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TO SUPPLY LEFTOVER FOOD TO POOR

SALESFORCE PROJECT DOCUMENT

SUBMITTED BY:

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IN

ELECTRONICS AND COMMUNICATION ENGINEERING

M.KUMARASAMY COLLEGE OF ENGINEERING

(Autonomous)

KARUR - 639 113

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To Supply Leftover Food to Poor

Project Overview:

FoodConnect is a practical Salesforce CRM project designed to address food waste and hunger. Built on the Salesforce platform, FoodConnect collects surplus food from donors such as restaurants, event venues, and households. It ensures that this food is effectively redistributed to NGOs and underserved communities. The platform handles a variety of users, including donors, NGOs, volunteers, and administrators, providing them with specific features in a secure and centralized system.

The solution uses custom objects, automation tools like Flows and Process Builders, and strong analytics through Reports and Dashboards to monitor every step of the food donation process—from registration to final delivery. FoodConnect allows for real-time tracking, user-specific data access, and smooth coordination among all users. Its automated workflows, distance-based volunteer assignments, and data integrity controls help minimize manual work and enhance food redistribution operations.

By blending Salesforce's flexibility with mission-focused goals, FoodConnect offers a new way to tackle food insecurity through digital change.

Key Features:

- ✓ Centralized platform to register venues, donations, and volunteers
- ✓ Automated task assignments and volunteer coordination
- ✓ Distance-based sharing rules for better delivery
- ✓ Reports and dashboards to track operations
- ✓ Role-based access control for different user types
- ✓ Structure that is ready for future AI or chatbot improvements

Business Need:

To cut down on food waste while fighting hunger, utilizing automation, efficient tracking, and scalable coordination among food donors, NGOs, and volunteers.

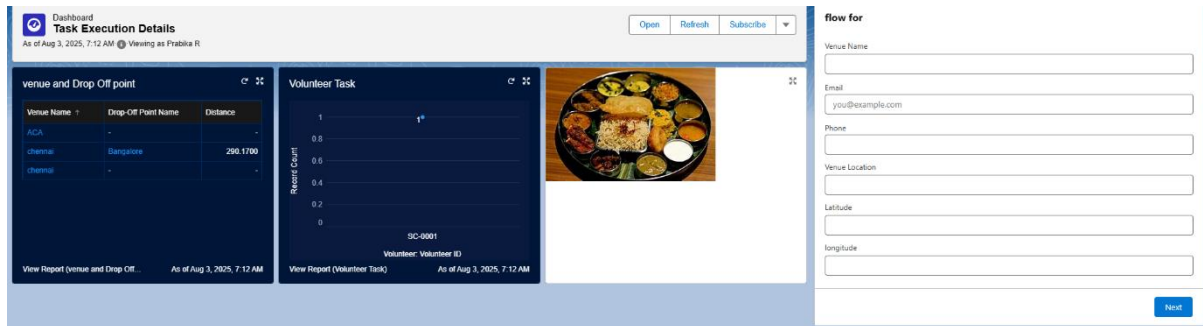


Fig 1 : Home Page

Objectives:

The main goal of the FoodConnect CRM is to make surplus food collection and distribution easier and digital. It connects donors, NGOs, volunteers, and administrators on a single Salesforce platform to track and deliver food donations efficiently. By minimizing manual work, the system improves coordination and speeds up operations.

A key aim of the project is to automate essential tasks like volunteer assignment, task creation, and delivery updates. With Salesforce tools such as Flows, Process Builder, and Approval Processes, FoodConnect assigns the right volunteer based on location and availability. This improves accuracy, saves time, and boosts performance.

The CRM uses role-based access control, allowing each user to manage only relevant data. Real-time dashboards and reports offer insights into donation status, delivery timelines, and volunteer activity. This helps users make better decisions, promotes transparency, and ensures accountability throughout the donation process.

Overall, FoodConnect wants to reduce food waste and support communities by organizing and improving food donation logistics.

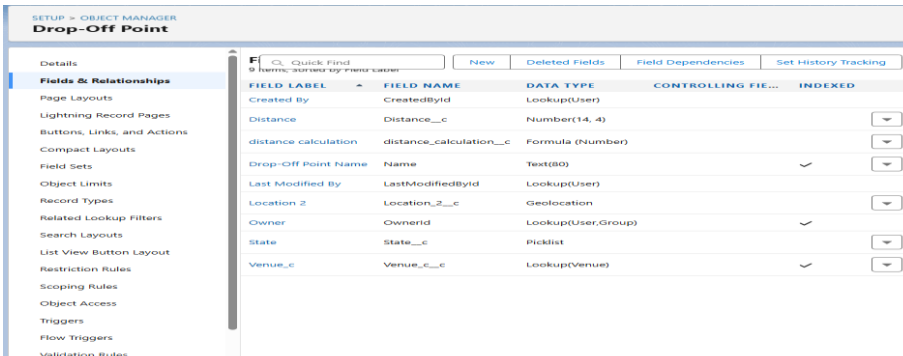
Phase 1: Requirement Analysis and Planning

The first phase of the FoodConnect project involved gathering and analyzing business requirements to understand the challenges in food donation and delivery. Meetings and discussions took place with potential users like donors, NGOs, volunteers, and administrators to identify their expectations and issues. This helped define the project's purpose: to create a centralized, automated CRM that connects all stakeholders and simplifies the process of distributing surplus food.

Key needs emerged during this phase. Donors wanted a quick way to register food availability. NGOs needed timely information about donations. Volunteers required location-based task assignments. Admins needed a system to monitor and manage all activities effectively. These needs shaped the system's scope and main features.

After clarifying the requirements, the project scope was defined. This included automating task creation and volunteer assignments, tracking food movements, providing role-based access, and offering real-time reporting. The system also needed to be transparent, scalable, and adhere to Salesforce best practices for security and automation.

The data model and security model were carefully planned. Custom objects such as Venue, Drop-Off Point, Task, Volunteer, and Execution Detail were created. Relationships between these objects used Master-Detail and Lookup fields. Role Hierarchy, Public Groups, and Sharing Rules were implemented to ensure that each user accessed only the data relevant to their role. This planning ensured that the solution would meet both functional and security expectations before development started.



FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIE...	INDEXED
Created By	CreatedById	Lookup(User)		
Distance	Distance__c	Number(14, 4)		
distance calculation	distance_calculation__c	Formula (Number)		
Drop-Off Point Name	Name	Text(80)		
Last Modified By	LastModifiedById	Lookup(User)		
Location 2	Location_2__c	Geolocation		
Owner	OwnerId	Lookup(User,Group)		
State	State__c	Picklist		
Venue__c	Venue__c	Lookup(Venue)		

Fig 2 : Drop off Point Custom objects

SETUP > OBJECT MANAGER
Venue

Details

Fields & Relationships

Page Layouts
Lightning Record Pages
Buttons, Links, and Actions
Compact Layouts
Field Sets
Object Limits
Record Types
Related Lookup Filters
Search Layouts
List View Button Layout
Restriction Rules
Scoping Rules
Object Access
Triggers
Flow Triggers
Validation Rules

Quick Find: 0 items, sorted by Field Label

New Deleted Fields Field Dependencies Set History Tracking

FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED
Contact Email	Contact_Email__c	Email		
Contact Phone	Contact_Phone__c	Phone		
Created By	CreatedById	Lookup(User)		
Last Modified By	LastModifiedById	Lookup(User)		
Location	Location__c	Geolocation		
Owner	OwnerId	Lookup(User,Group)		
Venue Location	Venue_Location__c	Long Text Area(32768)		
Venue Name	Name	Text(80)		

Fig 3 : Venue Custom objects

SETUP > OBJECT MANAGER
Volunteer

Details

Fields & Relationships

Page Layouts
Lightning Record Pages
Buttons, Links, and Actions
Compact Layouts
Field Sets
Object Limits
Record Types
Related Lookup Filters
Search Layouts
List View Button Layout
Restriction Rules
Scoping Rules
Object Access
Triggers
Flow Triggers
Validation Rules

Quick Find: 13 items, sorted by Field Label

New Deleted Fields Field Dependencies Set History Tracking

FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED
Address	Address__c	Long Text Area(32768)		
Age	Age__c	Number(18, 0)		
Available On	Available_On__c	Date		
Contact Number	Contact_Number__c	Number(18, 0)		
Created By	CreatedById	Lookup(User)		
Date of Birth	Date_of_Birth__c	Date		
Drop-Off Point	Drop_Off_Point__c	Master-Detail(Drop-Off Point)		
Email	Email__c	Email		
Execution ID	Execution_ID__c	Auto Number		
Gender	Gender__c	Picklist		
Last Modified By	LastModifiedById	Lookup(User)		
Volunteer ID	Volunteer_ID__c	Auto Number		

Fig 4: Volunteer Custom objects

SETUP > OBJECT MANAGER
Task

Details

Fields & Relationships

Page Layouts
Lightning Record Pages
Buttons, Links, and Actions
Compact Layouts
Field Sets
Object Limits
Record Types
Related Lookup Filters
Search Layouts
List View Button Layout
Restriction Rules
Scoping Rules
Object Access
Triggers
Flow Triggers
Validation Rules

Quick Find: 14 items, sorted by Field Label

New Deleted Fields Field Dependencies Set History Tracking

FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED
Created By	CreatedById	Lookup(User)		
Date	Date__c	Date		
Drop-Off Point	Drop_Off_Point__c	Lookup(Drop-Off Point)		
Feedback	Feedback__c	Long Text Area(32768)		
Food Category	Food_Category__c	Picklist (Multi-Select)		
Last Modified By	LastModifiedById	Lookup(User)		
Name of the Person	Name_of_the_Person__c	Text(40)		
Number of People Served	Number_of_People_Served__c	Number(18, 0)		
Owner	OwnerId	Lookup(User,Group)		
Phone	Phone__c	Phone		
Rating	Rating__c	Picklist		
Sponsored By	Sponsored_By__c	Lookup(Venue)		

Fig 5 : Task Custom objects

SETUP > OBJECT MANAGER
Execution Detail

Details

Fields & Relationships

Page Layouts
Lightning Record Pages
Buttons, Links, and Actions
Compact Layouts
Field Sets
Object Limits
Record Types
Related Lookup Filters
Search Layouts
List View Button Layout
Restriction Rules
Scoping Rules
Object Access
Triggers
Flow Triggers
Validation Rules

Quick Find: 5 items, sorted by Field Label

New Deleted Fields Field Dependencies Set History Tracking

FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED
Created By	CreatedById	Lookup(User)		
Execution Detail Name	Name	Text(80)		
Last Modified By	LastModifiedById	Lookup(User)		
Task	Task__c	Master-Detail(Task)		
Volunteer	Volunteer__c	Master-Detail(Volunteer)		

Fig 6 : Execution Detail Custom objects

Phase 2: Salesforce Development - Backend & Configurations

In this phase, the team focused on building the main features of the FoodConnect application using Salesforce's backend tools and configuration options. Following the plan from Phase 1, development started by setting up a Salesforce Developer Org. The team prepared the environment to create custom objects, automation logic, and validations to support effective food donation and delivery operations.

The team configured custom objects like Venue, Drop-Off Point, Volunteer, Task, and Execution Detail with the right fields and relationships. They created validation rules to ensure data accuracy, such as checking that donation expiry dates are in the future, that food quantity is a positive number, and that required fields are not left empty. These rules help keep data accurate throughout the process.

Automation was important in this phase. Flows were used to automatically create task records and assign volunteers based on where the food donation was located. The team also used Process Builder and Approval Processes to simplify approvals and notifications. When more flexibility was necessary, they wrote Apex triggers to manage backend logic. This included calculating and storing distances between venues and drop-off points for sharing rule conditions.

The team paid attention to security and performance as well. They enabled field history tracking on critical fields like task status and volunteer assignment. Lookup and master-detail relationships were set up to ensure data consistency. This backend development phase made sure the core system was functional, automated, and ready to support the user interface in the next phase.

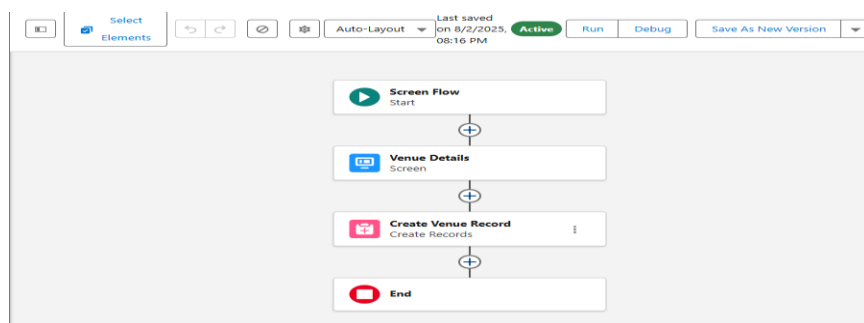


Fig 7 : Screen Flow

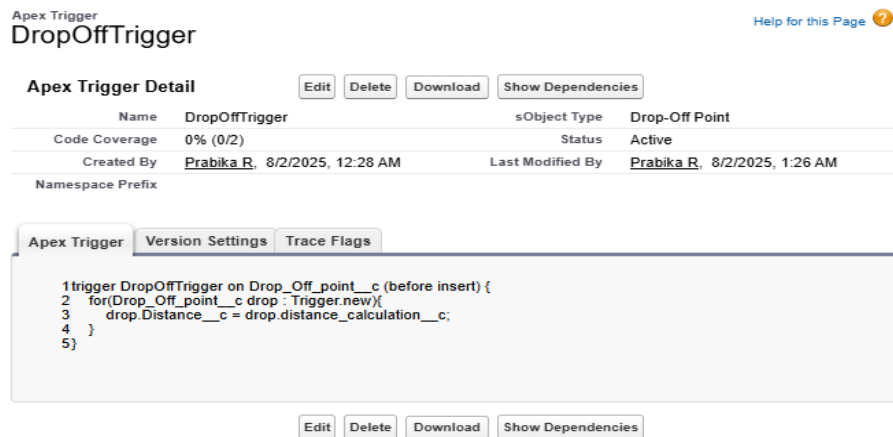


Fig 8 : Apex Trigger

Phase 3: UI/UX Development & Customization

In this phase, we focused on designing a user-friendly and efficient interface for all types of users, including donors, NGOs, volunteers, and administrators. We used Salesforce Lightning tools to create customized layouts and intuitive navigation. This way, users could easily interact with the system and perform their tasks without confusion.

We created a Lightning App called FoodConnect using the App Manager. This app provided a central place to access all relevant tabs and records. We added custom tabs for objects like Venue, Drop-Off Point, Volunteer, Task, and Execution Detail. These tabs allowed users to view and manage records in a structured and organized way.

We customized Page Layouts based on user roles. This ensured that users only saw fields and sections relevant to their tasks. We used Dynamic Forms to control the visibility of certain fields based on record data. This improved clarity and minimized clutter. We configured Lightning Record Pages using Lightning App Builder to arrange components like related lists, report charts, and flow screens.

To improve the user experience further, we embedded reports and dashboards to provide real-time visual insights into donation activity, volunteer performance, and food distribution coverage. We used a Flow-based form to simplify venue creation and explored optional Lightning Web Components (LWC) to add modern, responsive UI elements. This phase made sure the system was not only functional but also easy to use and visually clear.

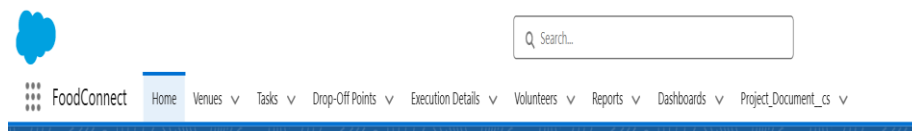


Fig 9 : App Builder



Fig 10 : App Page

Phase 4: Data Migration, Testing & Security

In this phase, the focus was on loading initial data into the system, testing the application's features thoroughly, and implementing strong security measures to ensure reliable and controlled access for all user roles. Proper planning and execution of these tasks were essential to make sure that the FoodConnect system would function smoothly in real-world situations without compromising data integrity or user experience.

Data migration involved importing records such as donors, NGOs, volunteers, and food donation entries into the custom objects. For simple uploads, the Data Import Wizard was used to bring in small sets of NGO and donor data. For larger operations, like uploading many donation records or tasks, the Data Loader tool was used to ensure speed and accuracy. Data templates were prepared to match object field structures, which helped minimize errors during import.

Testing was carried out manually and programmatically. Manual test cases were written and executed to validate core processes such as venue creation, task assignment, volunteer lookup, and delivery completion. At the same time, Apex test classes were written to test custom logic in triggers and classes, achieving more than 75% code coverage. Flows and automation logic were tested with various inputs to confirm that volunteer assignment, record updates, and notifications worked as expected.

Security configurations were also applied during this phase to protect sensitive data and limit access based on roles. Salesforce's Role Hierarchy was set up so that Admins had full access, while NGOs and Volunteers had restricted views. Profiles and Permission Sets were customized for each user group. Sharing Rules were created using distance criteria to make sure that records were only visible to users operating within relevant geographic areas. Additional measures included enabling field history tracking, duplicate rules, and matching rules to improve data accuracy and auditability. This phase ensured that the system was stable, secure, and ready for deployment. All features were tested thoroughly, data was structured and imported correctly, and the right access was granted to the right users.

The screenshot shows a Salesforce record page for a 'Venue' named 'chennai'. The page has a 'Details' tab selected. The record information is as follows:

Field	Value	Owner
Venue Name	chennai	Prabika R
Contact Email	rameshprabika3@gmail.com	
Contact Phone	1223	
Location		
Venue Location	13.0827, 80.2707	
Created By	Prabika R - 8/3/2025, 7:12 AM	
Last Modified By	Prabika R - 8/3/2025, 7:12 AM	

Fig 11 : Testing

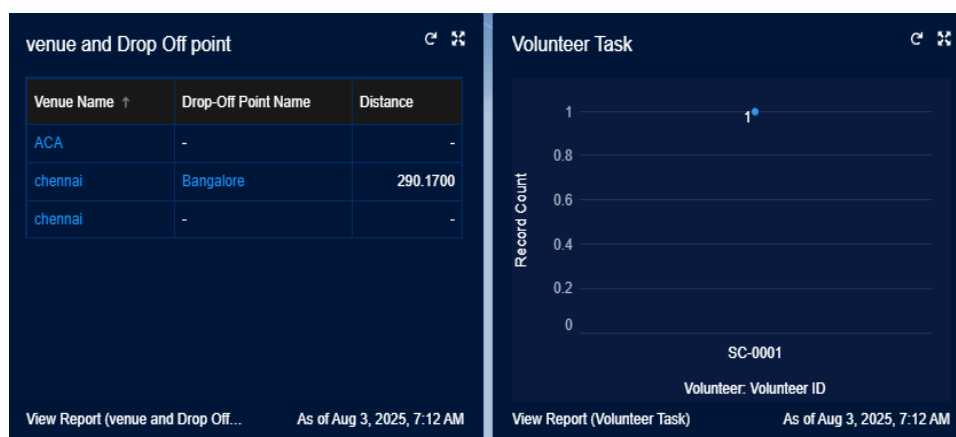


Fig 12 : Data

Phase 5: Deployment, Documentation & Maintenance

The last phase of the FoodConnect project focused on launching the application in the production environment, preparing documentation for future use, and setting up ongoing maintenance plans. This phase ensured that the system was ready for real-world use and could be supported and improved over time.

For deployment, the Salesforce Change Set feature was used to move metadata components like custom objects, fields, flows, validation rules, and dashboards from the development environment to production. All changes were reviewed and tested before deployment to avoid errors. After deployment, additional steps such as activating flows, updating permissions, and verifying profiles were completed to ensure everything worked well in the live environment.

Detailed documentation was prepared to help users and administrators understand the system's structure and logic. This included descriptions of custom objects, relationships, automation processes, test cases, and user roles. Screenshots were added to show UI layouts, reports, dashboards, and flow structures. This documentation serves as a guide for future developers, testers, and admins.

To keep the system running smoothly over time, a basic maintenance plan was defined. Admins will regularly monitor dashboards, track flow and trigger executions, and check for any failed automation. Debug logs and error email notifications will help identify and fix issues quickly. Feedback from users will also be collected to support future improvements.

Conclusion

The **FoodConnect** project successfully leveraged the Salesforce platform to develop a smart, automated, and user-friendly solution for managing surplus food distribution. By connecting donors, NGOs, and volunteers in one centralized system, the project made food donation more organized, efficient, and trackable.

Key features such as automated volunteer assignment, real-time status updates, and role-based access helped reduce manual work and improved coordination across all stakeholders. The use of reports and dashboards provided valuable insights for monitoring operations and making informed decisions.

This CRM system not only reduced food wastage but also ensured that excess food reached the right people at the right time. It supports transparency, accountability, and social impact through better resource utilization.

Overall, FoodConnect proved how digital tools like Salesforce can solve real-world problems and contribute to community welfare by streamlining essential processes like food donation and delivery.

Future Enhancements

While the current version of FoodConnect meets the basic needs of food donation management, several future improvements can make it more user-friendly, scalable, and efficient.

1. Chatbot for Donation Tracking:

A chatbot can be added to the platform to let users, especially donors and NGOs, track their donations in real-time through an easy chat interface. This would make the experience better by cutting down the need to navigate through several pages.

2. AI-Based Volunteer Route Optimization:

By using artificial intelligence, the system can suggest the best routes for volunteers based on their location, traffic data, and delivery priorities. This would save time, lower fuel costs, and increase on-time deliveries.

3. Mobile App Support using Salesforce Mobile SDK:

To improve access, a mobile version of the FoodConnect app can be created using the Salesforce Mobile App SDK. This would allow users, particularly volunteers, to view task details, update delivery status, and receive notifications directly on their smartphones.

These improvements aim to expand the reach and functions of the system, making FoodConnect smarter, more engaging, and more convenient for all users.