Documentation - Batch 2

Team Member-1: Shahabas Aman (285536)

Team Member-2: Yechuru Soumya (285489)

Problem Statement:

Scenario: Modern life often complicates efforts to maintain a healthy lifestyle, with busy schedules making it difficult to track and balance physical activity, diet, and mental health. For example, a busy professional may find it challenging to keep track of their daily exercise, maintain a balanced diet, and manage stress. Without a comprehensive tool to monitor these aspects, individuals may struggle to identify patterns and make informed decisions about their health. Existing health apps often focus on isolated aspects like diet tracking or workout logging, leaving users without a holistic view of their overall well-being.

SCOPE:

Functional Requirements:

1. User Authentication and Authorization:

- The system must allow users to sign up , log in, and log out.

- User authentication should be managed through JWT tokens, ensuring secure access to the application.

2. Diet Tracker:

- Users should be able to get information about what they need to eat in order to have a balanced diet and also balance their calorie intake.

- The system should suggest best foods based on a person's calorie intake and exercise

3. Exercise Tracking:

- Users should be able to get information about what type of exercises they have to do based on what they eat.

- Users should be able to track their number of calories burned based on the exercises they do.

- Users should get information about the additional exercises they need to perform.

4. Mental Health Tracking:

- The system should allow users to know about their mood and mental health.

- The system should calculate and display their mood and activities they need to perform based on their mood.

5. API Gateway:

- The API Gateway must route requests to appropriate backend microservices.

- It should handle requests for authentication, user management, diet planning, fitness tracking, and mental health.

Non-Functional Requirements

1. Security:

- JWT tokens must be used for secure user authentication and authorization.

- Sensitive user data must be encrypted in transit and at rest.

2. Scalability:

- The system should be designed to handle an increasing number of users and requests.

- Microservices architecture should allow individual services to scale independently.

3. Performance:

- The application should respond to user requests with minimal latency.

- The system should be capable of handling high loads without significant performance degradation.

4. Reliability:

- The system should ensure high availability and resilience to failures.

- Each microservice should be independently deployable and upgradable.

5. Maintainability:

- The codebase should be modular, allowing for easy updates and maintenance.

- Proper documentation should be provided for each microservice, including API specifications.

6. Usability:

- The frontend should provide a user-friendly interface with intuitive navigation.

- Forms and components should be responsive and accessible across different devices.

7. Interoperability:

- The system should allow for seamless integration with external services, such as third-party APIs for additional health data.

- Microservices should communicate through well-defined APIs, ensuring compatibility and ease of integration.

8. Logging and Monitoring:

- The system should log user interactions, service requests, and errors for audit and troubleshooting purposes.

- Monitoring tools should be implemented to track the health and performance of microservices.

9. Data Consistency:

- The system should ensure data consistency across different microservices and databases.

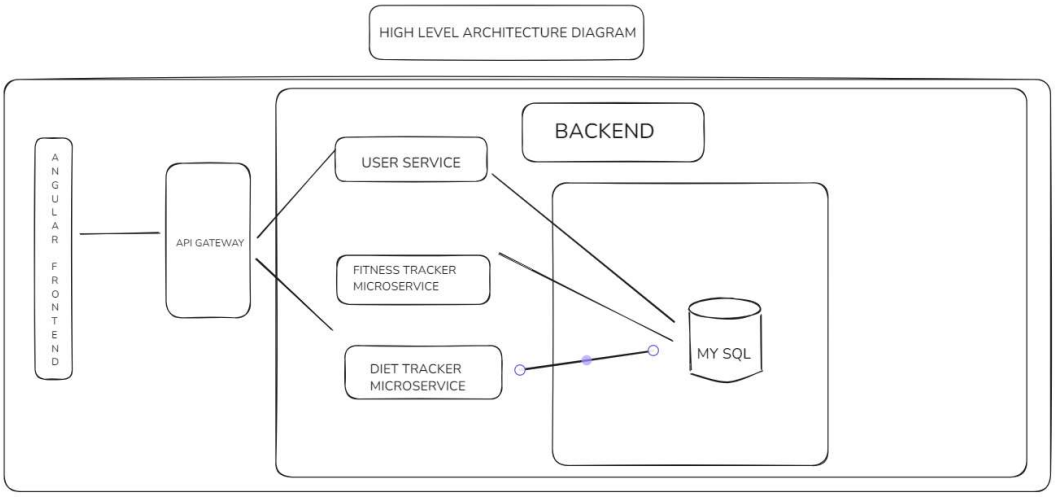
- Appropriate measures should be taken to handle data synchronization and conflict resolution.

10. Backup and Recovery:

- The system should implement regular backups of all databases.

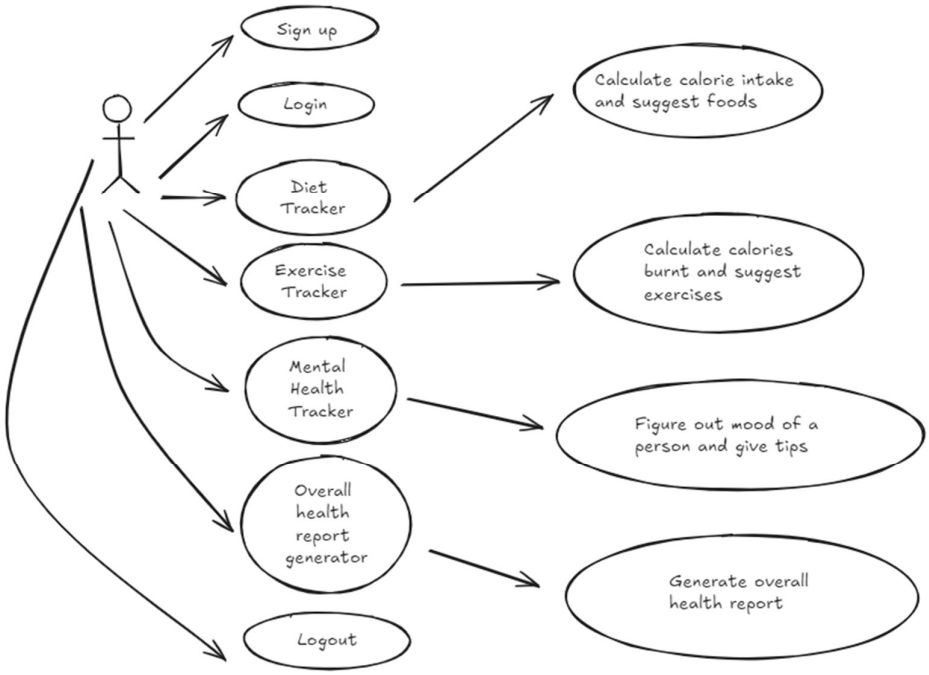
- A disaster recovery plan should be in place to restore data and services in case of a failure.

HIGH LEVEL DESIGN:



Use Case Diagram:

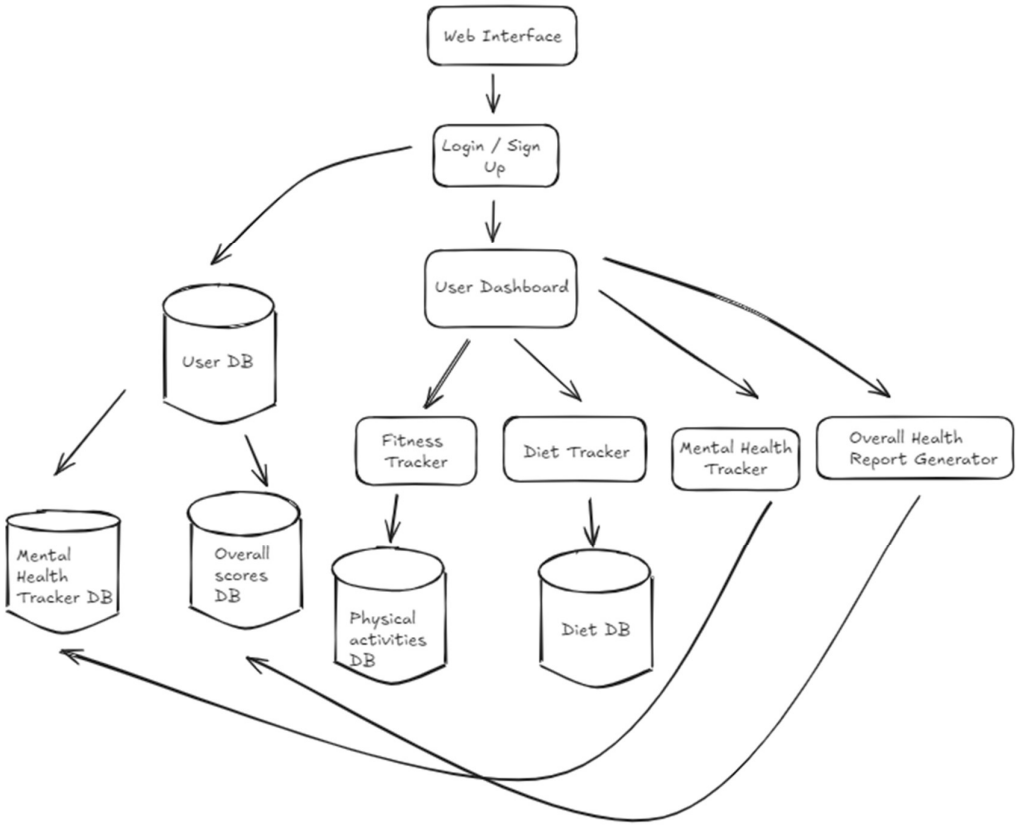
- User: The primary actor interacting with the system
- Sign Up : Allows new users to create an account
- Login: Authenticates existing users
- Fitness Tracker : Includes viewing exercises and calories burnt
- Diet Tracker : Includes viewing calorie intake and foods to be eaten
- Mental Health Tracker : Includes evaluating mood and suggesting some tips
- Result Dashboard: Displays overall health report



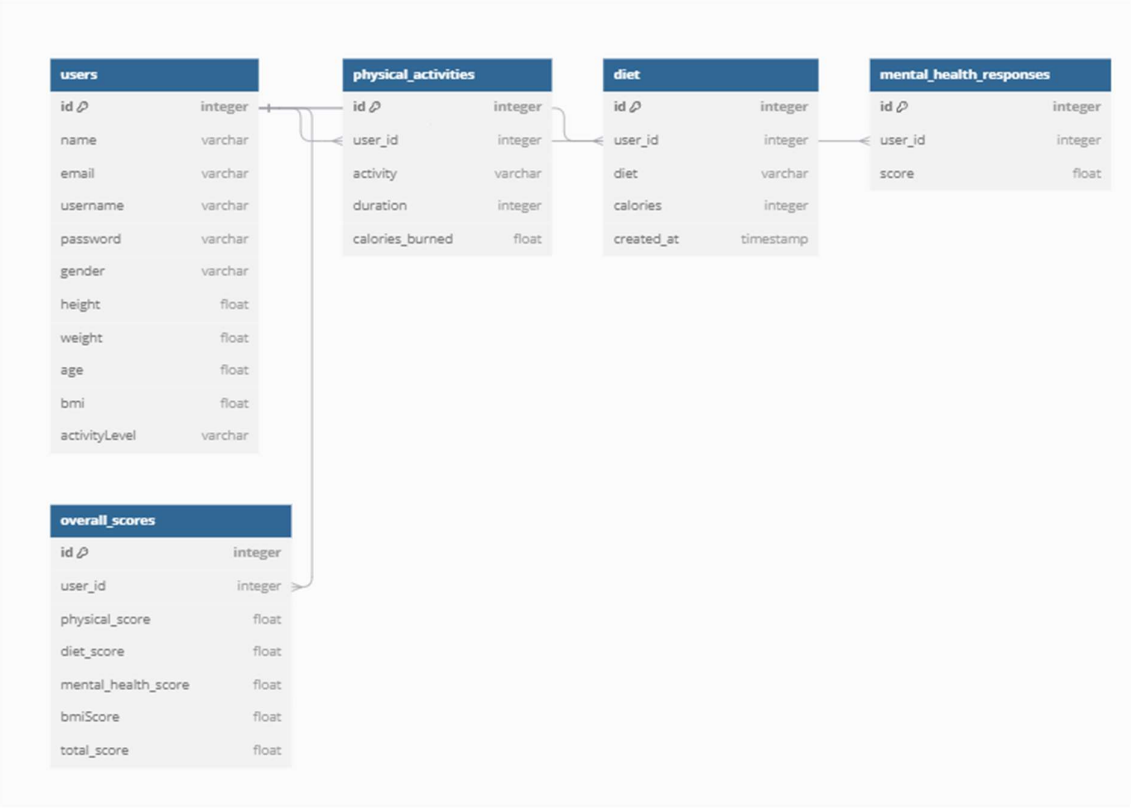
LOW LEVEL DESIGN:

Component Diagram:

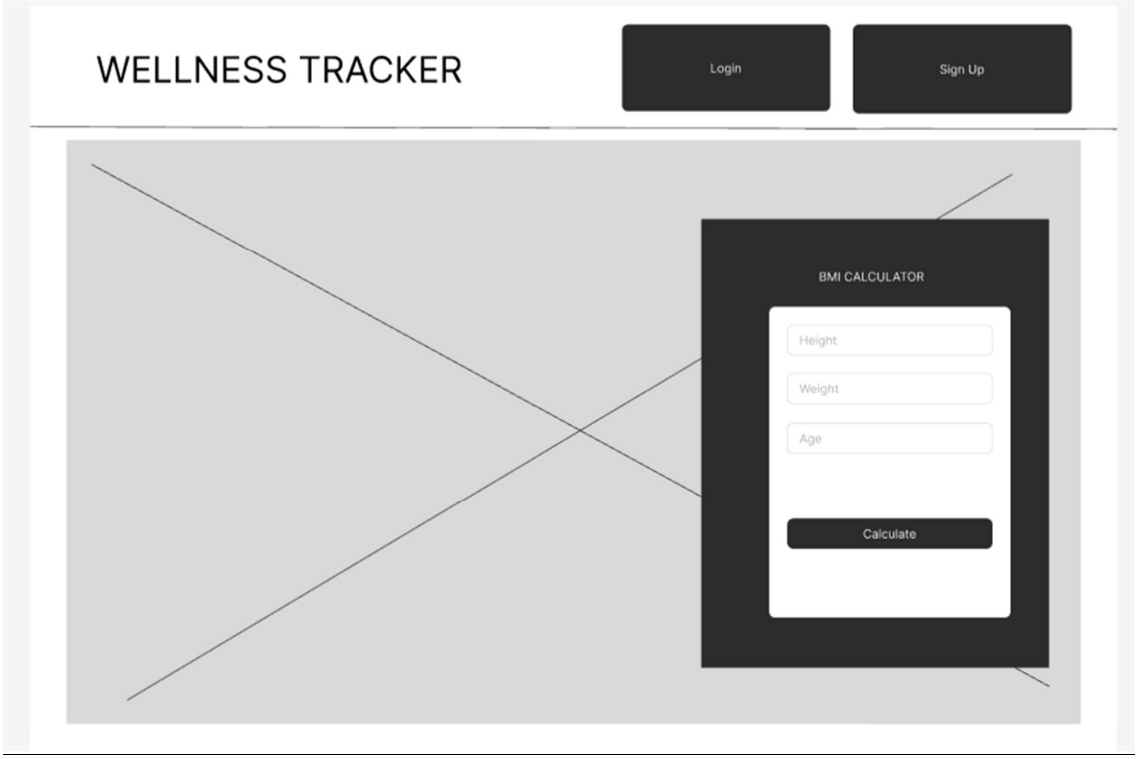
- Web Interface: The frontend component that users interact with
- Authentication Service: Handles user registration , login and signout
- Fitness Tracker Service: Generates exercises to be performed based on calories burned
- Diet Tracker Service: Generates food items to eat based on calorie intake
- Mental Health Tracker Service: Generates suggestions based on mood
- Overall Health Tracker Service: Generates overall health report of a person
- Databases: Separate databases for each domain (User, Fitness, Diet , Mental Health , Overall Health)

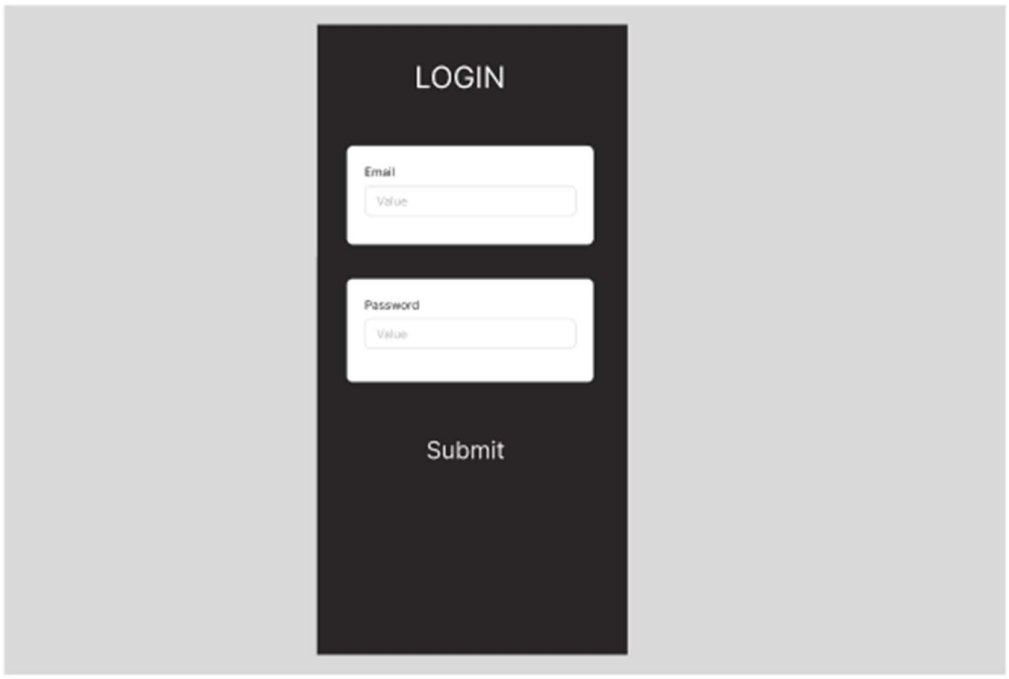


Database Diagram:

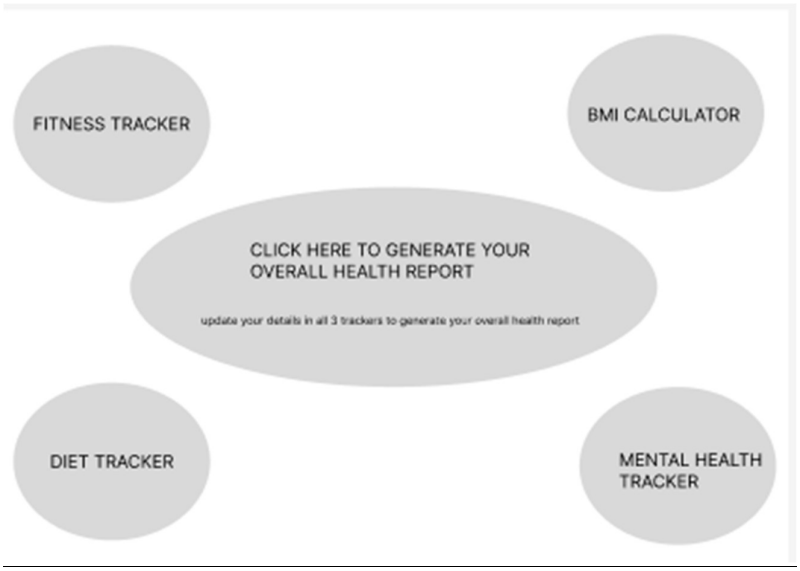

users
id integer
name varchar
email varchar
username varchar
password varchar
gender varchar
height float
weight float
age float
bmi float
activityLevel varchar
physical_activities
id integer
user_id integer
activity varchar
duration integer
calories_burned float
diet
id integer
user_id integer
diet varchar
calories integer
created_at timestamp
mental_health_responses
id integer
user_id integer
score float
overall_scores
id integer
user_id integer
physical_score float
diet_score float
mental_health_score float
bmiScore float
total_score float

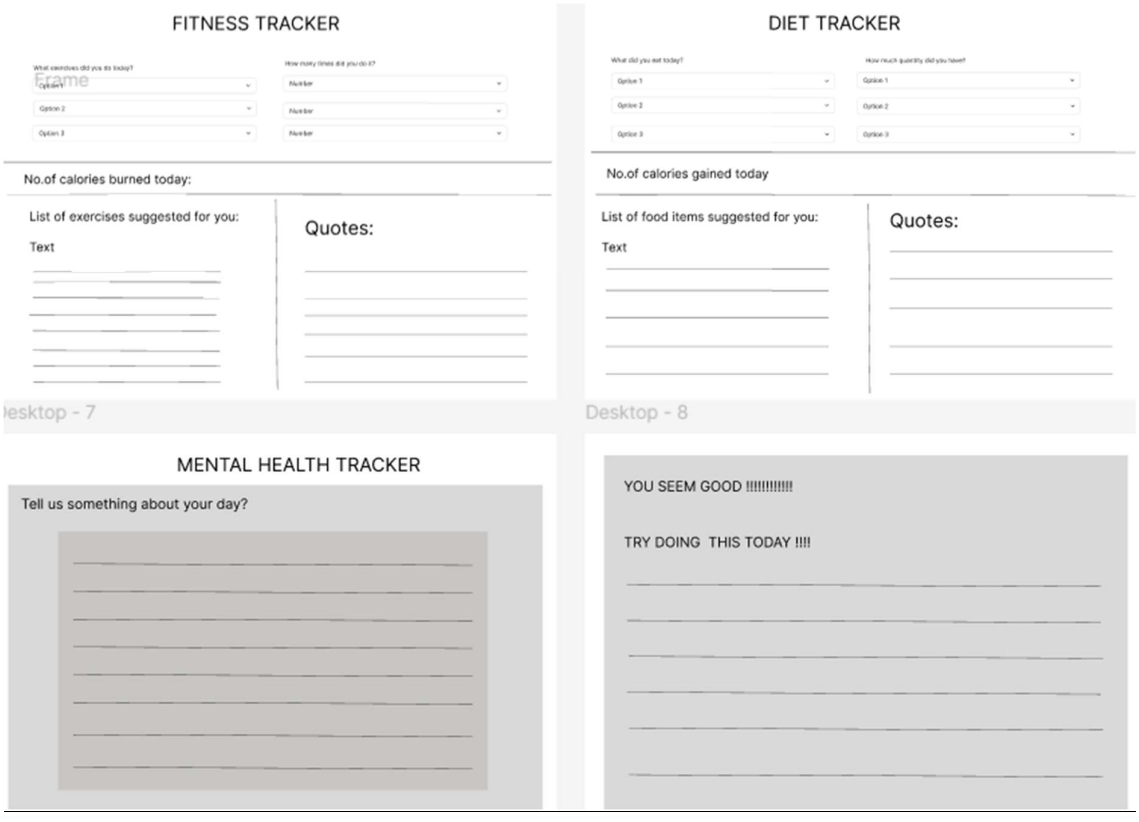
WireFrames:


WELLNESS TRACKER
Login
Sign Up
BMI CALCULATOR
Height
Weight
Age
Calculate


LOGIN
Email
Value
Password
Value
Submit


SIGN UP
Name
Value
Gender
Male
Female
Prefer not to disclose
Age
Number
Username
Value
Password
Value
Retype Password
Value
Email
Value
Height and Weight
Value
Activity Level
Value
Low
Medium
High
Submit

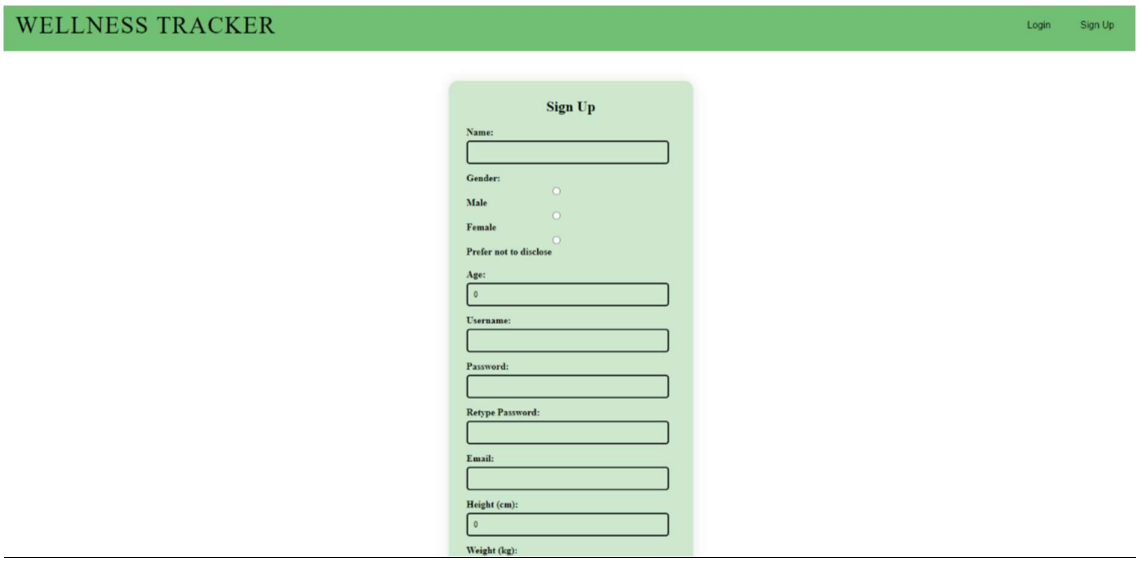

FITNESS TRACKER
BMI CALCULATOR
CLICK HERE TO GENERATE YOUR OVERALL HEALTH REPORT
update your details in all 3 trackers to generate your overall health report
DIET TRACKER
MENTAL HEALTH TRACKER


FITNESS TRACKER
No.of calories burned today:
List of exercises suggested for you:
Text
Quotes:
Desktop - 7
DIET TRACKER
No.of calories gained today
List of food items suggested for you:
Text
Quotes:
Desktop - 8
MENTAL HEALTH TRACKER
Tell us something about your day?
YOU SEEM GOOD !!!!!!!!!!!
TRY DOING THIS TODAY !!!!

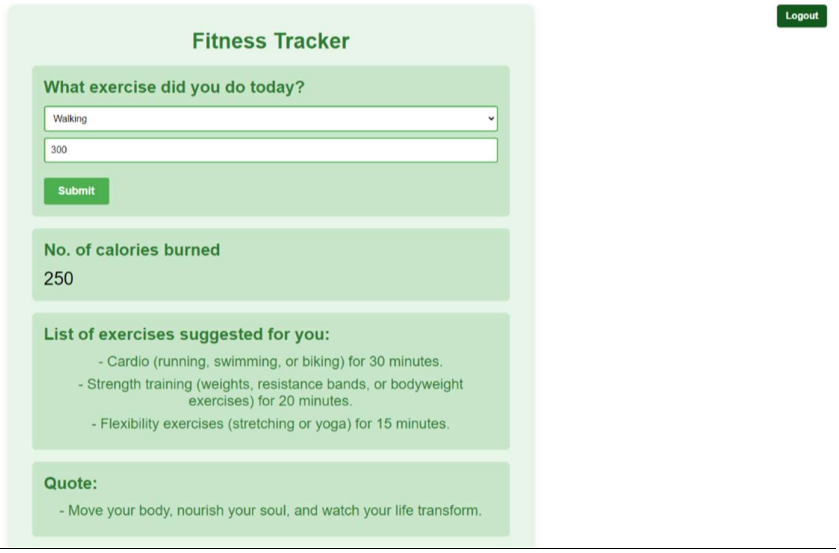
Final UI:

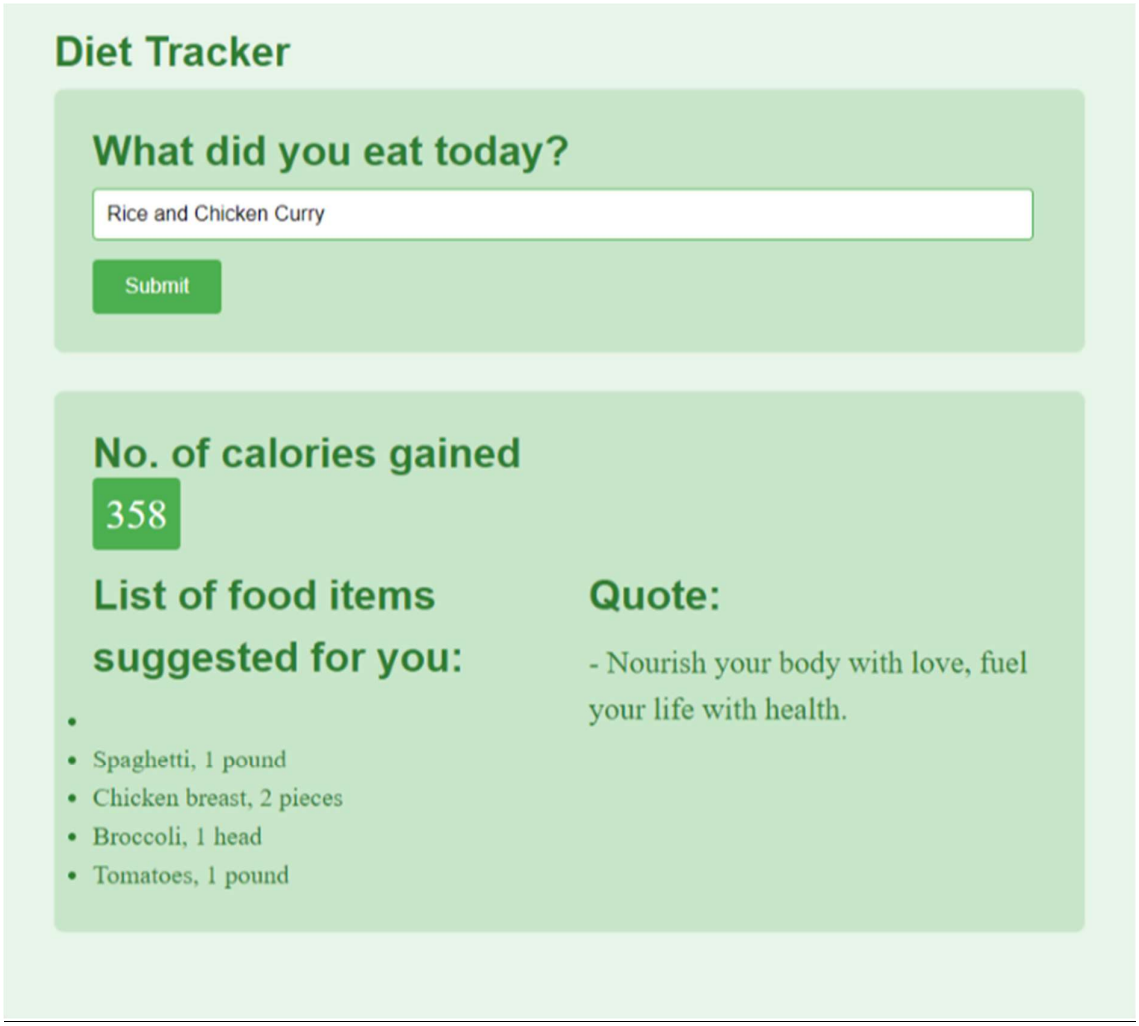

WELLNESS TRACKER
Login
Sign Up
IT'S NEVER TOO EARLY OR
TOO LATE
TO WORK TOWARDS BEING THE
HEALTHIEST YOU
BMI CALCULATOR
Height (cm):
180
Weight (kg):
80
Activity Level:
Low
Medium
High
CALCULATE
Your BMI: 24.7
Normal weight


WELLNESS TRACKER
Login
Sign Up
Login
User Name
Password:
Submit


WELLNESS TRACKER
Login
Sign Up
Sign Up
Name:
Gender:
Male
Female
Prefer not to disclose
Age:
0
Username:
Password:
Retype Password:
Email:
Height (cm):
0
Weight (kg):


Logout
Wellness Dashboard
Fitness Tracker
BMI Calculator
Generate Your Overall Health Report
Generate Report
Diet Tracker
Mental Health Tracker


Logout
Fitness Tracker
What exercise did you do today?
Walking
300
Submit
No. of calories burned
250
List of exercises suggested for you:
- Cardio (running, swimming, or biking) for 30 minutes.
- Strength training (weights, resistance bands, or bodyweight exercises) for 20 minutes.
- Flexibility exercises (stretching or yoga) for 15 minutes.
Quote:
- Move your body, nourish your soul, and watch your life transform.


Diet Tracker
What did you eat today?
Rice and Chicken Curry
Submit
No. of calories gained
358
List of food items suggested for you:
Spaghetti, 1 pound
Chicken breast, 2 pieces
Broccoli, 1 head
Tomatoes, 1 pound
Quote:
- Nourish your body with love, fuel your life with health.


Logout
Mental Health Tracker
Tell us something about your day:
Today was a mix of emotions. I started the morning with a refreshing jog, which lifted my spirits. At work, we faced some challenges, but teamwork helped us overcome them. In the evening, I read a captivating book that inspired me. Feeling grateful for these small joys.
Submit
Suggested Feedback:
Summary of your feelings: Energized, grateful, and inspired.
Suggested activity: Spend time in nature.