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DYNAMIC HABIT TRACKER

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Abstract

Dynamic Habit Tracker is an online application that has been built in order to enable users to develop, manage, monitor and improve their habits through a centralized and easy to use platform. Maintaining consistency in everyday routines can be very difficult due to the busy schedules of individuals and the absence of proper monitoring of their progress. This system helps solve these problems by offering users a platform where they can track their habits and analyses their progress. The application offers secure authentication for users, who can make, manage and change their habits as per their own goals through personalized dashboards. Users can track daily completion of habits, monitor their progress and check automatically calculated streaks. Additionally, the system provides weekly progress analysis, which includes completion rate and performance information of users.

In order to ensure continuous involvement of users in the application, reminders and achievements have been provided in it. Reminders serve as a means of reminding users about the activities they need to do and achievements motivate users by making them feel good when they achieve their set goals and maintain consistent streaks. There is an independent Admin module through which the admins can manage details of users and their habits. The technologies used for developing the application are Python/Django for backend, HTML/CSS/JavaScript for frontend and MySQL for database management.

Keywords: Dynamic Habit Tracker, Habit Management, Habit Tracking, Streak Tracking, Analytics, Reminders, Achievements, Health Management.

Introduction

Dynamic Habit Tracker is an application designed to offer users with a central platform where they can create, manage and monitor their daily habits. It enables users to register and log into their accounts. In addition, users can have access to their Dashboard, where users can see important data including Total Habits, Completed Today, Pending Habits, Current Streak, Highest Streak, Active Days and Weekly Progress. With this feature, the application gives users the ability to easily know how they perform with regard to their habits.

The system enables users to create, view, update, delete and complete their habits according to their own needs. By completing habits, the system will keep track of it and use the information to make progress and streak statistics. Distinguishing between completed and pending habits will allow users to know which activities they have not finished.

Analytics module will help in processing data related to habits' activities of users. Furthermore, the Reminder will help users to remember their planned activities. On the other hand, the Achievement functionality will recognize users after achieving certain predefined progress or consistency. The main objective of using these functionalities is to motivate users to continue with their routines.

In addition, there is a Health module in the application. This module includes functionalities such as calculating body mass index (BMI), calorie-related information, food information and other health-related features. Therefore, users of the application can have access to additional features apart from habit tracker.

There are two types of roles in the application: Admin and User roles. While users can manage their profile and habits, the admin will be able to manage users' details and habit related information.

Related Work

The latest developments in the field of web and mobile technologies have brought about the emergence of multiple applications to help people manage habits,

increase personal productivity and track well-being. Currently existing habit tracking applications enable users to create daily or weekly habits, report their success and trace their progress over time. It can be seen that digital tracking enables the users to organize their routine and increase its consistency. However, many basic habit tracking applications provide only a simple checklist functionality and do not include any kind of analysis of progress for the long term.

Another field of interest is habit progress and streak management. There are multiple applications that use consecutive completion records to calculate daily and weekly streaks. Streak-based progress tracking enables the users to track their consistency and motivates them to keep on performing their habits. The users can also use calendars, progress bars, completion percent and statistics in order to see their performance. However, the mentioned tools are offered separately and not as part of one personalized application.

Reminders and motivational systems have been widely studied and implemented in many wellness applications. Reminder systems notify the users about the activities they planned to perform and reduce the chance of forgetting the important habit. Systems that use achievements, badges, milestones and rewards are also popular to motivate users to perform their habits. It is evident that motivation and timely reminders play an important role in habit management applications. However, simple reminder-based applications do not take into account the progress of the user, his/her performance and individual objectives.

Personal health and wellness management is another related field. Many wellness applications provide users with facilities to calculate Body Mass Index (BMI), provide data about calories, food and nutrition, enable users to track their physical activities and give basic recommendations on how to stay healthy. Such systems help the users obtain valuable information about their health and lifestyle.

Research Gap

Current habit-tracker applications primarily emphasize habit creation and logging of their daily accomplishment. Nevertheless, current habit trackers lack sufficient capabilities to monitor progress in details, calculate streaks, remind about habit accomplishment, give achievements and create personal dashboards. Moreover, habit management and some health facilities like BMI calculation and calorie-related information are often provided by different apps.

Another disadvantage of existing systems is that they do not incorporate any facilities for users' administration and information related to their habits' management. Also, some apps offer reminders but they lack connection to the overall progress and achievements of the user.

In order to fill in the gaps, the suggested Dynamic Habit Tracker offers the combination of habit creation, daily logging, streak calculation, weekly progress monitoring, analytics, reminding and achievement. In addition to it, the system incorporates a Health Module that calculates BMI, contains calorie-related and other health facilities, as well as food information. Finally, there is an Admin Module to manage users' accounts and information about their habits.

Proposed Methodology

The suggested Dynamic Habit Tracker is an application based on the web that can be used by users to generate, maintain, and track their daily habits along with some of their basic health-related activities.

First, the user registers and then logs into the system using secure authentication. Upon logging in, the user gains access to the dashboard which contains the list of active habits, completed habits, streaks, and other progress data.

The user is allowed to add habits and enter details like habit name, description, frequency, and other details. Every day, the user marks his/her habit as completed. All these activities are stored in the database where calculations of streaks, completion percentage, and progress percentage for each week are automatically performed.

Analytics is one more functionality provided by the system that allows users to analyze their habits. Reminders are used to remind the user about his/her scheduled habits whereas achievement system tracks the milestones of the user's performance.

In addition to all this functionality, the suggested system also consists of a Health Module where there are facilities of BMI calculation, calorie information, food information, and other health-related facilities.

Another Admin Module is included in the framework that would help in the management of users' data along with all information about habits. The entire application would be designed by using Python and Django in the backend for the processing of data while using HTML, CSS, and JavaScript to develop a user interface and MySQL for keeping all the data about the user, habit, progress, reminders, achievements, and health.

With the combination of all the aforementioned components of the habit management system, this new methodology helps in creating an integrated system for better habit consistency.

Experimental Setup

Dynamic Habit Tracker has been implemented through a combination of web development, backend, frontend, and database techniques. The technology used for implementing backend and the application logic is Python and Django. The user interface design of the application uses HTML and CSS, while JavaScript was used to develop its dynamic features. MySQL has been used for storing and managing user details, habit details, completion status, streaks, reminders, achievements, and health information (Fig 1).

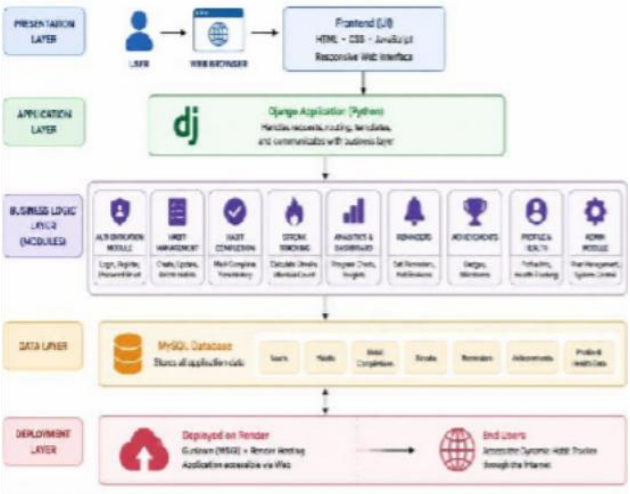


Figure 1 : Dynamic Habit Tracker

The system consists of separate modules including User Authentication, Habit Management, Progress Tracker, Analytics, Reminder System, Achievement System, Health System, and Administration. The users can register on the platform and log in to the application in a secure way. They can also manage their habits and record their completion status. The system analyses the stored habit data to compute the streaks, completion percentage, and progress. The experimental analysis centers on the functionality of the main modules and the accuracy of calculations involving habits. Various sets of habit data and completion scenarios are utilized to check the performance of streak calculation, progress, reminder, and achievement features. The Health Module is analyzed based on various values provided as BMI and calorie-related inputs to ensure the correctness of calculations performed by the system.

The system is analyzed based on various user accounts, habit types, completion scenarios, and health-related inputs. The performance of the system is analyzed in terms of correctness of functionality, consistency of data, user interaction, tracking of completion of habits, streak calculations, and progress analysis.

Results and Discussion

The Dynamic Habit Tracker was designed and implemented with an aim to check its effectiveness in helping users in creating, managing and monitoring their habits via a single web-based interface. The Dynamic Habit Tracker offers secured user authentication, personal dashboard, habit management, daily habit tracking, progress tracking and others.

The Habit Management Module enables users to create, update, view and delete habits based on their requirements. Users can register the habits as complete every day and these data will be recorded for analysis. The system will automatically calculate the habit streak and percentage of completion based on the data recorded, enabling the user to know how consistent he or she is.

The Progress and Analytics Module will show the information related to weekly habit performance and completion. The dashboard will display important information like number of completed habits, pending habits, current streak and percentage of completion. It will enable the user to know his or her regular and missed habits and the performance.

The Reminder and Achievement Modules have also been tested successfully. The reminder will remind the user of the habits that need to be performed whereas the achievement will motivate them for the milestone achievement. Different values of BMI and calorie information have been used to evaluate the Health Module of the system. The system accepts the given information and produces corresponding results and information concerning food and health. Admin Module allows authorized administrators to get facilities for handling information related to the user details and habits. Different information of various users and habits was given to ensure that information is handled properly.

Various test cases were designed with the help of multiple users, varied types of habits, done/undone activities, consecutive days of doing habits, and varied health information to evaluate the system. The results obtained indicated that the system

effectively handles habit creation, updating, deletion, activity done tracking, streak calculation, progress checking, and information storage.

The results obtained from the evaluation of the system indicated that incorporating facilities for habit management, streak tracking, analysis of progress, reminders, achievements, health facilities, and administration into one system will enable the users to get a single platform for managing their daily routines.

Conclusion

The suggested Dynamic Habit Tracker is an integrated web-based system to create, manage, and monitor one's daily habits. It integrates habit management, habit completion tracker, streak generator, weekly progress, analysis, reminder, achievement, and general facilities related to health into a single system.

With this system, the users can keep track of their habits with the help of a personalized dashboard as well as know their consistency through progress and analysis. The reminder and achievement systems serve as additional aid to help the users follow their routines regularly. The Health Module provides various facilities like BMI Calculator, Calorie Information, Food Information, and so forth.

Future Scope

It would be better if the system was extended to allow mobile applications on Android and iOS. Future versions may include customized habit suggestions that depend on past habits and activity. Advanced analytics and graphical reports may be implemented for more advanced insights about progress.

Reminders may include customization options and smart scheduling. There may be other health-related features including tracking of water consumption, sleep monitoring, exercise, and nutrition.

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