# Smart Household Management System (SHMS)

Product BackLog

***1. User authentication and management***

**1. User Authentication:**

* Implementing a secure authentication system using modern protocols..
* Developing an authentication feature through third-party providers, such as Google, Facebook, etc.
* Integration with two-factor authentication services for enhanced security. (optional).

**2. Creating a household:**

* Creating an interactive and responsive interface for creating a new household, including data validation.
* Implementing the functionality of customizing the household, including adding details such as name, address, description, etc.
* Ensuring a notification system to inform users about the status of household creation and to provide real-time support.

**3. Member Management:**

* Developing an interface for managing household members, including adding, deleting, and modifying user permissions.
* Implementing the functionality of inviting members, with the possibility of sending invitations via email or other means of communication.
* Adding a feature to manage member activity, including recording and displaying recent activities.

**4. Security:**

* Implementing a robust session and token management system to ensure the correct authentication and authorization of users.
* Creating an auditing mechanism for recording and monitoring relevant user activities.

**5. User Account Management:**

* Developing a user account management interface with advanced options such as changing the password, updating contact information, preferences, etc.

**6. Front-end:**

* Creating a modern and attractive design for the login page and for the household management and settings page.
* Optimizing the user interface for a smooth and intuitive experience on devices of various sizes and resolutions.
* Implementing animations and visual effects to enhance interactivity and make the user experience more enjoyable.

***2. Shared shopping list and inventory***

1. **Inventory, shopping lists and chores configuration:**

* Implementing the functionality of modifying the available inventory.
* Implementing the functionality of creating, removing, modifying and completing shopping lists and chores lists.
* Adding a modifiable chores timetable that can be assigned to a member of the household. (optional)
* Implementing item categories(e.g. food, furniture, tools) for inventory and shopping list items. (optional)
* Synchronizing the inventory, shopping lists and chores between members of the same household.

1. **Notification system:**

* Implementing email notifications for users, using Google Mail.
* Adding automatic notifications to other members of a household when a member modifies the inventory, shopping lists or chores.
* Adding automatic notifications to notify members of a household when it’s time to do the chores assigned to them. (optional)

1. **User Interface:**

* Developing an intuitive user interface for the inventory, shopping list and chores pages.
* Optimizing the user interface for use on devices of different sizes and resolutions.

***3. Recipe management and meal planner***

1. **Basic Recipe Management:** Allow users to create, edit, and update recipes with details and images.
2. **User-Friendly Interface:** Develop an intuitive interface for easy recipe and meal planning management.
3. **AI Parsing for Recipe Import and Meal Planning:** Integrate AI algorithm for importing recipes and automated meal planning considering dietary preferences and available ingredients. Steps:
   * Design the Neural Network architecture
   * Create the Neural Network
   * Train and test Neural Network
   * Integrate recipe information from database into AI training
4. **Updates for Recipe Suggestions:** Sync recipes with the user's inventory to suggest recipes based on available ingredients and preferences
5. **Continuous Testing and Feedback:**
   * Plan thorough testing
   * Gather feedback for improvements
6. **Integration with Other Modules:** Ensure integration with inventory management and shopping modules for seamless user experience.

***4. Restock automation and shopping optimization***

1. **Automatic Restocking Predictions**:

* Research and identify data sources for consumption patterns.
* Develop an algorithm for predicting restocking needs.
* Implement automatic suggestion functionality for shopping lists.

1. **Efficient Store Routes:**

* Integrate GPS and maps for determining optimal routes.
* Sort and select stores based on their prices.
* Implement display of stores on an interactive map for easy navigation.

1. **Notifications:**

* Develop notification system for restocking suggestions.
* Customize notification preferences.
* Implement real-time alerts.