

AICTE Edunet Foundation IBM SkillsBuild Internship on AI & Cloud

FIB – FITNESS BUDDY (AI-POWERED HEALTH & WELLNESS COACH)

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OUTLINE

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PROBLEM STATEMENT

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 are often rigid, expensive, or inaccessible. There is a growing need for an intelligent virtual assistant that can provide on-demand fitness advice, meal suggestions, and motivational support — tailored to each individual's goals and preferences.

PROPOSED SOLUTION

The proposed system, **FiB (Fitness Buddy)**, is an AI-powered virtual health coach built using **IBM Agentic Lab** and **Granite LLM**. It provides personalized fitness, nutrition, and motivation guidance through natural conversations — grounded in real knowledge.

□ Agent Design with IBM Granite & Instructions

- FiB is created using **IBM Agentic Lab**, where instructions define the agent's personality, role, and boundaries.
- The assistant is guided to act like a friendly fitness coach, focusing on: Home workout routines, Simple and nutritious meals, Motivational advice, Habit-building techniques

📖 Document Grounding via Vector Indexing

- A **fitness knowledge document** (text-based) is uploaded and vectorized inside Agentic Lab.
- This allows FiB to **retrieve and reference specific, grounded information** when answering queries.

💬 LLM-Powered Reasoning (IBM Granite)

- The assistant uses **IBM Granite**, an enterprise-grade LLM, to generate smart, human-like responses.
- Granite combines: Agent instructions (how to behave), Vectorized document segments (what to say), User queries (context)

🔄 Conversation Flow

- User enters a query (e.g., “Suggest a 10-min morning workout”) → **Agentic Lab** retrieves document context → **Granite LLM** generates grounded reply → **FiB** responds conversationally and guides the user

🚫 No Traditional ML or Deployment

- No model training or prediction algorithm is required
- Deployment is currently limited to IBM Agentic Lab interface
- **Future scope** includes static website or mobile app integration for public access

SYSTEM DEVELOPMENT APPROACH

❑ Development Environment

- IBM Cloud Agentic Lab – for building the AI agent
- IBM Granite LLM – large language model powering FiB's understanding and responses
- Jupyter Notebook on IBM Watson Studio – for testing prompt logic, model grounding, and experimentation
- Vector Store (In-Memory) – used for document grounding in Agentic Lab
- Text-Based Knowledge Document – uploaded and indexed for accurate answers

⚙️ Libraries/Tools Used

- IBM Granite LLM
- IBM Agentic Lab Studio (agent + grounding pipeline)
- OpenAI-style prompt template logic (used internally)
- PDF-to-text preprocessing (external/local)
- IBM Cloud resources (Lite tier)

WOW FACTOR

✓ 100% Built on IBM Cloud

- FiB is developed **entirely within IBM's AI ecosystem**, using **Granite LLM**, **Agentic Lab**, and **vectorized document grounding** — no external tools, no backend code.

□ Grounded Intelligence

- Unlike chatbots trained on random web data, FiB uses a **curated fitness knowledge base**, ensuring every answer is:
- Accurate 💡, Safe □, Context-aware 📄

□ Zero Code, Enterprise-Grade AI

- No ML models, no code — just prompt engineering, vector indexing, and smart design. It's a **low-code, high-impact** solution that demonstrates:
- Practical GenAI usage 🚀
- Scalable architecture □
- Real-world application value ✓

👤 Future-Ready AI Agent

- FiB isn't a chatbot. It's a **multi-skill AI agent** ready to:
- Integrate with wearables
- Give dynamic fitness plans
- Scale into web/mobile platforms
- And eventually support **voice, video, and personalization**

END USER

☐ **Students & Working Professionals:**

Busy individuals who want quick, reliable fitness guidance without needing a gym or coach.

☐ **Health-Conscious Beginners:**

People new to fitness who need motivation, easy meal ideas, and non-intimidating workouts.

General Public & Homemakers:

Anyone interested in forming healthy habits, staying active at home, and improving wellness.

ALGORITHM & DEPLOYMENT

Query Flow Using LLM Grounding

- **User Input** → A natural language question about workouts, nutrition, or habits
- **Instruction Layer** → Agent behavior instructions tell Granite to act as a fitness coach
- **Vector Search** → Grounding module fetches relevant chunks from the embedded knowledge base
- **LLM Response** → IBM Granite generates a context-aware answer using both document data and instructions

Model Logic (No Traditional ML)

- **No training or prediction algorithms required**
- FiB leverages IBM Granite for **zero-shot, retrieval-augmented generation (RAG)**
- All "intelligence" is controlled through:
 - Agent Instructions (system behavior)
 - Document Grounding (PDF vector embedding)
 - Prompt flow logic

Deployment

- Currently running within IBM Agentic Lab interface
- Future deployment planned via:
 - **Static website with embedded chatbot** (HTML + IBM web components)
 - Optional cloud API gateway for third-party integrations

RESULT

✓ Achievements

- AI agent successfully responds to fitness, meal, and motivation queries
- All responses are **grounded** in uploaded fitness knowledge content
- Tone remains friendly, beginner-safe, and helpful

■ 📷 Screenshots:

Agent preview

vv You: 02:12 PM
Hi!

FIB 02:12 PM
Hello there! Welcome to FIB, your friendly virtual health and fitness coach. I'm here to help you live a healthier lifestyle. Whether you're looking to lose weight, gain muscle, or just feel more energetic, I can provide personalized fitness suggestions, motivational support, meal ideas, and habit-building techniques. Let's get started! What's your main fitness goal today?

► How did I get this answer?

🔄

Type something...

Agent preview

vv You: 02:13 PM
tell me about exercise without equipment for stomach and chest

FIB 02:13 PM
Absolutely! Here are a couple of effective bodyweight exercises for your stomach and chest that you can do at home without any equipment:

1. **Planks:** This is a fantastic exercise for your core, including your stomach muscles. Start in a push-up position but rest on your forearms instead of your hands. Keep your body in a straight line from your shoulders to your ankles. Engage your core and hold this position for 30 seconds to a minute. As you get stronger, you can increase the time.
2. **Push-ups:** Great for your chest, shoulders, and triceps. Start in a high plank position. Lower your body until your chest nearly touches the floor. Keep your elbows close to your body as you push back up. If standard push-ups are too challenging, you can modify them by doing them on your knees or against a wall.
3. **Chest Dips:** You can do these using a sturdy chair or bench. Place your hands shoulder-width apart on the edge of the seat, extend your legs out in front of you, and lower your body by bending your elbows until your shoulders are below your hands. Push back up to the starting position.
4. **Bicycle Crunches:** This exercise targets your rectus abdominis (the six-pack muscle) and your obliques. Lie on your back with your hands behind your head, then lift your legs off the ground and bend your knees. Bring your right elbow to your left knee while straightening your right leg, then switch sides, bringing your left elbow to your right knee.

Remember, consistency is key in seeing results. Would you like a full workout routine incorporating these exercises, or do you have any other questions?

► How did I get this answer?

🔄

Type something...

FiB ✓ Deployed Online

API reference

Test

Preview

New chat +

V You 02:41 PM
Hi!

FiB 02:41 PM
Hello there! Welcome to FiB, your friendly virtual health and fitness coach. I'm here to help you live a healthier lifestyle. Whether you're looking to lose weight, gain muscle, or just feel more energetic, I can provide personalized fitness suggestions, motivational support, meal ideas, and habit-building techniques. Let's get started! What's your main fitness goal today?

V You 02:41 PM
Motivate Me!

FiB 02:41 PM
Absolutely! Remember, progress isn't about being perfect, it's about making small improvements every day. Here's a motivational quote for you: "Success is the sum of small efforts, repeated day in and day out." - Robert Collier. Keep pushing forward, no matter how small the step, it's still a step towards your goal. Ready to share what you're working on today?

► How did I get this answer?



Type something...



CONCLUSION






- FiB proves that a lightweight, grounded AI fitness assistant can be built with zero custom code
- Using IBM Granite, Agentic Lab, and knowledge vectorization, the assistant gives **smart, reliable advice**
- No ML training, no model tuning — just intelligent use of modern LLM architecture
- The assistant is designed with **user-friendliness and low barrier-to-use** in mind
- This project reflects the future of scalable, intelligent wellness tools for the general public

GIT-HUB LINK

- https://github.com/NASTOV03/FiB-Agentic-AI-RAG-AICTE_Edunet_IBM_Project.git



FUTURE SCOPE

-  Add voice input with Speech-to-Text integration
-  Deploy FiB as a mobile-first web chatbot
-  Connect to live APIs for step tracking, meal databases, or reminders
-  Introduce user profiling with personalization memory
-  Expand to mental wellness coaching, lifestyle FAQs, or medical triage (with proper disclaimers)

REFERENCES

- IBM Agentic Lab
<https://agentic-lab.ai.cloud.ibm.com>
- IBM Granite LLM (Watsonx)
<https://www.ibm.com/products/watsonx-granite>
- IBM Cloud Documentation
<https://cloud.ibm.com/docs>
- Health & Fitness Content (used in grounding PDF)
- World Health Organization (WHO) – <https://www.who.int>
- Mayo Clinic – <https://www.mayoclinic.org>
- Healthline – <https://www.healthline.com>
- AICTE-Edunet Internship Portal Resources

IBM CERTIFICATIONS



IBM CERTIFICATIONS

In recognition of the commitment to achieve
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Vivek Kumar Yadav

Has successfully satisfied the requirements for:

Journey to Cloud: Envisioning Your Solution



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According to the Adobe Learning Manager system of record

Completion date: 14 Jul 2025 (GMT)

Learning hours: 20 mins



THANK YOU