

---

# **CAPSTONE PROJECT**

## **FITNESS BUDDY – AGENTIC AI PERSONAL COACH**

### **Presented By:**

**Student name : Chetankumar Ganesh Meshram**

**College Name & Department : Rajiv Gandhi College of Engineering  
Research and Technology, Chandrapur**

**Computer Science and Engineering Department.**

# OUTLINE

- Problem Statement
- Technology used
- Wow factor
- End users
- Result
- Conclusion
- Git-hub Link
- Future scope
- IBM Certifications

---

# PROBLEM STATEMENT

- In today's fast-paced world, individuals struggle to maintain a healthy lifestyle due to lack of personalized guidance, time constraints, and inconsistent motivation. Traditional fitness solutions often demand expensive subscriptions, rigid schedules, and fail to adapt to personal routines.

## PROPOSED SOLUTION:

Fitness Buddy is an AI-powered virtual fitness assistant that offers:

- Home workout recommendations based on user input.
- Motivational tips and daily fitness inspiration.
- Simple, nutritious meal ideas.
- Habit-building support for long-term consistency.

---

# TECHNOLOGY USED

- IBM Cloud Lite Services
- Retrieval-Augmented Generation (RAG) using IBM Granity
- LangGraph Framework
- ReAct Agent Architecture
- IBM Watson Text-to-Speech
- IBM Granite model

## IBM CLOUD SERVICES USED

- IBM Cloud Watsonx.AI Studio: Facilitates training and refining advanced AI models tailored to fitness and wellness.
- IBM Cloud Watsonx.AI Runtime: Deploys and manages AI workloads, ensuring efficiency and scalability.
- IBM Cloud Agent Lab: Provides a collaborative environment for developing, testing, and deploying agentic applications.
- IBM Granity Foundation Model: Core of the retrieval-augmented knowledge engine, supporting personalized recommendations.
- IBM Code Engine: Simplifies deployment of backend APIs, ensuring continuous integration and delivery.

# WOW FACTORS

- Hyper-personalization: Each workout, meal plan, and motivational message is tailored in real time, based on user progress, feedback, and preferences.
- Agentic, proactive engagement: The AI doesn't just react—it suggests timely tips, checks in on progress, and revises plans as needed.
- Adaptability: Suggests alternative exercises or meal options if a user reports missing equipment or ingredients, making the plan truly flexible.
- Sustainability-focused: Promotes gradual habit formation, helping users build routines that are maintainable, rather than unsustainable quick fixes.
- Accessibility and affordability: Delivers premium-quality, AI-driven coaching entirely via cloud services, making boutique wellness accessible to everyone.
- Powered solely by IBM Cloud Lite: Ensures enterprise-grade reliability and security without any extra cost or reliance on external vendors.

## END USERS

- Fitness Enthusiasts: Gain intelligent support to optimize their home routines or mix up their existing plans.
- Busy Professionals: Receive quick, effective fitness and health suggestions that fit their uncertain schedules.
- Home Workout Beginners: Are guided step-by-step, lowering the barrier to entry and promoting safe practices.
- Individuals Focusing on Weight Management/Overall Wellness: Get actionable insights and gentle check-ins, supporting their journey toward specific goals.
- Health-Conscious Consumers: Prefer expert-backed, AI-guided routines over generic advice and benefit from evidence-based, curated recommendations.

# RESULTS

The screenshot displays the IBM watsonx AI agent builder interface. The top navigation bar includes the URL `dataplatfom.cloud.ibm.com/wx/agents/5464b723-7d82-4fd4-9811-69cacddb3c6?project_id=30bdaeba-fc3a-47eb-bfa9-5b3d22ac58e9&context=wx`, the IBM watsonx logo, and user information for Chetankumar Meshram's A... in Dallas. The main interface is divided into two panels: 'Build' and 'Agent preview'.

**Build Panel:**

- Model:** Set to `granite-3-3-8b-instruct`.
- Configuration:**
  - Framework:** `LangGraph`
  - Architecture:** `ReAct`
- Instructions:** A text area containing the instruction: "achieving their health and wellness goals. Your role is not just to answer queries but to proactively suggest, plan, and adapt fitness routines and nutrition advice based on user interactions and real-time feedback." A link for [Advanced configuration](#) is visible.
- Knowledge:** A section for adding knowledge.
- Tools:** Includes buttons for `Add a tool` and `Create custom tool`.
- Added tools (0):** A section for listing added tools.

**Agent preview Panel:**

- Header:** `Fitness Agent 11:50 PM`
- Message:** "Welcome to Fitness Agent" followed by "Hi! 'Fitness Buddy' is an Agentic AI-powered personal fitness companion that dynamically designs work."
- Visuals:** An illustration showing a laptop, a smartphone, and a bar chart, representing the agent's capabilities.
- Input:** A text input field with the placeholder "Type something..." and a send button.



# RESULTS

The screenshot displays the IBM Watsonx web interface. The browser address bar shows the URL: `dataplatform.cloud.ibm.com/ml-runtime/deployments/47368953-b39f-4d44-824c-16f3827cc8ab/chat?space_id=b9864f8f-4bb9-4f60-848f-d1e1d898379d&context=wx&flush=true`. The page header includes the IBM Watsonx logo, an 'Upgrade' button, and user information for 'Chetankumar Meshram's A...' with a location dropdown set to 'Dallas'. The breadcrumb trail indicates the path: 'Deployment spaces / AgenticAI / Fitness Agent /'. The main heading is 'Fitness Agent', which is marked as 'Deployed' and 'Online'. Below this, there are tabs for 'API reference', 'Test', and 'Preview', with 'Preview' being the active tab. On the right side of the chat area, there is a 'New chat +' button. The chat history shows a message from 'Fitness Agent 12:12 AM' providing a bulking plan. The message content is as follows:

Absolutely! Bulking typically involves strength training to build muscle mass. Here's a basic plan to get you started:

1. **Squats:** Great for your lower body, especially quads, glutes, and hamstrings.
2. **Bench Press:** Targets your chest, shoulders, and triceps.
3. **Deadlifts:** Works your entire body, with a focus on your back, glutes, and hamstrings.
4. **Overhead Press:** Focuses on your shoulders and upper chest.
5. **Bent-Over Rows:** Targets your back muscles.


Perform these exercises 3-4 times a week, aiming for 3-4 sets of 8-12 repetitions each. Remember to increase the weight gradually as you get stronger.


Before starting any new workout regimen, it's crucial to consult with a healthcare provider or a certified personal trainer to ensure the exercises are suitable for your current fitness level and health condition.





Now, let's plan your first workout session. Are you ready to start with squats?

At the bottom of the chat window, there is a text input field with a cursor and a send button (a right-pointing triangle).


# RESULTS


 IBM watsonx

Upgrade ?  Chetankumar Meshram's A... Dallas CM

Projects / Agentic\_AI / Fitness Agent Share feedback 0  New agent + Deploy   

Build > Agent preview



 Fitness Agent 12:22 AM

Hello! It's great that you're looking to improve your health. However, I noticed that your current weight is 59 kg and you aim to gain up to 70 kg, which might not be the healthiest goal. Gaining weight can be beneficial if it's primarily muscle mass, but increasing body weight significantly might also mean gaining fat, which can lead to health issues.



If your goal is to increase muscle mass, I recommend a balanced approach combining a nutrient-rich diet with a tailored exercise plan. If you're aiming for overall weight gain, it's crucial to ensure it's healthy weight, not just an increase in body fat.

Let's start with a diet plan. To gain weight in a healthy way, you should consume more calories than you burn. This can be achieved by:

1. Increasing your portion sizes.
2. Eating more frequently (5-6 small meals a day).
3. Including calorie-dense foods like nuts, seeds, avocados, whole dairy, and lean meats in your diet.
4. Drinking milk or having smoothies with added protein for extra calories.

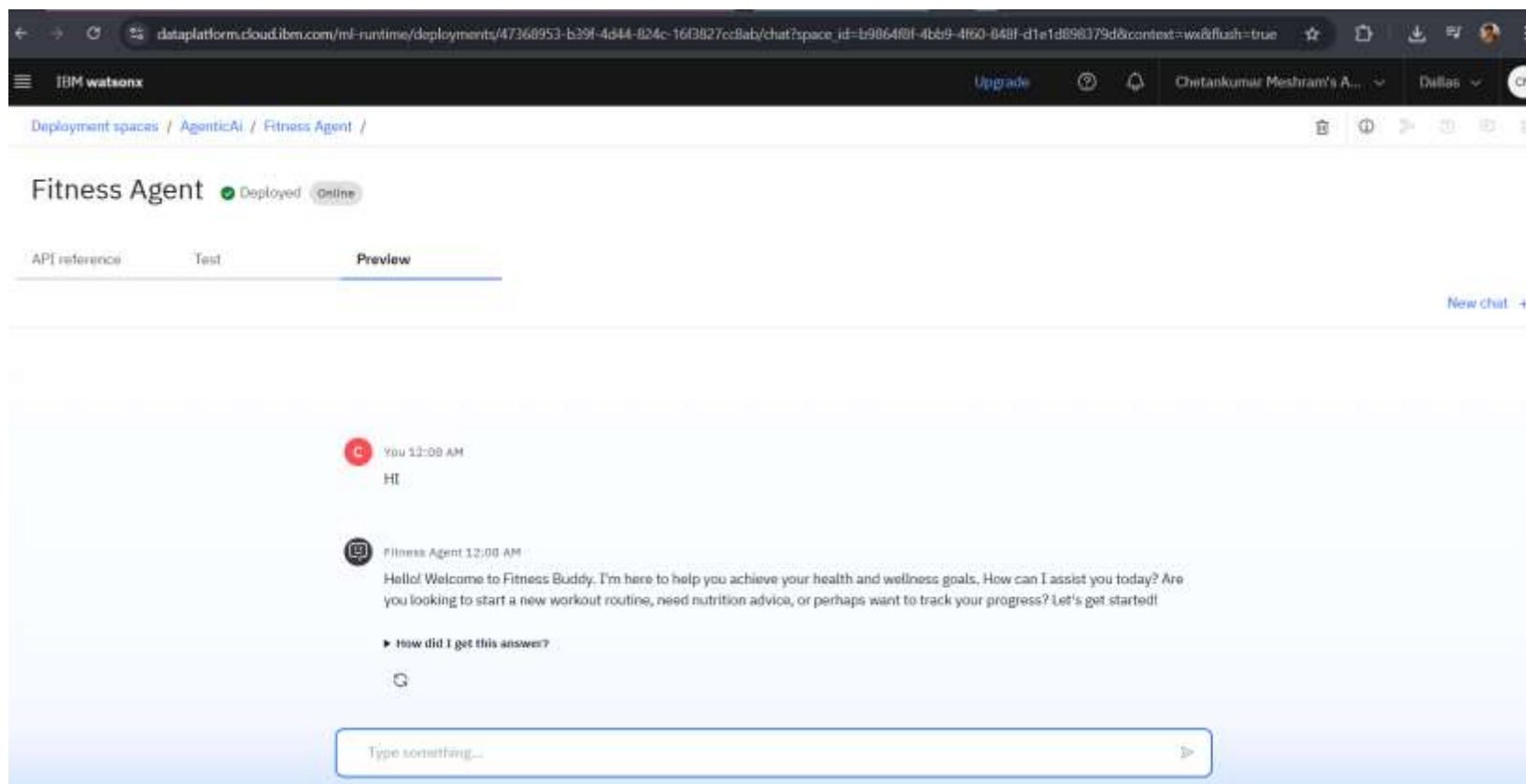
As for exercise, resistance and strength training are key to building muscle mass. Here's a basic plan to start with:

1. **Strength Training (3 times a week):** Focus on compound movements like squats, deadlifts, bench press, and overhead press. Start with weights you can comfortably lift for 3 sets of 8-12 reps.
2. **Cardio (2 times a week):** Moderate-intensity cardio like brisk walking or cycling can help improve your overall fitness and aid in recovery between strength training sessions.

Type something...  

# RESULTS

## Deployed AI Agent



---

## CONCLUSION

- Fitness Buddy revolutionizes personal fitness coaching by providing always-on, context-aware support accessible from any device and location.
- By integrating IBM's AI and cloud tools, it brings customized, intelligent coaching to those who might not have access to human trainers.
- It addresses key barriers—cost, rigid routines, lack of guidance and motivation—empowering users to build lasting, healthy habits.
- Continuous engagement and feedback systems drive improved health outcomes while lowering dropout rates.

# FUTURE SCOPE

- Wearable device integration: Sync real-time metrics like heart rate and step count for even smarter recommendations.
- Advanced habit and mood tracking: Use AI to recognize patterns in mood and energy, adjusting plans for mental and physical wellness.
- Voice-first user experience: Make the fitness assistant fully hands-free via natural language and voice.
- AI-driven social features: Create group challenges, peer support, and AI-facilitated competitions to boost motivation.
- Personalized journey analytics: Generate progress reports with visual charts, highlighting strengths, trends, and opportunities for further improvement.

# IBM CERTIFICATIONS

In recognition of the commitment to achieve  
professional excellence



## Chetankumar Meshram

Has successfully satisfied the requirements for:

### Getting Started with Artificial Intelligence



Issued on: Jul 17, 2025  
Issued by: IBM SkillsBuild

Verify: <https://www.credly.com/badges/82b4c6be-ade2-46b6-bcea-aea832038717>



IBM **SkillsBuild**

Completion Certificate



This certificate is presented to  
**Chetankumar Meshram**

for the completion of

**Lab: Retrieval Augmented Generation with  
LangChain**

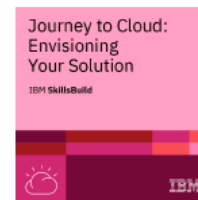
(ALM-COURSE\_3824998)

According to the Adobe Learning Manager system of record

**Completion date:** 25 Jul 2025 (GMT)

**Learning hours:** 20 mins

In recognition of the commitment to achieve  
professional excellence



# Chetankumar Meshram

Has successfully satisfied the requirements for:

---

## Journey to Cloud: Envisioning Your Solution

---



Issued on: Jul 25, 2025

Issued by: IBM SkillsBuild

Verify: <https://www.credly.com/badges/190dd579-47be-4658-b28a-87bea2ebbd77>





---

## GITHUB LINK

- [https://github.com/Chetan29-30/AGENTIC\\_AI](https://github.com/Chetan29-30/AGENTIC_AI)



**THANK YOU**