

CAPSTONE PROJECT : Fitness Buddy AI Chatbot

Presented By :

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Project Outline

Problem Statement

Definition of the key mobility challenge without proposing a solution yet.

Proposed Solution

Overview of the predictive system to estimate bike demand.

System Development Approach

Technologies and methodology used for building the solution.

Algorithm and Deployment

Technical details about the forecasting algorithm and system deployment.

Result

Model's output and performance analysis.

Conclusion

Summary of findings and the impact of the project.

Future Scope

Potential improvements and expansions of the system.

References

Sources and documentation employed during development.





Problem Statement

Problem Statement No.13 - Fitness Buddy The challenge - In today's fast-paced world, many individuals struggle to maintain a healthy lifestyle due to lack of personalized guidance, time constraints, and inconsistent motivation. Traditional fitness solutions often require expensive subscriptions, in-person consultations, or rigid schedules that don't adapt to personal preferences or daily routines. There is a growing need for an accessible, friendly, and intelligent virtual assistant that can provide on demand fitness advice, healthy lifestyle suggestions, and basic nutrition guidance—all tailored to individual needs and available at any time. Fitness Buddy aims to solve this problem by offering a conversational, AI-powered health and fitness coach that can:

- Recommend home workouts and routines based on user input.
- Provide motivational tips and daily fitness inspiration.
- Suggest simple, nutritious meal ideas.
- Encourage habit-building and consistency.

Technology: Use of IBM cloud lite services /IBM Granite is mandatory.

Proposed Solution

- **Fitness Buddy AI Chatbot:** An intelligent agent designed to provide personalized healthy routines and fitness guidance tailored for daily life.
- **Technology Stack:** Developed and deployed using IBM Cloud Services, ensuring scalability, reliability, and security for the AI chatbot.
- **AI Model:** Integrates with IBM Granite for robust natural language understanding and generation, enabling conversational and contextually aware interactions.
- **Enhanced Data Retrieval:** Utilizes advanced web tools such as Google Search, DuckDuckGo Search, and Webcrawler to gather up-to-date and diverse information for comprehensive fitness and nutrition recommendations.
- **Personalized Guidance:** Delivers on-demand fitness advice, customized workout plans, healthy lifestyle suggestions, and basic nutrition guidance to help users maintain a healthy routine.



System Development Approach

AI Agent Core Development

Designed and built the Fitness Buddy AI agent to deliver personalized healthy routines and fitness guidance tailored for daily life.

IBM Cloud Integration

Utilized IBM Cloud Services for the comprehensive development and secure deployment of the Fitness Buddy AI Chatbot, ensuring scalability and reliability.

Advanced Data Retrieval

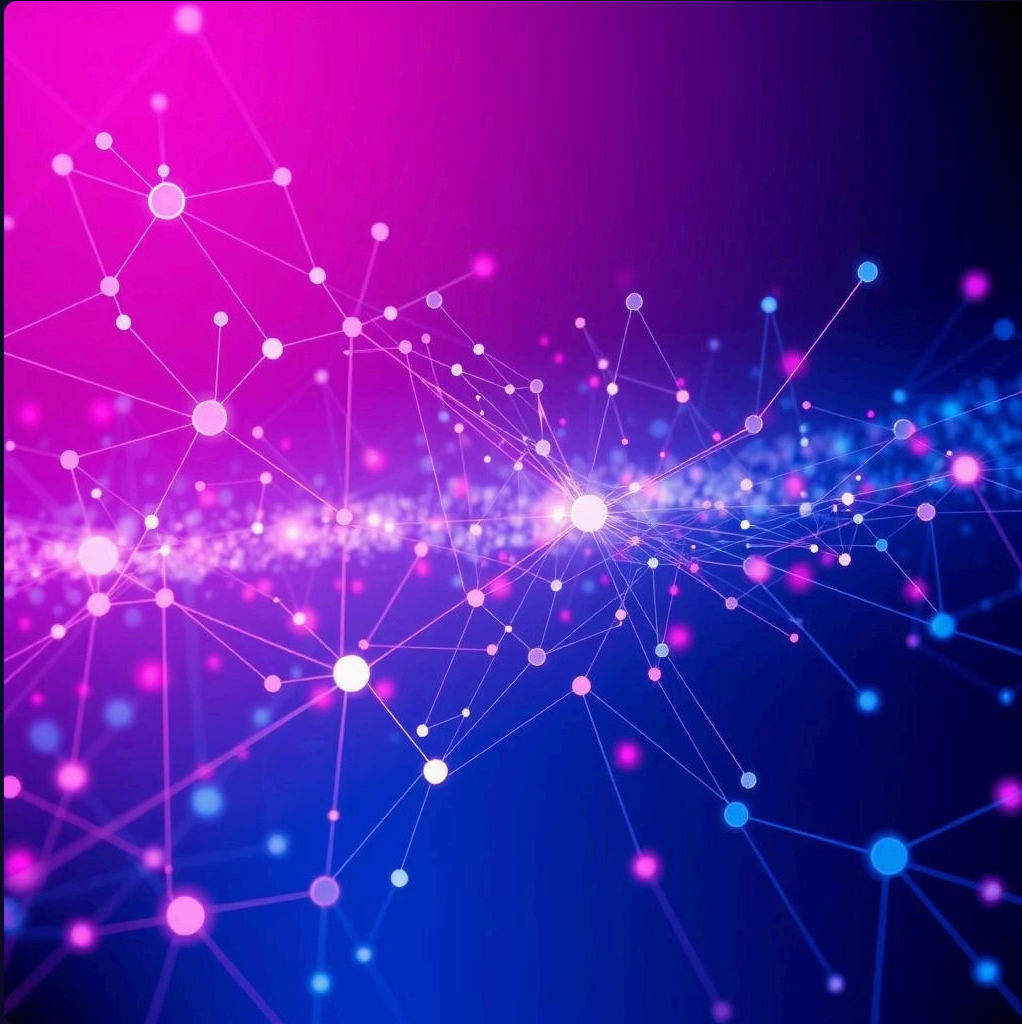
Integrated web tools such as Google Search, DuckDuckGo Search, and a custom Webcrawler to gather diverse and up-to-date information, enhancing the chatbot's knowledge base for recommendations.

IBM Granite AI Model

Leveraged IBM Granite for robust natural language understanding and generation, enabling conversational, contextually aware, and intelligent interactions within the chatbot.

Algorithm & Deployment

AI Algorithm & Data Retrieval



The core intelligence of the Fitness Buddy AI Agent lies in its algorithm. It utilizes **IBM Granite** for robust natural language understanding and generation, enabling conversational and contextually aware interactions. To provide comprehensive and up-to-date recommendations, the system integrates advanced web tools such as **Google Search**, **DuckDuckGo Search**, and a custom **Webcrawler** for efficient data retrieval.

Robust Cloud Deployment



The entire Fitness Buddy AI Chatbot is developed and hosted using **IBM Cloud Services**. This robust deployment ensures the chatbot's scalability, reliability, and security, making it possible to provide on-demand fitness advice and guidance to users anytime, anywhere.

Agent Lab (beta) — Docs | IBM x Agent Lab — fitness buddy | IBM x fitness buddy — Projects | IBM x fitness buddy — Projects | IBM x +

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IBM watsonx

Upgrade ? Bell Harshita Shakya's Account Dallas HS

Projects / fitness buddy / Agent Lab

Share feedback beta Unsaved New agent + Deploy

Build

AI Model: llama-3-3-70b-instruct

Knowledge Tools

Add a tool Create custom tool

Added tools (4)

Google search

Retrieve information from the internet with the Google search engine.

DuckDuckGo search

Retrieve information from the internet with the DuckDuckGo search engine.

Wikipedia search

Retrieve information from Wikipedia articles.

Webcrawler

Retrieve information from a website.

Agent preview

HS You: 10:49 PM

Goal: Weight loss Available Time: 30 minutes Diet Preference: Vegetarian Fitness Level: Beginner

watsonx Agent 10:49 PM

Here's a 30-minute vegetarian weight loss workout for beginners:

1. Warm-up: 5 minutes of light cardio such as jogging in place or jumping jacks

2. Strength training: 15 minutes of bodyweight exercises such as push-ups, squats, lunges, and planks

3. Cardio: 5 minutes of high-intensity interval training (HIIT) such as sprints or burpees

4. Cool-down: 5 minutes of stretching

Remember to listen to your body and only do what feels comfortable and safe. It's also important to consult with a healthcare professional before starting any new exercise program.

As for nutritious meal ideas, here are some vegetarian options:

1. Breakfast: Overnight oats with fruit and nuts

2. Lunch: Whole grain pita stuffed with roasted vegetables and hummus

3. Dinner: Quinoa and black bean bowl with roasted sweet potatoes and avocado

Remember to stay hydrated by drinking plenty of water throughout the day.

Type something...

Agent Lab (beta) — Docs | IBM

Agent Lab — fitness buddy | IBM

fitness buddy — Projects | IBM

fitness buddy — Projects | IBM

dataplatform.cloud.ibm.com/wx/agents?context=wx&project_id=26bb048f-961a-411e-bd2d-e86302e58a0e

Incognito

IBM watsonx

Upgrade

Harshita Shakya's Account

Dallas

HS

Projects / fitness buddy / Agent Lab

Share feedback

Unsaved

New agent +

Deploy

Build

AI

Model: llama-3-3-70b-instruct

Setup

Configuration

Framework

LangGraph

Architecture

ReAct

Instructions

Advanced configuration

Takes user input (e.g., fitness goal, weight, available time, dietary preferences).

Suggests:

Home workouts (no equipment/basic equipment).

Nutritious meal ideas.

Daily motivational tips.

Habit-building reminders

Knowledge

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Type something...

Search

ENG IN

22:50

31-07-2025

Conclusion

The Fitness Buddy AI Chatbot project successfully addresses the critical need for accessible and personalized health guidance in today's fast-paced world. By leveraging cutting-edge AI and cloud technologies, we have developed an intelligent agent capable of delivering tailored fitness routines, motivational support, and nutritional insights on demand. This project demonstrates a powerful integration of AI capabilities and robust cloud infrastructure to empower users in their wellness journeys.

Personalized AI Guidance

Fitness Buddy's core strength lies in its ability to provide highly personalized health and fitness advice, adapting to individual user needs and daily routines, fostering consistent motivation and habit-building.

Robust Cloud Infrastructure

Leveraging IBM Cloud Services for development and secure deployment ensures the chatbot's high scalability, reliability, and availability, making personalized fitness advice accessible anytime, anywhere.

Intelligent Data Retrieval

The system's comprehensive and up-to-date knowledge base is powered by advanced web tools including Google Search, DuckDuckGo Search, and a custom Webcrawler, ensuring diverse and relevant recommendations.

Advanced Natural Language Processing

By utilizing IBM Granite, the chatbot excels in natural language understanding and generation, enabling fluid, contextually aware, and intelligent conversational interactions with users.

Future Scope

- **Deeper Personalization:** Integrate with wearable devices and health apps to collect real-time user data (e.g., activity levels, sleep patterns, heart rate) for even more precise and adaptive guidance.
- **Advanced Workout and Nutrition Planning:** Implement features for creating detailed meal plans with calorie and macronutrient tracking, as well as dynamic workout routines that adjust based on user progress and performance.
- **Real-time Feedback and Coaching:** Explore incorporating computer vision or voice analysis to provide real-time feedback on exercise form and progress during workouts, enhancing the coaching experience.
- **Mental Wellness Integration:** Expand guidance to include aspects of mental health and stress management, offering mindfulness exercises, meditation prompts, and resources for holistic well-being.
- **Expanded Content and Multilingual Support:** Continuously enrich the knowledge base with a wider variety of exercises, dietary plans, and lifestyle tips. Introduce multilingual support to cater to a global audience.
- **Community and Social Features:** Develop features that allow users to connect with friends, participate in challenges, share progress, and foster a supportive fitness community.
- **Predictive Analytics for Health Trends:** Utilize advanced analytics with IBM Granite to identify potential health risks or plateaus, offering proactive advice to prevent setbacks and optimize user progress.
- **Integration with Professional Services:** Enable seamless connection with certified fitness trainers or nutritionists for users seeking more in-depth, human-led consultation.



References

- IBM Cloud Services. Used for the comprehensive development and secure deployment of the Fitness Buddy AI Chatbot.
- IBM Granite. Leveraged for robust natural language understanding and generation capabilities within the AI Chatbot.
- Google Search. Integrated as a web tool for gathering diverse and up-to-date information.
- DuckDuckGo Search. Utilized as an additional web tool for comprehensive data retrieval.
- Custom Webcrawler. Developed and integrated for efficient and targeted data acquisition to enhance the chatbot's knowledge base.