Victual: A Web-Based Wellness Tracker for Personalized Lifestyle Monitoring

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Abstract - **Victual – Towards Wellbeing is a web-based health tracking application designed to help users monitor and improve their daily routines. It focuses on four key areas: water intake, exercise, sleep, and food consumption. The platform offers a user-friendly dashboard for logging data, setting personal goals, and visualizing progress through interactive charts. By analysing user inputs, the system generates personalized health reports and actionable recommendations. These insights help users build better habits, stay motivated, and make informed lifestyle choices. Victual aims to promote wellness and prevent health issues by supporting consistent, structured, and easy-to-maintain health tracking.**

Keywords: Health tracking, Wellbeing, Water consumption, Exercise, Sleep patterns, Dietary habits.

I. INTRODUCTION

Modern life, with its demanding schedules and fast pace, presents significant challenges to maintaining a healthy lifestyle. Many individuals struggle to meet even the most essential wellness needs, such as staying hydrated, engaging in regular physical activity, getting adequate sleep, and maintaining balanced nutrition. Over time, neglecting these areas can lead to serious health problems like dehydration, obesity, chronic fatigue, stress-related disorders, and other lifestyle-induced illnesses.

Victual – Towards Wellbeing is designed to address these issues through an intuitive, web-based platform that empowers users to track and improve their daily health habits. Unlike complex fitness apps that often require wearable devices or paid subscriptions, Victual offers a simplified, accessible approach suitable for all users—especially students and working professionals.

The platform allows users to record and monitor their water intake, exercise routines, sleep duration, and daily food consumption through a clean and interactive dashboard. Users can set personalized health goals and receive real-time visual feedback through engaging charts and progress indicators. By entering their age, gender, and weight, users also receive customized health recommendations, making the experience more personal and effective.

What sets Victual apart is its emphasis on clarity, motivation, and long-term habit formation. By turning daily tracking into a simple and rewarding activity, it helps users adopt sustainable health practices and prevent potential wellness issues before they arise. In essence, Victual supports healthier living—not through pressure or complexity—but through gentle guidance, data-driven insights, and a user-friendly digital experience.

1.1 Background

Health tracking has long been essential for maintaining physical and mental wellbeing, but traditional methods were slow, manual, and lacked real-time feedback. With technological advancements, digital wellness applications now offer accurate, easy monitoring of multiple health metrics. However, many of these tools remain complex, costly, and poorly integrated. Victual addresses these issues by providing a simple, accessible platform that combines hydration, exercise, sleep, and nutrition tracking, making everyday health management easier and more inclusive for all users.

1.2 Objectives

Victual is designed to transform wellness tracking into a simple and intuitive part of users' daily routines. By offering integrated health monitoring for complex habits like nutrition, hydration, sleep, and exercise, it eliminates the need for multiple apps or costly hardware. The platform provides

meaningful insights by visualizing health progress and analyzing goals, helping users stay consistent in maintaining their wellbeing. Its design emphasizes usability, cross-device compatibility, and smooth performance on basic hardware, ensuring accessibility for a wider audience. Ultimately, Victual supports the broader mission of promoting health and wellness through its focused and inclusive approach.

II. LITERATURE REVIEW

[1] The theoretical groundwork for decision-making logic and adaptive evaluation in the Victual system draws inspiration from Neural Networks, Fuzzy Logic and Genetic Algorithms by Rajasekharan and Vijayalakshmi Pai. Though Victual does not implement neural networks in its current version, the structure of its health analysis module mimics rule-based systems described in fuzzy logic. Each health parameter (hydration, nutrition, sleep, and physical activity) is evaluated using predefined thresholds, and user feedback is generated accordingly. For example, if sleep hours fall below a recommended minimum, the interface highlights the deficiency in red. This form of decision support, though not intelligent in the AI sense, is grounded in the logic systems discussed in the referenced textbook. As the system evolves, future implementations may introduce actual learning models to refine user feedback based on patterns and history.

[2] Aparna and Meghana's conference paper provides a domain-specific study on wellness tracking applications, which serves as an academic validation for systems like Victual. Their research discusses the need for user motivation, daily engagement, and visual tracking tools, all of which Victual implements. By studying their work, the developers of Victual were able to integrate weekly comparison features, where users can reflect on their progress with nutrient trends and goal fulfillment. Additionally, the idea of non-intrusive input fields for easy goal setting and the use of color-coded charts to indicate progress comes directly from findings in this research. The fact that their system operated entirely on the client side also influenced the decision to initially deploy Victual as a lightweight web-based platform without requiring cloud services.

[3] In the field of dietary intake tracking, Boushey and colleagues conducted a thorough analysis of mobile dietary assessment tools. Their review includes methods based on image capture, barcode scanning, and manual entry. Victual currently uses a structured dropdown-based input system that allows users to select from predefined food items with known nutrient profiles. Boushey et al. argue that simplified entry methods reduce user burden, which is vital for accuracy and sustained use. Inspired by this, Victual avoids lengthy form inputs and estimation questions, instead focusing on ease of access and clarity. The idea that systems should minimize user fatigue to maintain data reliability is echoed throughout Victual's food logging module.

[4] Kirkpatrick et al. delve into statistical approaches to mitigate measurement errors in dietary assessment, particularly with short-term recall methods. They highlight how users tend to under- or over-report food intake due to memory gaps or portion size uncertainty. Victual addresses this issue by providing a curated list of food items with exact portion sizes and nutritional content. This reduces user estimation errors and ensures consistency in dietary records. Additionally, the software uses standard portion-based calculations rather than allowing free-text input, improving data uniformity. Kirkpatrick's insights were crucial in shaping Victual's food module to be evidence-based rather than user-subjective.

[5] The National Cancer Institute's webinar series discusses in great detail the sources and types of measurement error in nutritional data collection. These webinars shed light on challenges such as social desirability bias, data entry fatigue, and recall inaccuracy, which directly affect the design of food tracking systems. Victual's structure reflects this awareness by using fixed values for food items and encouraging simple, fast logging processes. Rather than asking users to recall and estimate meals retrospectively, Victual emphasizes real-time logging using simple dropdowns and search tools. This reduces both the cognitive burden and the risk of inaccurate reporting, aligning with the recommendations provided in this series.

[6] Kadam et al. (2019) proposed a deep learning-based disease prediction model that leverages patient treatment history to enhance diagnostic accuracy, demonstrating the effectiveness of using historical health data for predictive healthcare systems. Their approach highlights the potential of AI in providing early warnings and supporting clinical decision-making.

[7]Poongodai (2022) introduced a novel decision support system for the prognosis of Parkinson's disease using IoT and data analytics, emphasizing real-time health monitoring through intelligent technologies. These studies underscore the value of integrating machine learning and IoT for personalized, proactive health management, which aligns with the objectives of our web-based wellness tracker, *Victual*.

III. METHODOLOGY

The process begins when the user opens and starts interacting with the Victual health tracking platform. This web-based application is designed to help users maintain

wellness habits such as hydration, sleep, physical activity, and balanced nutrition. Upon loading, the interface provides easy navigation through tabs or sections for each health category, creating an inviting and accessible environment that doesn't require any special setup or login process.

As the user engages with the platform—such as by logging a food item, adding the number of glasses of water consumed, switching between categories like Water, Sleep, Food, or Exercise, or editing previously entered values—these actions are captured by the system. Users might also set or adjust daily goals like calorie limits or hydration targets. Each of these interactions is crucial, as it initiates real-time changes in the application's data state and visuals.

At this point, JavaScript event listeners come into play. These event handlers are programmed to monitor specific elements of the interface (like buttons, inputs, or dropdowns) and trigger functions whenever a user makes a change. This event-driven model allows the application to remain responsive and eliminates the need for page reloads, ensuring a smooth, continuous user experience.

When an interaction is detected, the system calculates the necessary health metrics. For example, if a user logs a meal, the system retrieves the associated nutritional information (calories, proteins, fats, carbs) from a predefined food database. Similarly, logging exercise hours might contribute to daily calorie burn goals. All this data is stored in JavaScript objects tied to the current date, allowing for daily and weekly tracking while keeping the storage structure organized and efficient.

Once the calculations are complete, the application leverages Chart.js, a popular JavaScript library for data visualization, to dynamically regenerate charts and graphs. These include doughnut charts for hydration, bar charts for nutrition intake, and line graphs for sleep trends. These visuals are updated in real time and provide an intuitive overview of the user's progress toward their daily or weekly wellness goals.

The final step involves updating the user interface immediately to reflect all changes. Users receive real-time visual feedback such as animated chart updates, color-coded indicators (e.g., red for underperformance), and progress bars. This instant response enhances user satisfaction and encourages ongoing interaction with the app, as users can clearly see how their actions affect their wellness status.

The interaction cycle ends here, though the system remains ready for the next user action. Every new interaction reactivates the event-driven process, ensuring that Victual

continuously supports users in tracking and improving their health through a smooth and interactive digital experience.

3.1 Dataset

Victual operates with an embedded food nutrition database, fully integrated into the browser-side JavaScript code. This client-side dataset is structured and lightweight, allowing for fast access and smooth user interaction without the need for internet connectivity or external API calls.

The dataset includes a curated list of common food items, categorized into Fruits, Grains & Bread, Proteins, and Vegetables. Each food entry provides standardized nutritional information based on a 100-gram serving size. The attributes recorded for each item include:

- Calories
- Protein (g)
- Carbohydrates (g)
- Fats (g)
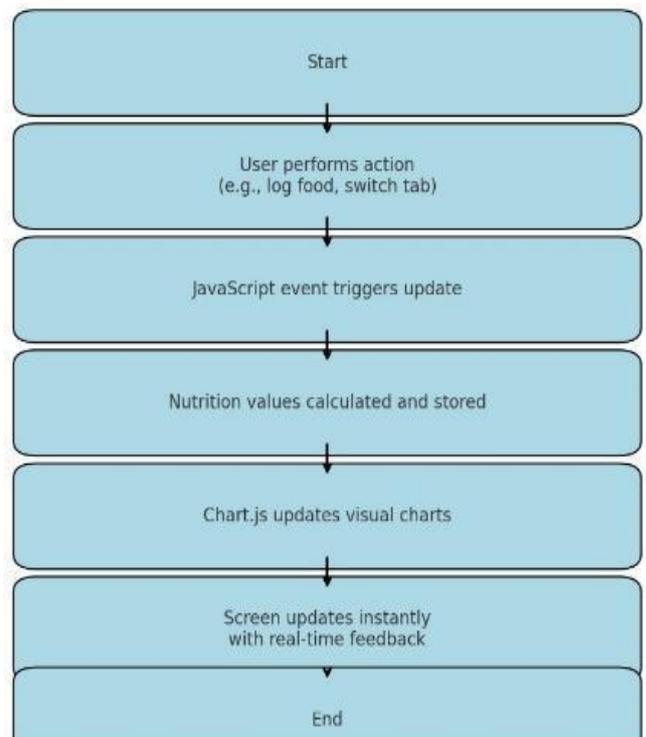- Fiber (g)
- Sugar (g)

IV. RESULTS

Figure 1: Home page of the website

Fig. 1 This screen from the Victual health tracker app focuses on daily water intake monitoring, exercise, sleep and food.
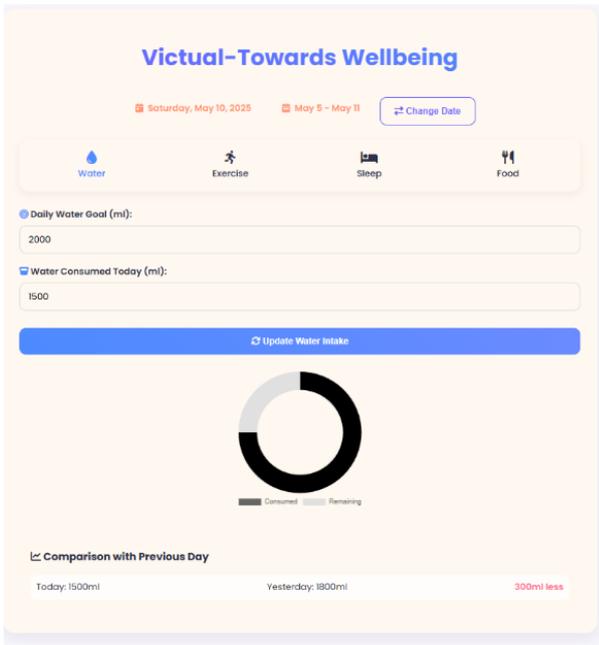
Figure 2: Water Intake

Fig. 2 the user opened the water tracking section of Victual – Towards Wellbeing. They set a goal of 2000 ml entered 1500 water intake yet. The visual ring is showing regarding it, and the app shows a comparison with the previous day's intake.
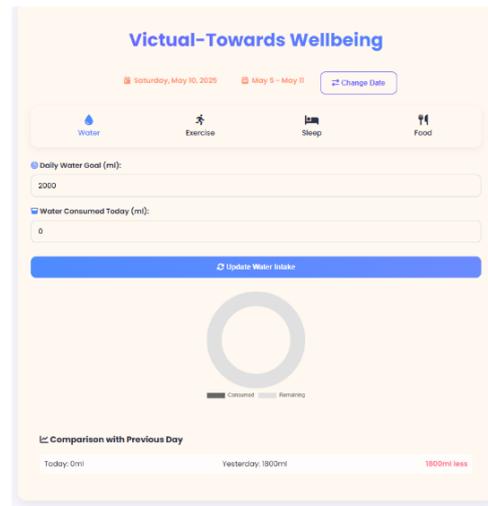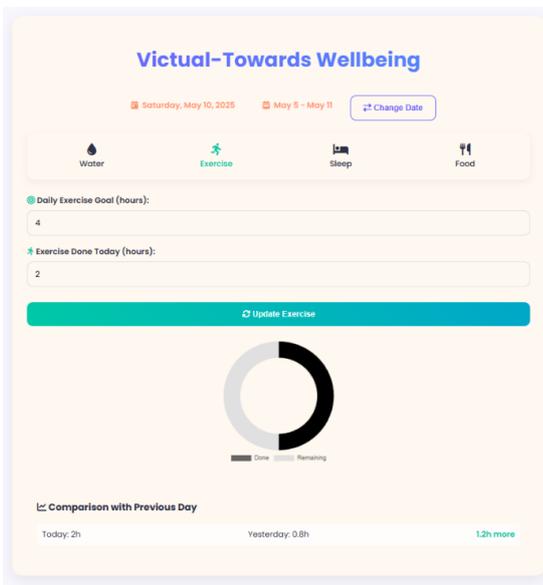

Figure 3: Exercise

Fig. 3 The user visited the exercise tab and set a daily goal of 4 hours. They recorded 2 hours of exercise completed so far. The progress ring shows partial completion, and the comparison highlights an improvement over the previous day.

Figure 4: Water Intake

Fig. 4 In the sleep tracking section, the user entered a sleep goal of 8 hours and logged 6 hours of sleep for the night. The interface visually displays the progress, and the comparison section shows that they slept less than the previous day.
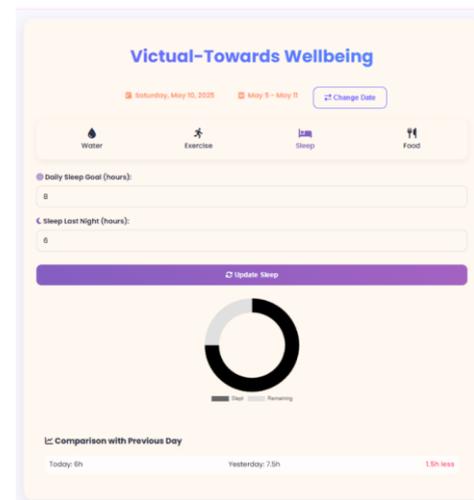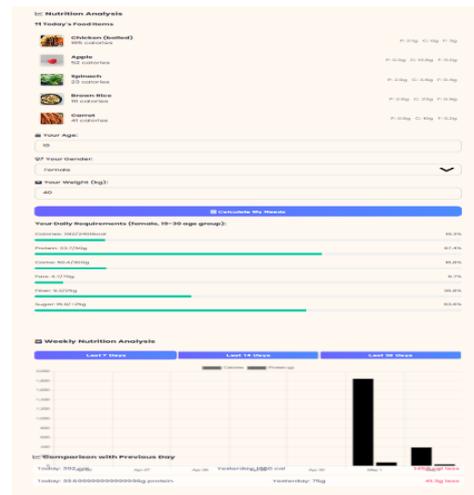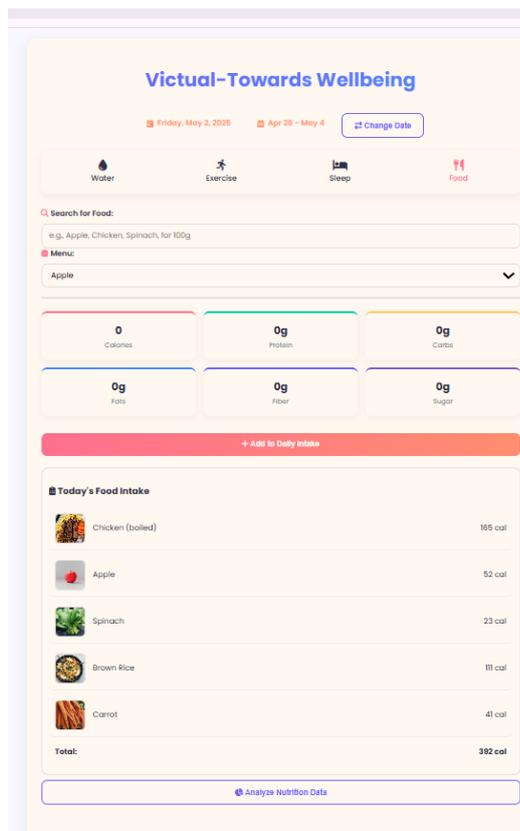
Figure 5: Food Detection Result

Fig. 5 This image displays the main dashboard of the "Victual – Towards Wellbeing" food tracking module. It allows users to search and log food items along with nutritional values like calories, protein, fat, and carbohydrates. Below, a list of consumed items is shown, each with its nutritional content. The right panel includes a summary of the user's intake, nutrient progress charts, and a weekly analytics bar graph. This dashboard helps users monitor food habits and maintain a balanced diet visually and interactively.

V. CONCLUSION

The implementation of Victual – Towards Wellbeing successfully addressed the shortcomings of existing wellness tracking tools by introducing a streamlined, user-centric web application that empowers users to monitor and enhance key health dimensions—hydration, physical activity, sleep, and nutrition. Unlike many commercial apps that are cluttered with complex features or require additional devices, Victual was purposefully designed to be lightweight and accessible, requiring no specialized hardware, subscriptions, or prior technical knowledge. Its clean interface and responsive layout ensure compatibility across various devices and screen sizes, from desktops to smartphones.

The water module allows users to set personalized hydration targets and log their water intake in real time.

Progress is visually represented using doughnut charts, making it easy for users to assess how close they are to reaching daily goals. In the exercise module, users can track their physical activity duration and intensity through a simple, interactive interface that visually maps their progress. Similarly, the sleep module enables users to record their sleep hours, which are then compared against recommended benchmarks and displayed in an engaging visual format to promote better sleep hygiene.

The food module is one of the most comprehensive components of the platform. It integrates a curated food database that not only lists common food items but also calculates nutritional values—such as calories, proteins, fats, and carbohydrates—based on standard portions. What sets it apart is the inclusion of personalized dietary recommendations, which are dynamically generated using user-input data like age, gender, and body weight. This helps users receive feedback tailored to their physiological needs, increasing the accuracy and usefulness of the insights provided.

The platform's overall performance during implementation revealed strong user engagement and system stability. All modules operated as intended, providing instant feedback, interactive visual updates using Chart.js, and consistent data logging. Real-time progress tracking, coupled with weekly comparison features, allowed users to reflect on behavioral patterns and adjust their routines accordingly. The system's ability to deliver behavioral insights—such as recognizing prolonged inactivity or irregular sleep patterns—added an intelligent layer to the user experience. Moreover, its continuous feedback loop reinforced positive health behaviors while gently pointing out areas needing improvement, ultimately guiding users toward long-term wellness.

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