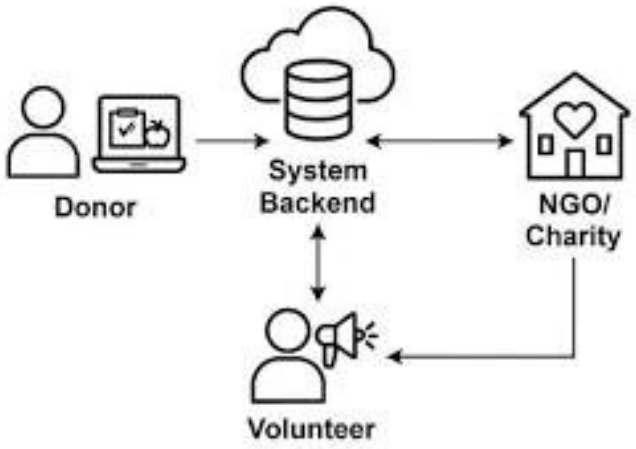
Project Design Phase-II

Technology Stack (Architecture & Stack)

Date:	1 November 2025
Team ID:	NM2025TMID01332
Project Name:	To Supply Leftover Food to Poor
Maximum Marks:	4 Marks

Technical Architecture:

The system helps collect leftover food from restaurants, events, and households, then redistributes it to needy people using a web platform and mobile interface. The architecture consists of user registration, food donation requests, real-time location tracking, and delivery management.



Guidelines Followed:

- Includes all processes (as application logic/technology block)
- Provides infrastructural demarcation (Local/Cloud)
- Indicates external interfaces (third-party APIs like Maps, Payment Gateway, etc.)
- Indicates data storage components/services
- Indicates optional interfaces for AI-based demand prediction (if applicable)

Table-1: Components & Technologies

S.No	Component	Description	Technology
1.	**User Interface**	Donors, volunteers, and admins interact via a web and mobile dashboard.	ReactJS (Web), Flutter (Mobile)

S.No	Component	Description	Technology
2.	**Application Logic-1**	Manages donor registration, food listings, and volunteer assignments.	Node.js / Express.js
3.	**Application Logic-2**	Validates location, food expiry time, and nearby volunteers.	REST API, Google Maps API
4.	**Application Logic-3**	Sends real-time notifications to volunteers and NGOs.	Firebase Cloud Messaging
5.	**Database**	Stores donor info, food details, volunteer data, and delivery records.	MongoDB / MySQL
6.	**Cloud Database**	Centralized cloud-hosted backend for all data operations.	AWS / Firebase Cloud
7.	**File Storage**	Stores uploaded food images, reports, and donor verification proofs.	AWS S3 / Firebase Storage
8.	**External API-1**	Google Maps API for location tracking and navigation.	Google Cloud Services
9.	**External API-2 (Optional)**	NGO verification via government portal API.	REST API Integration
10.	**Machine Learning Model (Optional)**	Predicts high-demand areas for food donation.	Python (TensorFlow / scikit-learn)
11.	**Infrastructure (Server / Cloud)**	Hosted on scalable cloud architecture for reliability and uptime.	AWS EC2 / Firebase Hosting

Table-2: Application Characteristics

S.No	Characteristics	Description	Technology
1.	**Open-Source Frameworks**	Built using open-source front-end and back-end technologies.	ReactJS, Node.js, MongoDB
2.	**Security Implementations**	Includes role-based access, data encryption, and secure login.	JWT Authentication, HTTPS
3.	**Scalable Architecture**	Supports increasing numbers of donors, NGOs, and volunteers.	Microservices Architecture
4.	**Availability**	Cloud hosting ensures continuous system availability.	AWS / Firebase Cloud
5.	**Performance**	Fast response via optimized queries and caching.	Redis Cache, Indexed DB Queries