

Phase 4: Requirement Analysis Phase

Project Title: To Supply Leftover Food to Poor

Introduction

Requirement analysis is the foundational stage that bridges the gap between the project's real-world goals and its technical implementation. This phase is dedicated to identifying and documenting what the system must do and how it should perform. For the "To Supply Leftover Food to Poor" project, this involves a thorough definition of all processes—from managing donors and food details to coordinating volunteers and tracking deliveries. This analysis translates stakeholder needs into a clear set of technical and functional specifications that will guide the entire development process.

Purpose of Requirement Analysis

The primary goal of this phase is to capture and define all requirements necessary to build an efficient and reliable food donation management system using Salesforce. By clearly understanding the specific needs of food donors, NGO partners, and volunteers, we can design a solution that successfully automates the collection, management, and distribution of surplus food. This process ensures the final system will provide transparency, traceability, and efficiency, making sure food reaches those in need promptly.

Methods of Requirement Gathering

To ensure all requirements were captured accurately, we used a combination of methods:

- **Observation:** We studied the current manual processes used by food donors and NGOs to understand existing workflows and bottlenecks.

- **Stakeholder Interviews:** We held discussions with restaurant owners, event managers, and NGO representatives to learn about the primary challenges they face with existing donation systems.
 - **Comparative Analysis:** We reviewed other food donation platforms to identify their strengths and, more importantly, their limitations, such as a lack of real-time tracking or automation.
 - **Brainstorming Sessions:** Our team held internal discussions to ideate innovative features that could make the donation process faster, more reliable, and fully automated.
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Functional Requirements

These define the specific actions the system must be able to perform.

1. Donor Profile Management

- The system must allow for the registration of new donors, capturing details like name, address, and contact information.
- It must support different donor types (e.g., Restaurant, Hostel, Event Organizer).

2. Food Donation Management

- The system must allow users to log and manage details of surplus food, including type, quantity, and expiration time.
- It must automatically trigger notifications to nearby NGOs and volunteers when a new donation is logged.
- It must provide real-time status tracking for all donations.

3. Volunteer Coordination

- The system must maintain a database of volunteers and their details.
- It must be able to automatically assign collection or delivery tasks.
- Volunteers must be able to update the status of a task (e.g., "Picked Up," "Delivered").

4. NGO Partner Management

- The system must store registration details for NGOs, including their location, contact info, and operational availability.
- It must track the history of food requests and all deliveries received by each NGO.

5. Delivery and Logistics Tracking

- The system must create unique delivery records that link the donor, volunteer, and recipient NGO.
- It must track the status of each delivery (e.g., "Pending Pickup," "In Transit," "Completed") in real-time.

6. Reporting and Analytics

- The system must be able to generate reports detailing total food donations, number of deliveries, and beneficiaries served.
- It must provide dashboards to visualize key performance metrics, such as total food saved, new donors registered, and active volunteers.

7. Automation and Notifications

- The system must use Salesforce Flows to send automated alerts to NGOs and volunteers about new food availability.
 - It must also be able to notify donors upon the successful delivery of their donation.
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Non-Functional Requirements

These define the quality attributes and performance standards of the system.

1. Performance and Speed

- The system must process data and update donation statuses with minimal lag.
- All dashboards and reports should load and refresh quickly.

2. Security and Access Control

- All donor and beneficiary data must be secured using Salesforce's native security features.
- User access must be role-based, ensuring users can only view or modify records relevant to their function (e.g., a donor cannot see another donor's data).

3. Reliability and Availability

- The system must be highly reliable, performing consistently without data loss or critical errors.
- Regular data backups must be maintained within the Salesforce environment.

4. Usability and User Experience

- The user interface must be intuitive and simple for all user types (donors, volunteers, NGOs).
- Common tasks, like logging a new donation or tracking a delivery, should be achievable in a minimal number of steps.

5. Scalability

- The application must be able to handle growth in the number of donors, NGOs, and total donations over time without performance degradation.

6. Maintainability

- The system's design must be clean and modular, allowing for easy updates and future expansion (e.g., adding route optimization or food quality modules).

System Requirements

The following are the minimum requirements for developing and using the application.

1. Hardware Requirements

- A computer or laptop with at least 4 GB of RAM.
- A stable internet connection.
- A modern web browser (Google Chrome, Microsoft Edge, or Firefox).

2. Software Requirements

- A Salesforce Developer Edition account for building and configuring the application.
- Access to the SmartInternz Platform for project tracking and submission.
- A GitHub account for documentation version control.
- Software for creating and reading PDF reports (e.g., Microsoft Word, Adobe Acrobat).

Requirement Validation

Before beginning development, all gathered requirements were rigorously reviewed and validated to confirm that they:

- Are technically achievable within the Salesforce platform.
- Directly align with the project's primary mission of reducing food waste and feeding the needy.
- Can be realistically implemented within the project's timeline and available resources.

This validation was conducted through team discussions and by building small prototypes in Salesforce to ensure all functional and non-functional goals could be met.

Conclusion

This Requirement Analysis Phase has established a clear and comprehensive blueprint of what the "To Supply Leftover Food to Poor" system must accomplish. It defines all essential functions, from donor management to delivery tracking, as well as critical standards for performance, security, and usability. By systematically outlining these requirements, this phase provides a solid foundation for the subsequent development of a robust and automated Salesforce solution. This ensures the final product will effectively connect donors, volunteers, and NGOs, meet all user needs, and make a tangible impact on food waste reduction.