

Phase 5: Project Design Phase II - Solution Requirements

Project Title: To Supply Leftover Food to Poor (Salesforce Platform)

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Team ID: NM2025TMID07011

Marks: 4 Marks

Functional Requirements

The following are the functional requirements for the "To Supply Leftover Food to Poor" Salesforce platform:

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	Donor Registration	Registration through Form; Registration through Email; Registration through Social Login (Google/LinkedIn)
FR-2	Donor Verification	Email verification; Phone OTP verification; Business credential validation
FR-3	Food Item Listing	Donors can list surplus food (name, quantity, type, expiry time, pickup location, photo)
FR-4	Recipient Registration	NGOs and shelters can register as food recipients; Define delivery locations and contact details
FR-5	Recipient Verification	Organization credential verification; Address validation; Contact person confirmation
FR-6	Volunteer Registration	Volunteers can create profiles with availability and location information
FR-7	Volunteer Assignment	System automatically assigns food delivery tasks to available volunteers based on proximity and availability
FR-8	Assignment Notification	Volunteers receive real-time SMS/email notifications for task assignment
FR-9	Status Tracking	Volunteers can update delivery status (Collected, En-Route, Delivered) via mobile app/web
FR-10	Recipient Confirmation	Recipients confirm food receipt and provide feedback
FR-11	Data Protection Rules	System prevents deletion of volunteers assigned to active distribution tasks
FR-12	Event Protection	System prevents deletion of distribution events with assigned volunteers or pending deliveries
FR-13	Dashboard Reporting	Real-time dashboards show: food distributed (kg/meals), donors engaged, volunteers active, recipients served, cost per meal, waste reduction %
FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-14	Analytics & Insights	Historical reports, donor trends, volunteer performance, seasonal patterns

FR-15	User Feedback	Donors, volunteers, and recipients can rate and review the platform experience
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Non-Functional Requirements

The following are the non-functional requirements for the "To Supply Leftover Food to Poor" Salesforce platform:

NFR No.	Non-Functional Requirement	Description
NFR-1	Usability	The platform interface should be intuitive and user-friendly for all stakeholders (donors, volunteers, NGO staff, recipients) with minimal training required. Mobile app must be responsive and accessible.
NFR-2	Security	Only authorized admins and assigned volunteers can access/update task assignments. Donor identity and recipient information must be encrypted. Two-factor authentication for sensitive operations.
NFR-3	Reliability	The system must correctly validate all volunteer and event assignments before preventing deletion. Zero data loss for completed deliveries. 99.5% uptime guarantee.
NFR-4	Performance	Assignment checks and deletion validations must occur within <2 seconds. Dashboard reports must load within <5 seconds. Real-time notifications delivered within <30 seconds of task creation.
NFR-5	Availability	The platform should be accessible 24/7 for volunteers to update task status and receive assignments. Scheduled maintenance windows should not exceed 2 hours/month, preferably during low-usage hours.
NFR-6	Scalability	The system must handle 10x growth in users (donors, volunteers, recipients) without performance degradation. Support simultaneous delivery of 1000+ task assignments daily. Auto-scaling cloud infrastructure.
NFR-7	Maintainability	Clean, well-documented code with modular design for easy updates. API-driven architecture for future integrations with logistics partners and food data platforms.
NFR-8	Compliance	GDPR compliance for user data; adherence to food safety regulations; audit logs for all data modifications; transparent data privacy policy.
NFR-9	Compatibility	Support iOS, Android, Windows, and macOS. Compatible with modern web browsers (Chrome, Firefox, Safari, Edge). Works on devices with limited connectivity (low bandwidth support).
NFR-10	Disaster Recovery	Daily automated backups; disaster recovery plan with <4-hour RTO (Recovery Time Objective) and <1-hour RPO (Recovery Point Objective).

System Architecture & Technical Specifications

Technology Stack

- **Cloud Platform:** Salesforce (Platform-as-a-Service)
- **Frontend:** Lightning Web Components (LWC) for web; Salesforce Mobile App for volunteers
- **Backend:** Salesforce Apex classes and REST APIs
- **Database:** Salesforce SOQL/database
- **Automation:** Salesforce Flows, Process Builder, Business Rules
- **Integration:** REST APIs for third-party logistics, SMS notifications (Twilio), email services
- **Security:** OAuth 2.0, encryption at rest and in transit, SSL/TLS

Data Model & Custom Objects

- **Donor:** Email, organization name, location, verified status, contact info
- **Food_Item:** Donor, food type, quantity, expiry time, photo, status
- **Recipient_Organization:** Name, location, capacity, verified status, contact person
- **Volunteer:** Name, location, availability, skills, performance rating
- **Delivery_Task:** Food item, recipient, assigned volunteer, status, timestamp
- **Delivery_Event:** Multiple tasks, total meals, donor, recipient, completion date

Key Business Rules

- **BR-1:** Prevent deletion of volunteers assigned to active delivery tasks
- **BR-2:** Prevent deletion of delivery events with pending or incomplete assignments
- **BR-3:** Auto-assign tasks based on volunteer proximity and availability
- **BR-4:** Automatic notification triggers on task creation and status change
- **BR-5:** Audit log all critical operations (user creation, deletion attempts, assignments)

Acceptance Criteria

Requirement	Acceptance Criteria
FR-1 to FR-6	All registration forms functional; email/OTP verification working; 100+ test users registered successfully
FR-7 to FR-9	Automated assignment of 95%+ delivery tasks; notifications delivered within 30 seconds; <2% assignment errors
FR-10 to FR-12	Recipient confirmation capture 90%+ of deliveries; deletion prevention working 100% for assigned volunteers; no accidental data loss
FR-13 to FR-15	Dashboards load <5 seconds; reports accurate within 99.9%; user satisfaction ≥4.5/5

NFR-1 to NFR-5	UI SUS (System Usability Scale) ≥ 70 ; zero unauthorized access incidents; <2 sec response time for 95% of requests; 99.5% uptime
NFR-6 to NFR-10	Handle 10,000 simultaneous users; support 1000+ tasks/day; clean code with >80% test coverage; GDPR compliant; 4-hour RTO

Constraint & Dependencies

Constraints

- Budget: Limited for development, primarily open-source Salesforce features
- Timeline: 27 days for complete development and testing
- Team Size: 4 members with specific skill sets
- Data Privacy: GDPR compliance required

Dependencies

- Salesforce platform availability and API limits
- Third-party SMS/email service reliability (Twilio, SendGrid)
- Volunteer and NGO partner cooperation for pilot testing
- Food donor participation and data accuracy

Conclusion

Phase 5 establishes comprehensive functional and non-functional requirements for the "To Supply Leftover Food to Poor" Salesforce platform. These requirements ensure the system is secure, scalable, reliable, and user-friendly for all stakeholders. With clear acceptance criteria and technical specifications, the development team has a precise roadmap to deliver a solution that maximizes food distribution efficiency while preventing data loss and ensuring social impact.