Functional Requirements

1. User Authentication Module

1. **User Signup (Manual + Google Sign-in)**

   ○ Users can register manually using email and password or instantly via **Google Sign-in (OAuth 2.0)** for faster access.

   ○ Google users' names, emails, and profile pictures are fetched securely.

   ○ First-time Google users must confirm their role as "Customer."

   ○ Passwordless experience for Google-authenticated users.

2. **Restaurant & NGO Signup (Manual Only)**

   ○ Partners (restaurants, NGOs) must sign up manually to undergo verification.

   ○ Upload official documents such as trade licenses, NGO registration certificates, etc.

   ○ Admin approval is required before accessing dashboards.

3. **Login/Logout System**

   ○ Secure login using JWT-based authentication.

   ○ Google-authenticated users bypass password entry.

   ○ Logout removes the session token and clears local data.

4. **Forgot Password / Reset Password**

   ○ Users who signed up manually can reset via OTP or email link.

   ○ Google Sign-In users are redirected to their Google account recovery.

2. Food Ordering System

5. **Restaurant Menu Display**

   ○ Shows restaurant name, cuisine type, ratings, and food availability.

   ○ The menu dynamically updates based on the restaurant's real-time input.

   ○ Tags like "Popular," "New," or "Discounted" are automatically generated.

6. **Smart Search & Advanced Filters**

   ○ Search by dish, restaurant name, or ingredient.

   ○ Filters by distance, price range, dietary preference, and rating.

   ○ "Sort by" option for delivery time, lowest cost, or popularity.

7. **Add to Cart & Customisation**

   ○ Quantity control, add-ons (extra toppings, sauces).

   ○ Auto-updated cart summary with live price calculation.

8. **Order Checkout & Payment Gateway**

   ○ Integrated with **SSLCommerz like and Stripe**.

   ○ Two modes: "Order for Me" or "Donate a Meal."

9. **Real-time Order Tracking (HOLD)**

   ○ Interactive map powered by Google Maps API.

   ○ Status: "Preparing," "Picked Up," "On the Way," "Delivered."

   ○ Push notifications and sound alerts for updates.

3. Food Donation & Sharing System

10. **Donate Surplus Food (User or Restaurant)**

    ○ Users/restaurants can list extra food as "Available for Donation."

    ○ Add details: type, quantity, freshness, expiry time, and pickup address.

    ○ Expired or unsafe listings auto-expire.

11. **Nearby NGO / Collection Point Map (HOLD)**

    ○ Displays verified NGOs and food banks.

    ○ Filter by distance or category (children, shelters, animal rescues).

    ○ Option to book donation pickup.

12. **Smart Expiry Management**

    ○ Restaurants can log food production and expiry time.

    ○ The system sends notifications when food is nearing expiry for timely donation.

13. **Scheduled Donation Pickups (HOLD)**

    ○ Users and restaurants can schedule recurring donations (e.g., every Friday).

    ○ NGOs receive a route-optimized pickup schedule.

14. **Community Campaigns & Drives (BAD FEATURE)**

    ○ The platform runs "Zero Hunger Week" or "Donate 1 Meal" events.

    ○ Users can join and share campaign progress on social media.

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4. Restaurant and NGO/Volunteer Dashboard

15. **Menu Management System**

   ○ Add, update, or remove food items with price and availability.

   ○ Upload images and set discounts.

   ○ "Duplicate Item" option for efficiency.

16. **Donation Tracker**

   ○ Restaurants can monitor how much food they've donated and its impact.

   ○ Display of total meals donated and the number of NGO beneficiaries.

17. **Order Analytics Dashboard**

   ○ Shows weekly/monthly order trends, customer feedback, and ==profit breakdown==.

   ○ Visual graphs for easy analysis.

18. **NGO Verification & Profile Management**

   ○ Admin verification is mandatory before activation.

   ○ NGOs can add logos, missions, and service area info.

19. **Volunteer Assignment Panel**

   ○ NGOs can assign volunteers to pick up or distribute food.

   ○ Volunteers get in-app notifications and navigation support.

20. **Donation Tracking & Acknowledgement (New)**

   ○ NGOs log donation receipts with photos or short notes.

   ○ Donors get confirmation updates and appreciation messages.

5. Community-Driven Delivery Logistics

21. **Donation History & Impact Overview**

    ○ Users can view all donations (date, type, and NGO served).

    ○ Adds transparency and personal satisfaction.

22. **Leaderboards & Recognition**

    ○ Lists top individual donors and restaurants.

    ○ The leaderboard resets monthly to maintain active engagement.

23. **Achievement Badges & Rewards**

    ○ Earn digital badges like "Monthly Hero" and "100 Meals Shared."

    ○ Visible on user profiles and shareable on social media.

24. **Rider Live Tracking Dashboard**

    ○ Riders see the delivery queue, customer location, and route maps.

    ○ Users and NGOs can track rider progress in real time.

25. **Delivery Confirmation & Feedback**

    ○ Once completed, both the user and the restaurants confirm receipt digitally.

    ○ The rider receives a rating and an optional tip.

Non-functional Requirements

1. Performance Requirements

1.1 Response Time

- All pages must load within 2–3 seconds under normal network conditions.

- Search results (restaurants, dishes, NGOs) should appear within <1 second after user input.

- Real-time features (live tracking, donation expiry timers) should update within 10–12 seconds.

1.2 Scalability

- The system must support:

- 10,000+ concurrent users during peak donation campaigns.

- Scaling through load balancers and microservices (if needed in the future).

- The database should handle the growth of thousands of orders/donations without major performance drops.

2. Security Requirements

2.1 Authentication & Authorization

- JWT-based access control must be enforced for all user types (Customer, Restaurant, NGO, Rider, Admin).

- OAuth 2.0 must be secured with proper callback validation for Google Sign-In.

2.2 Data Protection

- Passwords must be hashed using bcrypt with strong salt rounds.

- Sensitive partner documents (trade license, registration certificates) must be stored encrypted.

2.3 Payment Security

- All payments must comply with PCI DSS guidelines through certified payment gateways (e.g., SSLCommerz or Stripe).

3. Reliability & Availability

3.1 System Availability

- The platform should have 98% uptime annually.

- Essential modules (order placement, donation listing, payments) must remain available even during maintenance mode.

3.2 Fault Tolerance

- If a microservice fails (e.g., tracking service), the system should degrade gracefully without full app failure.

4. Usability Requirements

4.1 User-Friendly Interface

- Minimalistic UI designed for rural communities with clear icons, Bengali support, and simple navigation.

- All important actions (order, donate, track rider) must be accessible in 3 clicks or fewer.

4.2 Accessibility

- The website must follow basic WCAG AA accessibility standards:

- High-contrast text

- Screen reader compatibility

5. Maintainability & Extensibility

5.1 Modular Architecture

- MERN modules must be structured in reusable service layers (auth, order, donation, payment).

- Adding new features (e.g., medicine delivery, clothing donation) should require minimal code modification.

5.2 Documentation

Internal documentation must include:

- Architecture overview

- Deployment guide

6. Interoperability Requirements

6.1 Third-Party Integration

- Google Maps API, Google OAuth, and SSLCommerz/Stripe must interface smoothly via standardized REST APIs.

- The system should support future integrations with logistics APIs (e.g., Pathao courier)

7. Legal & Compliance Requirements

7.1 Food Safety Compliance

The donation module must follow basic food safety rules:

- Auto-expire unsafe listings

- Mark expired food as "Not Available."

7.2 Transparency

- Donation histories must remain tamper-proof and traceable.