Health Tracker (Desktop) Interface

Category: Homework

Assigned: January 14th, 2025

Due: January 31st, 2025, 11:59 PM

Mode: (pdf) on canvas

Background

Tracking health metrics is a critical part of maintaining physical well-being and preventing long-term complications. By monitoring key indicators such as heart rate, blood oxygen levels, steps taken, and calories burned, individuals can gain valuable insights into their daily health and fitness levels. This assignment involves developing a desktop application that allows users to input and view health metrics, track trends, and receive feedback to help maintain a healthy lifestyle.

NOTE: This system is purely for educational purposes and should not be used for real-world health tracking.

Interface Requirements

Login Screen (3 pts)

The application must include a login screen where users enter their name and ID to access the system. Upon login, the user's personalized dashboard should be displayed, showing key health metrics and progress. The login screen must validate user inputs to ensure accuracy and should handle errors such as missing or invalid entries gracefully. The current user's name and ID should remain visible on all subsequent screens, and the application must include an option to log out securely at any time.

Dashboard (3 pts)

The dashboard serves as the central hub, displaying real-time health metrics, including heart rate, blood oxygen levels, steps taken, and calories burned. Each metric must update dynamically to reflect recent data, providing users with an accurate view of their current health. The interface should include visual aids, such as color-coded feedback for each metric, making it easier for users to identify areas of concern at a glance.

Heart Rate (2 pts): If the user's heart rate falls outside the normal range, the application should alert them with specific recommendations. For example, it may suggest resting or seeking medical advice if the rate is too high or too low.

Blood Oxygen Levels (2 pts): Users should receive feedback if their oxygen levels are low, along with suggestions such as performing deep breathing exercises to improve oxygenation.

Steps and Calories (2 pts): Encourage users to meet daily goals for steps taken and calories burned. The system should display motivational messages as users approach or exceed their targets.

Alerts and Notifications (2 pts)

The application should notify users whenever a metric falls into a concerning range, providing actionable suggestions. For example, a high heart rate may prompt the user to rest, while low oxygen levels might trigger a suggestion to perform breathing exercises. For metrics within the normal range, the system should deliver motivational messages to encourage continued healthy habits.

Data Input and Validation (3 pts)

Users must be able to manually input custom health metrics. For instance, they may log steps taken while using a treadmill or manually record calorie intake. Inputs should be validated to ensure realistic values, such as heart rate readings between 40 and 200 beats per minute. Invalid or out-of-range inputs must trigger error messages to prevent inaccurate data entry.

Past Data (2 pts)

The application must include a feature to view historical data, allowing users to track their health trends over time. This can include graphs or tables summarizing past readings for metrics such as heart rate, steps taken, or calories burned. Users should be able to filter data by time periods (e.g., weekly, monthly) for a detailed analysis of their progress.

Logout and Help (2 pts)

A logout feature must be provided to ensure secure session management. Clicking the logout button should return the user to the initial login screen. Additionally, help buttons must be included throughout the application, offering tooltips or pop-up instructions to guide users in interpreting health metrics and navigating the system. These help features should be easily accessible and written in clear, simple language.

Design and Creativity

Design (2 pts)

The application should prioritize accessibility by incorporating user-friendly color schemes, large buttons, and intuitive layouts. The interface should cater to users of all ages and levels of tech-savviness, ensuring a smooth experience for everyone.

Creativity (2 pts)

Applications that go beyond the basic requirements and include additional, innovative features will be awarded bonus points. Examples include integrating gamification elements, such as rewarding badges for meeting health goals, or implementing advanced data visualizations to enhance user engagement.

Completion (1 pt)

Once all tasks are completed, the user should be allowed to log out, returning to the initial login screen. This ensures that the system is ready for the next user without retaining any sensitive information from the previous session.

Documentation (2 pts)

Students must submit detailed documentation that showcases and describes the features of the application. This documentation should highlight the design choices, implementation challenges, and any extra features added for creativity. It should also provide a comprehensive guide for using the application.