CAPSTONE PROJECT

AI AGENT FOR DIGITAL FINANCIAL LITERACY

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OUTLINE

- Problem Statement (Should not include solution)
- Proposed System/Solution
- System Development Approach (Technology Used)
- Algorithm & Deployment
- Result (Output Image)
- Conclusion
- Future Scope
- References



PROBLEM STATEMENT

• Millions of people, especially in rural or underserved areas, struggle with understanding digital financial tools such as UPI, budgeting, interest rates, and online safety. Despite the availability of resources, lack of guidance, language barriers, and risk of online scams limit adoption and safe use of digital finance platforms. There's a need for an accessible, multilingual solution that promotes trustworthy digital financial literacy.



PROPOSED SOLUTION

The proposed Al Agent leverages **Retrieval-Augmented Generation (RAG)** to provide personalized, real-time answers to user queries regarding financial literacy. Key features include:

- Fetching reliable content from government and banking websites
- Supporting multilingual interactions for inclusivity
- Educating users on UPI, loan interest rates, budgeting, scams, and more
- Enabling conversations like: "How do I send money via UPI?" or "What is a safe interest rate for a loan?"
- Ensuring privacy, trust, and cultural understanding



SYSTEM APPROACH

Technologies Used:

- IBM Cloud Lite Services
- IBM Granite (LLM)
- Python, LangChain, Flask/FastAPI (for backend API)
- IBM Watson/NLU APIs for language support
- MongoDB (to store user queries & sessions)
- Hugging Face Models (for RAG if external fallback needed)
- Docker (for deployment)

System Requirements:

- Python 3.10+
- IBM Cloud account
- LangChain
- RAG setup with IBM Granite or HuggingFace
- MongoDB / IBM Cloudant for data storage

Libraries Used:

- langchain
- pymongo
- transformers
- flask / fastapi
- ibm-watson
- nltk / spacy



ALGORITHM & DEPLOYMENT

Algorithm:

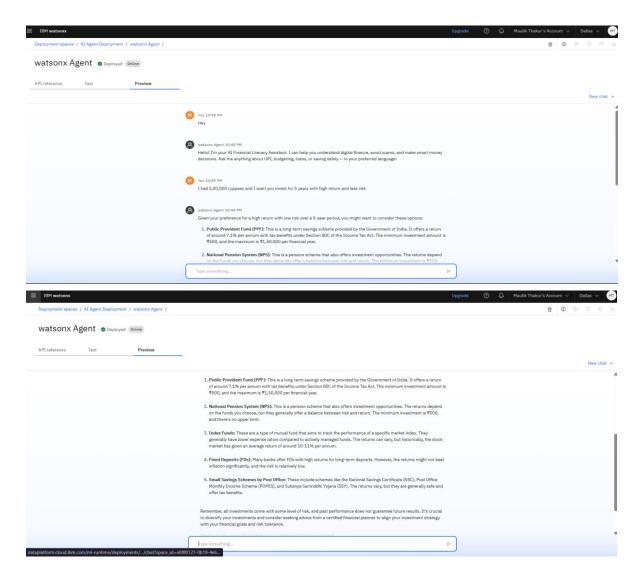
- •Retrieval-Augmented Generation (RAG): Combines document retrieval and generative LLM response
- •Query → Document Retriever → IBM Granite → Answer Generation

Deployment:

- •IBM Cloud Container Registry
- Dockerized backend
- Exposed via API endpoint



RESULT





CONCLUSION

- The Al-powered Financial Literacy Agent enhances digital empowerment by:
- Making financial knowledge accessible and interactive
- Reducing risk of fraud
- Encouraging responsible financial behavior
- Bridging the language and education gap in digital finance
- The system ensures inclusivity, trust, and relevance by retrieving authentic content from trusted sources.



FUTURE SCOPE

- •Integration with voice assistants for speech-based queries
- •Real-time fraud alert warnings
- •Personalized learning modules based on user queries
- •Expansion to cover topics like insurance, taxation, and retirement planning
- Deploying as a WhatsApp or Telegram bot for accessibility



REFERENCES

- •RBI & NPCI official websites
- •Ministry of Finance (India) digital literacy materials
- •IBM Cloud Documentation
- LangChain Documentation
- •UPI Help Portals
- Cybercrime.gov.in (for scam awareness)
- •Hugging Face RAG Architecture

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IBM CERTIFICATIONS

Screenshot/ credly certificate(getting started with AI)

In recognition of the commitment to achieve professional excellence



Maulik Thakur

Has successfully satisfied the requirements for:

Getting Started with Artificial Intelligence



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Screenshot/ credly certificate(Journey to Cloud)

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IBM CERTIFICATIONS

Screenshot/ credly certificate(RAG Lab)

IBM SkillsBuild

Completion Certificate



This certificate is presented to

Maulik Thakur

for the completion of

Lab: Retrieval Augmented Generation with LangChain

(ALM-COURSE_3824998)

According to the Adobe Learning Manager system of record

Completion date: 26 Jul 2025 (GMT)

Learning hours: 20 mins



THANK YOU

