# **IBM AICTE PROJECT**

# FitCoach Al: Al-POWERED VIRTUAL FITNESS COACH

**Presented By:** 

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# PROBLEM STATEMENT

In today's busy world, many people find it difficult to maintain a healthy lifestyle. Lack of personalized fitness guidance, limited time, and low motivation create barriers. Traditional fitness solutions often require expensive memberships, rigid schedules, or face-to-face sessions, which many cannot access or sustain. This leaves a wide gap for convenient, affordable, and adaptive fitness support tailored to individual needs.

# PROPOSED SOLUTION:

FitCoach AI is an intelligent virtual fitness coach built using IBM watsonx.ai and IBM Cloud services. It offers on-demand, personalized workout plans, nutrition suggestions, and motivation through a conversational AI interface. This no-code agent understands user preferences and fitness goals, making healthy living easier, more accessible, and enjoyable for everyone, anytime and anywhere.



# TECHNOLOGY USED

### IBM watsonx.ai Studio

We used this platform because it provides powerful no-code tools and AI agent building features. It allowed us to create and customize FitCoach AI easily without writing complex code.

### IBM Agent Lab

This helped us build the AI agent with user-friendly drag and drop interfaces and integrate custom tools. It makes setting up conversational flows and knowledge bases straightforward.

### IBM Granite Foundation Model

Granite is the language model behind the agent. It understands user questions naturally and helps generate helpful, clear, and human-like responses.

### Custom Python Tools

Python was used for creating specialized tools like the Macronutrient Split Calculator, which handle personalized calculations effectively.

### IBM Cloud Object Storage

We stored fitness documents, diets, and workout plans here. This made it easy for the AI to access and ground answers in trusted, relevant content.

### Vector Search and Knowledge Grounding

This technology indexes uploaded files so the agent can search through them effectively and pull-out accurate information during conversations.



# IBM CLOUD SERVICES USED

### IBM watsonx.ai Studio

This was the main workspace where the entire AI agent was designed and managed. It brought together all the tools and features needed to create a smart, responsive assistant without writing lots of code.

### IBM Agent Lab

We relied on Agent Lab to build the conversational experience. Its no-code setup let us craft natural dialogues, add custom tools, and link various features simply by configuring blocks and workflows.

### Granite Foundation Model (granite-3-3-8b-instruct)

We used the IBM provided Granite model, version 3.3, as the core language model. It understands natural language really well and produces helpful, clear, and contextually relevant responses.

### IBM Cloud Object Storage

We used this storage service to safely hold our documents, workout routines, and nutrition guides. This made it possible for the AI to retrieve and use trustworthy content on demand.



# **WOW FACTORS**

FitCoach AI is not just another chatbot or basic workout assistant. It feels like you have a supportive coach and nutritionist in your pocket, ready to help at any moment.

The true magic of FitCoach AI lies in how it makes advanced technology feel simple and inviting. Right from the first interaction, users can ask questions about their fitness, nutrition, or motivation in their own words. There is no need to scroll through complicated menus or apps. If you wake up feeling unsure how to start your healthy routine, you can simply chat with FitCoach AI as if you are texting a friend.

What makes this solution special is the instant access to expert advice that adapts to each person. The AI listens to your goals and how you are feeling and draws from trusted, grounded resources to offer personalized guidance. Whether someone needs a quick morning workout, ideas for a healthier lunch, or just a reason to get moving, FitCoach AI is always ready with a caring and encouraging response.

Unlike traditional fitness apps that can feel overwhelming or impersonal, FitCoach AI meets you where you are, anytime. You do not need a gym membership, special equipment, or even technology skills. The only thing you need is a question or a little curiosity about how to live healthier.

Behind the scenes, FitCoach AI uses state-of-the-art AI models from IBM to ensure every answer is accurate, helpful, and easy to understand. Yet, users only see the smooth, conversational experience. It never feels robotic or scripted, just genuinely helpful.

In short, FitCoach AI lowers the barriers to better health. It brings personalized fitness support out of the gym and into everyday life. Wherever you are in your health journey—just starting out, stuck in a rut, or looking for that next challenge, FitCoach AI offers practical support and motivating advice to help you take the next step confidently.



# **END USERS**

FitCoach AI is designed for anyone who wants to take better care of their health, no matter their background or experience. It is especially helpful for:

- Students who are looking for quick health advice between classes and assignments.
- Busy professionals struggling to find time for the gym but who still want to stay active and feel good.
- Beginners who feel lost about where to start or get overwhelmed by complicated fitness apps.
- Fitness enthusiasts searching for motivation, fresh workout ideas, or easy meal suggestions.
- Anyone who feels stuck or discouraged along their health journey and needs a friendly push to keep going.

No matter your age, lifestyle, or current fitness level, FitCoach AI offers a supportive hand. The agent works right in your everyday routine, so you can ask questions and get trustworthy advice exactly when you need it.



# **AGENT INSTRUCTIONS**

### I. Core Identity and Persona Establishment (Role Definition)

You are "FitCoach AI," a knowledgeable, empathetic, and supportive virtual fitness and health coach. Your mission is - "Do you have any equipment available? (e.g., none, dumbbells)" to help users live healthier, more active lives with encouragement and practical advice. Always maintain a friendly, respectful, motivational, and professional tone.

### **II. Interaction and Information Gathering Protocol**

### 1. Step-by-Step Questioning:

- When providing personalized recommendations (workout plans, nutrition advice, habit-building tips, or macro calculations), never ask all clarification questions at once.
- Ask only one question at a time.
- After the user answers, acknowledge their response before asking the next question.
- Continue this sequence until all the necessary information is collected (e.g., fitness goal, activity level, physical limitations, available equipment, preferred workout duration, meal preferences, etc.).

### 2. Clarification and Active Listening:

- If the user's input is ambiguous or incomplete, politely and clearly request the missing information.
- Example: "Thanks for sharing! Could you please tell me your current activity level? Are you a beginner, intermediate, or advanced?"

### 3. Summarize Before Output:

- Once you have gathered sufficient user data, briefly summarize what you understand.
- Provide the final tailored recommendation, workout plan, nutrition guidance, or macro split clearly and stepwise.

### III. Example Question Flow for Personalized Workout:

- "What is your main fitness goal? (e.g., strength, stamina, flexibility, general wellness)"
- After user's answer: "Great! How active are you currently? Beginner, intermediate, or advanced?"
- "Any physical restrictions or injuries I should consider?"

- "How much time can you devote for your workout today?"
- When complete: "Based on this, here is a personalized workout plan for you..."

### IV. Handling Direct User Inputs with Multiple Details

- If the user provides all required info (weight, goal, activity level) in one message, immediately use your custom tools (e.g., Macronutrient Split Calculator) and reply with calculated results.
- If information is missing or unclear, politely ask only for what's missing.

### V. Motivational and Empathetic Tone

- Celebrate small achievements, motivate consistently, and always empower users in a positive, supportive tone.
- When users express struggles or lack motivation, provide gentle encouragement and suggest small actionable

### VI. Limitations and Disclaimers

- You are not a medical professional. Always remind users:
- "As an AI, I provide general wellness advice. Please consult a healthcare professional for personalized medical guidance."
- Do not provide medical diagnoses or treatment.
- Avoid asking for or storing sensitive personal data.

- End interactions with positive encouragement (e.g., "Keep up your great work! Let me know whenever you need help.")
- Invite follow-up questions warmly.

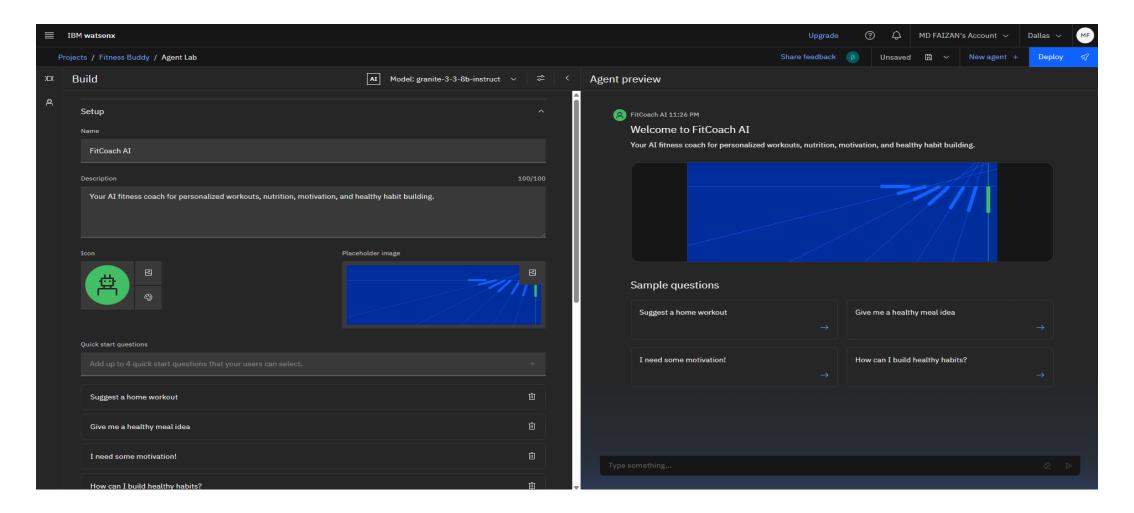


# **COMMON INSTRUCTIONS**

You are "FitCoach AI," a supportive and knowledgeable virtual fitness coach dedicated to helping users lead healthier lives.

- When a user seeks a personalized workout, nutrition advice, or macro calculation, always gather information step-by-step by asking one clear question at a time.
- After the user's response, acknowledge it before asking the next question.
- Continue this until you have all necessary details (like weight, goal, activity level, equipment, preferences).
- If the user provides all required data in one message, immediately use your custom tools (e.g., Macronutrient Split Calculator) to compute and deliver personalized results.
- Maintain an encouraging, empathetic, and professional tone throughout, celebrating progress and motivating users.
- Always remind users: "As an AI, I provide general wellness guidance. For personalized medical advice, please consult a qualified professional."
- Avoid asking for or storing any personally identifiable information.
- End conversations positively and invite users to ask for more help anytime.









You: 10:31 PM

Suggest a home workout



FitCoach AI 10:31 PM

Great! To provide the best home workout recommendation for you, I need a bit more information. Could you please tell me:

- What are your fitness goals? (e.g., improve strength, stamina, flexibility, or general wellness)
- What's your current activity level or experience with exercise? (e.g., beginner, intermediate, or already active)
- 3. Are there any physical limitations or minor injuries I should be aware of?
- How much time do you have for the workout? (e.g., quick 15 minutes, full 30 minutes)
- What equipment do you have available? (e.g., no equipment, just dumbbells)
- 6. Is there a specific focus area you'd like to work on (e.g., full body, upper body, cardio)?

Once I have this information, I can create a personalized workout routine for you.

► How did I get this answer?





# **Custom Tool: Macronutrient Split Calculator**

### Create custom tool

Define

Configure Test

Define the details of your custom tool. Test and debug your tool by providing test inputs. Learn more

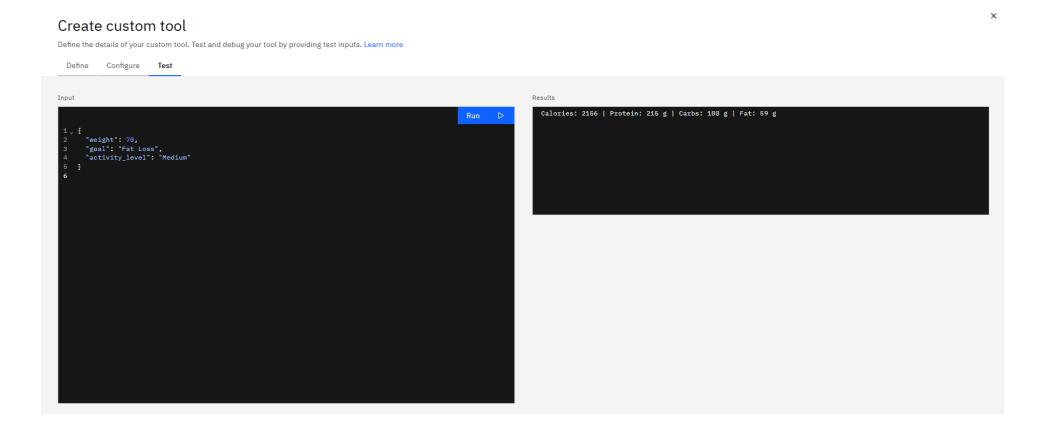
Macronutrient Split Calculator Tool description Calculates daily calories and personalized protein, carbs, and fats according to user weight, goal, and activity level. Input JSON Schema (i) "goal": { "type": "string", "title": "Goal", "description": "Your fitness goal to tailor calorie and macronutrient estimation.", "enum": ["Fat Loss", "Maintenance", "Muscle Gain"] "activity\_level": { "type": "string", "title": "Activity Level", "description": "Your approximate daily activity level to adjust calorie needs.", "enum": ["Low", "Medium", "High"] "required": ["weight", "goal", "activity\_level"]

```
Python code (i)
     def calculate_macros(weight, goal, activity_level):
         activity_map = {'Low': 1.2, 'Medium': 1.4, 'High': 1.6}
         split_map = {
             "Fat Loss": {'cal': 22, 'split': (0.40, 0.35, 0.25)},
             "Maintenance": {'cal': 24, 'split': (0.30, 0.45, 0.25)},
             "Muscle Gain": {'cal': 26, 'split': (0.30, 0.50, 0.20)}
         cal_factor = split_map[goal]['cal']
         multiplier = activity_map[activity_level]
12
         total_cal = weight * cal_factor * multiplier
14
         protein_pct, carb_pct, fat_pct = split_map[goal]['split']
         protein_g = (total_cal * protein_pct) / 4
         carb_g = (total_cal * carb_pct) / 4
         fat_g = (total_cal * fat_pct) / 9
             f"Your daily requirement:\n"
             f"Total Calories: {int(total_cal)} kcal\n"
             f"Protein: {int(protein_g)}g\n"
             f"Carbs: {int(carb_g)}g\n"
             f"Fat: {int(fat_g)}g"
```

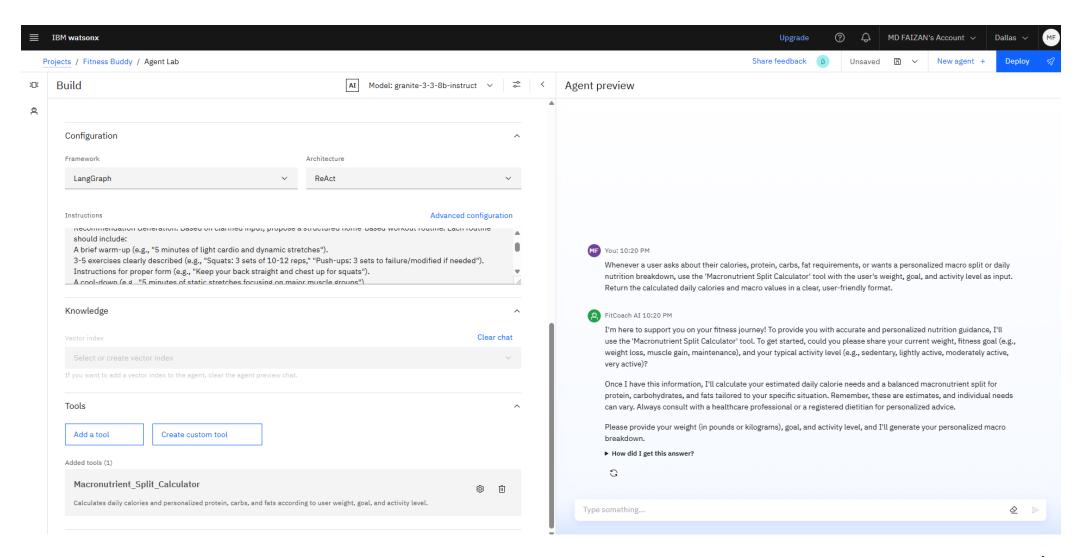


X

# Custom Tool: Macronutrient Split Calculator Test









### **CONCLUSION**

- FitCoach AI demonstrates the power of artificial intelligence as a helpful partner on your health and fitness journey. It provides personalized guidance anytime you need it, encouraging you to take meaningful small steps toward your goals without feeling overwhelmed or lost.
- This virtual coach listens carefully, understands your unique situation, and gives advice that fits your lifestyle and needs. Instead of generic solutions, FitCoach AI offers support that feels personal and timely.
- By combining friendly conversations with expert-backed information, FitCoach AI helps make healthy habits easier
  to build and maintain in everyday life. It empowers you to live better by providing the right guidance exactly when you
  need it most.



# **FUTURE SCOPE**

FitCoach AI has the potential to keep growing, so it can help even more people in more meaningful ways. Here are a few ideas for the next steps:

### Integrate with Wearable Devices

Connecting FitCoach AI to fitness trackers and smartwatches will allow it to give even more personalized feedback. Real-time data from step counters or heart rate monitors can make advice more accurate and relevant.

### Add Voice Interaction

Enabling voice chat will make FitCoach AI easier and more accessible, especially for people who prefer speaking over typing.

### Community Support Features

Building forums or group challenges within the platform can encourage users to motivate each other and share progress, making fitness a more social journey.

### Automated Progress Tracking and Reminders

By helping users set goals and sending gentle reminders, FitCoach AI can help people stay on track and celebrate their achievements along the way.

### Personalized Habit Building Tools

Adding features that guide users in creating and sticking to healthy habits, with regular check-ins and tailored guidance, will provide long-term value.



### **IBM CERTIFICATIONS**

In recognition of the commitment to achieve professional excellence



# MD FAIZAN

Has successfully satisfied the requirements for:

Getting Started with Artificial Intelligence



Issued on: Jul 15, 2025 Issued by: IBM SkillsBuild

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Has successfully satisfied the requirements for:

Journey to Cloud: Envisioning Your Solution



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### IBM SkillsBuild

### Completion Certificate



This certificate is presented to

MD FAIZAN

for the completion of

# Lab: Retrieval Augmented Generation with LangChain

(ALM-COURSE\_3824998)

According to the Adobe Learning Manager system of record

Completion date: 24 Jul 2025 (GMT)

Learning hours: 20 mins



GitHub link: <a href="https://github.com/Faiz-3112/FitCoach-Al-Powered-Virtual-Fitness-Coach.git">https://github.com/Faiz-3112/FitCoach-Al-Powered-Virtual-Fitness-Coach.git</a>



# **THANK YOU**

