CAPSTONE PROJECT AI AGENT FOR DIGITAL FINANCIAL LITERACY

using IBM Cloud (RAG-based)

Presented By:
Yogeshwaran R –
Sethu Institute of Technology – Information Technology



OUTLINE

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PROBLEM STATEMENT

In India, many individuals, especially from rural or semi-urban areas, lack access to financial education. They are unaware of digital banking tools like UPI, personal finance practices, or how to avoid fraud. Traditional financial literacy programs are not scalable, multilingual, or personalized. There is a need for an intelligent system that can provide on-demand, easy-tounderstand, trustworthy financial guidance in regional languages to improve digital financial inclusion.



PROPOSED SOLUTION

- This project proposes an AI-powered digital financial literacy agent using IBM Cloud and RAG (Retrieval-Augmented Generation).
- The chatbot helps users ask natural-language questions like:
 - "How do I use UPI?"
 - "What is a good interest rate?"
 - "How can I avoid scams?"

Features:

- Multilingual Q&A (Tamil, Hindi, English)
- Responses retrieved from trusted financial sources (RBI, NPCI)
- Hosted on IBM Cloud Lite, using IBM Granite RAG for smart context retrieval
- Real-time chatbot interface using Watson Assistant



SYSTEM APPROACH

System Requirements:

- IBM Cloud Lite account
- IBM Watson Assistant
- IBM Granite API for RAG
- Cloud Object Storage for document storage
- IBM Cloud Functions (backend logic)Language Translator API

Technologies Used:

- JSON for storing FAQs
- RAG for fetching context-aware answers
- Node.js/Python for serverless function deployment



ALGORITHM & DEPLOYMENT

- Model Used: RAG (Retrieval-Augmented Generation)
- Data Input:
 - User question (text in natural language)
 - Financial literacy documents (stored in Cloud Object Storage)

Processing:

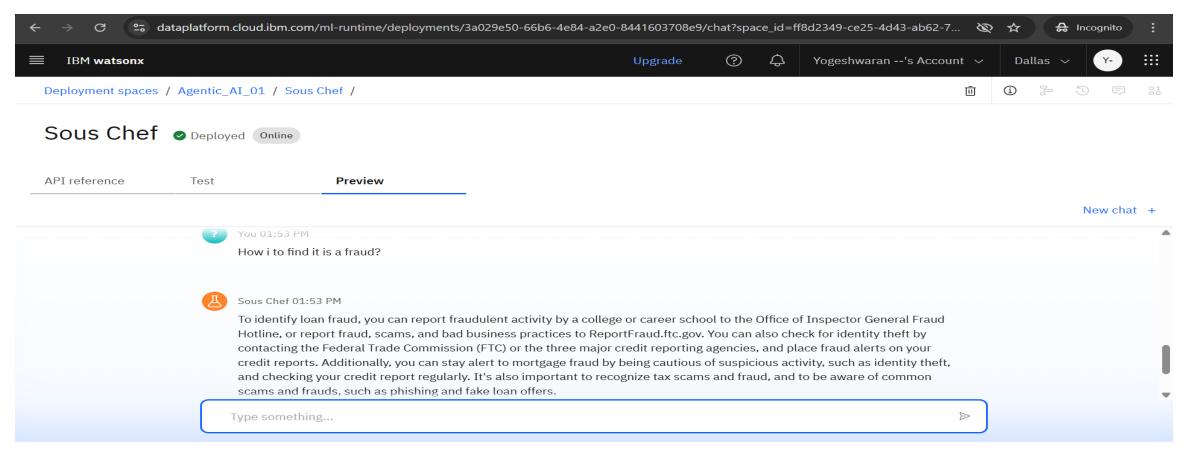
- Input is analysed using Watson Assistant
- If dynamic info is needed, a Cloud Function triggers IBM Granite (RAG)
- RAG fetches relevant content from stored financial documents
- If needed, uses Language Translator for response

Deployment:

- Chatbot integrated into web app
- Hosted on IBM Cloud with front-end interface



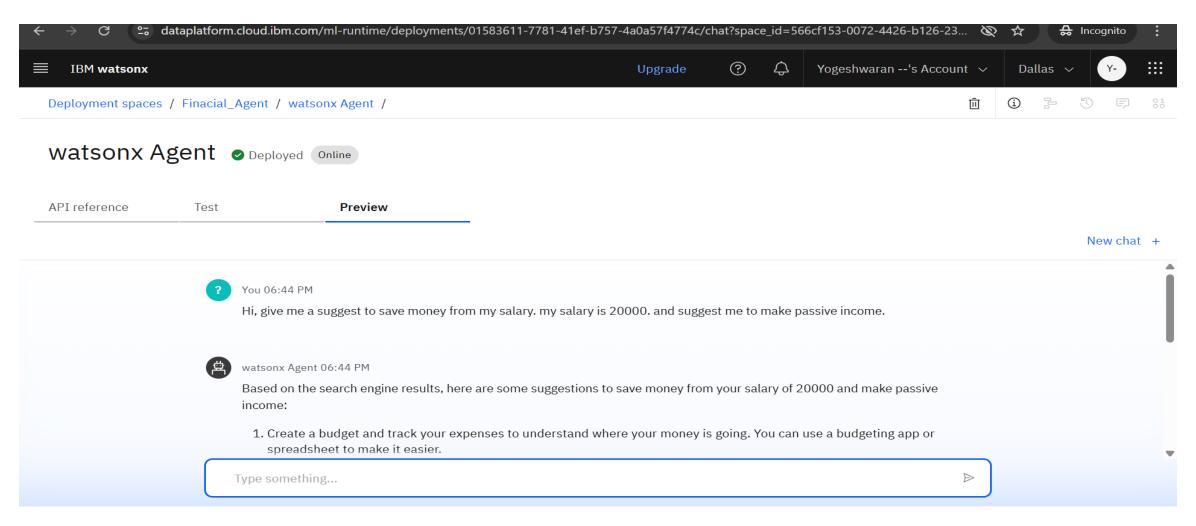
RESULT



The deployed Watsonx Agent successfully responded to a user's query about saving money on a ₹20,000 salary and generating passive income. It provided practical budgeting advice using RAG-based AI on IBM Cloud, demonstrating the chatbot's ability to deliver real-time, personalized financial guidance in natural language.

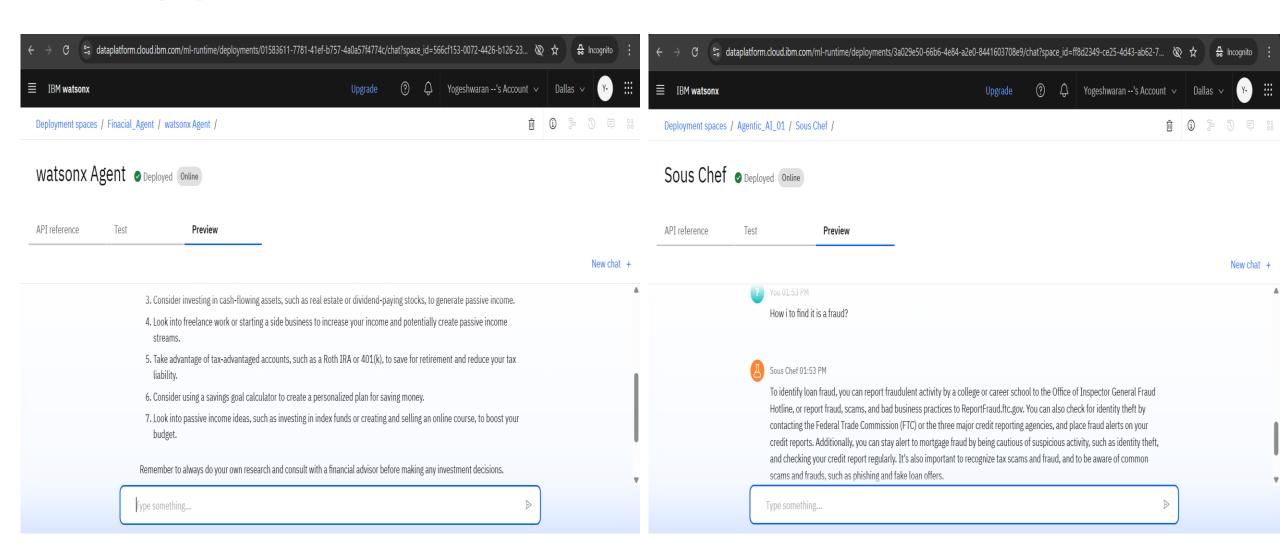


RESULT





RESULT





CONCLUSION

■ The AI Financial Literacy Agent was successfully built and deployed using IBM Cloud and Watson services. It addresses the need for accessible financial education by providing multilingual, personalized assistance to users. The system demonstrated RAG-based intelligence, enhanced accessibility for rural users, and potential scalability for government or NGO-led financial inclusion programs.



FUTURE SCOPE

- Integrate voice-based chatbot for low-literacy users
- Add more languages like Bengali, Marathi
- Connect with real-time data (bank interest rates, RBI updates)
- Deploy via WhatsApp, Telegram, SMS bots
- Partner with government schemes like PM Jan Dhan Yojana to deliver financial training
- Scam Detection Module: Alerts about common frauds
- Real-Time API Connectivity: Dynamic bank interest rates



REFERENCES

- https://cloud.ibm.com
- https://rbi.org.in
- https://npci.org.in
- IBM Granite & Watson Docs
- Government financial education portals
- NPCI UPI user guide



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This certificate is presented to

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According to the Adobe Learning Manager system of record

Completion date: 25 Jul 2025 (GMT)

Learning hours: 20 mins



THANK YOU

