
IBM AICTE PROJECT

AI AGENT FOR DIGITAL FINANCIAL LITERACY

Presented By: Ravi Kumar Parasar
Student name : Ravi Kumar Parasar
College Name & Department : SIKSHA 'O' ANUSANDHAN

OUTLINE

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PROBLEM STATEMENT

The challenge is to build an AI agent that improves digital financial literacy among users by helping them understand key topics such as UPI payments, online scams, interest rates, budgeting, loans, and safe digital transactions. The agent is powered by Retrieval-Augmented Generation (RAG) and IBM Watsonx services. It fetches reliable content from government portals (like RBI, NPCI), banking websites, and educational resources to provide accurate, user-friendly responses. The agent supports multilingual interaction, allowing users to communicate in their preferred language (e.g., Hindi or English). By answering practical financial questions like “How do I send money via UPI?” or “What is EMI?”, the assistant promotes awareness and protects users from fraud. This project is designed to empower individuals across India with trustworthy knowledge about personal finance and foster digital confidence in a safe and accessible manner.

Technologies Used: IBM Cloud Lite, Watsonx Assistant, Granite Models, RAG-based document search, and multilingual NLP.

PROPOSED SOLUTION

I propose **FinGuide AI**, a multilingual Agentic AI assistant developed using IBM Watsonx Assistant and RAG (Retrieval-Augmented Generation). The assistant interacts with users through a chat interface to answer questions about digital financial topics like UPI, budgeting, personal loans, safe banking, and more. It is trained using reliable government and bank data (e.g., RBI, NPCI), and integrates document-based retrieval to deliver specific, contextual, and safe answers. It operates in English and Hindi to increase inclusivity and ensure users from different backgrounds can easily access financial guidance. The system is built on IBM Cloud Lite, uses Watsonx's search skill for RAG, and leverages user-friendly conversation flows to simulate a natural, educational experience. The agent warns users about fraud, explains financial terms simply, and adapts based on user queries — making it a practical tool for digital literacy and safe financial behavior. This solution showcases the real-world application of AI for social good, specifically focusing on **financial empowerment and fraud protection**.

TECHNOLOGY USED

❖ 🌐 IBM Cloud Lite Services

- Used the **free-tier IBM Cloud platform** to host and deploy the assistant.
- Enabled access to **Watsonx.ai Studio, AgentLab, and Granite models** without paid upgrades.
- Provided a cloud-based environment for **building, testing, and sharing** the FinGuide AI assistant.

❖ 🧠 Natural Language Processing (NLP)

- Powered the assistant to **understand user queries** in simple conversational language.
- Enabled the chatbot to recognize financial keywords (e.g., UPI, EMI, interest).
- Helped maintain **contextual, human-like responses** during interaction.

TECHNOLOGY USED (CONT.)

❖ 🔍 Retrieval-Augmented Generation (RAG)

- Combined **document retrieval** with **language generation** to deliver trusted answers.
- Pulled information from uploaded docs (e.g., RBI FAQs, finance guides) and generated user-specific responses.
- Ensured the assistant answers are **factual, grounded, and relevant** to digital financial literacy.

❖ 🧠 IBM Granite Model

- Used IBM's **enterprise-grade foundation language model** to improve response quality.
- Enhanced the chatbot's **fluency, tone, and comprehension** of complex queries.
- Supported safe, accurate, and **business-ready text generation** aligned with financial topics.

IBM CLOUD SERVICES USED

❖ 1. IBM Cloud Watsonx.ai Studio

➤ Watsonx.ai Studio is the central workspace where we **build, test, and manage AI models and assistants**. In this project, it was used to:

- Create and design the **FinGuide AI assistant**
- Develop **conversational flows** using Actions
- Configure **multilingual support** and connect RAG search capabilities

✅ *Why it's important:* It's the no-code/low-code lab that enabled quick development of the assistant inside IBM Cloud.

- Use **drag-and-drop interface** to manage AI logic without coding

IBM CLOUD SERVICES USED (CONT.)

❖ IBM Cloud Watsonx.ai Runtime

- This service provides the **execution environment** for running AI assistants and apps. After building the assistant in the studio, the Watsonx runtime:
 - Hosts and runs the AI assistant in real-time
 - Powers **conversations with users**, ensuring low-latency responses
 - Handles the deployment of the assistant in IBM's secure cloud infrastructure
- ✅ *Why it's important:* It's what makes the assistant “live” and available to users via public links or app integration.

IBM CLOUD SERVICES USED (CONT.)

❖ IBM Cloud AgentLab

➤ The AgentLab is a feature inside Watsonx where developers can:

- Experiment with **agentic AI behaviors**
- Customize the flow of interactions (actions, steps, variables)
- Add smart logic and branching based on user input (like choosing topic: UPI, scams, EMI, etc.)

✅ *Why it's important:* It gave us a creative space to simulate **real-world agentic behavior** using conditions, responses, and logic — essential for FinGuide AI.

IBM CLOUD SERVICES USED (CONT.)

❖ IBM Granite Foundation Model

- IBM Granite is a **pre-trained large language model** designed for safe and reliable enterprise use. In this project:
 - It powers the **language understanding** and **natural text generation**
 - Helps provide clear, context-aware responses to financial questions
 - Works behind the scenes to **summarize, rephrase, and personalize answers**
- ✅ *Why it's important:* Granite ensured that the responses in FinGuide AI are accurate, safe, and enterprise-grade — critical for topics like finance.

WOW FACTORS

FinGuide AI goes beyond basic chatbots by providing **personalized, multilingual financial education** to users with little or no background in digital finance. It empowers individuals to confidently manage their money, avoid fraud, and build digital banking skills — all within a safe AI environment.

❖ Unique Features:

- **Multilingual Support:** Allows users to ask questions in Hindi or English, promoting financial inclusion across regions.
- **Real-time Fraud Awareness:** Detects queries related to scams and responds with verified safety tips from trusted financial institutions.
- **Semantic Search + RAG:** Fetches accurate, document-based answers on UPI, EMI, budgeting, and interest rates using retrieval-augmented generation.

WOW FACTORS (CONT.)

- **Interactive Financial Literacy Trainer:** Responds to user profiles and adapts based on their learning needs and topics of interest.
- **Government-Verified Info:** Uses content sourced from RBI, NPCI, and official banking documents for full credibility and safety.
- **Confidence Builder:** Designed especially for first-time users of digital finance tools—reduces fear, boosts awareness, and simulates real-life questions.

This agent isn't just smart — it's **socially responsible, inclusive**, and designed to **close the financial literacy gap in India**, one chat at a time.

END USERS

❖ General Public & First-Time Digital Users

- Individuals using UPI, digital wallets, or online banking for the first time
- Rural and semi-urban populations with limited access to financial education

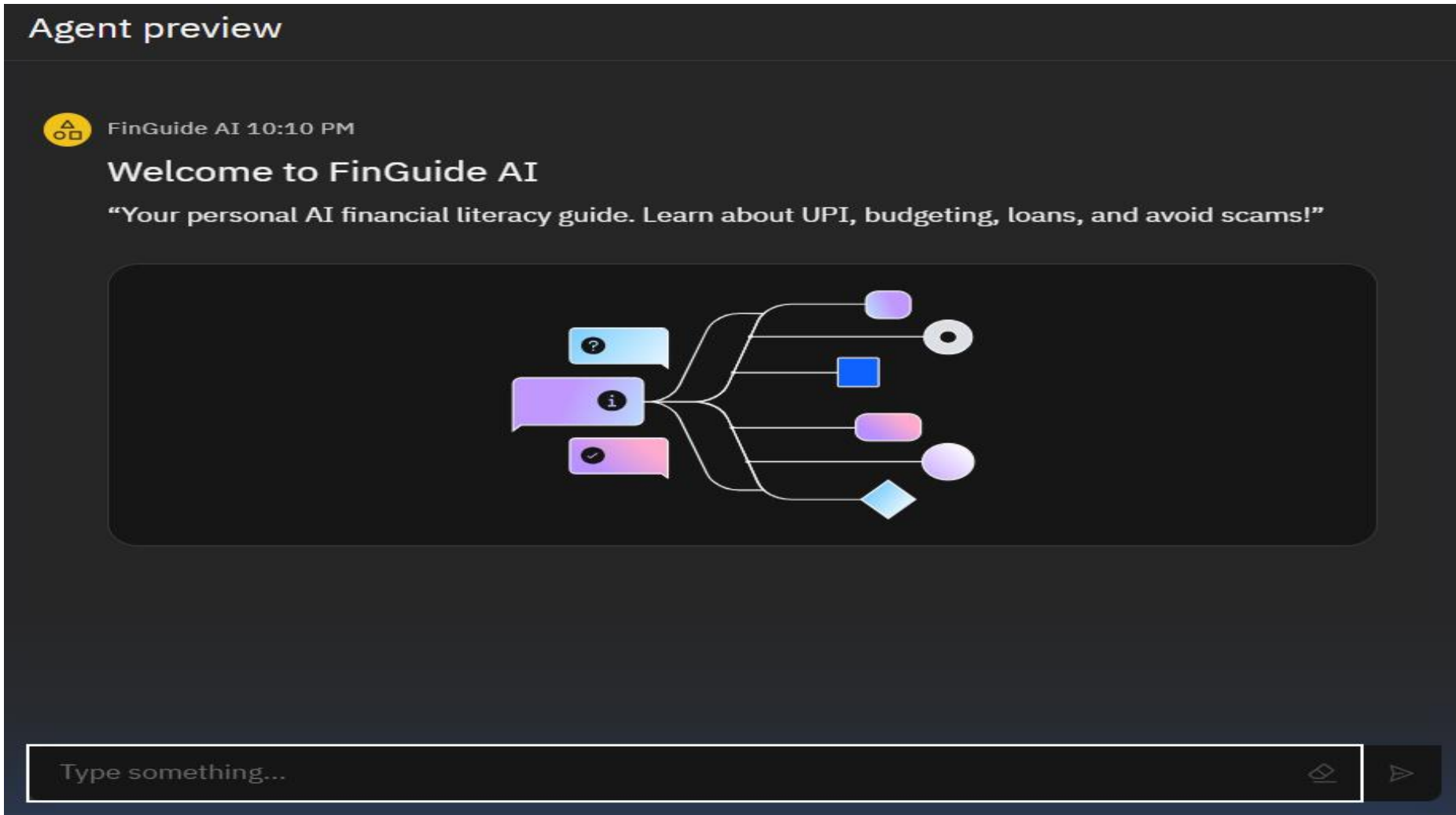
❖ Students & Youth

- College/university students learning to manage their own finances
- Aspirants preparing for government or private jobs who want to build financial awareness

❖ NGOs & Financial Literacy Campaigners

- Organizations running **financial awareness drives** under government schemes like *Digital India*, *Jan Dhan Yojana*, etc.
- Trainers educating low-income or digitally unaware populations

RESULTS



RESULTS (CONT.)

Build AI Model: granite-3-3-8b-instruct ⌵ ⚙️ <

Setup ⌵




Name

FinGuide AI


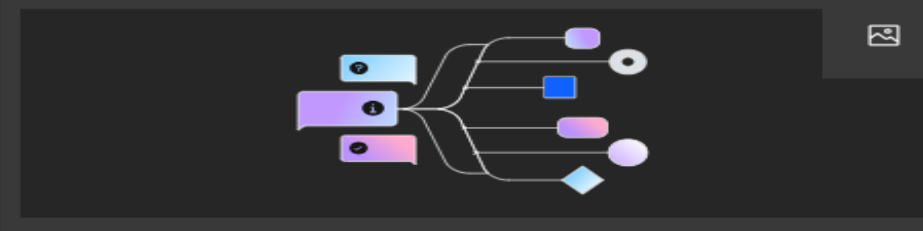
Description 96/100

"Your personal AI financial literacy guide. Learn about UPI, budgeting, loans, and avoid scams!"

Icon



Placeholder image



RESULTS (CONT.)

Projects / FinGuide AI / FinGuide AI

Build AI Model: granite-3-3-8b-instruct

Configuration

Framework: **LangGraph** Architecture: **ReAct**

Instructions [Advanced configuration](#)

You are FinGuide AI – a multilingual financial literacy assistant designed to help users understand and navigate essential topics related to digital finance. Your job is to answer questions only related to financial literacy using reliable and verifiable information. Topics you can cover include:

Knowledge

Tools

[Add a tool](#) [Create custom tool](#)

Added tools (5)

Google search

RESULTS (CONT.)

The screenshot displays the IBM watsonx interface for building and previewing an AI agent. The top navigation bar includes the IBM watsonx logo, an 'Upgrade' button, a help icon, a notification bell, and a user profile for 'Ravi Kumar Parasar's Acco...' with a location dropdown set to 'Dallas'. Below this, the breadcrumb trail shows 'Projects / FinGuide AI / FinGuide AI'. The main interface is split into two panels: 'Build' on the left and 'Agent preview' on the right.

Build Panel:

- Model:** Set to 'granite-3-3-8b-instruct'.
- Setup Section:**
 - Name:** 'FinGuide AI'.
 - Description:** 'Your personal AI financial literacy guide. Learn about UPI, budgeting, loans, and avoid scams!'. The character count is 96/100.
 - Icon:** A yellow circle containing a triangle, a square, and a circle.
 - Placeholder image:** A diagram showing a central node branching into four nodes, each with a different colored circle (blue, purple, pink, blue).
- Quick start questions:** A section with a text input field containing 'Add up to 4 quick start questions that your users can select.' and a plus icon to add more.

Agent preview Panel:

- Header:** 'Agent preview'.
- Conversation Log:**
 - User (RK):** 'You: 10:13 PM' followed by the prompt: 'Act as a Financial advisor, Give me the best financial advice as i am a student.'
 - FinGuide AI:** '10:13 PM' followed by the response: 'As a student, here are some financial advice to help you manage your money wisely:'.
- Financial Advice List:**
 - 1. Budgeting:** Create a simple budget to track your income and expenses. This will help you understand where your money is going and identify areas where you can cut back.
 - 2. Savings:** Start saving even a small amount regularly. A good habit of saving from a young age can lead to substantial savings over time. Consider opening a savings account that offers a good interest rate.
 - 3. Emergency Fund:** Try to build an emergency fund. This fund should cover at least 3-6 months of your living expenses. It's there for unexpected expenses like medical emergencies or loss of part-time income.
 - 4. Avoid Debt:** Try to avoid unnecessary debt, especially high-interest debt like credit card debts. If you need to borrow, consider student loans which usually have lower interest rates.
- Input Field:** A text box at the bottom with the placeholder 'Type something...' and a send button (arrow icon).

RESULTS (CONT.)

The screenshot displays the IBM watsonx AI interface for configuring and previewing an agent named "FinGuide AI".

Top Bar: Includes the IBM watsonx logo, an "Upgrade" button, a help icon, a notification bell, the user's account name "Ravi Kumar Parasar's Acco...", the location "Dallas", and a user profile icon labeled "RK".

Breadcrumbs: Projects / FinGuide AI / FinGuide AI

Buttons: "Share feedback" (with a beta icon), "Autosaved 10:26 PM", "New agent +", and a prominent blue "Deploy" button.

Main Interface:

- Left Panel (Saved agents):** Shows a list of saved agents. The selected agent is "FinGuide AI" with the description "Your personal AI financial literacy guide. Learn about U...".
- Build Panel:**
 - Setup:** Includes sections for Framework (set to "LangGraph"), Architecture (set to "ReAct"), Instructions (with a text area containing: "You are FinGuide AI – a multilingual financial literacy assistant designed to help users understand and navigate essential topics related to digital finance. Your job is to answer questions only related to financial literacy using reliable..."), and Knowledge.
 - Tools:** Includes buttons for "Add a tool" and "Create custom tool".
- Model parameters Panel:** Displays configuration for the "Model: granite-3-3-8b-instruct".
 - Frequency penalty: Slider from -2 to 2, value 1.7.
 - Presence penalty: Slider from -2 to 2, value 1.5.
 - Temperature: Slider from 0 to 2, value 0.
 - Top P (nucleus sampling): Slider from 0.01 to 1, value 1.
 - Max tokens: Input field with value 2000.
 - Random seed: Input field.
- Agent preview Panel:** Shows a preview of the agent's output. It includes a timestamp "FinGuide AI 10:26 PM", a welcome message "Welcome to FinGuide AI", a description "Your personal AI financial literacy guide. Learn about UPI, budgeting, loans, and avoid scams!", a diagram of a neural network, and a text input field with the placeholder "Type something..." and a send button.

RESULTS (CONT.)

IBM watsonx

Upgrade ⓘ 🔔

Ravi Kumar Parasar's Acco... ▾

Dallas ▾

RI

Deployment spaces / Finguide AI / FinGuide AI /

FinGuide AI ✔ Deployed Online

API reference Test Preview

Endpoints for inferencing ⓘ

Private endpoint

https://us-south.ml.cloud.ibm.com/ml/v4/deployments/9182a89a-6d6f-40d2-ba08-5af4ca4a0b5b/ai_service?v...

https://us-south.ml.cloud.ibm.com/ml/v4/deployments/9182a89a-6d6f-40d2-ba08-5af4ca4a0b5b/ai_service_s...

Public endpoint

https://us-south.ml.cloud.ibm.com/ml/v4/deployments/9182a89a-6d6f-40d2-ba08-5af4ca4a0b5b/ai_service?v...

https://us-south.ml.cloud.ibm.com/ml/v4/deployments/9182a89a-6d6f-40d2-ba08-5af4ca4a0b5b/ai_service_s...

[Learn more](#) about the 2021-05-01 version query parameter

Code snippets

URL

1

2

3

4

5

Bearer <token> ⓘ

IAM

About this deployment ×

Name

FinGuide AI

Description

"Your personal AI financial literacy guide. Learn about UPI, budgeting, loans, and avoid scams!"

Deployment Details

Deployment ID: 9182a89a-6d6f-40...

Serving name: No serving name.

Software specification: runtime-24.1-py3.11 ⚙

Hardware specification: Extra extra small: 1 CPU and 2 GB RAM

Copies: 1

Tags

wx-agent

Associated asset

FinGuide AI

RESULTS (CONT.)

[Deployment spaces](#) / [Finguide AI](#) / [FinGuide AI](#) /

FinGuide AI

✓ Deployed Online

[API reference](#)[Test](#)[Preview](#)

[New chat](#) +

R

You 10:30 PM


Act as a Financial advisor, Advice me the best financial advice as i am the student

△
OD

FinGuide AI 10:30 PM

As a financial advisor, here are some key pieces of advice tailored for students:

- Budgeting:** Create and stick to a budget. This will help you manage your limited income effectively. List all sources of income (part-time jobs, allowances) and expenses (tuition fees, accommodation, food).
- Savings:** Start saving even small amounts regularly in a student bank account or fixed deposit schemes that offer good interest rates. It's never too early to develop the habit of saving money.
- Avoid Debt:** Try not to rely on credit cards as they can lead to debt if not managed properly due to high-interest rates and easy accessibility for spending beyond one's means. If you need loans for education consider government scholarships or

Type something... 

CONCLUSION

- **FinGuide AI** is a powerful, multilingual digital assistant designed to bridge the gap in financial literacy across India. By combining Retrieval-Augmented Generation (RAG), IBM Watsonx, and the Granite model, the agent provides users with accurate, easy-to-understand answers to everyday financial questions—such as how to use UPI, how to budget, or how to avoid scams.
- It empowers individuals with limited access to financial education by delivering guidance in their preferred language, ensuring inclusivity and digital confidence. This assistant not only simplifies complex financial concepts but also builds awareness and promotes safe financial habits.
- As a scalable and socially impactful solution, **FinGuide AI** has the potential to be integrated into public service platforms, banking portals, and educational tools—driving true financial empowerment through the ethical use of AI.

GITHUB LINK

<https://github.com/RAVIKUMAR18371/FinGuide-Agent>

FUTURE SCOPE

While **FinGuide AI** already provides reliable and accessible financial literacy support, future enhancements can take it to the next level in terms of usability, inclusivity, and social impact.

❖ **Planned Enhancements**

➤ **Voice-Based Interaction Support**

Enable users to ask financial questions through speech — especially useful for non-literate or elderly users.

➤ **Expanded Multilingual Capabilities**

Add support for regional Indian languages like Bengali, Tamil, Telugu, and Marathi to reach more diverse communities.

➤ **Financial Document Parsing**

Allow users to upload loan offers, bank statements, or EMI summaries to get AI-generated explanations or safety checks.

Future scope (Cont.)

- **Smart Fraud Detection Alerts**

Integrate real-time scam reporting and pattern detection using updated datasets from banks or NPCI.

- **Mobile Integration (Progressive Web App)**

Deploy the assistant as a lightweight mobile app or PWA for rural users with limited access to desktops.

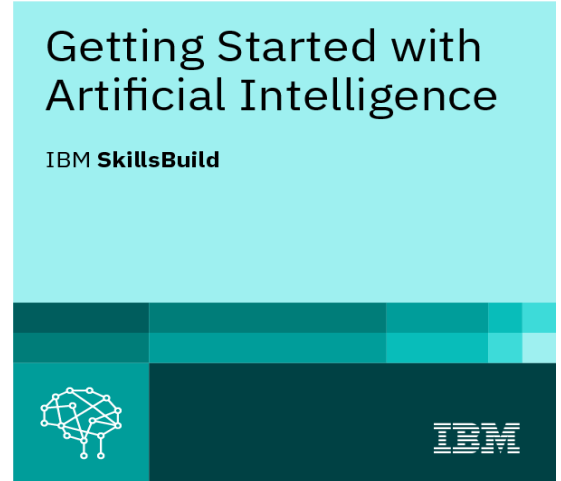
- **AI-Powered Personalized Learning Path**

Suggest custom learning journeys based on user queries and financial confidence level.

- **Gamified Financial Learning**

Include interactive quizzes, scoreboards, or levels to make financial education more engaging.

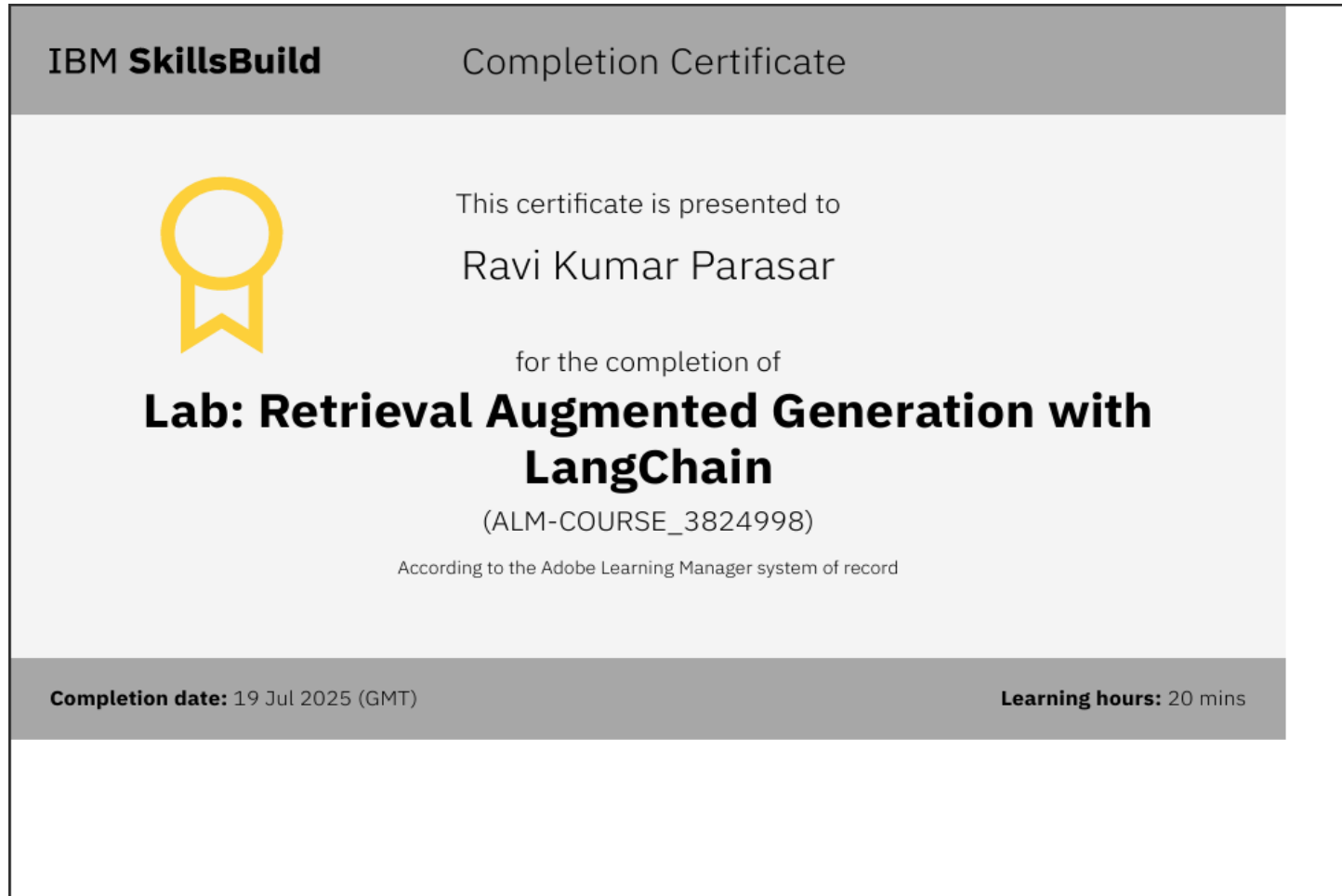
IBM CERTIFICATIONS



IBM CERTIFICATIONS (CONT.)



IBM CERTIFICATIONS (CONT.)





THANK YOU