AICTE Edunet Foundation IBM SkillsBuild Internship on AI & Cloud

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

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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**

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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

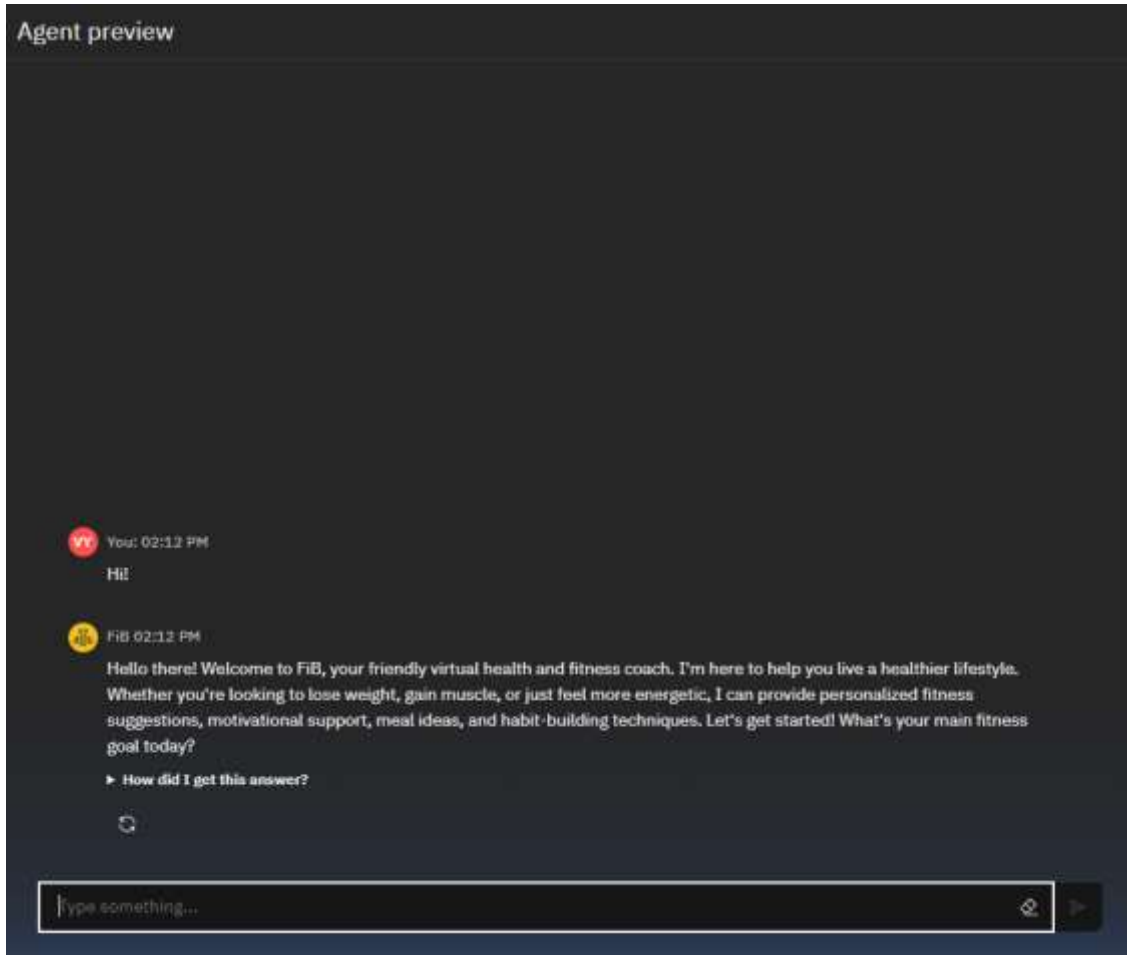
- Currently running within IBM Agentic Lab interface
- Future deployment planned via:
  - **Static website with embedded chatbot** (HTML + IBM web components)
  - Optional cloud API gateway for third-party integrations

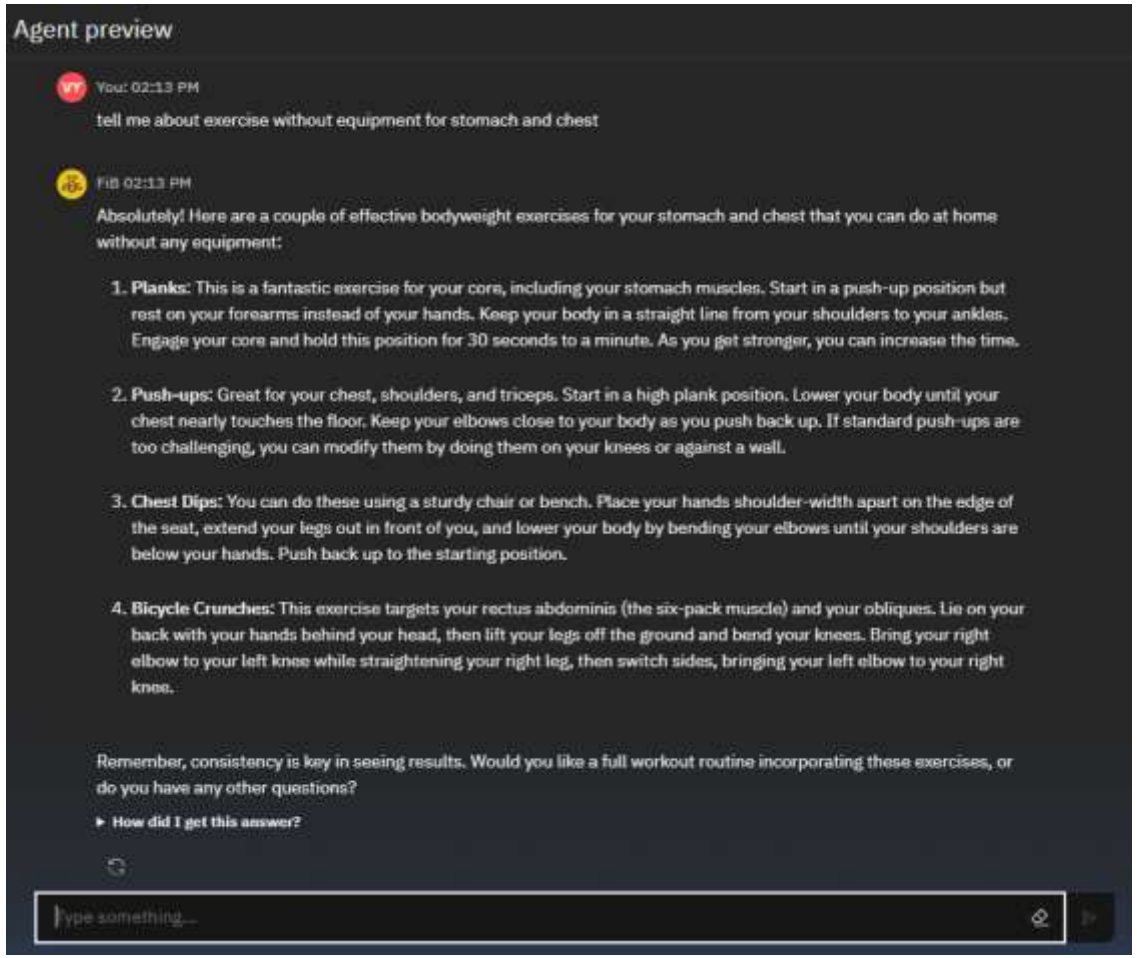
RESULT

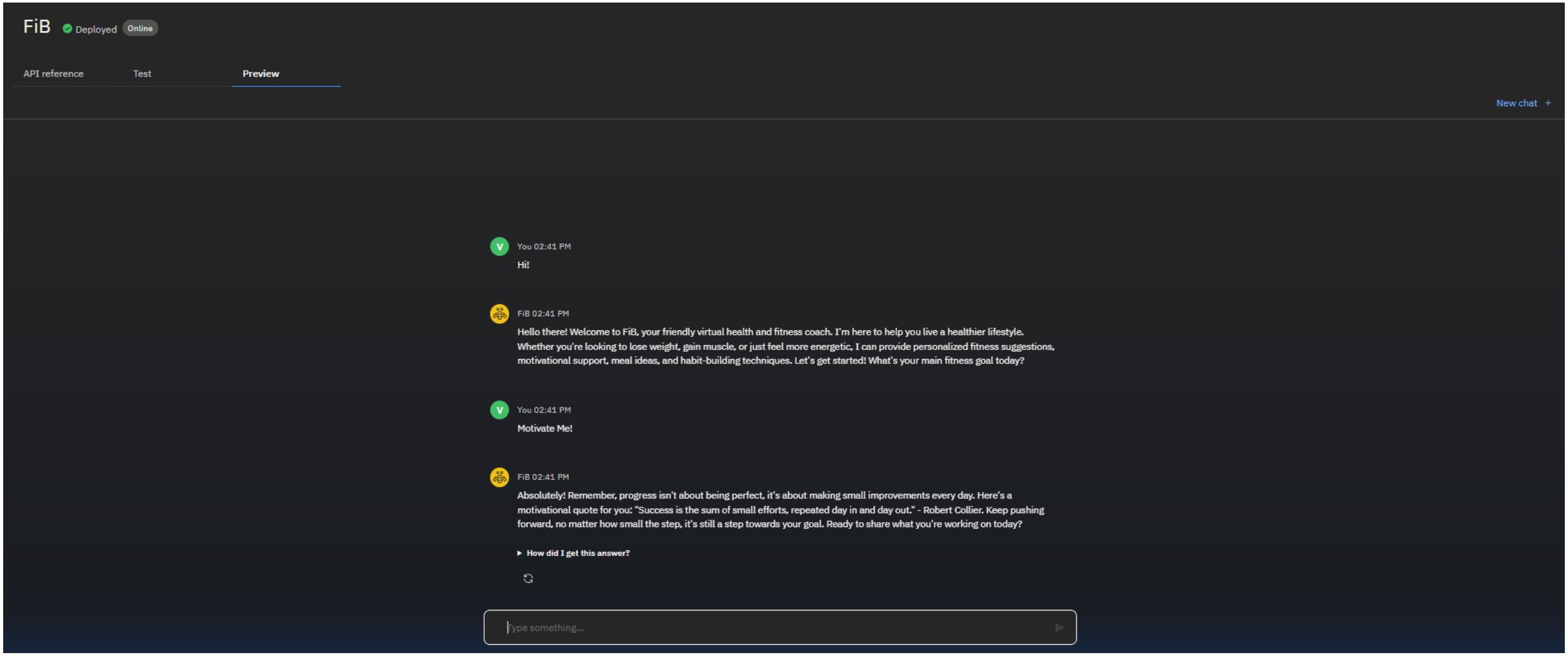
✓ Achievements

- 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:







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

In recognition of the commitment to achieve professional excellence

Getting Started with Artificial Intelligence

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Has successfully satisfied the requirements for:

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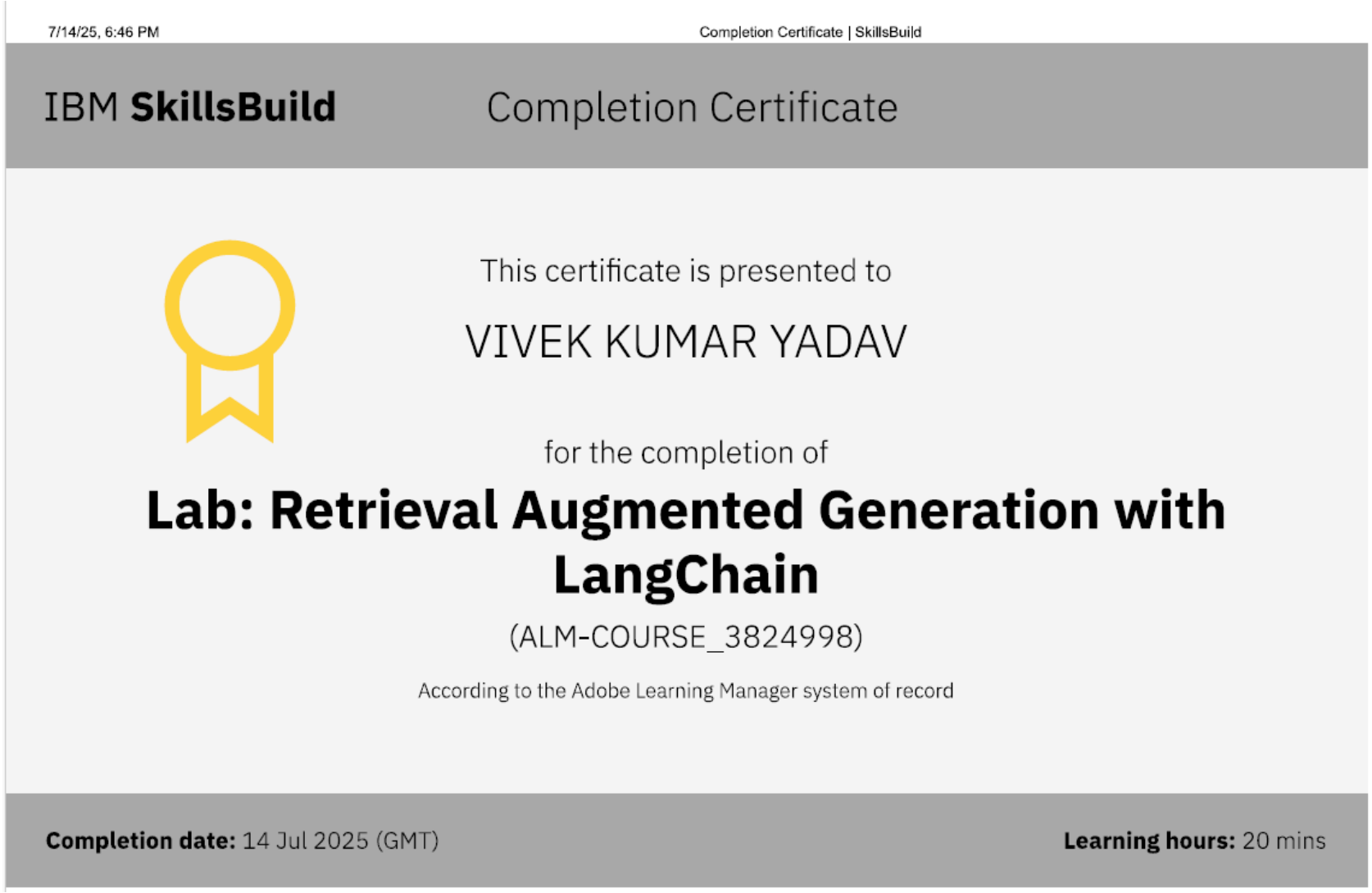

7/14/25, 6:46 PM Completion Certificate | SkillsBuild

IBM **SkillsBuild** Completion Certificate

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THANK YOU

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