Project Description:

The HealthHub app is a mobile health companion designed to help users explore symptoms using an interactive body map and receive practical, evidence-based self-care recommendations. It aims to promote accessible health decision-making without requiring immediate clinical intervention.

Requirements Summary:

MINIMUM REQUIREMENTS	Processor Cores	Single Core
	OS	Android 4.4 (KitKat)
	RAM	2 GB
RECOMMENDED REQUIREMENTS	Processor Cores	Quad Core
	OS	Android 8.0(Oreo)
	RAM	4 GB
OTHER REQUIREMENTS	Permissions	Notifications and Storage

Table 1. System Requirements

To cater to low-end android models, the application will have at most a minimum of 1 Core, 2 GB worth or RAM, and Android version 4.4 or KitKat as its OS. The app itself is not at all demanding, hence our team has settled on lower requirement specs.

Prototype Description:

The HealthHub prototype, developed using a user-centered design (UCD) framework, is a mobile application designed to empower users with immediate access to evidence-based self-care recommendations for common symptoms. The prototype features an interactive body map for symptom exploration and integrates an AI assistant for deeper support. It was designed to provide a fast, intuitive, and informative user experience, particularly for everyday health concerns, thereby facilitating accessible health decision-making without the necessity for immediate clinical intervention.

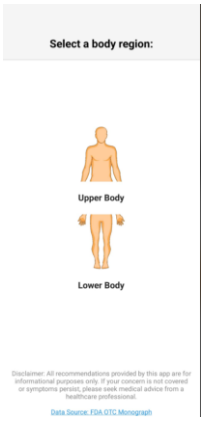
HealthHubf Figma Link:

https://www.figma.com/design/WT1PIPpq2KX1LzmMNLBKVR/HCI-PROTOTYPE?node-id=1-37&t=18rrGZNd7aVg3M9Z-1

User Scenario:

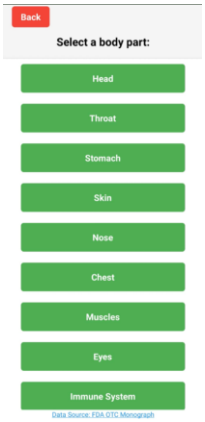
A user, let's call her Anna, wakes up with a dull headache and a runny nose, suspecting seasonal allergies. Instead of immediately searching online or calling a doctor, she opens the HealthHub app.

HealthHub Mock-up/Prototype:



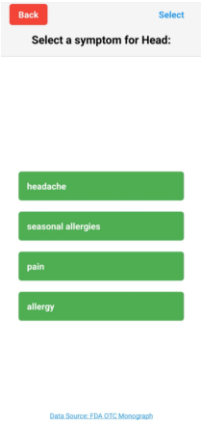
Main Menu

The user begins by selecting a general body region (e.g., "Upper Body", "Lower Body") from an interactive body map or list.



Body Part Menu

Following the body region selection, a more granular list of body parts appears from which the user selects the relevant area.

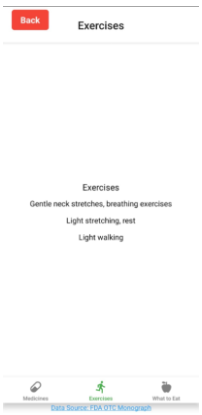


Symptom Menu

Upon selecting a body part a list of associated symptoms is.

Medicine Screen

The medicine screen is where the users will know the medicine for the chosen symptom.

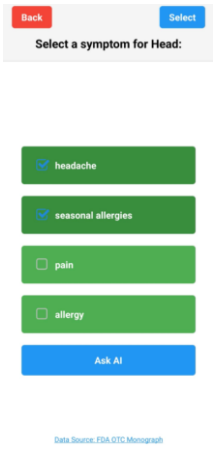


Exercise Screen

The exercise screen is where the users will know the exercises for the chosen symptom.

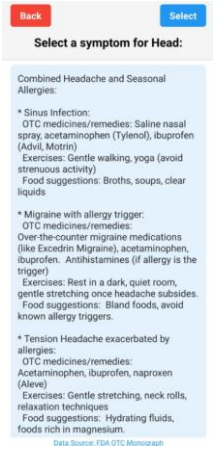
Food Screen

The food screen is where the users will know what they need to eat for the chosen symptom.



Select Many Setting

The select many setting will allow users to select one or multiple symptoms.



Possible Sickness Screen (AI)

The possible sickness screen is where the users can see what the possible sickness, is, with the chosen symptoms.

Rationale:

The rationale behind HealthHub stems from the increasing need for accessible, reliable, and immediate health information in an increasingly self-reliant population. Many common symptoms do not require immediate clinical intervention but benefit from timely, evidence-based self-care. HealthHub addresses this gap by:

- **Empowering Users**: Providing users with the tools to understand their symptoms and make informed self-care decisions.
- **Reducing Unnecessary Clinic Visits**: By offering initial guidance for mild and common ailments, HealthHub can potentially reduce the burden on healthcare systems.
- **Promoting Health Literacy**: Educating users about appropriate OTC remedies, beneficial exercises, and supportive dietary choices based on credible sources (FDA OTC Monograph).
- **User-Centered Design**: Ensuring the application is intuitive and easy to navigate, making health information approachable for a wide audience.
- **Integration of AI**: Leveraging AI to offer deeper, personalized support, thereby enhancing the utility and responsiveness of the application beyond static information.

Changes to the Requirements:

Initially, the core requirement for HealthHub was to provide basic symptom-based self-care recommendations. However, during the iterative design process and based on potential user feedback, the following changes and enhancements to the requirements were identified:

- **Integration of an AI Assistant**: The initial concept did not explicitly include an AI assistant. This was added to provide more dynamic and personalized support, allowing users to ask specific follow-up questions beyond the pre-defined recommendations.
- **Interactive Body Map Enhancement**: The requirement evolved from a simple list-based symptom selection to a more engaging and intuitive interactive body map, improving the user experience for initial symptom exploration.
- **Expansion of Recommendation Categories**: While basic remedies were always a goal, the scope broadened to explicitly include distinct categories for "Exercises" and "Food Suggestions" to offer more holistic self-care advice.
- **Emphasis on Evidence-Based Information**: A stronger emphasis was placed on ensuring all recommendations were rigorously evidence-based and cited reputable sources like the FDA OTC Monograph to build user trust and credibility.
- **Enhanced Usability Metrics**: Specific metrics for usability (effectiveness, efficiency, utility, learnability, memorization) were formalized to guide the evaluation process more comprehensively, ensuring the app is not just informative but also user-friendly.

Initial Evaluation Plan:

The initial evaluation plan for HealthHub will focus on assessing its usability, effectiveness in providing relevant information, and user satisfaction. This will involve a combination of heuristic evaluation and participant surveys/feedback after conducting online tests.

Usability Specifications

The usability of HealthHub will be measured against the following specifications:

- **Effectiveness**:
  - **Goal Completion Rate**: Percentage of users who successfully navigate the app to find recommendations for a given symptom.
  - **Accuracy of Information Retrieval**: How accurately users can identify and access relevant self-care information for their symptoms.
- **Efficiency**:
  - **Time to Task Completion**: Average time taken for users to go from app launch to viewing recommendations for a specific symptom.
  - **Number of Clicks**: Average number of interactions (taps/clicks) required to complete a task.
- **Utility**:
  - **Relevance of Recommendations**: User perception of how relevant and helpful the provided OTC, exercise, and food suggestions are for their symptoms.
  - **Problem Prevention**: How well the app helps users address their symptoms without needing external information or clinical intervention.
- **Learnability**:
  - **Ease of Initial Use**: How quickly first-time users can understand and navigate the app's interface without assistance.
  - **Icon and Navigation Comprehension**: User understanding of icons, labels, and navigation patterns.
- **Memorization**:
  - **Ease of Re-use**: How easily returning users can recall how to use the app after a period of absence.

Population

The target population for the initial evaluation includes:

- **Age Group**: Adults aged 18-65.
- **Technical Proficiency**: Individuals with varying levels of mobile application familiarity, from novice to experienced users.
- **Health Literacy**: People with a general interest in managing their own health and seeking self-care solutions for common ailments.
- **Geographic Location**: Primarily users from diverse backgrounds to gather broad insights.

Prototype Tasks

Participants will be given a series of tasks to perform within the HealthHub prototype, simulating real-world usage scenarios. Examples include:

- "You have a mild headache and feel congested. Use the app to find recommendations for your symptoms."
- "You've been experiencing muscle soreness after a workout. Find exercise recommendations to alleviate this discomfort."
- "You have an upset stomach. What food suggestions does HealthHub offer?"

Roles

The team will gather at the very least 10 participants when conducting this evaluation. With this is mind, team will split the population and have similar roles in this evaluation.

Developer / UI Designer Member	**Task(s)**
Almar Louisse Inoferio	Will be recording time users interact with a task section, taking notes of the user's experience, and relay the task that the participant will do.
Sean James Tecson	Will be recording time users interact with a task section, taking notes of the user's experience, and relay the task that the participant will do.

Table 2. Team Member Tasks

- Explore the app and find information about common OTC medicines for allergies."

Heuristic Evaluation

*The heuristic evaluation for HealthHub was conducted using **Jakob Nielsen's 10 Usability Heuristics**:*

- ***Visibility of System Status***
  The app offers immediate feedback by highlighting the selected body part, showing symptom-related content, and providing visual confirmation when the AI is processing user queries.
- ***Match Between System and the Real World***
  Health terms such as "headache," "joint pain," and "cramps" are presented in plain, everyday language. Medical icons and body diagrams are intuitive, supporting users from non-medical backgrounds.
- ***User Control and Freedom***
  Users can easily switch between body parts or go back to change their symptom selection. Bookmarks and AI interaction history ensure freedom without data loss.
- ***Consistency and Standards***
  Tab-based navigation and icon usage remain consistent throughout the app. The design follows Android UI standards, aiding in reduced learning time.
- ***Error Prevention***
  Validations are in place when selecting symptoms or entering queries. For example, the AI field alerts users if the input is too vague or empty.
- ***Recognition Rather Than Recall***
  Users recognize symptoms by selecting from visual body parts rather than typing them, lowering cognitive effort. Clear labels further reduce memory dependence.
- ***Flexibility and Efficiency of Use***
  The app supports users with different abilities through adjustable text sizes and screen contrast settings. Experienced users can skip directly to AI interaction.
- ***Aesthetic and Minimalist Design***
  The interface is clean and minimal, showing only necessary information—symptom lists, relevant tabs, and guidance content—reducing cognitive load.
- ***Help Users Recognize, Diagnose, and Recover from Errors***
  The AI provides clarification prompts and explains invalid entries. Helpful hints also guide users back to symptom selection when an invalid flow is detected.
- ***Help and Documentation***
  The Help section includes FAQs, AI usage tips, and contact support info for users needing further assistance.

Participant Survey and Feedback

After conducting the online test,

DATA GATHRERING METHOD	DESCRIPTION
Survey (Quantitative)	After the Online Testing, the team will be handing out a survey to the participants to gather data for the user's experience with the prototype which the team will be interpreting in a 5-point Likert scale (**Refer to Table 5**. **5-Point Likert Scale Interpretation**).
Feedback (Qualitative)	The survey that the team provided will support a Feedback section to help users/participants speak out concerns or issues with the prototype that needs to be addressed.

Table 2. Data Gathering Methods

The table above summarizes the two methods used during the online beta test of the HealthHub prototype.

Question	Method of Answer
Section 1	
Participant Number	Short Answer
On a scale of 1 to 5, how would you rate your experience with HealthHub?	5-Point Scale
On a scale of 1 to 5, how would you rate the UI design?	
How easily were you able to complete the symptom selection and view recommendations?	
Section 2: Features of the Prototype	
Body Diagram Navigation	5-Point Scale
Symptom Selection	
Viewing Food Recommendations	
Viewing Exercise Suggestions	
Viewing OTC Medicine Suggestions	
AI Consultation (Chat Assistant)	
Saving/Bookmarking Advice	
Profile History Access	
Body Diagram Navigation	
Symptom Selection	
Section 3: Feedback Section	
What did you like most about HealthHub?	Short Answer
What issues or difficulties did you encounter?	Short Answer
What improvements would you suggest?	Short Answer

Table 4. Survey Questionnaire

Task	Time to Accomplish Tasks	Interpretation	Classification

Scale	Range Value	Interpretation	Classification
5	4.50-5.00	Highly Acceptable	Successful
4	3.50-4.49	Acceptable	
3	2.50-3.49	Moderately Acceptable	Neutral
2	1.50-2.49	Fairly Acceptable	Unsuccessful
1	1.00-1.49	Not Acceptable	

Table 5. 5-Point Likert Scale Survey Interpretation

Table 5 represents the Interpretation of the survey questions given to the participants. The survey will be used as to interpret whether the design and features presented are successful and useful for students who suffer from pacing issues.