**Project Design Phase**

**Solution Architecture**

|  |  |
| --- | --- |
| Date | 6 March 2025 |
| Team ID | SWTID1741257978145975 |
| Project Name | COOK BOOK |
| Maximum Marks | 4 Marks |

### ****Solution Architecture****

The solution architecture for **CookBook** ensures a scalable, efficient, and user-friendly platform for discovering, saving, and managing recipes with real-time access to categorized meal options, nutritional information, and ingredient-based filtering.

#### ****Goals of the Solution Architecture:****

1. **Identify the Best Tech Solution:**
   * Leverage modern front-end frameworks like **React.js** to build a responsive and interactive user interface.
   * Utilize **TheMealsDB API** for real-time recipe retrieval, ingredient details, and categorization to enhance user experience.
   * Implement **Axios** for efficient API communication, ensuring smooth and responsive data fetching.
2. **Define Structure & Characteristics:**
   * Ensure a **modular, scalable, and maintainable architecture** by organizing code into components, pages, and styles.
   * Support future enhancements such as **user-generated recipes, personalized recommendations, and AI-based suggestions**.
   * Optimize state management to handle dynamic data and user interactions seamlessly.
3. **Outline Features & Development Phases:**
   * **Phase 1:** UI/UX Design - Create intuitive navigation, category browsing, and search functionality.
   * **Phase 2:** API Integration - Integrate **TheMealsDB API** for dynamic recipe retrieval and display.
   * **Phase 3:** Feature Implementation - Add functionalities like saving favorite recipes, filtering, and user authentication.
   * **Phase 4:** Testing & Deployment - Ensure compatibility across various devices and deploy for public access.
4. **Establish Specifications for Development & Delivery:**
   * Provide clear guidelines for **system architecture, API integrations, and data handling.**
   * Implement a high-performance front-end solution to handle **large-scale user requests** for searching, filtering, and recipe viewing.
   * Ensure secure handling of user data and implement scalable UI components for improved responsiveness.

