A Salesforce Project

On

TO SUPPLY LEFTOVER FOOD TO POOR

Submitted by

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BACHELOR OF TECHNOLOGY

in

INFORMATION TECHNOLOGY

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S.No	Table of Contents	Pg.No

Project Overview

The "To Supply Leftover Food to Poor" project is a humanitarian-focused initiative leveraging Salesforce to create a sustainable and scalable system for food redistribution. The project addresses two critical social challenges—food waste and hunger—by connecting food donors with NGOs and underprivileged communities.
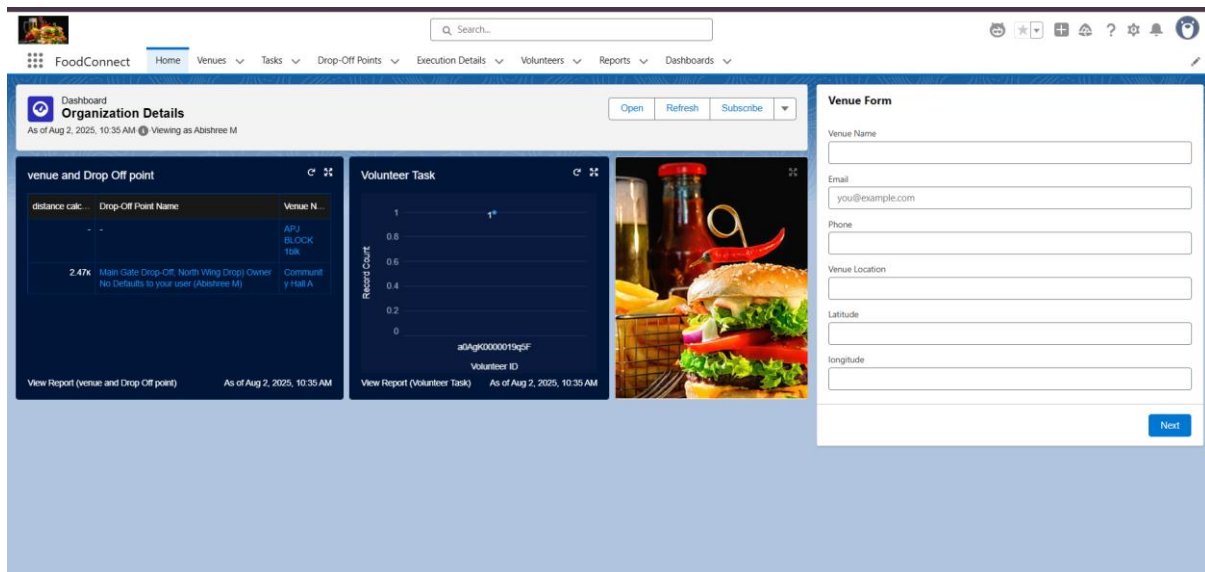
The platform facilitates efficient food donation, volunteer task assignment, and delivery tracking using Salesforce's ecosystem of tools. Users can access data and features tailored to their roles—donors can log surplus food, NGOs can request food, and volunteers can be assigned tasks. Automated flows and dashboards provide real-time transparency while reducing manual workload. The project demonstrates the application of CRM beyond business needs and shows how technology can be used to solve real-world social issues.

The solution allows real-time visibility into the donation lifecycle, enhances stakeholder collaboration, and sets the foundation for future integrations with mobile apps, AI, and chatbot technology. Ultimately, the project brings together technology and social responsibility to ensure that excess food reaches those who need it most.

Objectives

The primary objective of this project is to develop a digital solution that transforms the traditional food donation process into a streamlined, automated, and secure system. The specific goals include:

- Develop a unified platform for all stakeholders—donors, NGOs, volunteers, and administrators.

- Minimize food waste by ensuring timely pickup and distribution of surplus food.

- Use Salesforce automation tools to handle task creation, volunteer assignment, and delivery updates.

- Create role-based access controls to ensure data privacy and tailored experiences for each user type.

- Utilize real-time dashboards and reports for performance tracking and operational insights.

- Provide a user-friendly interface with accessibility for users with varying technical expertise.

- Design the architecture with scalability in mind, enabling future enhancements like AI integration and mobile compatibility.

By achieving these goals, the system contributes meaningfully to food security and promotes civic participation through structured volunteer engagement.

Phase 1: Requirement Analysis & Planning

The initial phase of the FoodConnect project focused on comprehensive requirement gathering and business process analysis to understand the landscape of food donation logistics. Stakeholder meetings were conducted with key user groups, including donors, NGOs, volunteers, and administrators, to uncover pain points and define expectations. These interactions were instrumental in clarifying

the project's objective: to build a centralized CRM platform capable of managing end-to-end food redistribution through automation and collaboration.

Stakeholders identified several critical needs. Donors sought a quick and hassle-free way to log food availability. NGOs requested real-time visibility into donations, while volunteers emphasized the importance of task assignments based on location and availability. Administrators required a monitoring system with robust control and oversight features. These insights shaped the core functionalities of the system.

Object Creation:

1.Venue Object
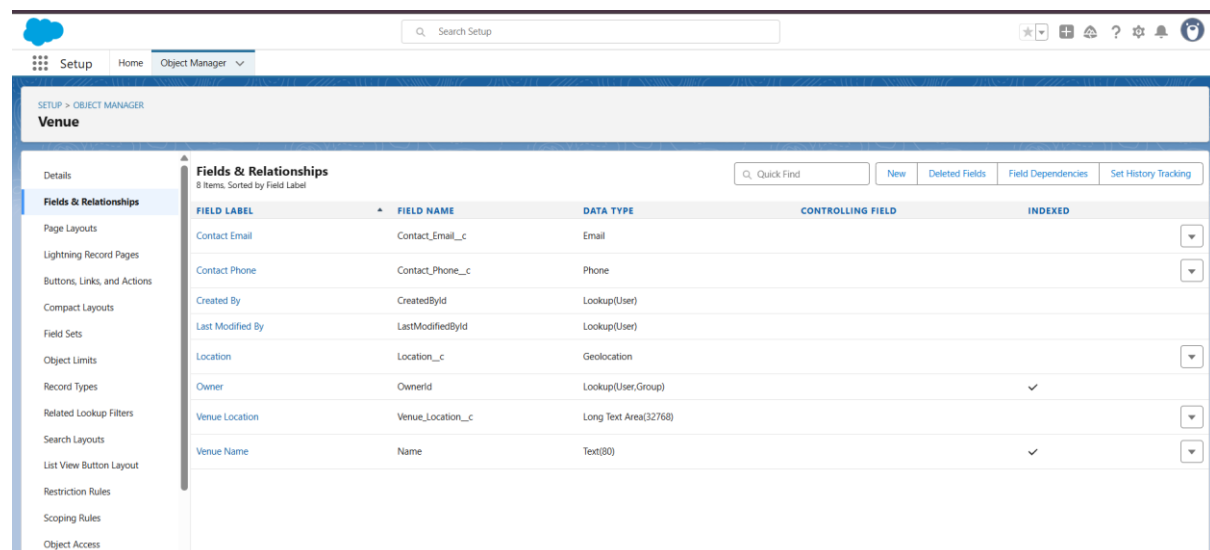
Go to Setup → Object Manager → Create → Custom Object.
Enter Label: Venue,

Record Name: Venue Name (Text), and

Enable options like Reports, Field History, Activities, and Search. Click Save to create the object.
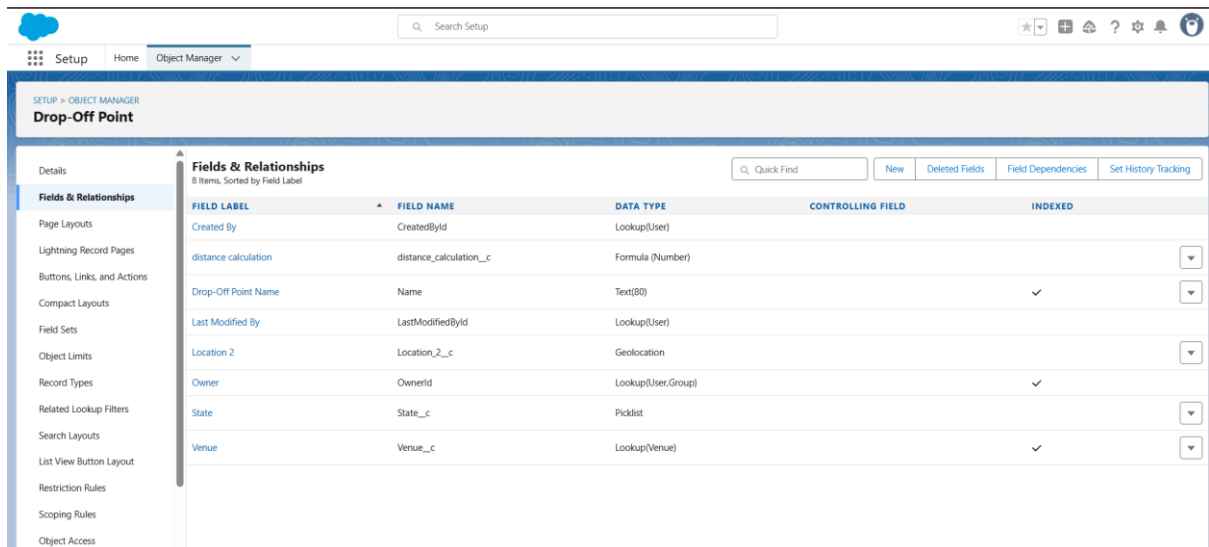

2.Drop off Point objects

Go to Setup → Object Manager → Create → Custom Object.
Enter Label: Drop-Off Point,

Record Name: Drop-Off Point Name (Text), and

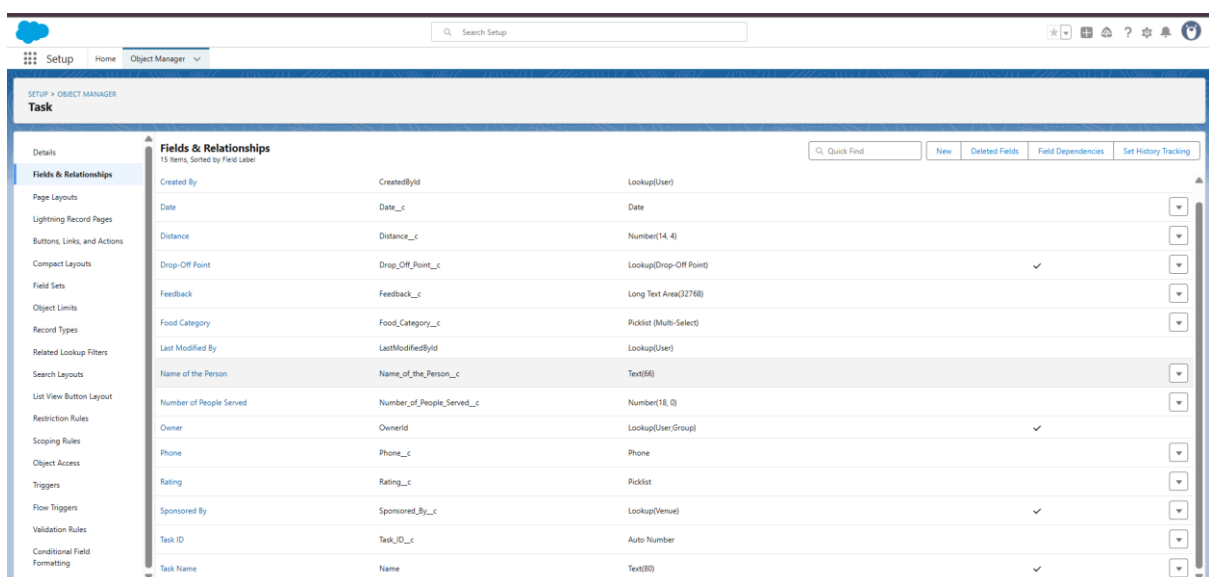**Enable options** like Reports, Field History, Activities, and Search.

3.Task object

Go to Setup → Object Manager → Create → Custom Object.
Enter Label: Task,

Record Name: Task Name (Text), and

Enable options like Reports, Field History, Activities, and Search.

4.Volunteer object

Go to Setup → Object Manager → Create → Custom Object.
Enter Label: Volunteer,

Record Name: Volunteer Name (Text), and

Enable options like Reports, Field History, Activities, and Search.
Click Save to create the object.

5.Execution Details Object

Go to Setup → Object Manager → Create → Custom Object.
Enter Label: Execution Detail,

Record Name: Execution Detail Name (Text), and

Enable options like Reports, Field History, Activities, and Search.
Click Save to create the object.

Following the analysis, the project scope was documented to include automation of task allocation, streamlined tracking of food movements, and user-specific access rights. A robust data model was architected with custom objects like Venue, Drop-Off Point, Task, Volunteer, and Execution Detail. Object relationships were implemented using Master-Detail and Lookup fields, while security was enforced through Role Hierarchy, Public Groups, and Sharing Rules. This foundational phase ensured the solution would be scalable, secure, and aligned with Salesforce best practices.

Phase 2: Salesforce Development - Backend & Configurations

During this phase, the development team focused on configuring the backend framework of the FoodConnect system in accordance with the requirements outlined in Phase 1. The process commenced with the initialization of a Salesforce Developer Org, establishing a secure and flexible environment for designing the application's core infrastructure.
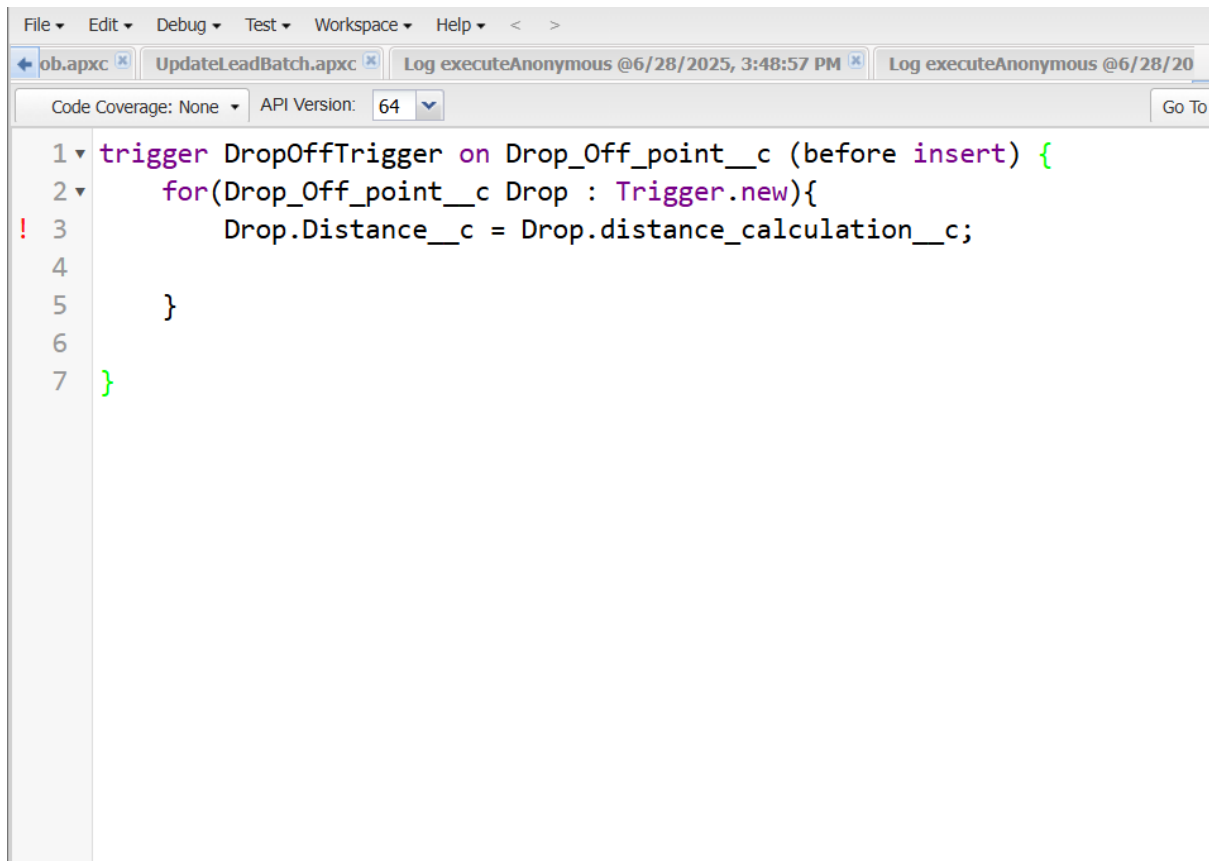
Custom objects such as Venue, Drop-Off Point, Volunteer, Task, and Execution Detail were created, each equipped with relevant fields and appropriate relationships. Lookup and Master-Detail relationships ensured structured data flow and integrity across the platform. To uphold data quality, validation rules

were configured to enforce logical constraints—e.g., future-based expiry dates, positive food quantities, and required field checks.
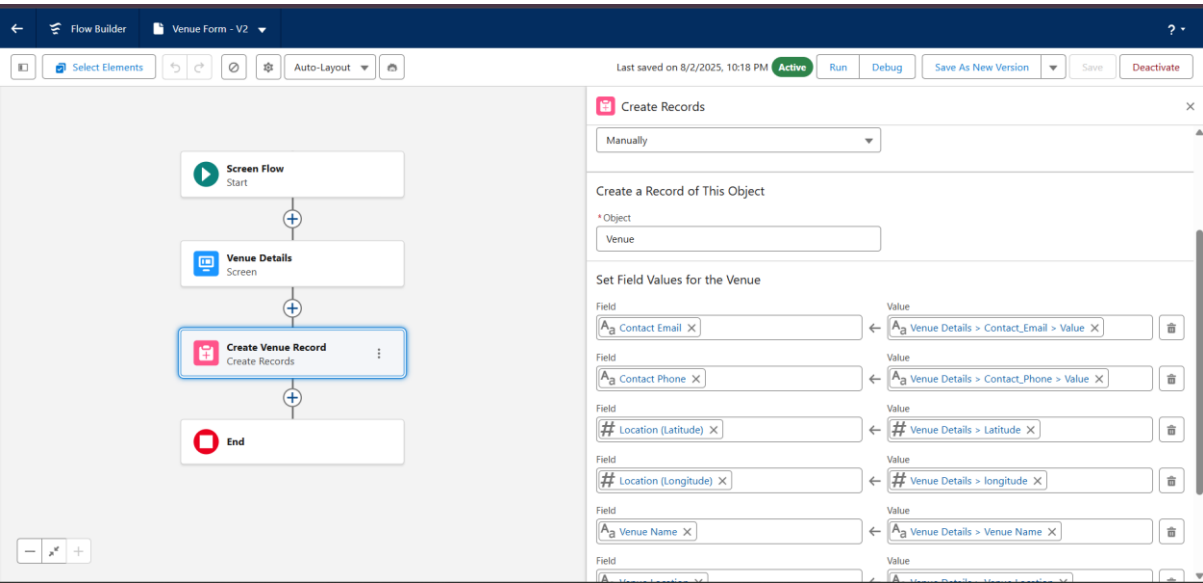
To automate operational workflows, Flows were implemented for generating tasks and assigning them to volunteers based on geographic data. Salesforce Process Builder and Approval Processes facilitated streamlined notifications and approvals. For advanced logic, Apex Triggers were employed to calculate distances between drop-off points and venues, supporting automated assignment conditions.
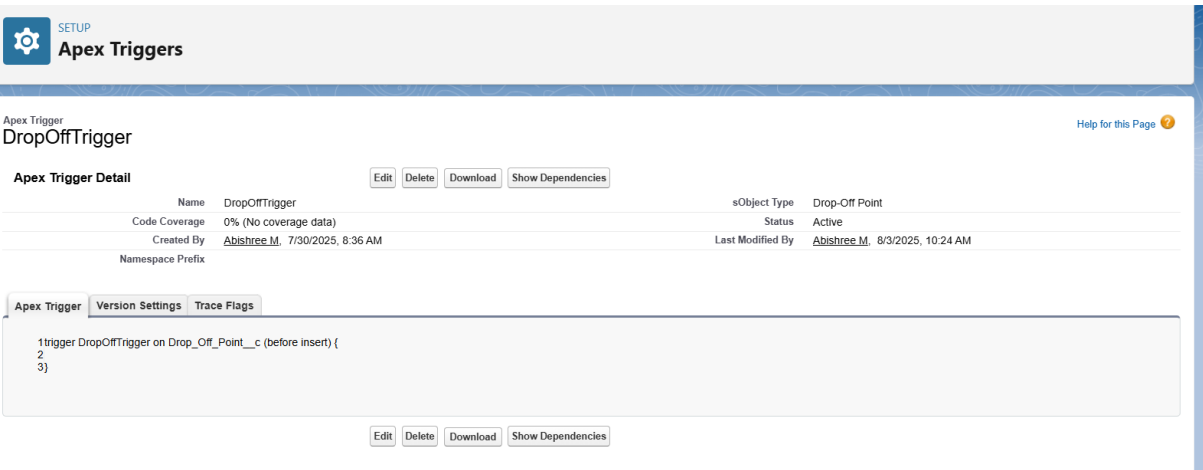
```
File ▼   Edit ▼   Debug ▼   Test ▼   Workspace ▼   Help ▼    <    >

← ob.apxc ⊠    UpdateLeadBatch.apxc ⊠    Log executeAnonymous @6/28/2025, 3:48:57 PM ⊠    Log executeAnonymous @6/28/20

  Code Coverage: None ▼   API Version:  64  ☑                                                              Go To

   1 ▾  trigger DropOffTrigger on Drop_Off_point__c (before insert) {
   2 ▾      for(Drop_Off_point__c Drop : Trigger.new){
 ! 3            Drop.Distance__c = Drop.distance_calculation__c;
   4
   5        }
   6
   7  }
```

Security and system integrity were emphasized by enabling field history tracking for key fields like task status and volunteer allocation. This phase concluded with a solid, reliable backend, prepared to support the frontend and user interaction components in subsequent stages.

Phase 3: UI/UX Development & Customization

The third phase of the project focused on crafting a user-centric interface to facilitate seamless interactions for all stakeholders, including donors, NGOs, volunteers, and administrators. Utilizing Salesforce Lightning capabilities, the team prioritized accessibility, clarity, and efficiency in the system's user interface.

A custom Lightning App named **FoodConnect** was developed via the App Manager. This application served as a unified hub, incorporating custom tabs for primary objects such as Venue, Drop-Off Point, Volunteer, Task, and Execution

Detail. These tabs enhanced user accessibility and ensured organized navigation across modules.
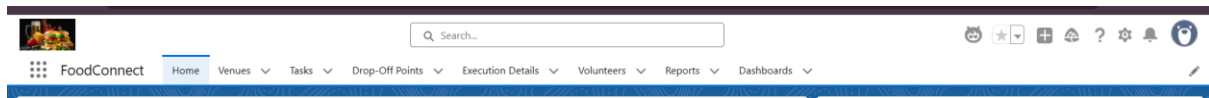
Page Layouts were meticulously tailored to align with user roles, displaying only the fields and functionalities pertinent to each stakeholder. Dynamic Forms were employed to enable field visibility based on input criteria, enhancing usability and minimizing visual noise. Lightning Record Pages were further customized using the Lightning App Builder, integrating components like related lists, visual charts, and embedded Flow screens.
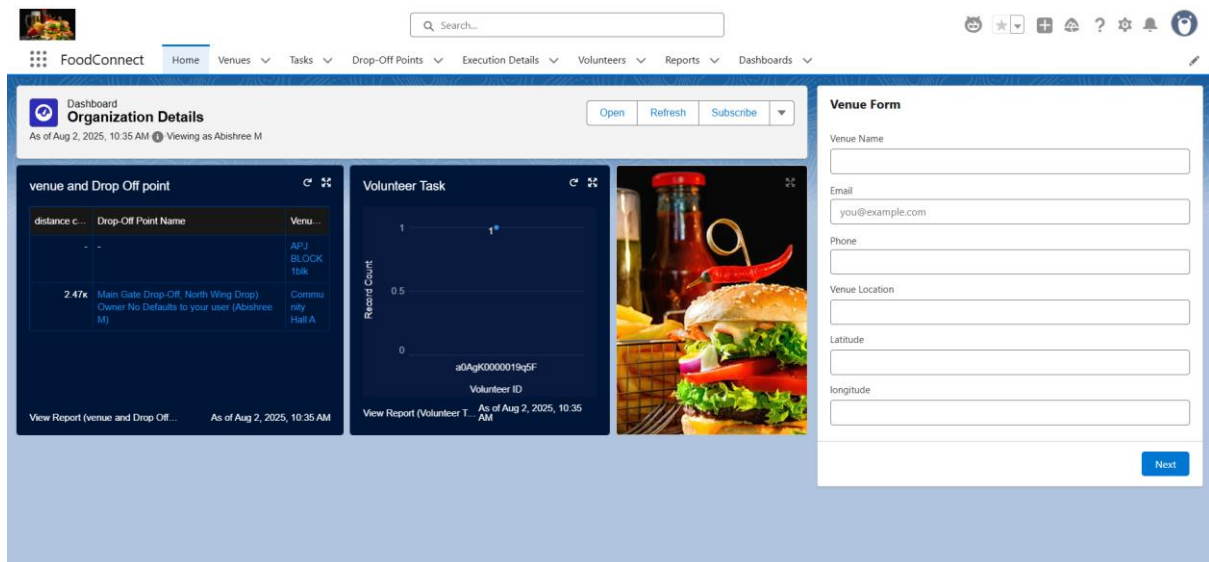
To deliver operational insights at a glance, key reports and dashboards were embedded directly within user interfaces. A Flow-based form simplified venue creation, while exploratory usage of Lightning Web Components (LWC) introduced modern, responsive UI enhancements. Overall, this phase ensured the system was intuitive, role-aware, and aesthetically aligned with user expectations.

Phase 4: Data Migration, Testing & Security

This phase was dedicated to populating the system with real-world data, verifying application functionality through rigorous testing, and implementing robust

security protocols to safeguard sensitive information. These tasks were critical to ensuring that the FoodConnect application could perform reliably in a production environment.

Data migration commenced with the preparation of standardized templates aligned with object field mappings. For smaller datasets such as NGOs and donors, the Salesforce Data Import Wizard was employed. Larger datasets, including donation records and task assignments, were handled using the Data Loader to optimize efficiency and accuracy.

Testing activities were both manual and automated. Detailed test cases validated business workflows like venue creation, volunteer-task matching, and delivery completion. Simultaneously, Apex test classes were developed to evaluate the correctness of triggers and automation logic, achieving a test coverage exceeding 75%. Functional testing of Flows, validation rules, and notification triggers ensured system robustness under varied input conditions.
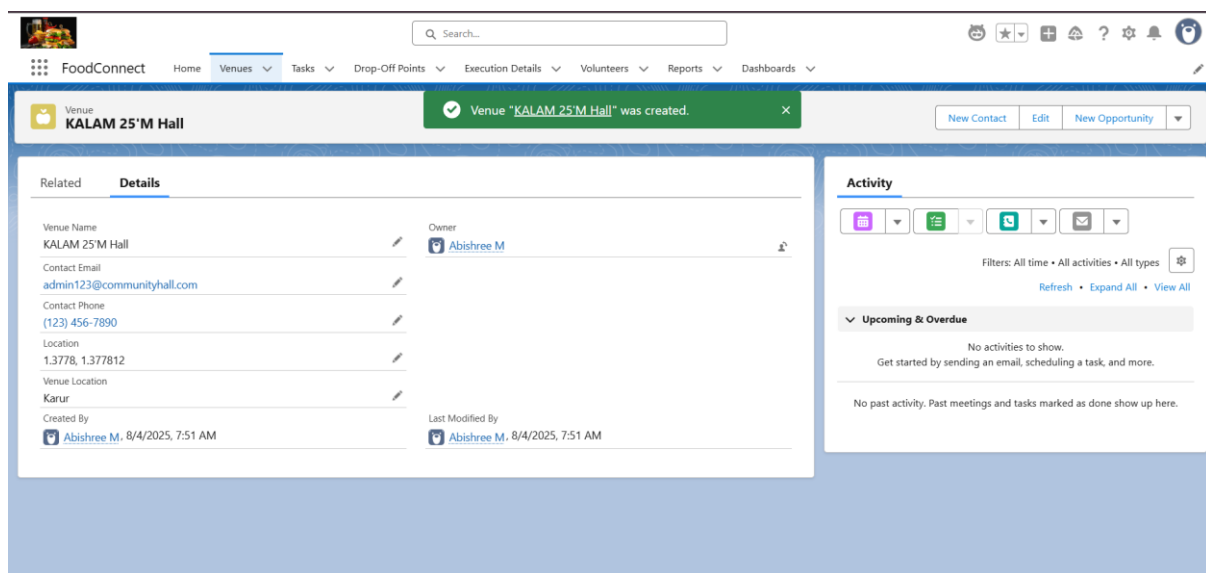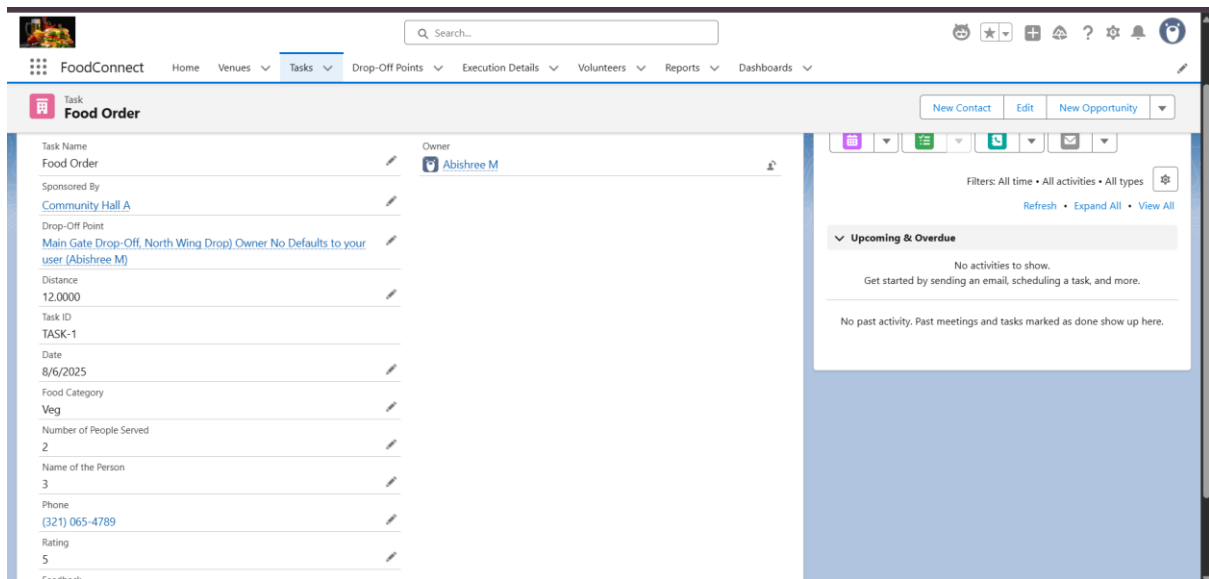
On the security front, the Role Hierarchy was established to provide tiered access across roles—Admins retained full access, while NGOs and Volunteers received restricted visibility. Profiles and Permission Sets were defined for fine-grained control. Sharing Rules were applied with location-based logic, and field history tracking, duplicate prevention, and matching rules were configured to maintain data integrity and traceability.
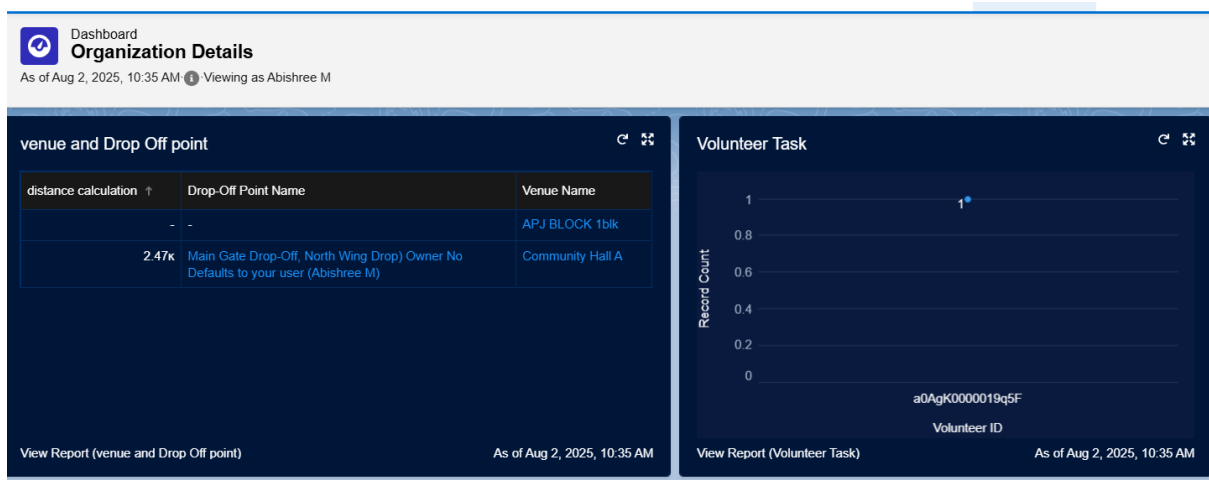
This phase concluded with a validated, secure, and operationally stable system, ready for deployment in real-world use cases.

Phase 5: Deployment, Documentation & Maintenance

The final phase of the FoodConnect project focused on transitioning the application into a production-ready state, documenting the system for end-user and administrative use, and establishing a sustainable maintenance plan. This ensured long-term usability and readiness for future enhancements.

Deployment was executed using Salesforce Change Sets, which allowed for the migration of metadata components—including custom objects, automation flows, dashboards, and validation rules—from the development sandbox to the production environment. Pre-deployment testing was conducted thoroughly, followed by the activation of Flows, profile verification, and permission updates to ensure full operational readiness.

Comprehensive documentation was developed to support future developers, testers, and administrators. This included technical descriptions of system components (e.g., object schema, relationships, automation), user roles, and expected behavior of workflows. Visual documentation—such as annotated screenshots of dashboards, layouts, and Flows—was integrated to facilitate easier onboarding and troubleshooting.

To ensure ongoing system performance, a maintenance plan was defined. Administrative responsibilities include periodic monitoring of dashboards, reviewing debug logs, and acting on error notifications. User feedback loops were also integrated to continuously improve the platform over time.

Conclusion

FoodConnect successfully demonstrates how the Salesforce platform can be utilized to build a socially impactful and technologically robust system for food redistribution. It centralizes operations, simplifies communication, and automates repetitive tasks. Through features such as automated task assignments, real-time

tracking, role-based access, and dynamic reporting, the platform enhances both operational efficiency and community outreach.

Not only does it minimize food wastage, but it also ensures timely support to underserved populations—thereby maximizing social good. Its modular architecture and automation backbone allow the system to scale as user needs evolve.

Future Enhancements

To further enrich the platform's usability and scalability, several future features have been proposed:

1. **Chatbot for Real-Time Donation Tracking**
   A chatbot integrated within the platform could allow users to receive real-time updates on donation status without navigating the app, enhancing user engagement and convenience.

2. **AI-Based Route Optimization for Volunteers**
   Leveraging artificial intelligence, the platform could dynamically suggest the most efficient routes based on live traffic and volunteer locations, improving delivery time and operational efficiency.

3. **Mobile Application Support (Salesforce Mobile SDK)**
   A dedicated mobile app would provide volunteers and NGOs with on-the-go access to tasks, notifications, and real-time delivery updates, significantly improving field responsiveness and communication.

These enhancements will push FoodConnect toward becoming an intelligent, user-first platform capable of addressing growing demands in community-based food redistribution.