**Software Requirements Specification**

**PRJ566 – Fall 2024**

**PRJ566 – Team No: 7**

**Name of Project:  AI Integrated Grocery List Application**

Project Leader: **Jeevanjot Khehra**

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**Team Members:**

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## 2.2 Stakeholders and Users

|  |  |
| --- | --- |
| Stakeholder Name/Identifier | Category |
| CEO (Chief Executive Officer) | Administration, Sponsor |
| Construction Manager and Scheduler | Administration, User  Needs accurate up to date information for costing and scheduling of project details |
| Administrative Assistant | User |
| Schedulers | User |
| Cost Accountant | User |
| Project Leader | Developers |
| Developers | Developers |
| Grocery Shoppers | Primary Users |
| Health-Conscious Consumers | Primary Users |
| Budget-Conscious Consumers | Primary Users |
| AI Integrated Grocery List App Development Team | Internal Stakeholders |
| Grocery Retailers and Supermarkets | Stakeholders |
| Nutritionists and Dietary Experts | Stakeholders |
| Discount and Offer Providers (Retailers) | Stakeholders |
| AI and Machine Learning Specialists | Internal Stakeholders |

## 2.3 Functional Requirements

#### **1. User Registration and Profile Management**

##### **1.1 User Registration**

* **1.1.1** The system should provide users with the option to register for an account by entering necessary personal details, including name, email, and password.
* **1.1.2** The system should allow users to register using third-party services (e.g., Google, Facebook) for quicker sign-up.
* **1.1.3** The system will validate the user’s email by sending a confirmation link. Users must confirm their email to complete registration.
* **1.1.4** The system will offer users a choice of account types (e.g., regular user, family account) to personalize the experience.

##### **1.2 User Login**

* **1.2.1** The system will allow registered users to log in using their email and password or through social media logins.
* **1.2.2** The system should offer a "Remember Me" feature for quick access.
* **1.2.3** The system must provide a "Forgot Password" option, where users can reset their password through an email verification process.

##### **1.3 Profile Management**

* **1.3.1** Users should be able to update their profile details, such as name, email, and password, from the account settings page.
* **1.3.2** The system should allow users to add dietary preferences, such as vegetarian, vegan, gluten-free, or allergy information, to personalize grocery list recommendations.
* **1.3.3** Users should be able to delete their account, with a confirmation step to ensure they understand that all their data will be erased permanently.

#### **2. Grocery List Creation and Management**

##### **2.1 AI-Powered Grocery List Generation**

* **2.1.1** The system will analyze the user’s previous shopping history and automatically generate a personalized grocery list based on frequent purchases, seasonal items, and dietary preferences.
* **2.1.2** Users can manually add or remove items from the suggested list by searching for products or scanning a barcode.
* **2.1.3** The system should allow users to categorize items into groups, such as fruits, vegetables, dairy, etc., for easier navigation during shopping.
* **2.1.4** Users should be able to save the generated grocery list for future use and reference.
* **2.1.5** The system will offer a “smart suggestions” feature where users can receive recommendations for healthier or budget-friendly alternatives to their selected items.

##### **2.2 Grocery List Sharing**

* **2.2.1** Users should be able to share their grocery list with family members or friends via email or messaging apps, allowing collaboration on the list.
* **2.2.2** Shared lists should be editable in real-time by multiple users, with updates reflected instantly.
* **2.2.3** Users can set permissions on shared lists (e.g., view only, full edit access).

##### **2.3 Real-Time Updates**

* **2.3.1** The app should automatically update the grocery list if new items are added or removed by other members in shared lists.
* **2.3.2** Users will receive notifications for any significant updates or changes to the shared list.

#### **3. Recipe Integration and Meal Planning**

##### **3.1 Recipe Suggestions**

* **3.1.1** The system should suggest meal recipes based on the user’s dietary preferences and available items in their grocery list.
* **3.1.2** Users can browse through a variety of recipes categorized by meal type (breakfast, lunch, dinner) or dietary focus (e.g., vegan, keto, low-carb).
* **3.1.3** Once a recipe is selected, the system will automatically add the required ingredients to the user’s grocery list.

##### **3.2 Meal Planning**

* **3.2.1** Users should be able to plan meals for the week by selecting recipes and generating an associated grocery list.
* **3.2.2** The system should allow users to save meal plans for future use, with the option to repeat weekly plans automatically.
* **3.2.3** Users should be able to create custom meal plans by adding their own recipes or ingredients.

#### **4. Real-Time Offers and Discounts**

##### **4.1 Discount Integration**

* **4.1.1** The app will integrate with retailers to show real-time discounts and offers available in stores, based on the user’s selected grocery items.
* **4.1.2** Users should be able to apply discount filters to prioritize cheaper products or sale items while building their grocery list.

##### **4.2 Notifications**

* **4.2.1** The system will send push notifications or emails to users when discounts for items on their grocery list become available.
* **4.2.2** Users can enable or disable notifications for real-time offers and set preferences for the type of offers they want to receive (e.g., store-specific, category-specific).

#### **5. Store Navigation and Checkout**

##### **5.1 In-Store Navigation**

* **5.1.1** The app should provide users with a store map or optimal route to help them navigate aisles efficiently, minimizing time spent shopping.
* **5.1.2** Users should be able to select their preferred store, and the app will adjust the grocery list and layout based on that store’s specific aisle arrangement.

##### **5.2 Checkout and Payment Integration**

* **5.2.1** The system should offer integration with payment platforms, allowing users to check out their grocery list via the app in partnered stores.
* **5.2.2** Users can generate a shopping summary, displaying the total cost and savings from applied discount.

## 2.4 Nonfunctional Requirements

#### **1. Operational Requirements**

* **1.1** The system must operate seamlessly on both iOS and Android platforms, ensuring compatibility with the latest mobile operating system versions.
* **1.2** The system should support cloud integration to allow users to sync their grocery lists and data across multiple devices.
* **1.3** The app must operate in offline mode, where users can still view their saved lists even when there is no internet connection, and sync updates once the connection is reestablished.

#### **2. Performance Requirements**

* **2.1** The system must be able to generate a personalized grocery list within 3 seconds after analyzing user history and preferences.
* **2.2** Real-time discounts and offers from retailers must be fetched and displayed within 5 seconds of request.
* **2.3** The system must support at least 10,000 concurrent users without any significant decrease in performance.
* **2.4** The app must be able to retrieve a user's grocery list from cloud storage in less than 2 seconds.

#### **3. Security Requirements**

* **3.1** All user data (including purchase history, preferences, and personal details) must be encrypted both in transit and at rest, ensuring compliance with industry standards like AES-256 encryption.
* **3.2** The app must implement secure authentication processes, such as OAuth 2.0, for all user login activities.
* **3.3** The system must comply with GDPR and other relevant privacy laws to protect user data and provide options for users to delete their data upon request.

#### **4. Cultural and Political Requirements**

* **4.1** The app must support multiple languages, including but not limited to English, Spanish, and French, to cater to a global audience.
* **4.2** No specific political or cultural biases should be embedded in the app’s functionalities, ensuring neutrality across different demographics and regions.
* **4.3** The system must comply with region-specific legal regulations (such as data storage policies) for different countries.

#### **5. Usability Requirements**

* **5.1** The app’s user interface must be intuitive and user-friendly, allowing users of all tech literacy levels to create grocery lists with minimal guidance.
* **5.2** The app should provide voice command functionality for hands-free use, improving accessibility for users with disabilities.
* **5.3** The system should feature a “dark mode” option to accommodate user preferences for better visibility and energy saving on OLED screens.
* **5.4** The system must have a 99.9% uptime guarantee to ensure continuous availability for users across different time zones.

#### **6. Reliability and Maintenance Requirements**

* **6.1** The system must be able to recover from crashes or failures within 2 minutes without loss of data.
* **6.2** Regular updates and patches must be released at least once a month to improve performance and security.
* **6.3** Backup of user data must be done at least once every 24 hours to ensure data recovery in case of system failure.