TO SUPPLY LEFTOVER FOOD TO POOR

COLLEGE : KG COLLEGE OF ARTS AND SCIENCE

TEAM ID : NM2025TMID23585

TEAM SIZE : 4

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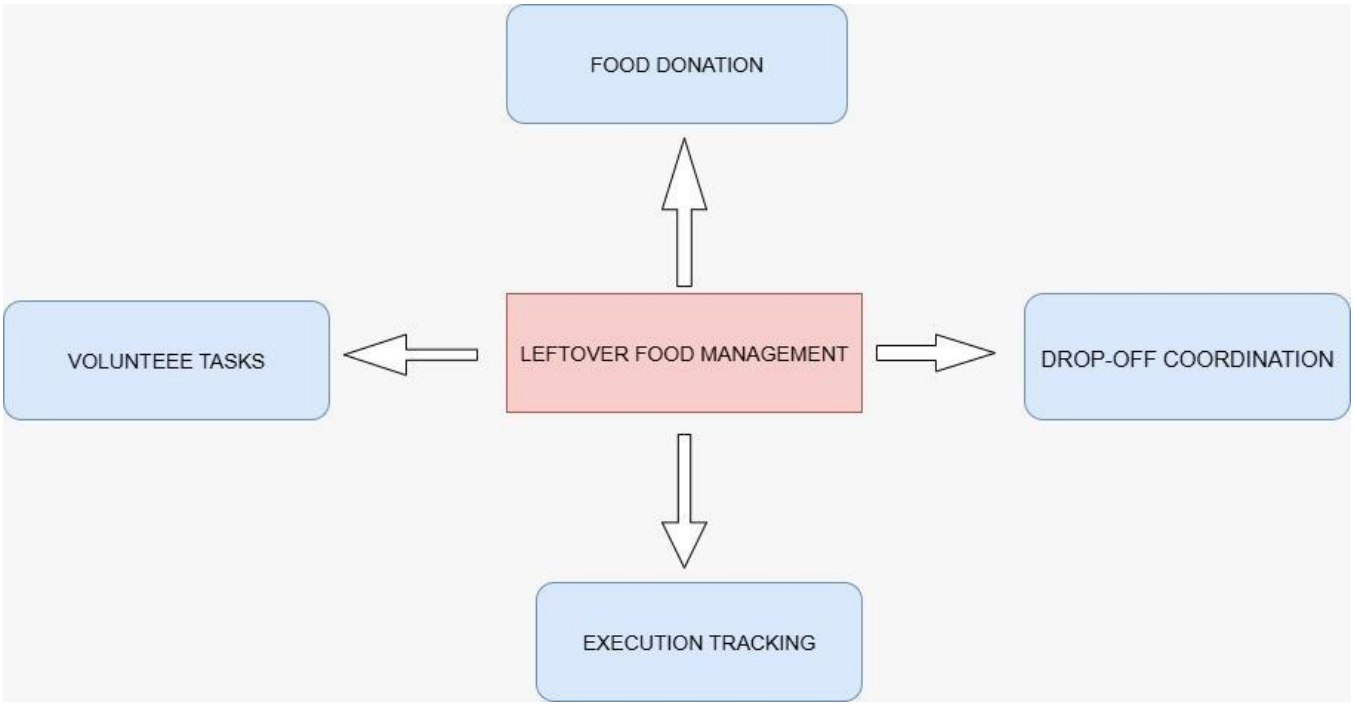
1.INTRODUCTION

1.1 PROJECT OVERVIEW

The Leftover Food Supply Management System is a Salesforce-based application that facilitates the efficient collection and distribution of surplus food to underserved communities. It connects donors with drop-off points and volunteers to ensure timely and hygienic delivery. The system streamlines operations like donor registration, volunteer task assignment, and delivery tracking. Salesforce automation tools such as Flows, Approval Processes, and Email Alerts enhance efficiency and accountability.



1.2 PURPOSE

The main objective of the project is to enable organizations to efficiently manage the collection and distribution of surplus food. It reduces manual effort, improves tracking accuracy, and ensures timely coordination between donors, volunteers, and drop-off points.

- **To centralize the management of food donation activities**, ensuring transparency and accountability at every stage of the process.
- **To provide a reliable platform for volunteers** to register, receive assignments, and report completed tasks efficiently.
- **To facilitate real-time monitoring and reporting** of food pickup and delivery operations to ensure timely service.
- **To build a sustainable ecosystem** that connects food donors with those in need, reducing both hunger and food wastage.
- **To automate repetitive processes** like task assignments, approvals, and notifications to save time and reduce errors.
- **To ensure food safety and compliance**, by maintaining detailed execution records and quality checks during collection and distribution.
- **To empower NGOs and community organizations** with tools to scale their food distribution efforts using cloud-based technology.
- **To support data-driven decision-making** through dashboards and reports that track impact, volunteer performance, and donation volumes.

2. IDEATION PURPOSE

2.1 Problem Statement

In many urban and semi-urban areas, a significant amount of edible food is wasted daily by restaurants, event venues, and households, while at the same time, thousands of people struggle with hunger and food insecurity. There is a lack of a structured system to bridge the gap between food surplus sources and communities in need. Manual coordination is inefficient, unreliable, and often leads to delays, food spoilage, or missed opportunities to help.

The problem is further compounded by a lack of real-time communication between donors, volunteers, and distribution points. Without automation and centralized tracking, food redistribution remains inconsistent, unsustainable, and difficult to scale.

2.2 Empathy Map Canvas

An empathy map helps understand the needs, experiences, and challenges of key users involved in the system. Here's an example for **volunteers** — one of the primary stakeholders

Thinks

- "Am I making a real impact?"
- "How will I know where to pick up food?"
- "Is the food safe to carry?"

Feels

- Wants to feel useful and appreciated.
- Anxious about lack of clarity or coordination.
- Concerned about hygiene and logistics.

Says

- "I need clear and timely instructions."
- "It’s hard to track my tasks."
- "This could be better organized."

Does

- Checks messages/emails for task info.
- Follows up with coordinators manually.
- Uses personal devices for navigation and updates.

2.3 Brainstorming

A brainstorming session was conducted to identify possible features and solutions for a centralized food supply system using Salesforce. The focus was on solving key pain points like manual coordination, volunteer scheduling, and delivery tracking.

◈ **Brainstorming Objectives**

- Design a system that simplifies food donation logistics.
- Enable automated volunteer assignment.
- Improve transparency and traceability of food distribution.
- Enhance engagement of volunteers through real-time updates

3. RERUIREMENT AND ANALYSIS

3.1 Functional Requirements

1. **Donor Registration**
   The system should allow restaurants, event venues, and other food donors to register and submit details of available leftover food.

2. **Volunteer Management**
   Volunteers should be able to register, update availability, and receive assigned tasks for food pickup or delivery.

3. **Task Assignment**
   Tasks should be auto-assigned to available volunteers based on proximity, availability, and urgency.

4. **Drop-Off Point Management**
   Admins should be able to manage and update drop-off locations such as shelters or food banks.

5. **Execution Tracking**
   The system should track and log every step of the food collection and delivery process, including timestamps and status updates.

6. **Notifications and Alerts**
   Automatic notifications should be sent to donors, volunteers, and drop-off centers for task updates and confirmations.

7. **Reporting and Dashboards**
   Admin users should have access to real-time dashboards and reports showing task progress, volunteer activity, and food distribution statistics.

3.2 Non-Functional Requirements

1. **Scalability**
   The system should be scalable to handle increasing numbers of donors, volunteers, and food items.
2. **Security**
   User data, including contact information and locations, must be securely stored and accessible only by authorized users.
3. **Usability**
   The interface should be simple and user-friendly to accommodate users with minimal technical knowledge.

4. **Reliability**
   The system should ensure high uptime and accurately process all data with minimal errors.
5. **Performance**
   Task assignment, data retrieval, and notifications should be processed in real-time or near real-time.

3.3 Technical Requirements

1. **Platform**: Salesforce (Lightning Experience)
2. **Automation Tools**: Flows, Process Builder, Approval Processes, Email Alerts
3. **Custom Objects**:
   - Venue
   - Drop-Off Point
   - Volunteer
   - Task
   - Execution Details
4. **User Roles**:
   - Admin
   - Donor
   - Volunteer
   - Coordinaton
   -

3.4 Analysis Summary

The system is designed to address key challenges in leftover food redistribution by leveraging Salesforce's automation and scalability. Functional and non-functional requirements were defined to ensure the system is efficient, secure, and user-friendly. The use of custom objects and automation tools supports a structured process for food donation, volunteer coordination, and execution tracking.

4. PROJECT DESIGN

4.1 Problem-Solution Fit

- The core problem identified is the inefficient and unorganized handling of surplus food, leading to wastage while people in need remain underserved. Traditional food donation methods rely heavily on manual coordination, lack real-time tracking, and are prone to miscommunication or delay.

- This project aims to bridge that gap by introducing a centralized system that automates key processes—donor registration, task assignment, volunteer management, and delivery tracking. Using Salesforce, the solution will optimize logistics, reduce waste, and ensure food reaches the right people on time.

- The problem-solution fit is evident: the system addresses all pain points—manual tracking, volunteer coordination, food safety, and reporting—through automation, centralized data, and real-time communication.

4.2 Proposed Solution

The **Leftover Food Supply Management System** is proposed as a Salesforce-based application that integrates all stakeholders (donors, volunteers, coordinators, and recipients) onto a single platform. It allows food donors to register leftover food, assigns tasks automatically to available volunteers, and facilitates real-time tracking of the food collection and delivery process.
Key features of the proposed solution include:

- **Custom Objects** for Venue, Volunteer, Task, Drop-Off Point, and Execution Details.
- **Automation Tools** like Flows, Approval Processes, and Email Alerts for assigning tasks and sending notifications.
- **Dashboards** for monitoring system-wide metrics including food quantity, volunteer performance, and delivery timelines.
- **Role-based Access** to ensure each user sees only what's relevant to their function (e.g., Donors, Volunteers, Admins).
-

This system minimizes manual intervention, enhances transparency, and improves service delivery.

4.3 Solution Architecture

The system architecture is designed using Salesforce's standard and custom capabilities, enabling scalability, automation, and centralized data handling. Below is a descriptive view of the architecture components:

1. User Interfaces

- **Donor Interface**: Submit food availability, view history.
- **Volunteer Interface**: View assigned tasks, update task status.
- **Admin Interface**: Manage users, monitor task progress, generate reports.
-

2. Salesforce Platform Components

- **Custom Objects**:
    - **Venue**: Stores donor details and food info.
    - **Drop-Off Point**: Lists distribution centers.
    - **Task**: Contains pickup/delivery assignments.
    - **Volunteer**: Holds volunteer profiles and availability.
    - **Execution Details**: Tracks the status of each donation cycle.

- **Automation Tools**:
  - **Flows**: Auto-assign tasks based on logic (location, time, availability).
  - **Approval Processes**: Validate food before dispatch.
  - **Email Alerts**: Notify stakeholders about task updates, confirmations, or delays.

3. Integration & Data Flow

- Donors input food availability → Task auto-created → Volunteer assigned → Notification sent → Task executed → Execution details logged → Report generated.
-

4. Reporting Layer

- Salesforce Dashboards provide:
  - Total meals delivered
  - Food wasted vs. distributed
  - Volunteer task completion rate
  - Drop-off point performance

5. PROJECT PLANNING AND SCHEDULING

Effective planning and scheduling are essential for the successful development and deployment of the **Leftover Food Supply Management System**. The project follows a **phased approach**, dividing the work into clear, manageable stages, each with specific objectives and deliverables. The timeline spans across planning, design, development, testing, and deployment phases to ensure all components are built and delivered systematically.

1. **Requirement Gathering and Analysis**
   Duration: 1 week
   In this phase, stakeholder interviews and research were conducted to define both functional and non-functional requirements. User personas were developed, and empathy mapping was used to understand the needs of donors, volunteers, and administrators.

2. **System Design**
   Duration: 1 week
   The architecture of the system was planned using Salesforce features like custom objects, automation tools, and dashboards. The design phase included defining object relationships, role-based access, and overall system workflow.

3. **Development and Configuration**
   Duration: 2 weeks
   Custom objects such as *Venue*, *Volunteer*, *Drop-Off Point*, *Task*, and *Execution Details* were created in Salesforce. Flows, Process Builders, Email Alerts, and validation rules were configured. User interfaces were built using Lightning components.

4. **Testing Phase**
   Duration: 1 week
   Functional testing was performed to ensure all modules work as intended. Test cases were created for task assignment, email notifications, volunteer registration, and real-time tracking. Issues were logged and fixed before deployment.

5. **Deployment and Go-Live**
   Duration: 1 week
   The system was deployed to the production environment. Admins and key users were trained. The system was monitored for initial feedback, and post-deployment support was provided to ensure a smooth transition.

5.2 Scheduling Tools and Methodology

The project followed an **Agile-like iterative approach**, with weekly reviews and feedback sessions to ensure alignment with stakeholder expectations. Progress was tracked using **task lists and Gantt charts**, and each milestone was reviewed before moving to the next.

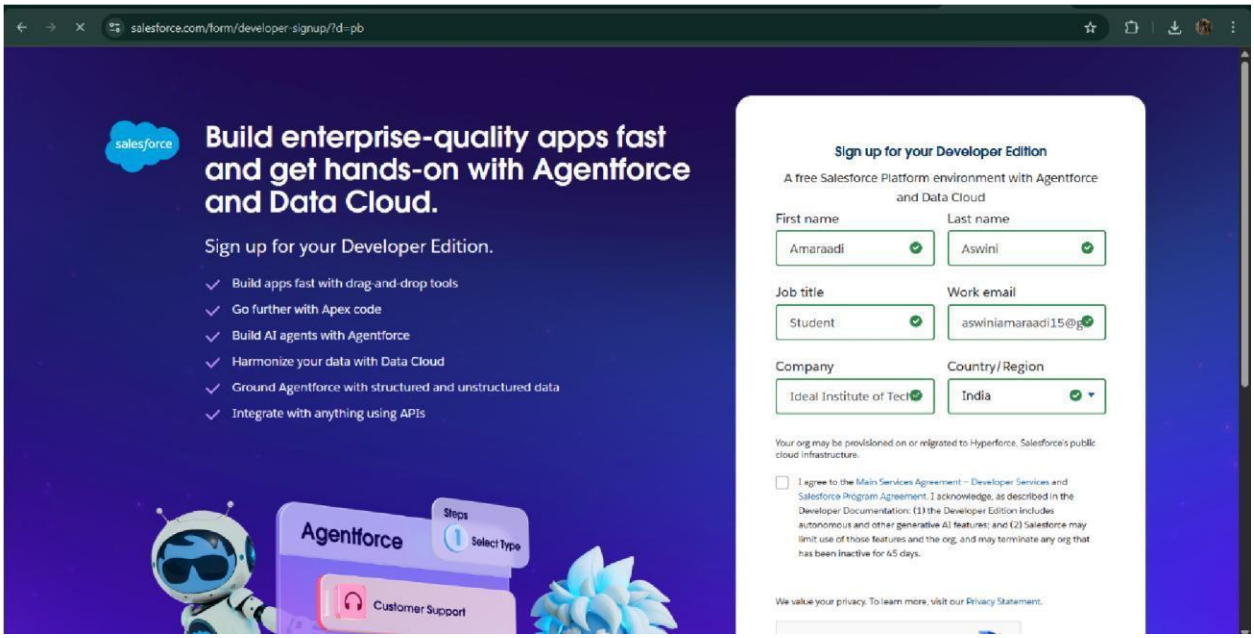
5.3 Project Milestones

- Completion of Requirement Analysis – Week 1
- Finalization of System Design – Week 2
- Custom Object & Flow Development – Week 3
- Testing & Debugging – Week 4
- System Deployment – Week 5

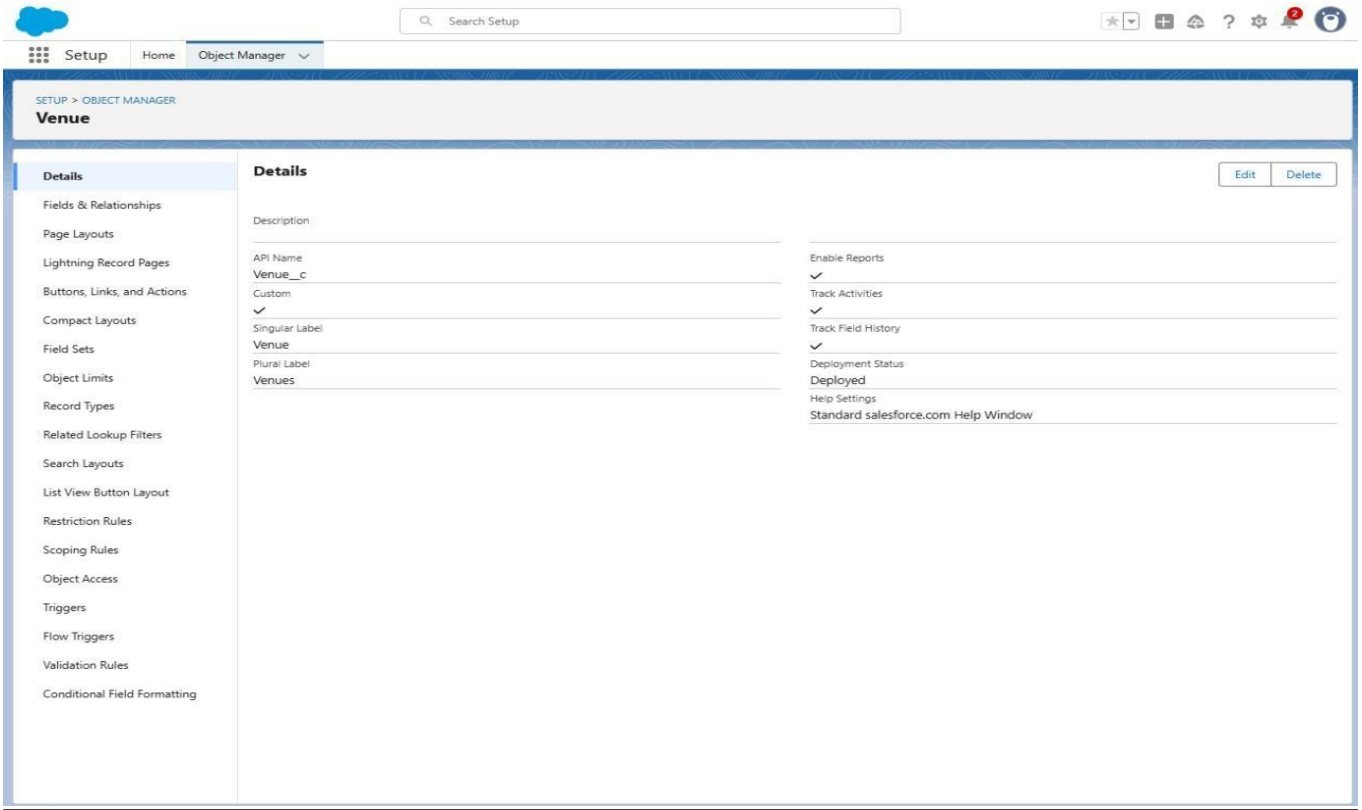
DEVELOPMENT PHASE

Creating Developer Account:

By using this URL - **https://www.salesforce.com/form/developer-signup/?d=pb**



- Created objects: venue drop off point task volunteer execution details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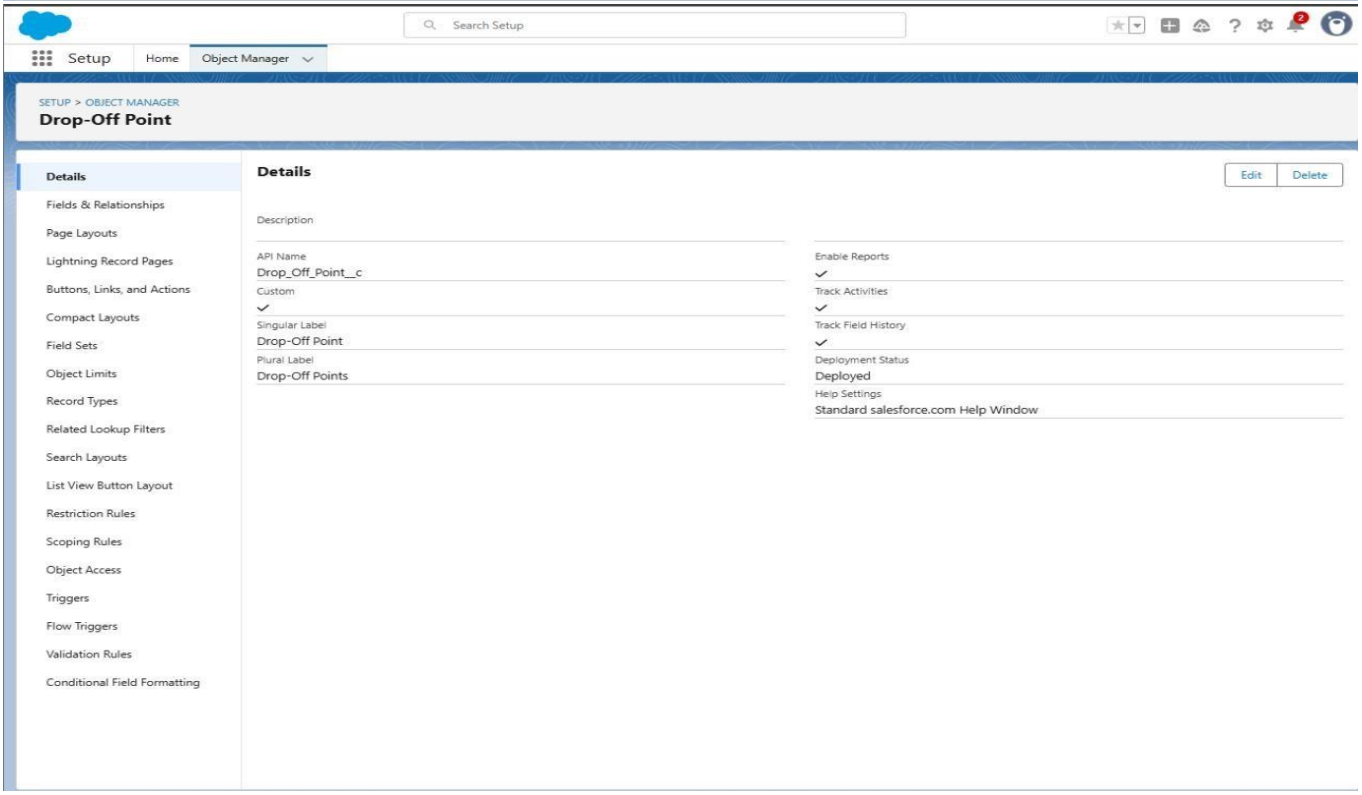
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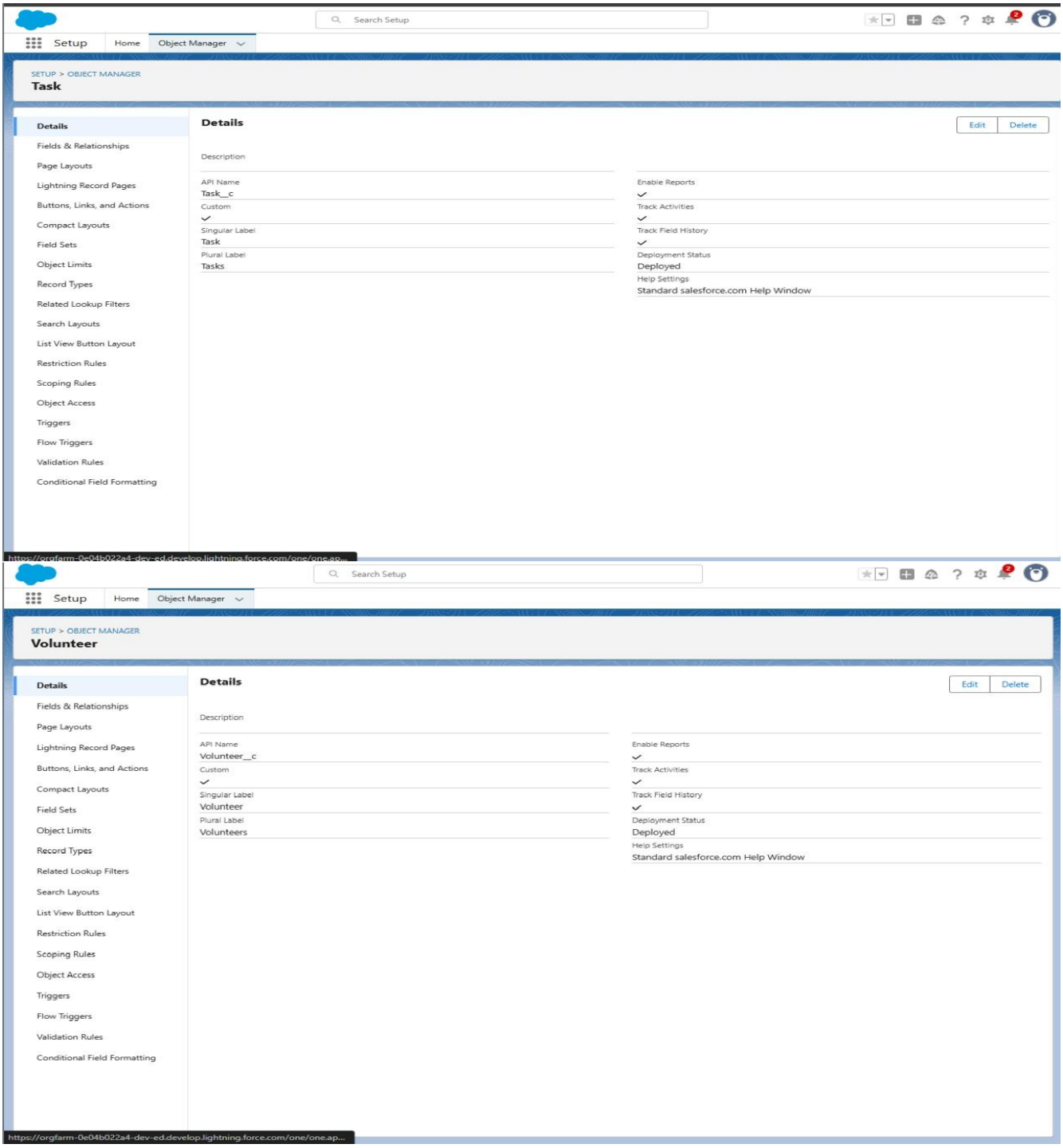
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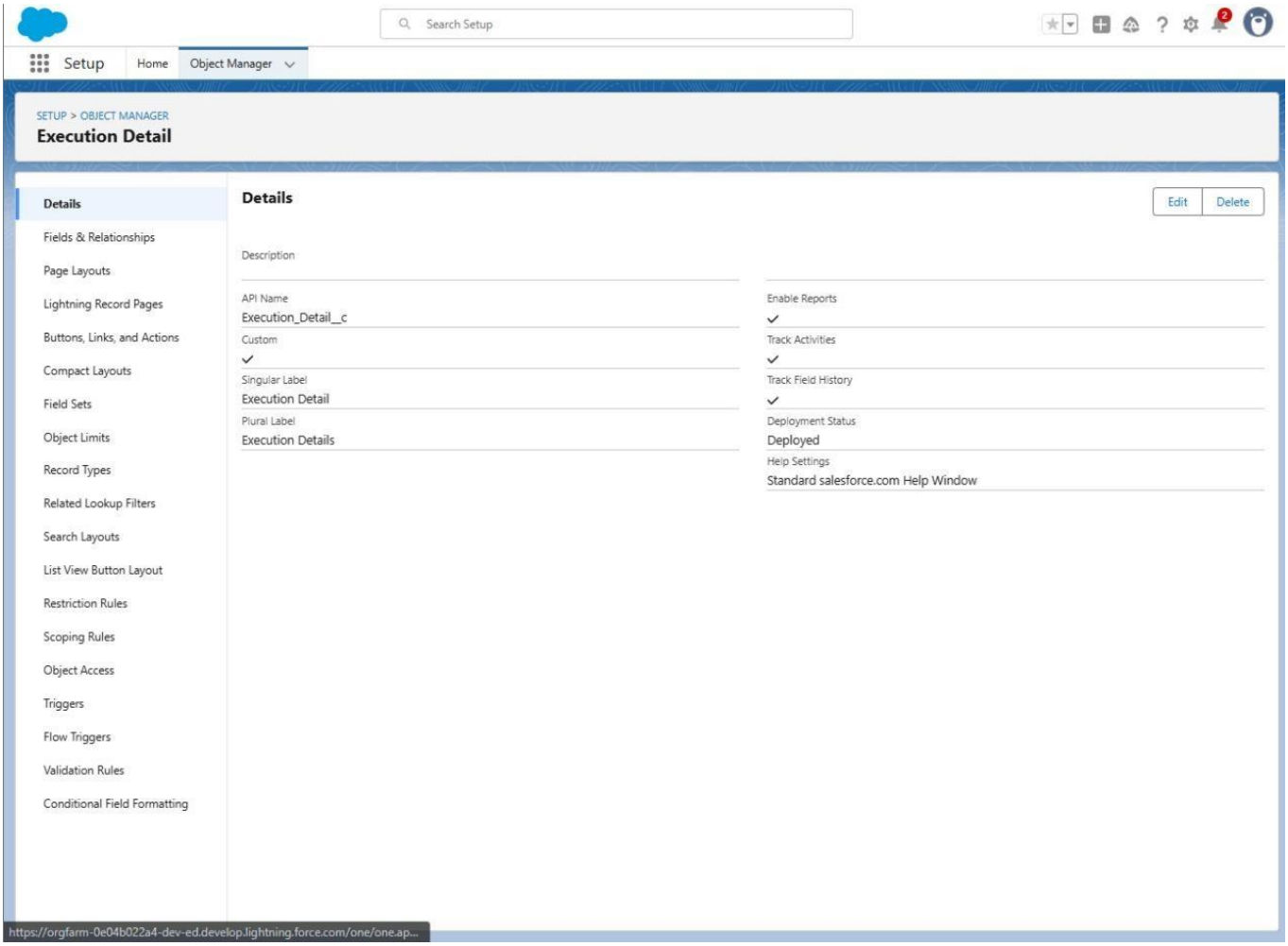

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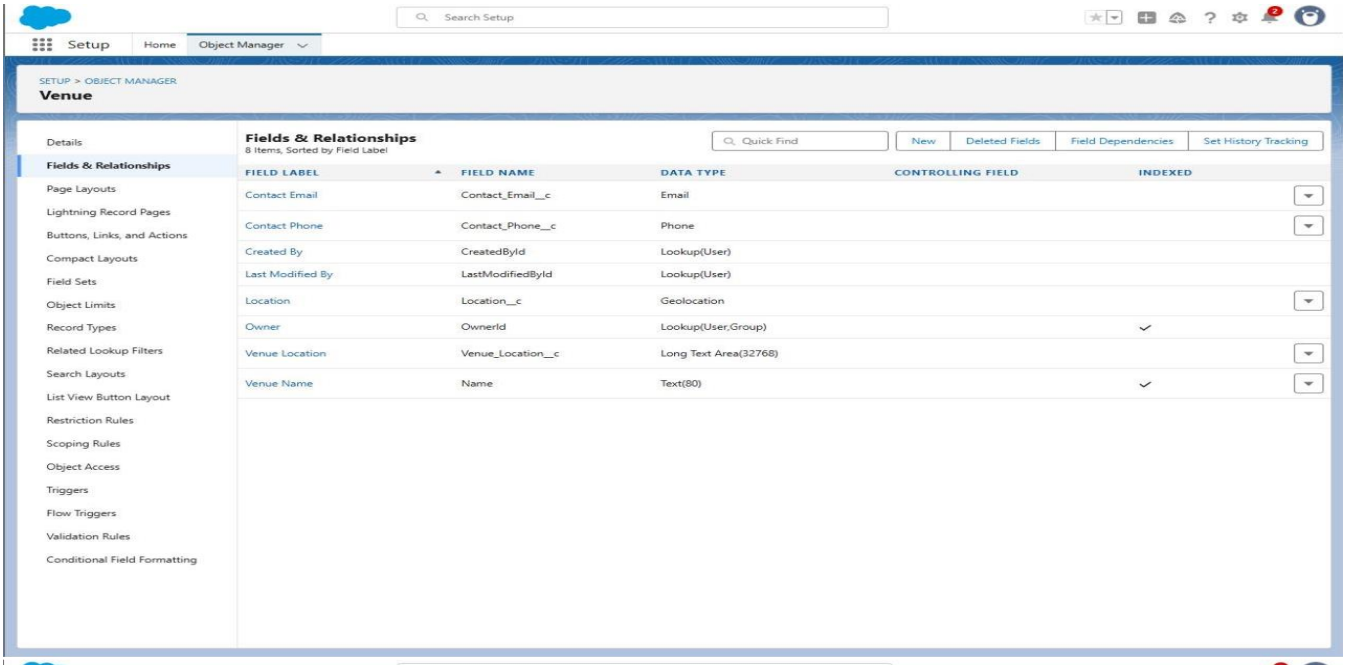
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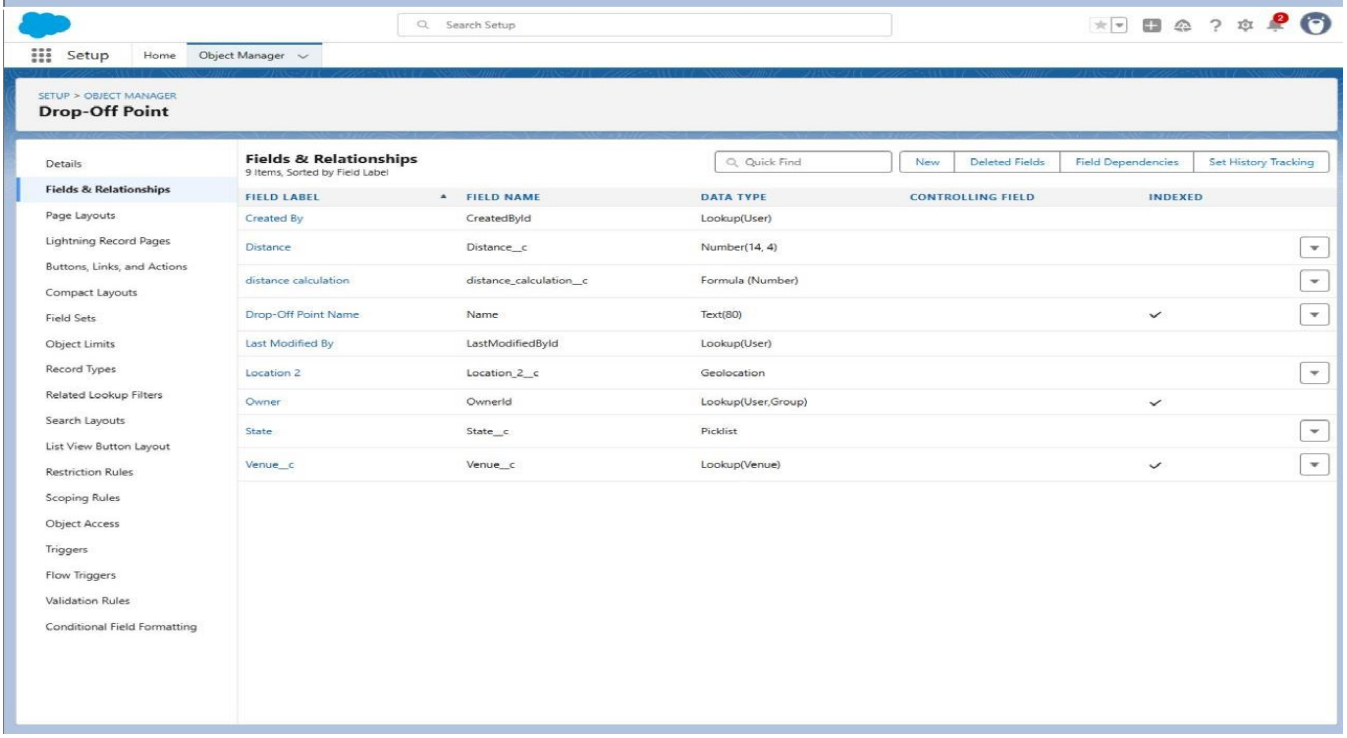
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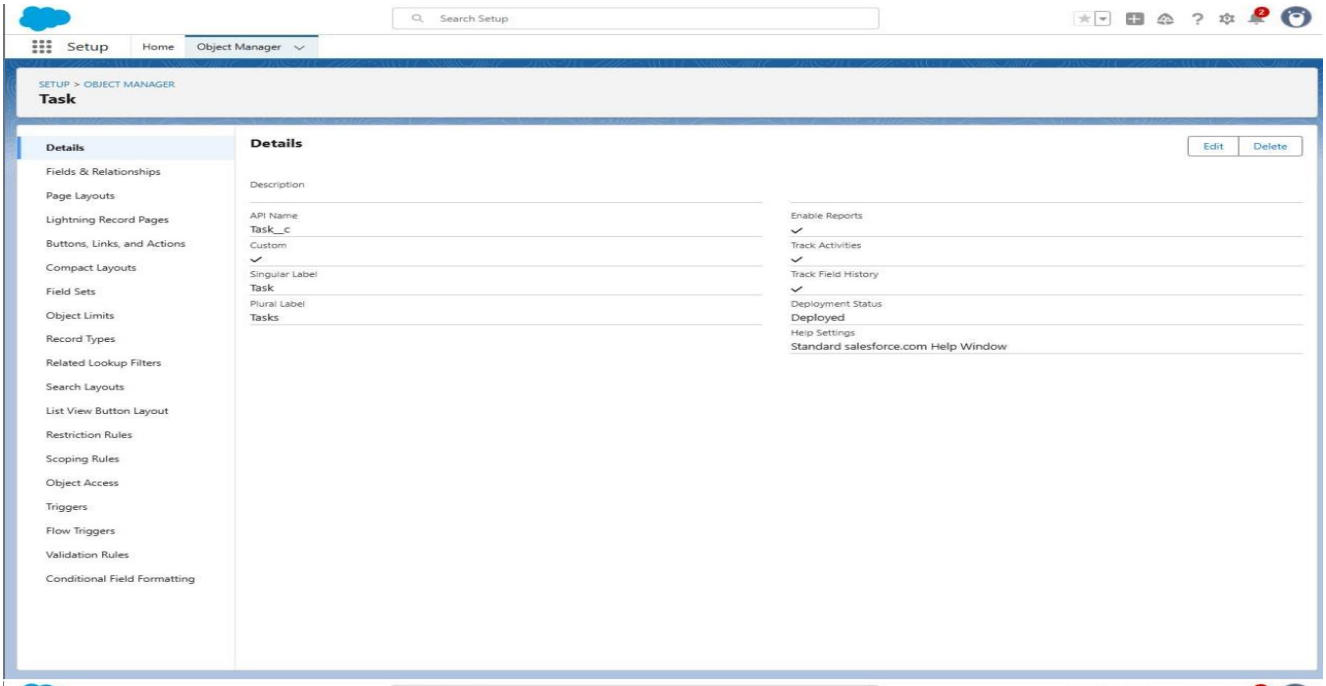
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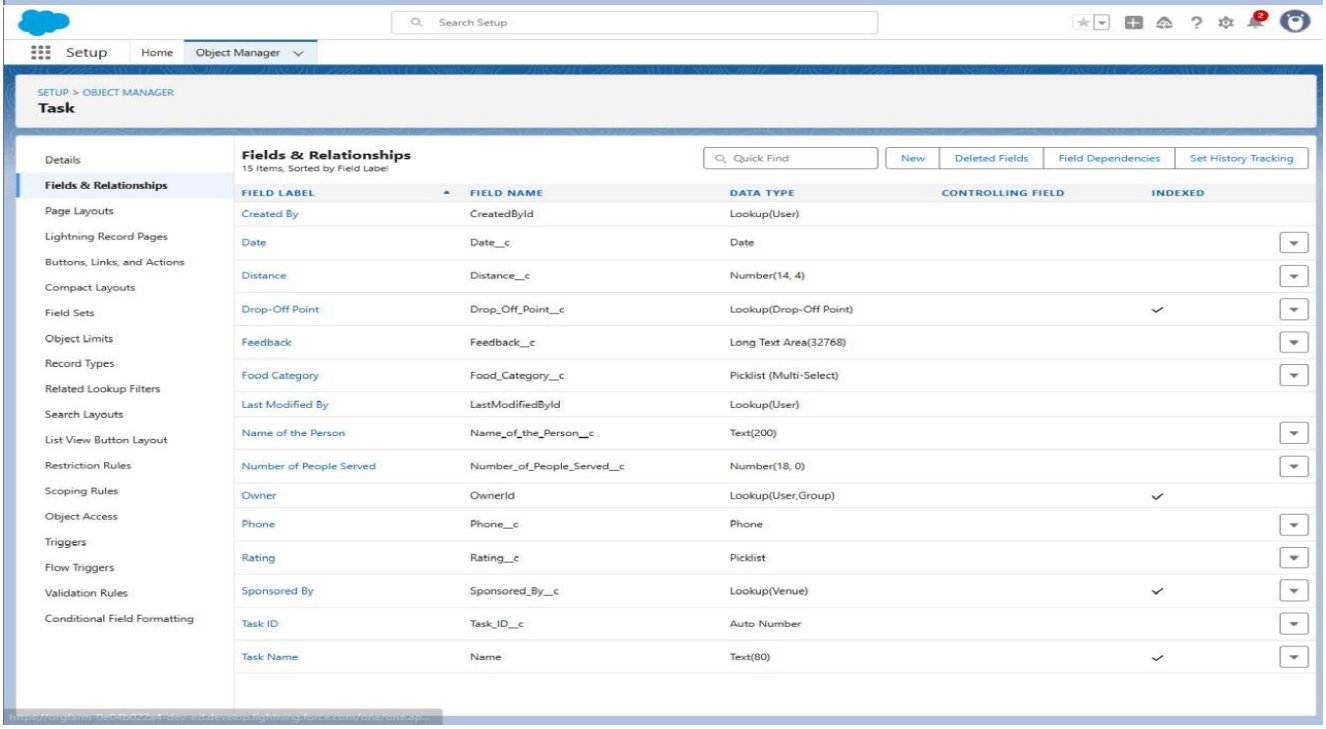
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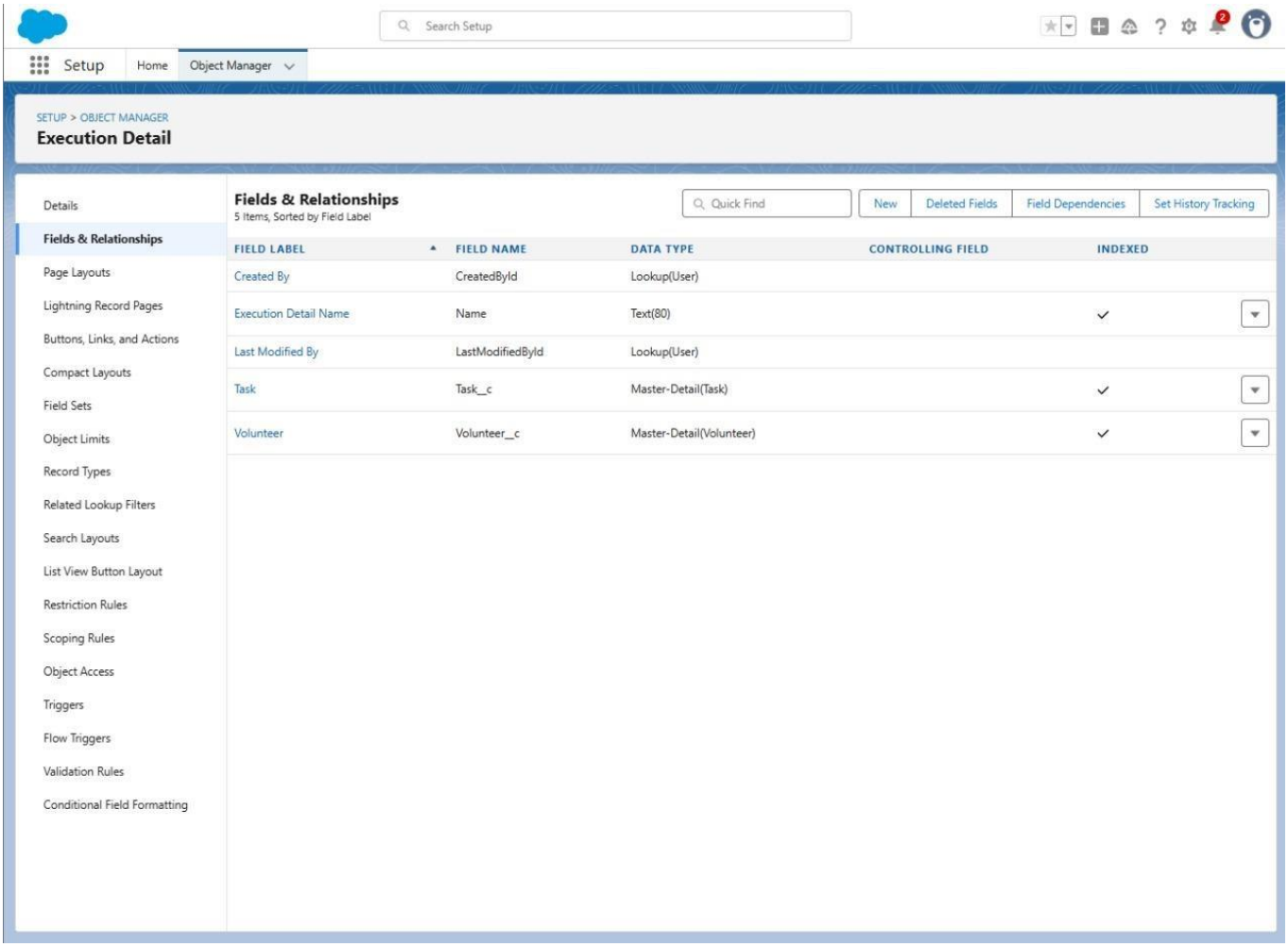

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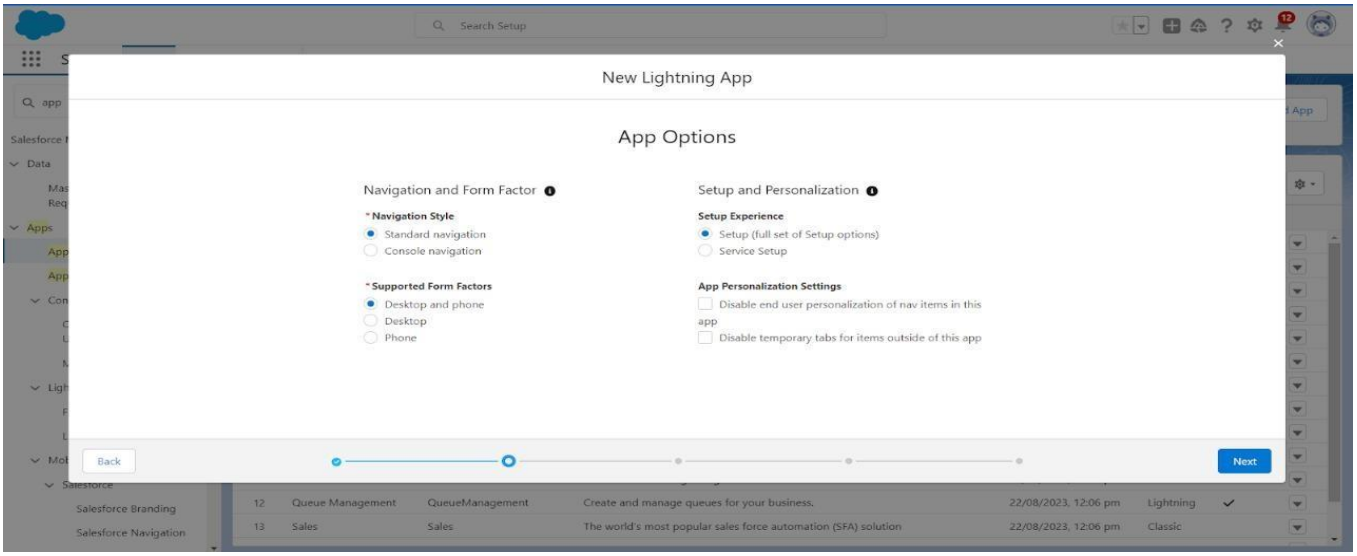
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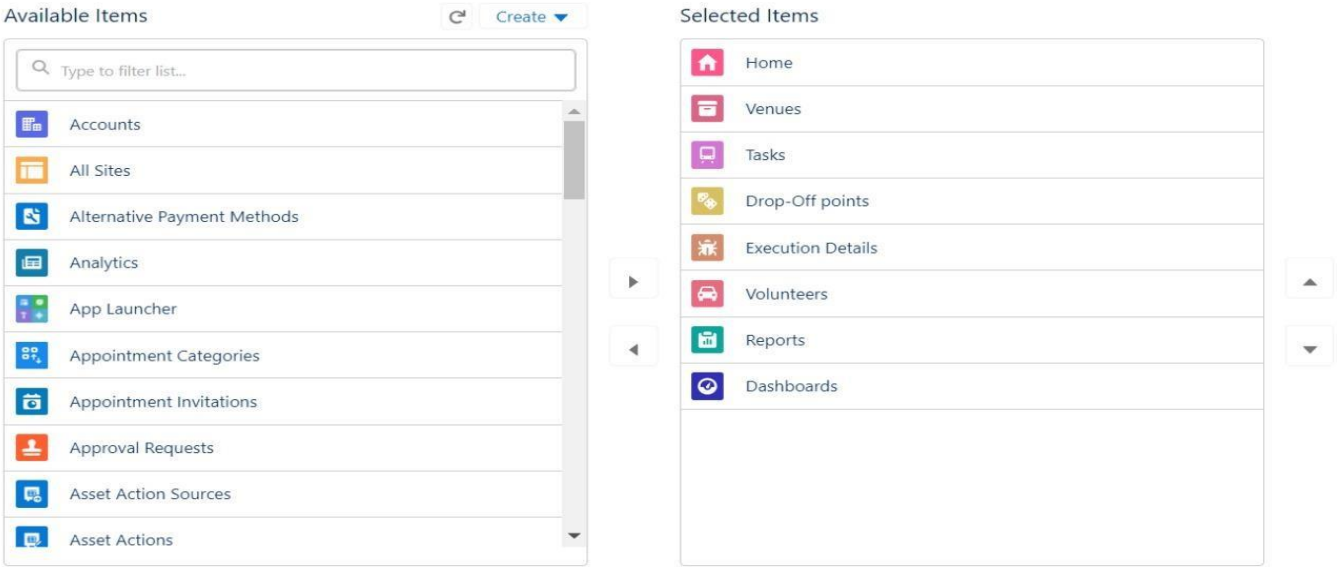
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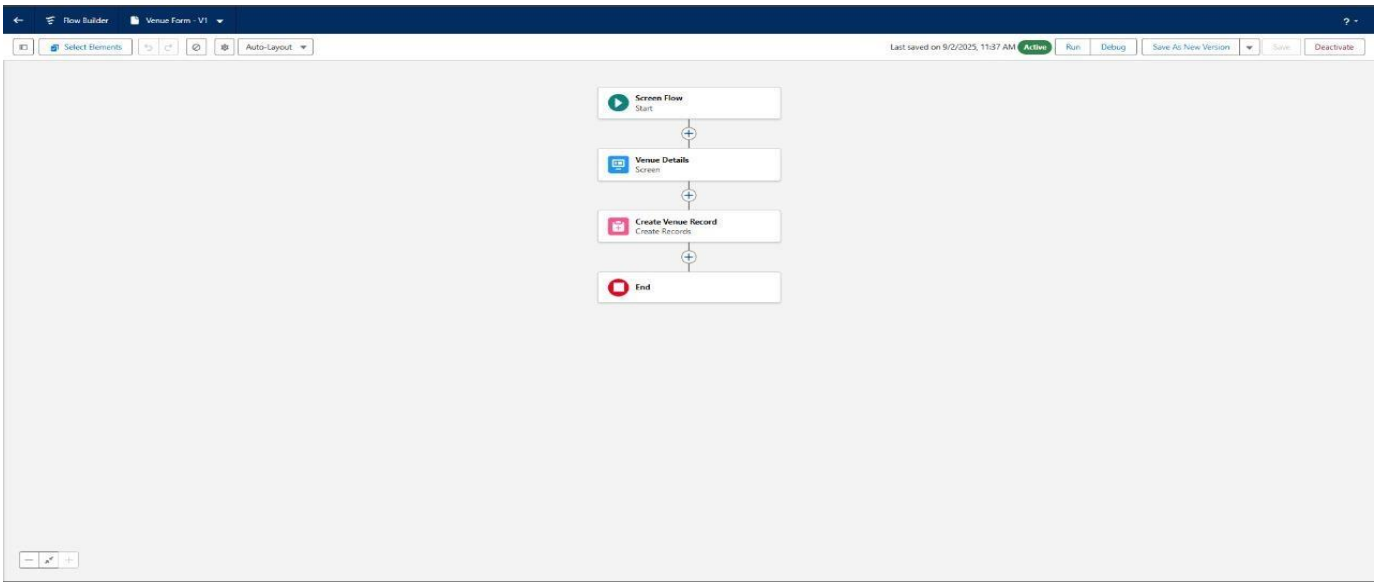
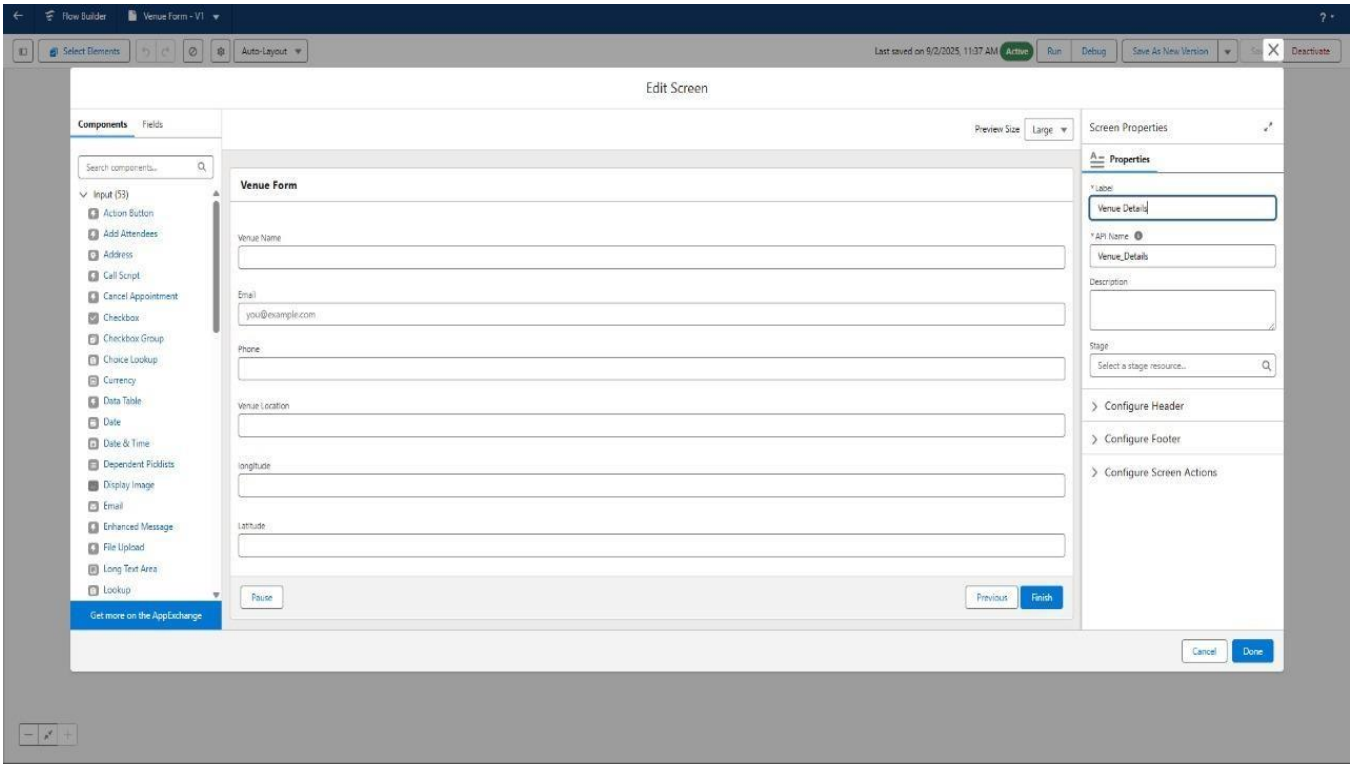
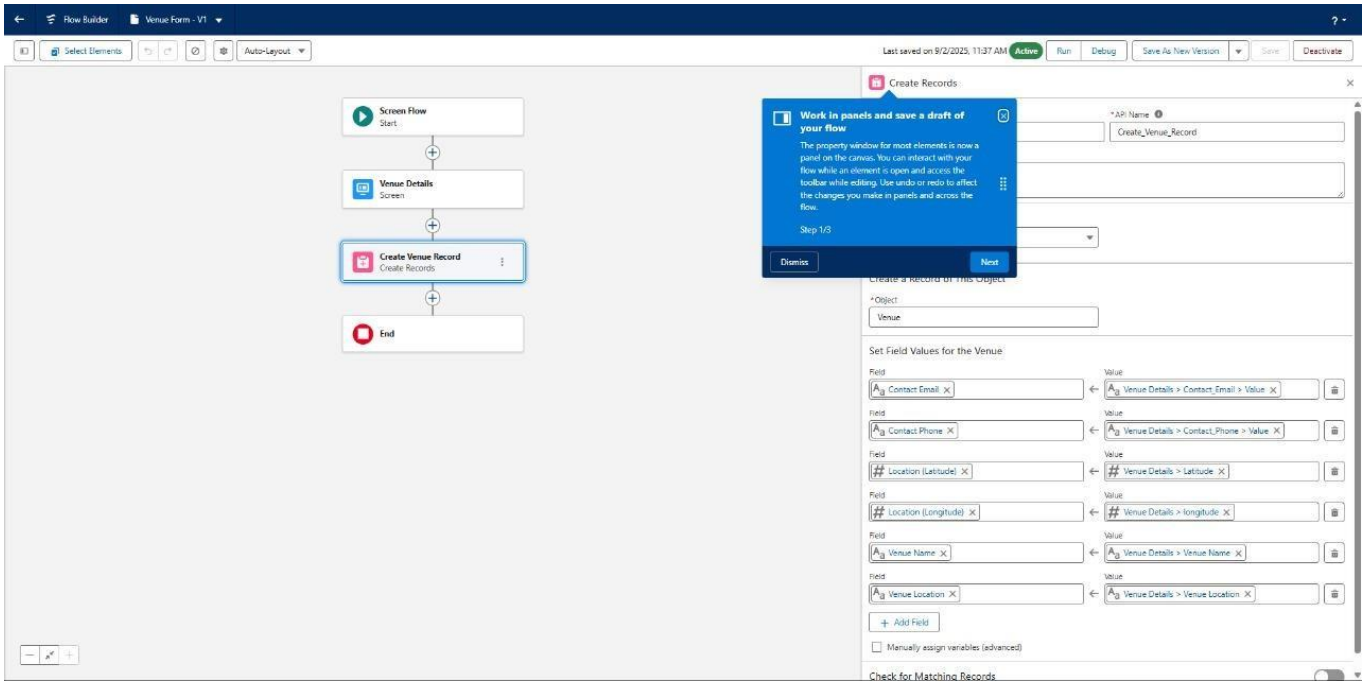
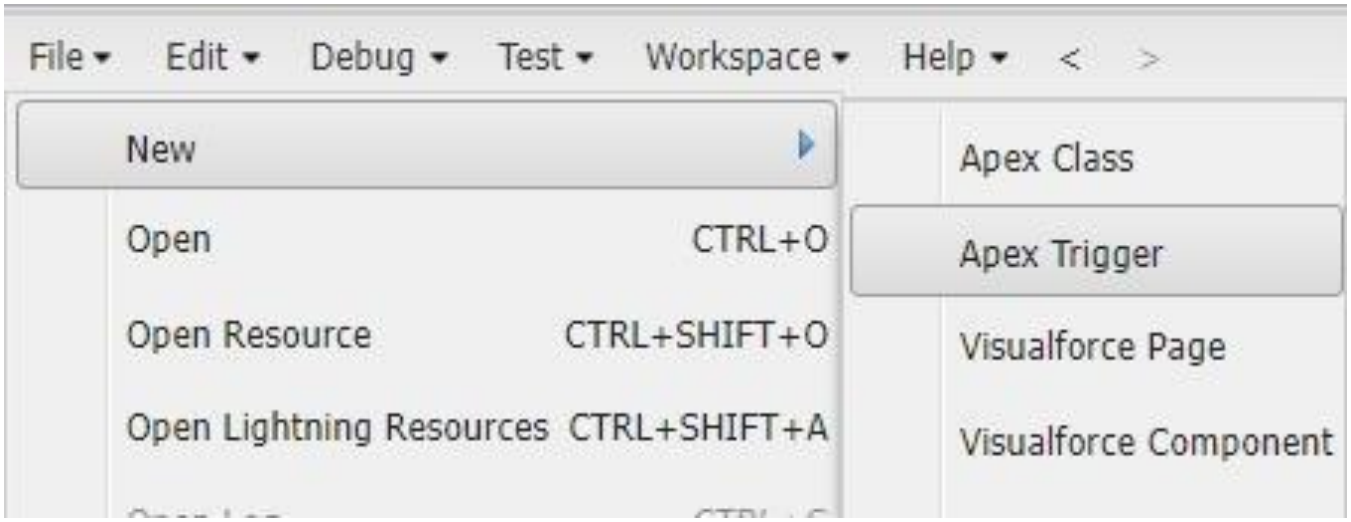
- Implemented Flows for monthly rent and payment success

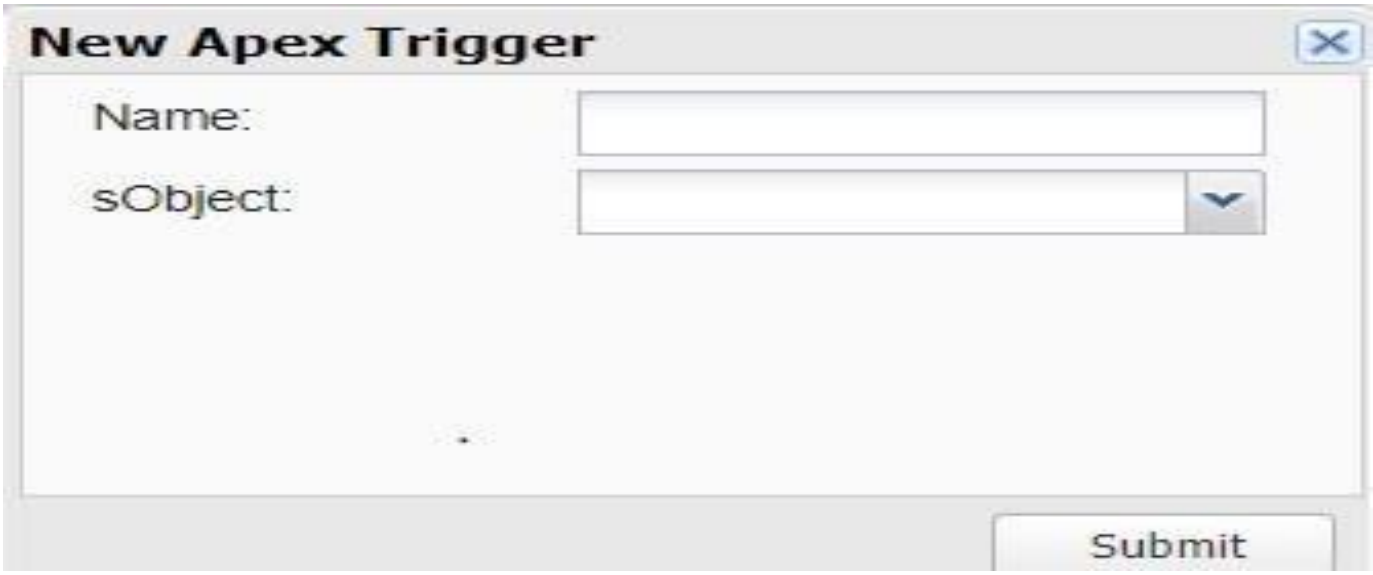






- Creating triggers





Code Coverage: None API Version: 64 Go To

```
1  trigger DropOffTrigger on Drop_Off_point__c (before insert) {
2
3      for(Drop_Off_point__c Drop : Trigger.new){
4
5          Drop.Distance__c = Drop.distance_calculation__c;
6
7      }
8
9  }
10
11
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Logs | Tests | Checkpoints | Query Editor | View State | Progress | Problems

User	Application	Operation	Time	Status	Read	Size

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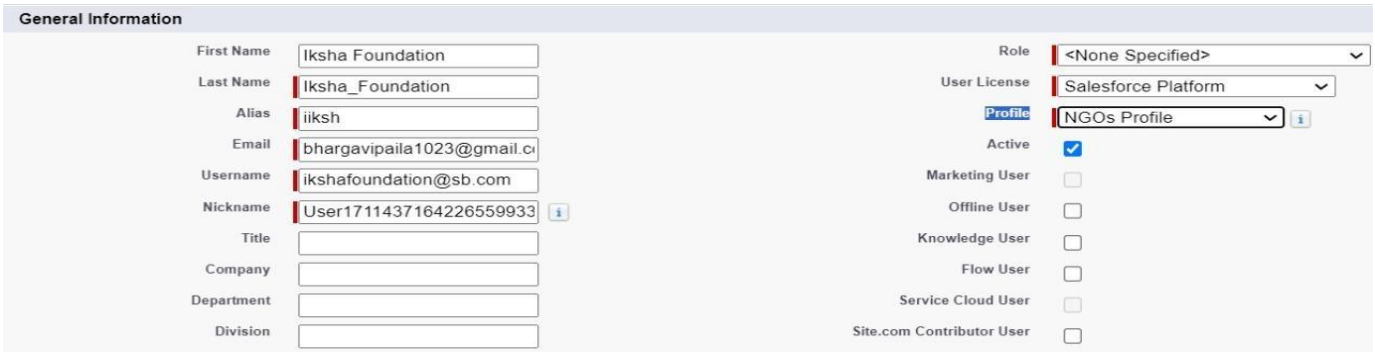
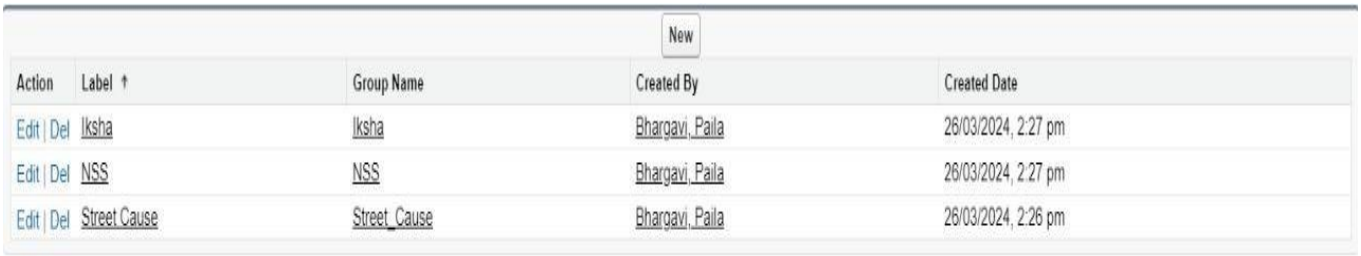
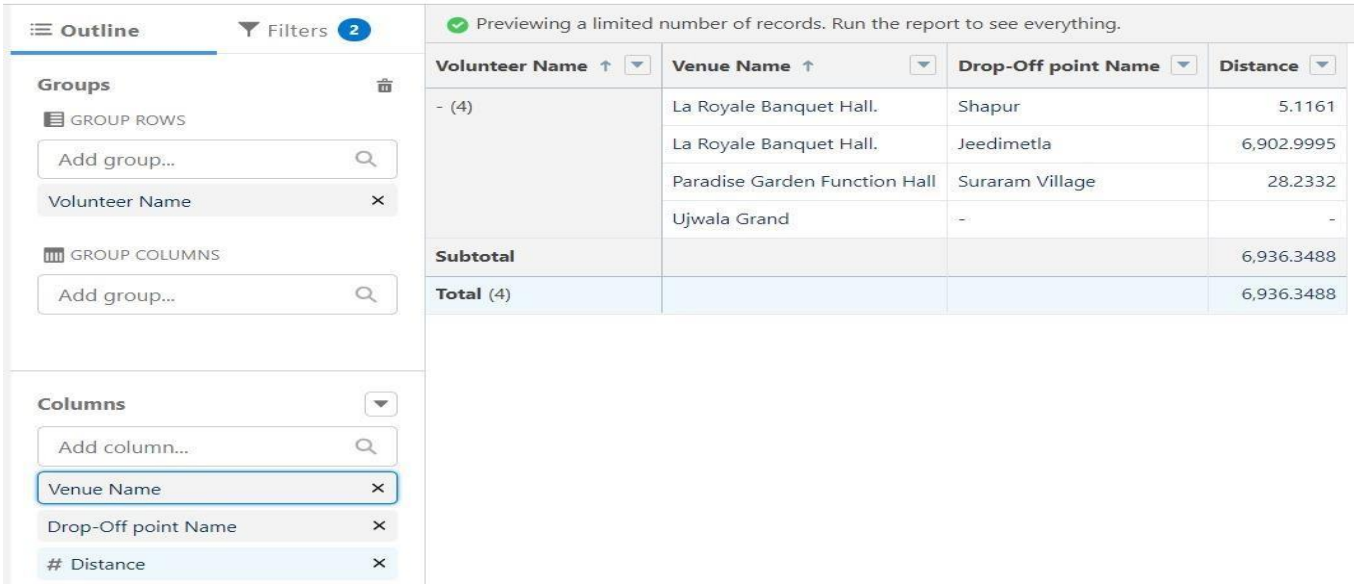
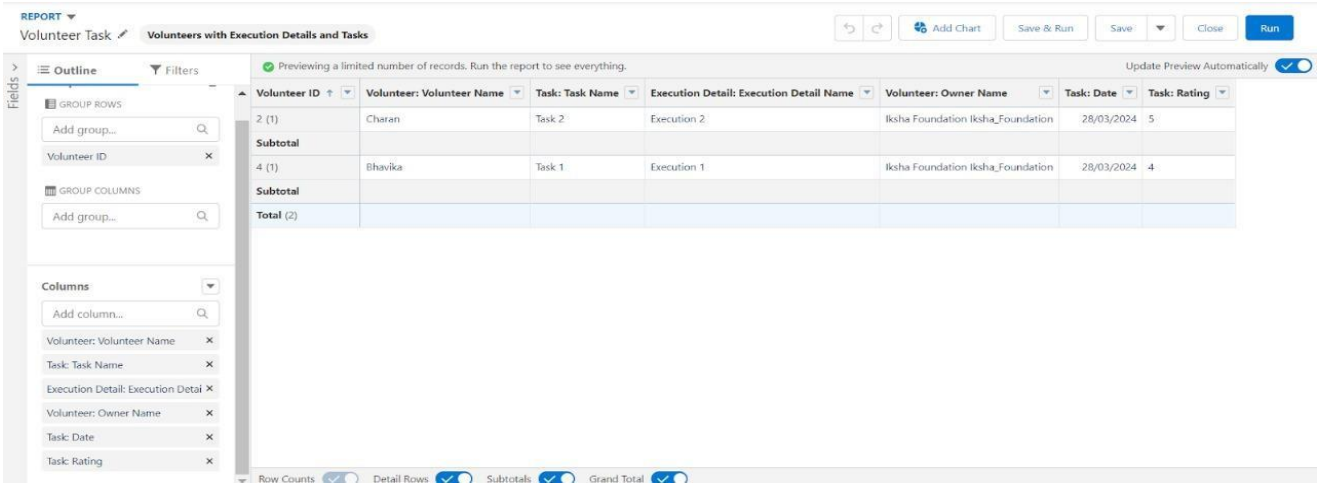
- Creation of users



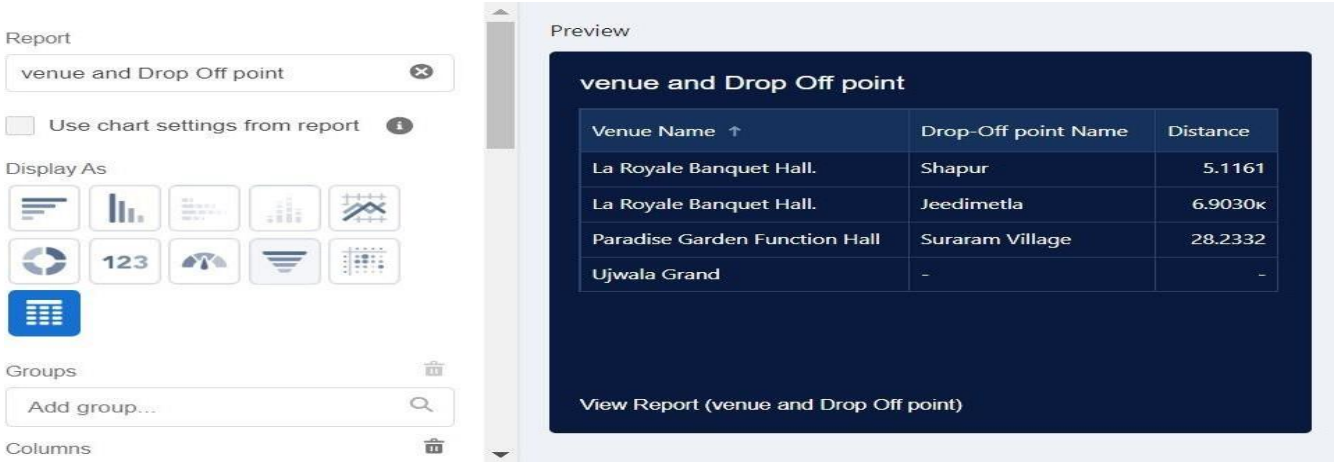


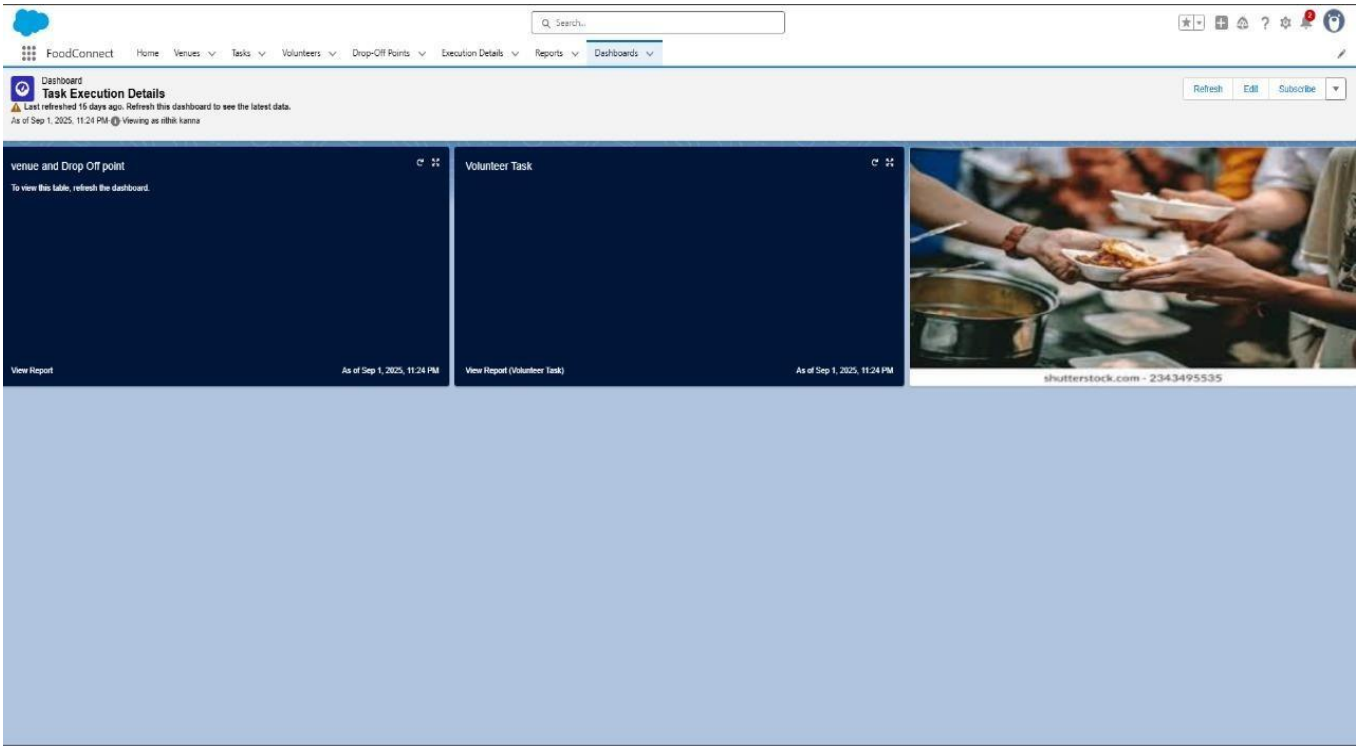
- Creation of Report on Venue with DropOff with Volunteer





- Adding venue and Drop Off point Report to the Dashboard

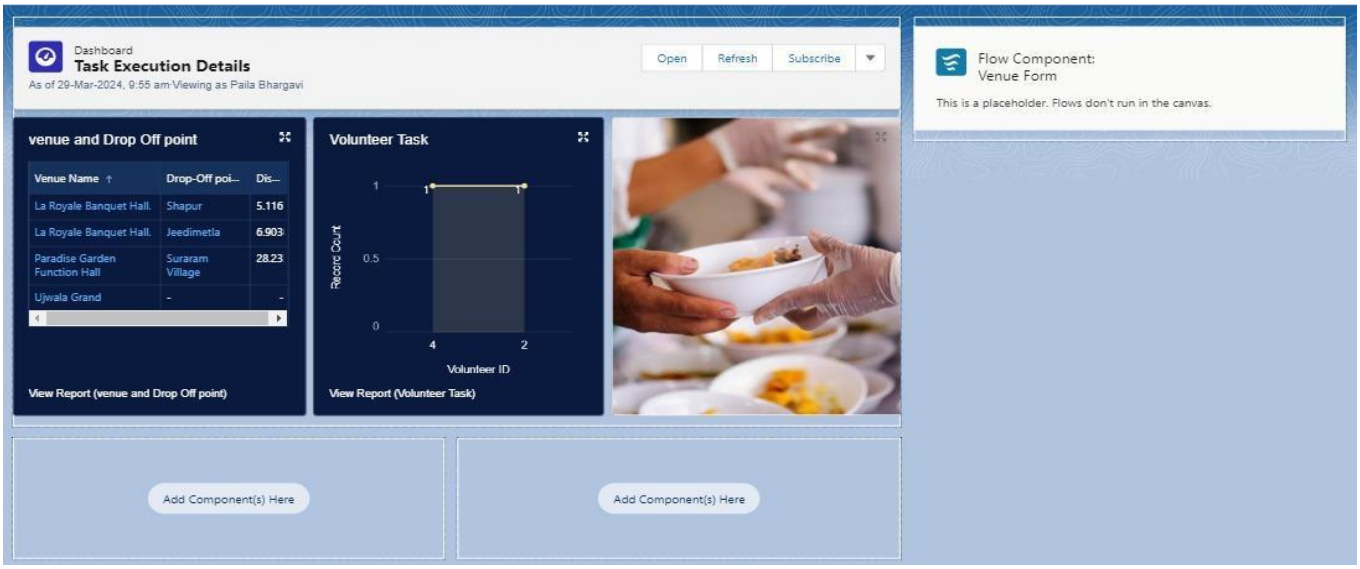


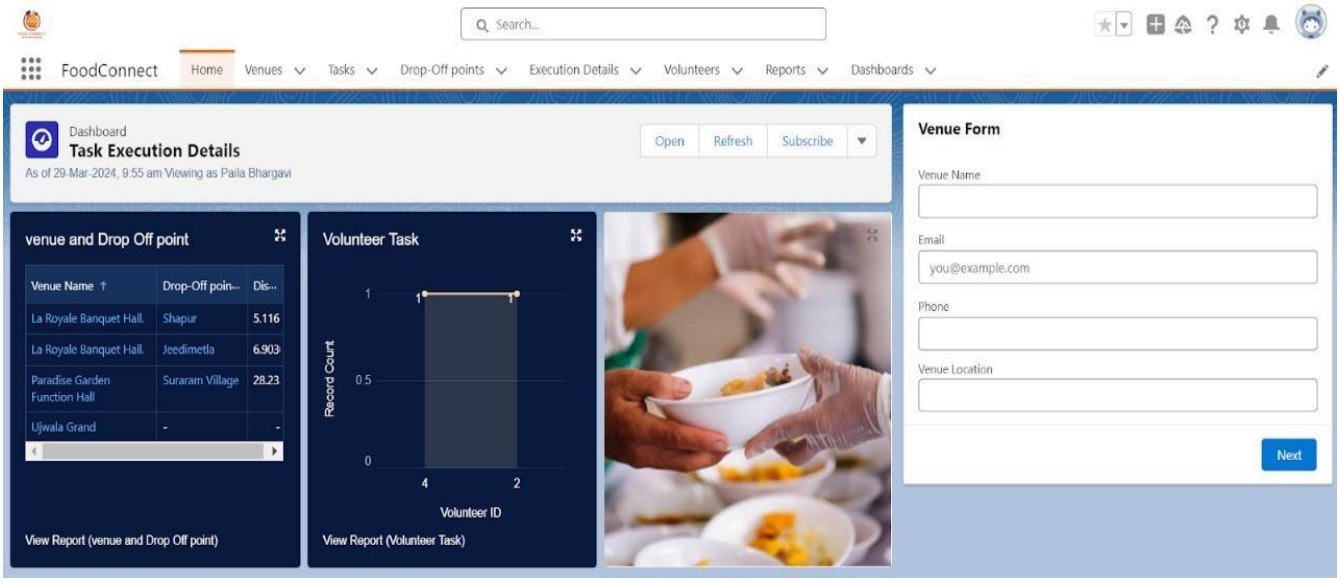

Search...
FoodConnect
Home
Venues
Tasks
Volunteers
Drop-Off Points
Execution Details
Reports
Dashboards
Dashboard
Task Execution Details
Last refreshed 15 days ago. Refresh this dashboard to see the latest data.
As of Sep 1, 2025, 11:24 PM Viewing as nithik kanna
Refresh
Edit
Subscribe
venue and Drop Off point
To view this table, refresh the dashboard.
View Report
As of Sep 1, 2025, 11:24 PM
Volunteer Task
View Report (Volunteer Task)
As of Sep 1, 2025, 11:24 PM
shutterstock.com - 2343495535

:

Result

Output Screenshots





ADVANTAGES & DISADVANTAGES

Advantages

1. **Efficient Coordination**: Streamlines communication between donors, volunteers, and drop-off points.
2. **Reduces Food Waste**: Helps minimize food waste by redistributing surplus to those in need.
3. **Automation**: Uses Salesforce tools (Flows, Alerts, etc.) to reduce manual work and human error.
4. **Real-Time Tracking**: Provides visibility into task status, pickup/delivery updates, and execution logs.
5. **Social Impact**: Supports hunger relief efforts and strengthens community support systems.

Disadvantages

1. **Technology Dependency**: Requires access to Salesforce and internet connectivity, which may be a barrier in some regions.
2. **Initial Setup Cost**: Implementation and customization on Salesforce can be costly for small organizations.
3. **Volunteer Reliability**: The system depends heavily on volunteers, which can lead to inconsistencies in execution.
4. **Food Safety Risks**: If not handled properly, there can be concerns about the hygiene and safety of leftover food.
5. **Training Requirement**: Users need training to effectively use the system and its automated features.

Future Scope

The **Leftover Food Supply Management System** is designed with scalability and adaptability in mind. While the current version addresses the core needs of food collection and distribution, there are several opportunities for future enhancements to increase impact, improve efficiency, and expand its reach.

1. **Mobile Application Integration**
   Developing a mobile app for donors and volunteers can improve accessibility, allowing real-time task updates, location tracking, and instant notifications.

2. **AI-Based Task Optimization**
   Implementing AI or machine learning algorithms could optimize volunteer-task assignment based on traffic, distance, food type, and urgency.

3. **Integration with Food Safety Standards**
   The system can be enhanced to include automatic checks and compliance with food safety guidelines, including digital logging of temperature and shelf-life data.

4. **Multi-Language Support**
   Adding multilingual support will make the system more inclusive and usable across diverse regions and communities.

5. **Analytics and Impact Tracking**
   Advanced reporting and impact tracking features (e.g., meals delivered, food saved, carbon footprint reduced) can help NGOs and partners showcase their contributions and secure funding.

6. **Third-Party Integration**
   Integration with external platforms such as Google Maps (for routing), WhatsApp (for volunteer communication), and logistics APIs (for delivery tracking) can streamline operations further.

7. **Blockchain for Transparency**
   Blockchain integration can ensure transparent and tamper-proof tracking of food donations from source to recipient.

CONCLUSION

The Leftover Food Supply Management System successfully streamlines the food donation and distribution process through a structured, automated Salesforce application. It enhances efficiency, coordination, and tracking accuracy for donors, volunteers, and administrators, ultimately contributing to reduced food waste and greater community impact.

APPENDIX

- **Source Code:** Provided in Apex Classes and Triggers

```
trigger DropOffTrigger on Drop_Off_point__c (before insert) {

    for(Drop_Off_point__c Drop : Trigger.new){

        Drop.Distance_c = Drop.distance_calculation_c;

    }
```