

PHASE IV: PROJECT DESIGN

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|---------------|---------------------------------|
| Date | 05 November 2025 |
| Team ID | NM2025TMID08380 |
| Project Name | To supply Leftover Food to Poor |
| Maximum Marks | 4 Marks |

Title: Project Design Phase for “*FoodConnect – To Supply Leftover Food To Poor*”

1. Objective

The objective of the **Design Phase** is to create the **visual, technical, and logical architecture** of the *FoodConnect* application.

This phase translates the requirements defined earlier into a detailed design, ensuring that the system's structure, interface, and automation flow align with project objectives — minimizing food waste and optimizing delivery logistics.

This design focuses on:

- Interface Design (UI/UX)
 - Automation Design (Flows and Triggers)
 - Security Model Integration
 - Dashboard & Report Visualization
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2. Design Overview

The design stage uses Salesforce’s declarative and programmatic features to model a robust, user-friendly system.

The FoodConnect app design is structured around:

- **Five Core Custom Objects** (Venue, Drop-Off Point, Volunteer, Task, Execution Details)
 - **Automated Flows** for data entry and record creation
 - **Apex Triggers** for pre-save validations and formula execution
 - **Dashboards** for live data visualization
 - **Profiles & Sharing Rules** for access management
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3. User Interface (UI) Design

3.1 Lightning App Design

A custom Lightning App named “**FoodConnect**” was created to give NGOs and volunteers a seamless experience.

Steps:

1. Navigate to Setup → App Manager → New Lightning App.
2. Add App Name, Description, and choose the app logo.
3. Configure navigation with the following tabs:
 - Home
 - Venues
 - Drop-Off Points
 - Tasks
 - Execution Details
 - Volunteers
 - Reports & Dashboards

Design Principle Used:

- **Minimalist UI:** Clean interface, large form spacing for clarity.
- **Role-based Navigation:** Admins access all tabs, volunteers see task-related ones only.

The screenshot shows the FoodConnect application's home page. At the top, there is a navigation bar with links for 'Inbox', 'Study', 'praxm', 'Smart', 'name...', 'Google', 'H...', 'Devel...', 'Prever...', 'Brains...', 'Untit...', 'Emp...', 'Proj...', 'praxm', 'Down...', and a '+' button. Below the navigation bar, the URL is 'orgfarm-a362af193e-dev-ed.develop.lightning.force.com/lightning/page/home'. The main content area has a blue header 'FoodConnect' with a cloud icon. Below it, there are several cards:

- Task Execution Details:** Shows a table of venue and drop-off points with distances, a line chart of volunteer tasks, and a motivational banner about body, mind, soul, and spirit.
- Venue Form:** A form for entering venue details like name, email, phone, location, latitude, and longitude.

3.2 Home Page Design

The Home Page serves as the operational dashboard and record entry point.

Components Added:

- Screen Flow:** "Venue Form Flow" for fast record creation.
- Embedded Dashboard:** Shows total deliveries, distances, and volunteer activity.
- Informational Card:** Displays a motivational banner image on food donation impact.

4. Automation Design

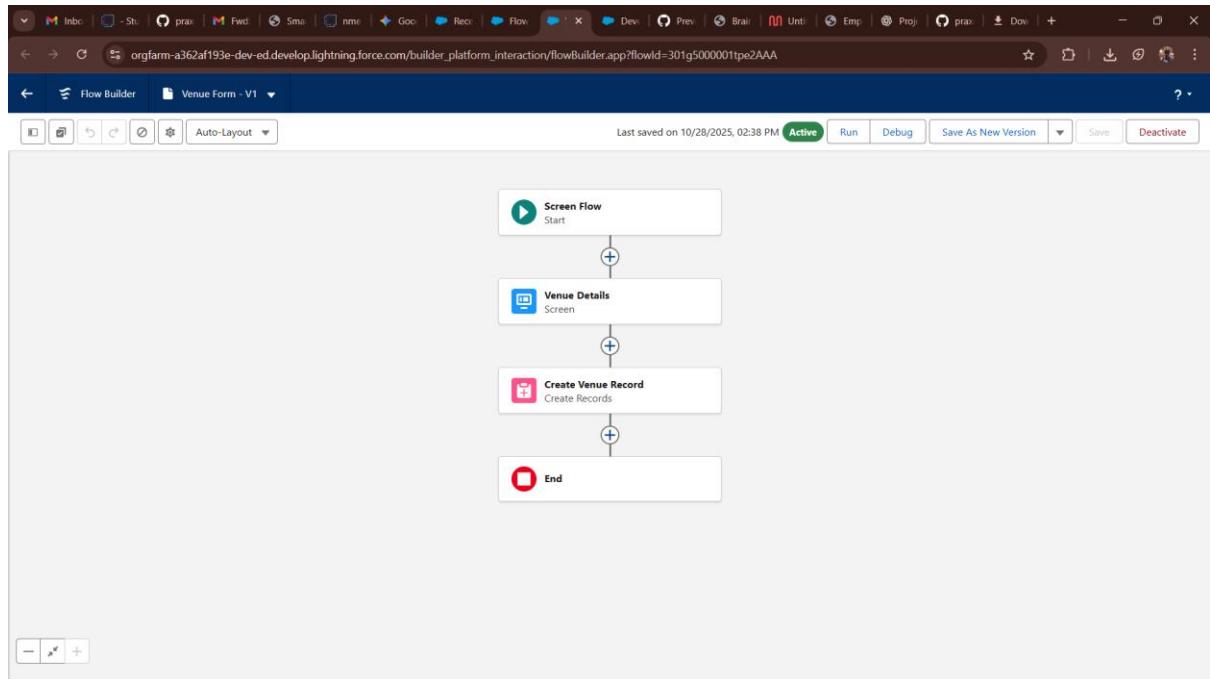
Automation ensures a **hands-free workflow** by minimizing manual interventions and maintaining data accuracy.

4.1 Screen Flow: Venue Form Flow

The “Venue Form Flow” simplifies data entry for NGO admins.

Flow Steps:

1. Add Screen Elements → Venue Name, Email, Phone, Latitude, Longitude.
2. Use **Create Record Element** → Store data in the Venue Object.
3. Add confirmation screen → “Venue Record Created Successfully.”



4.2 Apex Trigger Design

A custom **Apex Trigger** was designed on the *Drop-Off Point* object to auto-calculate the **Distance Field** using the formula:

```
DISTANCE(Drop_Off_Point_Location__c, Venue__r.Geolocation__c, 'km')
```

Trigger Steps:

1. Event: *Before Insert*
2. Function: Fetch associated Venue record.
3. Calculate distance dynamically.
4. Store result in “Distance__c” field.

Rationale:

This ensures every new Drop-Off Point record includes an accurate distance value before saving, enabling precise task assignment.

5. Security Design

The **Security Model** in Salesforce ensures data privacy and controlled access among users.

5.1 Profile-Based Access

- **Volunteer Profile:** Read and Create permissions on Volunteer and Task objects.
- **NGO Admin Profile:** Full CRUD access to all objects.
- **System Admin:** Access to all configurations.

5.2 Criteria-Based Sharing Rules

Two automated rules were defined:

- If $Distance < 15 \text{ km}$ → Share with **Isha Volunteers Group**.
- If $Distance > 30 \text{ km}$ → Share with **NGO Coordinators Group**.

Benefit:

This allows automatic filtering of records by geographic location, keeping data relevant and clutter-free.

6. Reporting and Dashboard Design

6.1 Reports

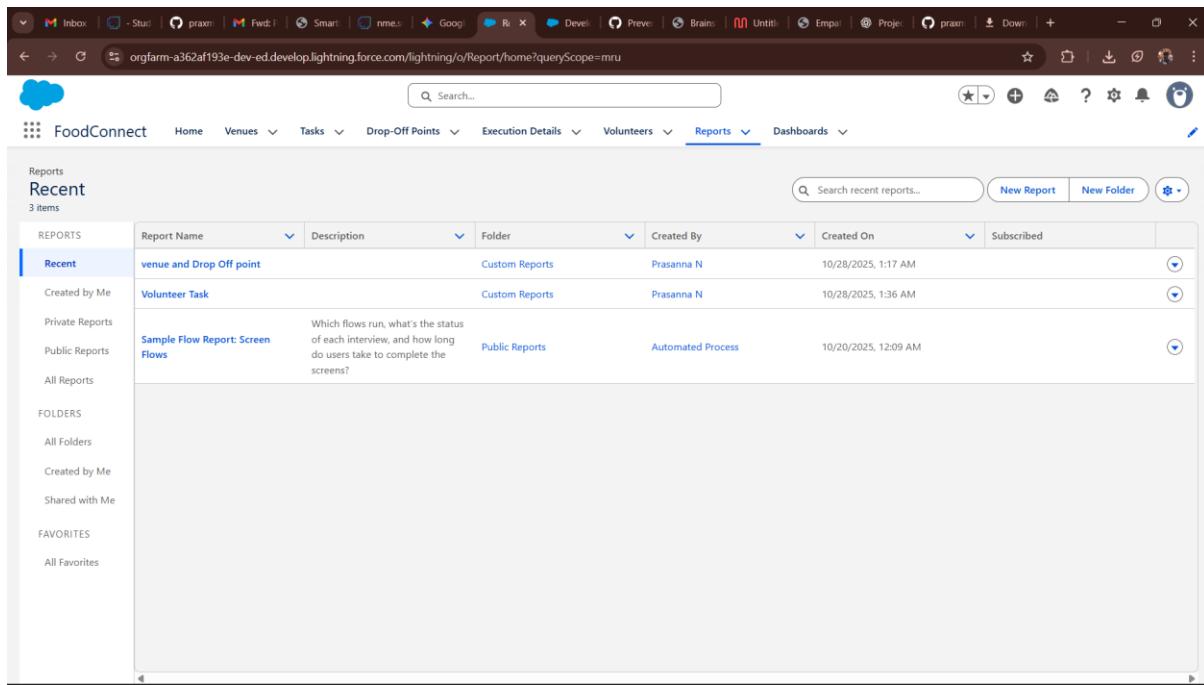
Custom report types were created to link:

- **Venue → Drop-Off Point → Task**
- **Volunteer → Task → Execution Details**

6.2 Dashboard Components

The dashboard visualizes real-time project impact using:

- **Bar Chart:** Total deliveries by volunteers.
- **Pie Chart:** Food category distribution (Veg / Non-Veg).
- **Line Chart:** Monthly volunteer participation trends.
- **Table View:** Task completion details.



The screenshot shows a web browser window with a tab bar at the top containing various icons and links. Below the tab bar is a header with the 'FoodConnect' logo and navigation links for Home, Venues, Tasks, Drop-Off Points, Execution Details, Volunteers, Reports (which is currently selected), and Dashboards. On the left side, there is a sidebar with sections for Reports (Recent, Recent, Created by Me, Private Reports, Public Reports, All Reports), Folders (All Folders, Created by Me, Shared with Me), and Favorites (All Favorites). The main content area displays a table titled 'REPORTS' with columns for Report Name, Description, Folder, Created By, Created On, and Subscribed. The table contains three rows of data:

| Report Name | Description | Folder | Created By | Created On | Subscribed |
|----------------------------------|---|----------------|-------------------|----------------------|------------|
| venue and Drop Off point | | Custom Reports | Prasanna N | 10/28/2025, 1:17 AM | (checkbox) |
| Volunteer Task | | Custom Reports | Prasanna N | 10/28/2025, 1:36 AM | (checkbox) |
| Sample Flow Report: Screen Flows | Which flows run, what's the status of each interview, and how long do users take to complete the screens? | Public Reports | Automated Process | 10/20/2025, 12:09 AM | (checkbox) |

7. System Architecture Design

The system architecture integrates UI, automation, database, and reporting modules into one functional ecosystem.

| Layer | Component | Function |
|---------------------------|------------------------|-----------------------------------|
| Presentation Layer | Lightning App UI | User interaction interface |
| Logic Layer | Apex Triggers, Flows | Automates business logic |
| Data Layer | Custom Objects, Fields | Manages records and relationships |
| Analytics Layer | Dashboards, Reports | Provides insights and metrics |

8. Design Constraints

| Constraint | Impact | Solution |
|--|-----------------------------------|--------------------------------------|
| Formula field performance under large datasets | Slower computation | Use indexed fields for faster lookup |
| User error in Flow inputs | Invalid data records | Add validation rules |
| Dashboard refresh limits | Slight delay in real-time updates | Schedule refresh every 15 mins |

9. Future Design Considerations

1. Integration with **Google Maps API** for advanced geolocation tracking.
2. Development of **Mobile App Interface** using Salesforce Mobile SDK.
3. AI-based **Food Demand Prediction System** for NGOs.

These enhancements will further expand FoodConnect's scalability and intelligence.

10. Summary

The **Project Design Phase** transformed theoretical requirements into a **visual and technical framework**.

Through the use of Salesforce Lightning, Flow Builder, Apex, and Dashboards, *FoodConnect* achieves an ideal balance between **automation, user experience, and performance**.

Key Achievements:

- Modern, intuitive Lightning App interface
- Fully automated data flow through Flows and Triggers
- Secure and role-based data accessibility
- Real-time reporting with visual dashboards