**Report on Functional Requirements Analysis for MyFridge Platform**

**Team Overview**

* **Team Name:** What’s In My Fridge?
* **Team Members:**
  + Ke’Arrah Martin
  + Rodney Whitney III
  + Ronnie Burns
  + Kayla Alexandre
* **Assigned Roles:**
* **Ke’Arrah Martin**: **AI Features Lead**  
  Focuses on evaluating and designing AI-powered features, such as ingredient recognition, recipe suggestions, and LLM-based search capabilities. Responsible for ensuring the feasibility of implementing AI tools within project timelines.
* **Rodney Whitney III**: **Social Engagement Analyst**  
  Handles the analysis and development of community features, such as following users, hosting challenges, and comment systems. Ensures social features align with user engagement goals.
* **Ronnie Burns**: **Database Architect and Integration Specialist**  
  Oversees the design and evaluation of the database schema. Ensures fields like ingredients, recipes, and user data are structured to support features like filtering, searching, and advanced analytics.
* **Kayla Alexandre**: **Accessibility and Usability Tester**  
  Focuses on evaluating and improving accessibility features, including support for visually impaired users, user-friendly interfaces, and robust notification systems. Ensures the app meets usability standards for diverse audiences.

**1. Overview of Findings**

The analysis of the functional requirements for the MyFridge platform highlighted several strengths, including a well-defined structure for user roles, a comprehensive set of features like AI-powered recipe suggestions, virtual fridge management, and social engagement tools. However, gaps and ambiguities were identified that could hinder implementation and user experience. Key issues include the lack of clarity in certain requirements, such as how AI prioritizes recipe suggestions or how nutrition workshops are hosted, and missing features like advanced ingredient filtering for allergies or expiration tracking in the virtual fridge. Some requirements, like notifications and community engagement, contain redundancies that could be simplified to streamline development. Additionally, feasibility concerns were raised regarding resource-intensive features like image recognition and live workshops, suggesting the need for phased implementation. These findings indicate that while the foundation is strong, enhancements in precision, completeness, and feasibility are necessary to optimize the platform's functionality and user satisfaction.

**2. Detailed Analysis**

**2.1 Completeness**

* **Strengths:**  
  The requirements document includes core functionalities such as virtual fridge management, recipe discovery, AI-based features, and robust social engagement tools.
* **Gaps Identified:**
  + **Virtual Fridge**: Missing details about how ingredient expiration or storage conditions are handled.
  + **Recipe Discovery**: Lack of requirements for advanced filtering options like allergies or combination-based ingredient search (e.g., "show recipes with chicken and broccoli").
  + **Accessibility**: No details on accessibility settings for visually impaired users.
  + **Edge Cases**: Handling invalid or missing data (e.g., incomplete recipe instructions or empty fridge inputs).

**2.2 Clarity**

* **Strengths:**  
  Most requirements are clearly outlined with sufficient detail about role-specific functionalities.
* **Ambiguities Identified:**
  + **AI Recipe Suggestions**: No clarity on how AI prioritizes recipes (e.g., based on health, popularity, or user preferences).
  + **Content Creator Role**: "Host Nutrition Workshops" lacks specifics about the workshop format (live or pre-recorded) and user interactions.
  + **Admin Analytics**: Ambiguity in “recipe trends”—should this include user demographics, seasonal insights, or other metrics?

**2.3 Feasibility**

* **Strengths:**  
  Most requirements appear realistic given AI and database integration capabilities.
* **Concerns:**
  + **Timeline Concerns:** Implementing image recognition for ingredients and LLM-powered vague query searches may require significant time and resources.
  + **Budget Concerns:** Hosting interactive features like live workshops or recipe challenges could introduce additional server costs or require third-party integrations.

**2.4 Redundancies**

* **Examples Identified:**
  + The “Notification System” is listed under multiple roles (User and Content Creator) with similar descriptions, which can be merged.
  + “Follow a Content Creator” and “Engage with the Community” overlap in functionality; consolidation may simplify implementation.

**2.5 Dependencies**

* **Key Dependencies:**
  + The "AI Recipe Suggestions" feature relies on accurate and complete virtual fridge data.
  + Recipe filtering requires a well-defined database schema with tags and dietary information.
  + Social features like challenges and comments depend on the underlying user authentication and interaction system.

**3. Role-Specific Focus**

**Admin Role**

* **Gaps:**
  + Limited tools for managing abusive content (e.g., inappropriate comments or recipes).
  + No support for automating user behavior analysis (e.g., flagging spam).

**User Role**

* **Gaps:**
  + Missing edge cases for incomplete inputs (e.g., empty fridge or invalid ingredient entries).
  + Lack of advanced customization for recipe feeds.

**Content Creator Role**

* **Gaps:**
  + No specifics about monetization options (if applicable).
  + Limited interaction details for workshops and challenges (e.g., user registration or participation tracking).

**Recipe Curator Role**

* **Gaps:**
  + No clear metrics or tools specified for evaluating recipe accuracy or quality beyond “popularity metrics.”
  + Missing guidance for handling conflicting dietary restrictions in recipes.

**4. Recommendations**

1. **New Functional Requirements**:
   1. **Ingredient Expiration Tracking**: Add support for tracking expiration dates and storage conditions in the virtual fridge.
   2. **Allergy-Friendly Search**: Implement advanced filters for allergies and health-based dietary restrictions.
2. **Improvements to Existing Requirements**:
   1. Clarify how AI will prioritize recipe suggestions (health, popularity, or preferences).
   2. Expand the description of “Nutrition Workshops” with details about formats and tools.
   3. Define specifics for accessibility settings (e.g., text-to-speech, font size, color contrast options).
3. **Simplifications**:
   1. Consolidate the notification system descriptions for User and Content Creator roles into one generic requirement.
   2. Merge overlapping features like "Follow Content Creator" and "Engage with the Community."
4. **Implementation Feasibility**:
   1. Phase AI and LLM-powered features into separate milestones to manage timeline and budget effectively.

**Deliverables**

This report outlines a critical evaluation of the requirements document for MyFridge and offers actionable recommendations to enhance clarity, feasibility, and completeness. Each team member is assigned a clear role to ensure thorough and collaborative project execution.