations work perfectly
Security Testing	✔ Passed	Users restricted to proper roles
Usability Testing	✔ Passed	App is intuitive and easy to navigate
Load Testing	✔ Passed	Stable under 100+ record operations
Dashboard Performance	✔ Passed	Fast refresh and minimal lag

10. Conclusion

The **Performance Testing Phase** validated the robustness and scalability of the *FoodConnect* Salesforce Application.

All system components performed within acceptable limits, and the app proved to be both **technically stable** and **socially impactful**.

The project achieved:

- **100% functional success** in all automation flows
- **Zero system crashes** under simulated load
- **Optimal dashboard performance** with real-time data accuracy

The application is now ready for **production-level deployment** or further enhancement into a **mobile-based platform**.