**Chapter I. Introduction**

**Background of the Study**

The increasing prevalence of dietary restrictions, food allergies, and specialized dietary preferences such as veganism necessitates a reliable solution for individuals to manage their diets effectively. While there are numerous health and nutrition apps available, many fall short in offering comprehensive support for diverse dietary needs. Nuvhen aims to fill this gap by providing an all-in-one platform for personalized meal planning, ingredient scanning, and nutritional tracking, while also promoting health-conscious eating habits.

**Statement of the Problem**

Currently, there is no comprehensive app that effectively addresses the combined needs of individuals with dietary restrictions, food allergies, and specific dietary preferences. Existing apps often lack robust features for ingredient scanning, meal planning, and finding suitable dining options. Moreover, they do not provide adequate educational resources or community support to help users manage their dietary requirements effectively.

**Assumption of the Study**

* There is a lack of a comprehensive app that addresses the needs of individuals with dietary restrictions, allergies, and preferences.
* Users need a reliable tool for personalized meal planning, ingredient checking, and nutritional tracking.
* Promoting local restaurants and recipes that cater to these dietary needs can benefit users and vendors alike.

**Significance of the Study**

The following stakeholders will benefit from Nuvhen:

* **Individuals with Dietary Restrictions and Allergies:** Gain a reliable tool for safe eating and meal planning.
* **Vegans and Vegetarians:** Access a wide range of plant-based recipes and dining options.
* **Health-conscious Individuals:** Track nutritional intake and achieve health goals.
* **Local Restaurants and Vendors:** Increase visibility and patronage by catering to specialized dietary needs.
* **Dietitians and Nutritionists:** Utilize the app to create client meal plans and track progress.

**Chapter II. Research Design**

**Task Analysis**

**Hierarchical Task Analysis**

1. **Creating and Managing Profiles:** Input dietary restrictions, allergies, and preferences.
2. **Ingredient Scanning:** Scan barcodes and manually search for food products.
3. **Meal Planning:** Create and customize meal plans.
4. **Recipe Search:** Find and save recipes based on dietary needs.
5. **Nutritional Tracking:** Log food intake and monitor nutritional goals.
6. **Restaurant Finder:** Search for and review local dining options.
7. **Community Engagement:** Participate in forums and share experiences.

**Requirements Gathering**

**Methods**

* **Observation:** Analyzed existing health and nutrition apps to identify gaps and areas for improvement.
* **Surveys and Interviews:** Collected user feedback on desired features and pain points.

**Requirements**

* **User Requirements**
  + Create and manage personalized profiles.
  + Scan ingredients and search for food products.
  + Access a comprehensive recipe database.
  + Plan meals and generate grocery lists.
  + Track nutritional intake and health goals.
  + Find local restaurants that cater to dietary needs.
  + Participate in community forums and access educational resources.
* **Functional Requirements**
  + Securely manage user profiles and data.
  + Perform real-time ingredient scanning and analysis.
  + Offer personalized meal planning and recipe recommendations.
  + Provide accurate nutritional tracking and goal setting.
  + Enable search and review of local restaurants.
  + Facilitate community interactions and support.
* **Data Requirements**
  + Store user data securely and privately.
  + Ensure long-term storage of saved meals, recipes, and preferences.
  + Protect user location data and allow for easy updates.
* **Environmental Requirements**
  + Ensure app compatibility across various devices and operating systems.
  + Support offline functionality for essential features.
  + Facilitate seamless coordination between users and local vendors.
* **Usability Requirements**
  + Ensure the app is intuitive and easy to use for all age groups.
  + Provide accessibility features for users with disabilities.
  + Design a memorable and engaging user experience.
  + Address the specific needs of users with dietary restrictions and preferences, filling a niche in the market.

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| **Area of Evaluation** | **5** | **4** | **3** | **2** | **1** |
| 1. **Visibility of System Status**  * - The system design provides appropriate feedback like message prompts in response to user actions. * The message prompts are clear, visible and understandable. |  |  |  |  |  |
|  |  |  |  |  |
| 1. **Match between the system and the real world**   - Used words, phrases and concepts according to users’ language rather than system oriented words and computer jargons. |  |  |  |  |  |
| 1. **User control and freedom**   - The system design provides ways of allowing users to easily “get in” and “get out” if they find themselves in unfamiliar parts of the system. |  |  |  |  |  |
| 1. **Consistency and Standards**  * - The colors, text, labels, buttons and other elements in the design are uniform from start to finish**.**   - Text and icons are not too small or too big.  **-** Menus and other features of the system are arranged and positioned in a consistent way. (For ex. If your website has navigation buttons on the top under the page title on one page, the users will automatically look there for the same features on other pages. |  |  |  |  |  |
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| 1. **Error Prevention**   - The system design provides an automatic detection of errors and preventing them to occur in the first place.  - Idiot proofing mechanisms are applied |  |  |  |  |  |
|  |  |  |  |  |
| **F. Help users recognize, diagnose and recover from errors**  **-** Error messages and the terms used are recognizable, familiar and understandable for the users. |  |  |  |  |  |
| **G. Recognition rather than recall**  **-** Objects, icons, actions and options are visible for the user.  - Objects are labeled well with text and icons that can immediately be spotted by the user and matched with what they want to do. |  |  |  |  |  |
| **H. Flexibility and efficiency of use**  - The system design provides easy to navigate menus.  - the system does not make wasteful time of system resources. |  |  |  |  |  |
| 1. **Aesthetic and minimalist design**   **-**Graphics and animations used are not difficult to look at and does not clutter (mess) up the screen.  - Information provided is relevant and needed for the system design. |  |  |  |  |  |
| 1. **Help and Documentation**   **-**the system design provides information that can be easily searched and provides help in a set of concrete steps that can easily be followed. |  |  |  |  |  |

**Chapter III. Conclusion and Recommendation**

Our dietary management app, Nuvhen, addresses the gaps identified in Section II of Chapter I by providing a comprehensive solution for individuals with dietary restrictions, food allergies, and specific dietary preferences. Nuvhen promotes healthier eating habits and supports users in navigating their dietary needs with ease and confidence.

The app's personalized meal planning, ingredient scanning, and nutritional tracking features empower users to make informed food choices. Additionally, Nuvhen's restaurant finder and recipe database enhance users' dining and cooking experiences by offering tailored options. The inclusion of community support and educational resources fosters a sense of belonging and continuous learning among users.

Through this project, we have learned the significance of addressing diverse dietary needs with an intuitive and user-friendly interface. The app's design not only simplifies the process of managing dietary restrictions but also demonstrates how technology can effectively bridge the gap in the market for comprehensive dietary solutions. By prioritizing user experience and ensuring robust functionality, Nuvhen exemplifies how innovative technology can improve daily life and promote healthier living.