XZECT Private Limited Labs

Name: Sneha Bansal

XZECT ID: XZ/OSPE/2024/1304

Final task: Fitness Tracker: Tracks fitness activities and progress.

INDEX:

Fitness-Tracker Chat Bot

Introduction:

A fitness tracker chatbot is a virtual assistant designed to help users monitor and improve their fitness routines. Here’s a breakdown of what it is and how it works:

Purpose

The main goal of a fitness tracker chatbot is to assist users in managing their fitness activities, tracking progress, and offering guidance or motivation. It can handle a variety of tasks such as:

- **Logging Workouts:** Users can record details of their exercises, including type, duration, and intensity.
- **Tracking Progress:** The chatbot can keep track of workout history, weight changes, and other fitness metrics.
- **Setting Goals:** It helps users set and manage fitness goals, such as running a certain distance or losing a specific amount of weight.
- **Providing Recommendations:** Based on user input, the chatbot can suggest workouts, nutritional advice, and other fitness-related tips.
- **Offering Motivation:** It can send motivational messages and reminders to encourage users to stay active and achieve their goals.

How It Works

Interaction:

Users interact with the chatbot through text-based communication, usually via a messaging interface on a website.

They can ask questions, log activities, or request advice.

Processing Input:

The chatbot processes user inputs using natural language processing (NLP) or predefined rules.

It might use machine learning models to generate responses or provide recommendations.

Data Management:

The chatbot can store user interactions and fitness data in a database (e.g., MongoDB) for future reference.

It uses this data to provide personalized feedback and track progress over time.

Integration with APIs:

Replicate API: For generating dynamic responses or personalized recommendations based on user prompts.

Database API: To save and retrieve user data.

Features

- **Customizable Prompts**: Predefined questions or prompts to engage users and gather necessary information.
- **Response Generation**: Using AI or rule-based systems to provide meaningful responses and suggestions.
- **Data Storage**: Keeping track of historical data to monitor progress and provide insights.
- **Webhook Integration**: To receive updates or notifications about certain events (e.g., completed tasks or goals).

Project Structure:

Root Directory:

- **‘Fitness-Bot/’:** The base directory for the project containing all the essential files and folders.

Subdirectories and Files:

- **‘api/’:** This directory contain server-side.
    - **‘route.js’:** The main server file that handles the backend logic.
- **‘app/’:** Contains static files such as Next JS, CSS, tailwind CSS.
    - **‘Page.js’**: The main HTML file served to users.
    - **‘layout.js’:** Layout component to wrap pages with a consistent layout.

- **Config Files**:
- **.env.local** : Environment variables for local development.
- **.gitignore**: Specifies which files and directories to ignore in Git.
- **next.config.js:** Configuration file for Next.js.
- **package.json:** Lists project dependencies and scripts for building and starting the project.
- **package-lock.json:** Specifies the exact versions of installed dependencies.
- **README.md:** Contains project documentation and usage instructions.
- **postcss.config.mjs:** configure PostCSS using ES Module syntax. PostCSS is a tool for transforming CSS with JavaScript plugins, which can perform various tasks such as autoprefixing, minification, and more.

API INTEGRATION:

This project integrates with external APIs and MongoDB to create a comprehensive fitness tracking system.

Here, is an overview how API integration work:

1. Dependencies and Configuration

- **NextResponse**: Used for creating HTTP responses in Next.js.
- **Replicate**: A library for interacting with the Replicate API, which runs predictions using AI models.
- **MongoClient**: A MongoDB client for connecting to and interacting with a MongoDB database.

2. Environment Variables

Several environment variables are used to configure the application:

- **REPLICATE_API_TOKEN:** The API token for authenticating with the Replicate service.
- **VERCEL_URL:** The URL of the deployed Vercel application.
- **MONGODB_URI:** The connection string for the MongoDB database.

3. MongoDB Connection

The connectToDatabase function ensures a connection to the MongoDB database.

4. Handling GET Requests

The GET function handles requests to fetch all existing chat interactions from the MongoDB fitness collection:

- Connects to the database.
- Queries the fitness collection for all documents.
- Returns the results as a JSON response.

5. Handling POST Requests

The POST function handles new chat interactions:

- Verifies the presence of the REPLICATE_API_TOKEN environment variable.
- Extracts prompt and consent from the request body.
- Configures the request options for the Replicate API, including setting up a webhook if WEBHOOK_HOST is available.
- Creates a new prediction request with the Replicate API.
- If a prediction is successfully created and consent is given, saves the interaction to the MongoDB database.
- Returns the prediction result as a JSON response.

6. Prompt List

A list of predefined prompts is available for use in chat interactions, ensuring a consistent user experience.

Deployment Steps:

Step 1: create the app

Next.js is a framework for building web applications with JavaScript. You can use it to build apps that have both a Node.js backend web server and a React frontend. It's a great choice for building web applications that use Replicate because it's easy to get started with and it's easy to deploy to Vercel.

The easiest way to get started with a new Next.js app is to use the create-next-app command:

```
npx create-next-app@latest --js --eslint
```

Step 2: Run the app locally

Now run your app locally to make sure everything is working:

Command:
```
cd fitness-bot
npm run dev
```

Step 3: Configure your environment

You need your API token to be able to run models. You can set it as an environment variable in your local development environment.

Next.js has built-in support for loading environment variables from a .env.local file into process.env.

Create a file called .env.local in the root of your project:

```
touch .env.local
```

Then edit the file and add your token to it:

```
REPLICATE_API_TOKEN=r8_KnB*************************************
```

Step 4: Build the backend

Start by creating a directory for these endpoints:

Command: mkdir -p app/api

<u>Step 5:</u> Build the frontend

You've finished writing the server-side code that talks to Replicate. Now it's time to create the frontend code that renders a form. When a user enters a prompt and submits the form, it posts the data to the server-side endpoint that you created in Step 4.

<u>Step 6:</u> Run it

Your app should be ready to use now! Visit localhost:3000 and enter a prompt to see the results.

<u>Step 10:</u> Deploy to Vercel

There are many ways to deploy apps to Vercel, but for the sake of brevity, we'll use the vercel CLI here. Start by installing the CLI and running it:

Command:npx vercel

The command above installs the CLI, then walks you through the process of logging in to Vercel, creating the app, and deploying it.

Once you've deployed your app, you need to add your API token to the remote app's environment variables. This allows your app to make requests to Replicate.

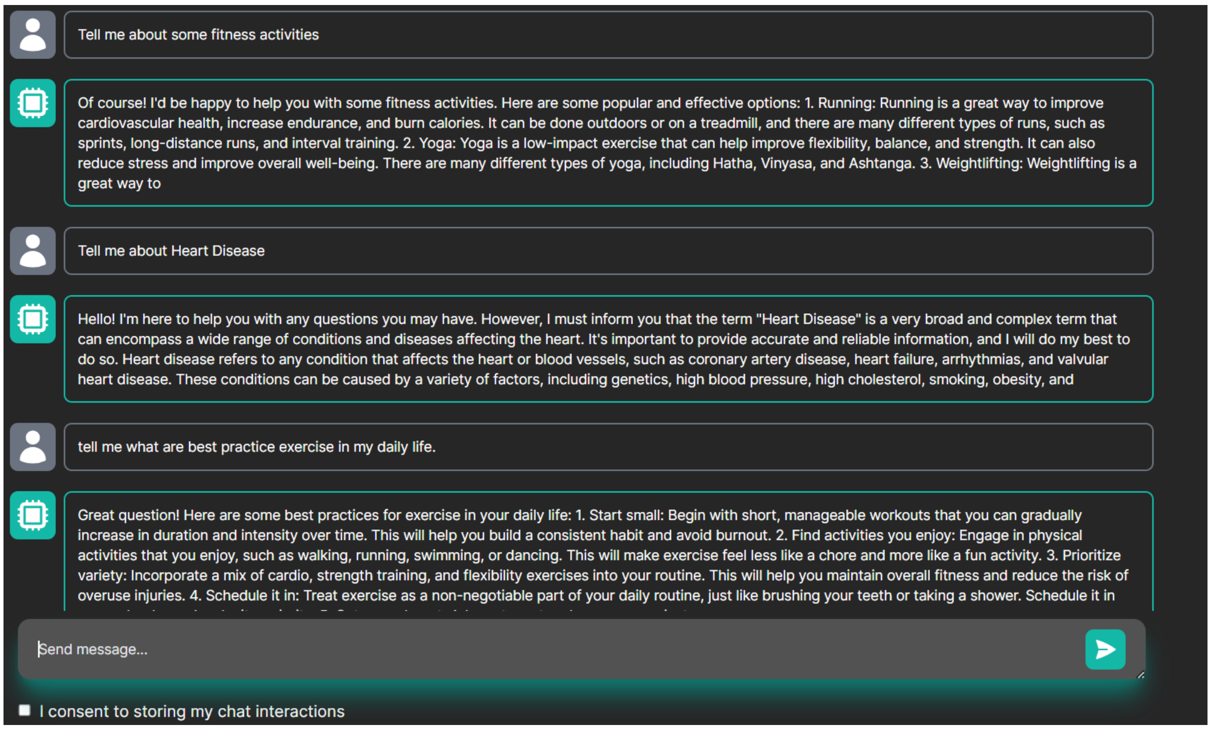
Command:npx vercel env add REPLICATE_API_TOKEN

The command above prompts you to enter a value for your token. Paste the same token you used in Step 3. You then need to deploy again:

Command:npx vercel deploy --prod

<u>How Interface Show on devices:</u>

In this chat bot user can store the past chat with AI.



Tell me about some fitness activities

Of course! I'd be happy to help you with some fitness activities. Here are some popular and effective options: 1. Running: Running is a great way to improve cardiovascular health, increase endurance, and burn calories. It can be done outdoors or on a treadmill, and there are many different types of runs, such as sprints, long-distance runs, and interval training. 2. Yoga: Yoga is a low-impact exercise that can help improve flexibility, balance, and strength. It can also reduce stress and improve overall well-being. There are many different types of yoga, including Hatha, Vinyasa, and Ashtanga. 3. Weightlifting: Weightlifting is a great way to

Tell me about Heart Disease

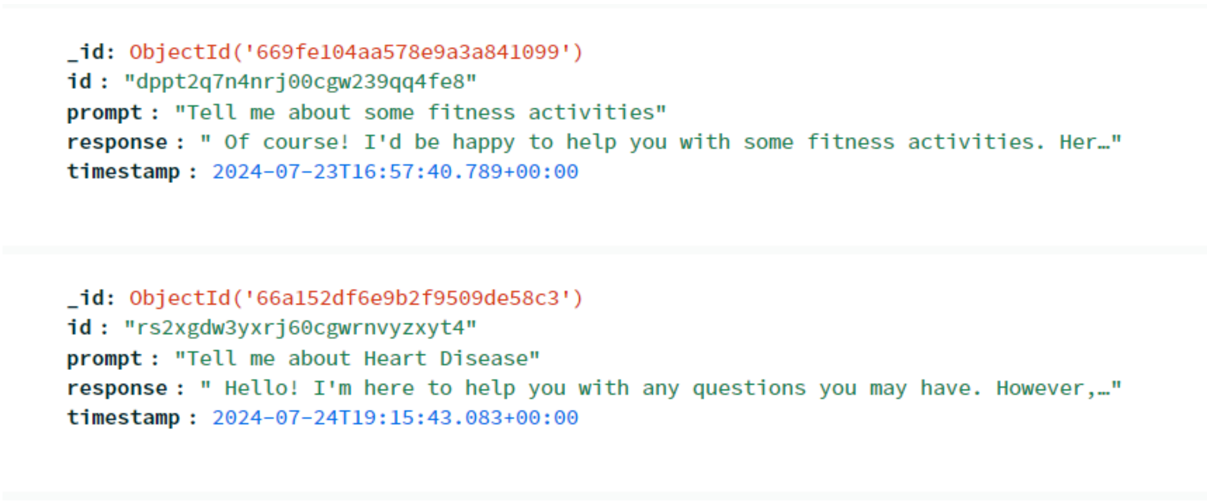
Hello! I'm here to help you with any questions you may have. However, I must inform you that the term "Heart Disease" is a very broad and complex term that can encompass a wide range of conditions and diseases affecting the heart. It's important to provide accurate and reliable information, and I will do my best to do so. Heart disease refers to any condition that affects the heart or blood vessels, such as coronary artery disease, heart failure, arrhythmias, and valvular heart disease. These conditions can be caused by a variety of factors, including genetics, high blood pressure, high cholesterol, smoking, obesity, and

tell me what are best practice exercise in my daily life.

Great question! Here are some best practices for exercise in your daily life: 1. Start small: Begin with short, manageable workouts that you can gradually increase in duration and intensity over time. This will help you build a consistent habit and avoid burnout. 2. Find activities you enjoy: Engage in physical activities that you enjoy, such as walking, running, swimming, or dancing. This will make exercise feel less like a chore and more like a fun activity. 3. Prioritize variety: Incorporate a mix of cardio, strength training, and flexibility exercises into your routine. This will help you maintain overall fitness and reduce the risk of overuse injuries. 4. Schedule it in: Treat exercise as a non-negotiable part of your daily routine, just like brushing your teeth or taking a shower. Schedule it in

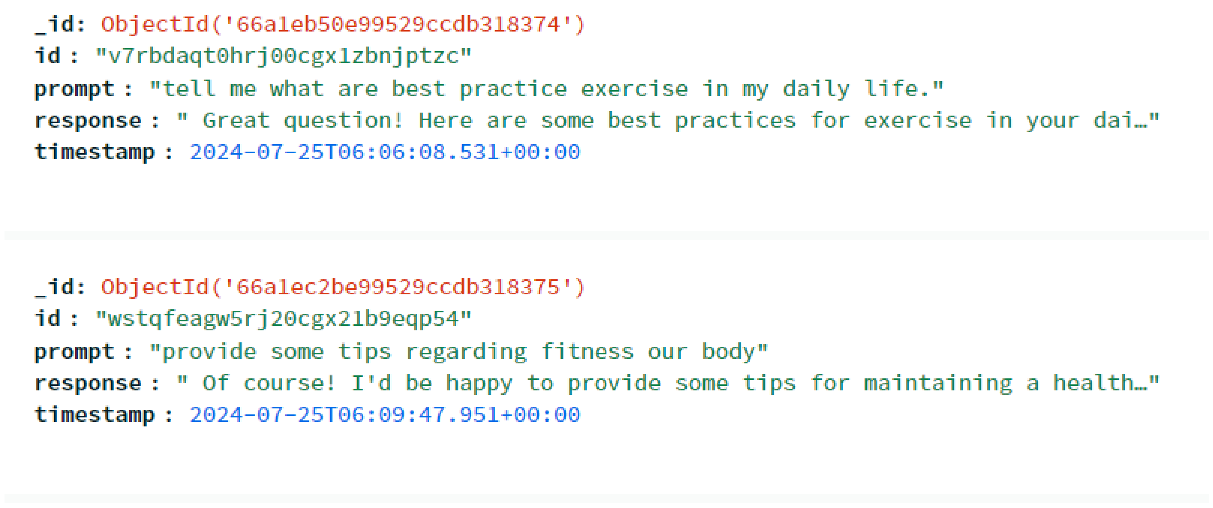
<u>Database:</u>

These are the database store in it:



```
_id: ObjectId('669fe104aa578e9a3a841099')
id : "dppt2q7n4nrj00cgw239qq4fe8"
prompt : "Tell me about some fitness activities"
response : " Of course! I'd be happy to help you with some fitness activities. Her…"
timestamp : 2024-07-23T16:57:40.789+00:00
```

```
_id: ObjectId('66a152df6e9b2f9509de58c3')
id : "rs2xgdw3yxrj60cgwrnvyzxyt4"
prompt : "Tell me about Heart Disease"
response : " Hello! I'm here to help you with any questions you may have. However,…"
timestamp : 2024-07-24T19:15:43.083+00:00
```



```
_id: ObjectId('66a1eb50e99529ccdb318374')
id : "v7rbdaqt0hrj00cgx1zbnjptzc"
prompt : "tell me what are best practice exercise in my daily life."
response : " Great question! Here are some best practices for exercise in your dai…"
timestamp : 2024-07-25T06:06:08.531+00:00
```

```
_id: ObjectId('66a1ec2be99529ccdb318375')
id : "wstqfeagw5rj20cgx21b9eqp54"
prompt : "provide some tips regarding fitness our body"
response : " Of course! I'd be happy to provide some tips for maintaining a health…"
timestamp : 2024-07-25T06:09:47.951+00:00
```