HydraCare

Abstract— This app is designed to help busy working and studying people develop a healthy habit of drinking water regularly. Users can track their daily water intake, set regular water reminders, view clear water intake statistics and get healthy drink suggestions

I. Water plan Project Background

A. The purpose and rationale of developing this APP

With the acceleration of life pace, many white-collar workers often forget to drink water or delay drinking time due to their busy work. Long-term dehydration can lead to physical dehydration and decreased normal body function. Therefore, it is of great significance to develop a water reminder APP. This APP can track users' daily water intake, set water reminders, and pop up reminders when reaching the set time to help users develop the habit of drinking water periodically. At the same time, the APP can also recommend some healthy drinks, such as various fruit teas, homemade drinks, etc., to enrich users' choices.

B. User needs and expectations

Through market research and user interviews, we learned that users' main needs include: being able to set daily water intake goals and reminder times independently; water data needs to be displayed clearly and intuitively for users to view; the APP needs to have the function of reminding users to drink water on time; it can recommend some healthy drink options. Users expect the APP to be simple to operate, with good reminder effects, and can help them develop good drinking habits.

II. Requirements

A. Main function modules of the APP

The APP contains modules such as user registration, water settings, water reminders, water statistics, and healthy drink recommendations.

User Registration Module: Implements user account registration and login functions.

Water Setting Module: Users can set daily water intake goals and set timed reminders to drink water.

Water Reminder Module: Pop up reminders to notify users to drink water when reaching the set time.

Water Statistics Module: Statistics and display the user's daily total water intake data and provide data analysis functions.

Healthy Drinks Module: Recommend healthy drink options based on user preferences, such as lemon water, honey water, chrysanthemum tea, etc.

B. Detailed description of functions

- Water Settings

In this module, users can set their daily water intake goal, such as 2000 ml. Users can also set timed water reminders based on their schedule, such as setting reminders to drink water at 10 am, 3 pm and 7 pm. Reminder methods include mobile notification reminders, alarm reminders, etc.

- Water Reminders

When the set reminder time is reached, the APP will pop up a reminder to remind users to drink water. Notification forms may include text reminders, sound effects reminders, etc. If the user is temporarily unable to drink water, they can click to postpone the reminder.

- Water Record

After each drink, users can record the amount of water drunk in the APP. An automatic recording mode can also be set to automatically record the amount of water drunk by connecting with smart water cups and other devices. The recorded drinking data will be updated in

real time to the user's water statistics.

• Water Statistics
This module will statistics the user's total daily water intake and compare it with the set goal to form an intuitive chart display for the user to clearly see their water intake. Users can choose different time dimensions (day/week/month) to view statistics.

• Healthy Drink Recommendations
Recommend some healthy drinks based on user preferences, such as lemon water, honey grapefruit tea, green plum beer, etc., and provide recipes to enrich users' drink choices. Users can also evaluate the recommended drinks.

III. Develop Environment

A. Platform

• Windows
The software development platform I would choose is Windows, because Windows systems are widely used, with mature development and debugging tools, allowing for high development efficiency.

• Python
The programming language I would choose is Python, because Python is a simple, easy to learn yet powerful language, with abundant mature open source libraries available, suitable for rapid development. Also, Python supports multi-platform, making cross-platform deployment easy in the future.

• Cost estimation
Software purchase: Visual Studio Code (free)
Server rental: lightweight application server, about $20 per month
Office computer: $1000

• Development environment
Operating system: Windows 10
Programming language: Python C.7
Development tools: Visual Studio Code
Database: MySQL 8.0
Version control: Git/GitHub
Cloud services can be used to provide computing and storage resources on a pay-as-you-go basis, reducing initial costs.

B. Task Allocation

all tasks completed by two people together

IV. Implement Details

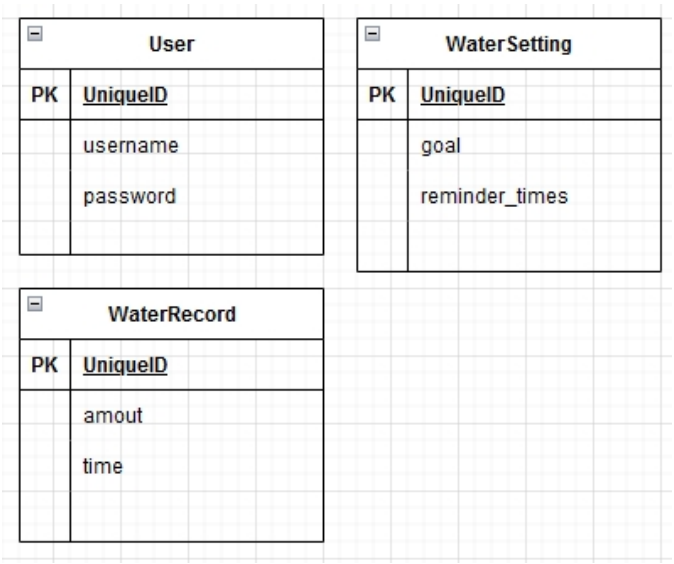
A. Database design plan

The main purpose of the APP's database is to store user information, water settings, water records, and other data. The technical solution is to use the MySQL relational database and store the needed data through the database table structure. The main table design includes:

User Information Table: Stores user's basic information, account, etc.

Water Setting Table: Stores the user's daily water intake goal, reminder times, etc.

Water Record Table: Stores the user's each water drinking record, including the amount of water, time, etc.



B. System architecture design ideas

Adopt C/S architecture, the client side is the web page, and the server side is the background service. The client submits and fetches data through HTTP requests, and

the server handles requests and returns results.

C. Requirement Details

a.Water Settings

• Display page:
Input field: daily water goal amount
Time picker: reminder time 1
Time picker: reminder time 2
Time picker: reminder time 3
Radio buttons: reminder type (notification, alarm)
Save button

• Save input
goalAmount = get input field value
reminderTimesArray = get time picker values
reminderType = get radio button value
saveToDB(goalAmount, reminderTimesArray, reminderType)

• Trigger reminder
read reminder details from DB
if reminder type is notification:
  showNotificationPopup()
if reminder type is alarm:
  playAlarmSound()

b. Water Reminder

When reminder triggers:
showReminderPopup()
  text show "Drink water"
  button: Drink Now
  button: Snooze

If Drink Now clicked:
  closePopup()

If Snooze clicked:
  rescheduleReminder(later time)

c . Water Logging

Display page:
Input field: amount drank

Save amount:
amount = get input field value
saveToDB(amount)
update daily total

d . Water Statistics

read daily total from DB
calculate week total, month total
generate chart data points

Display page:
show chart with day/week/month data
time range selector

e . Healthy Drink Recommendations

healthyDrinksList array
userDrinkRatings dictionary

Display page:
show healthy drinks list
filter by user ratings
user rating input field

Save rating:
get user rating
save to ratings dictionary