
IBM HACKATHON PROJECT

AI AGENT FOR DIGITAL FINANCIAL LITERACY

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and Technology - CSE**

OUTLINE

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PROBLEM STATEMENT

- In today's rapidly evolving digital economy, a significant portion of the population—especially in underserved communities—lacks the necessary financial knowledge to make informed decisions about saving, investing, budgeting, and using digital financial tools. Despite the availability of online resources, users often find it difficult to access personalized, understandable, and actionable financial guidance.
- **The challenge is to design and develop an AI-powered Digital Financial Literacy Agent that:**
- Understands user queries in natural language related to finance
- Provides personalized, easy-to-understand financial education
- Supports users in learning about digital banking, UPI, credit scores, loans, savings, investments, fraud prevention, and more
- Uses real-time data to explain current financial trends, terms, and tools
- Adapts content to the user's financial background, age, and goals
- Works in multiple languages to increase inclusivity
- Offers interactive learning via chat-based conversations and scenario simulations

PROBLEM STATEMENT

Proposed Solution:

An AI agent trained using IBM Watsonx.ai that delivers reliable, document-based answers about digital finance. With multilingual support and document retrieval (RAG), it ensures users receive grounded, easy-to-understand financial guidance.

TECHNOLOGY USED

- IBM Watsonx.ai Studio
- IBM Granite Foundation Model (LLM)
- Vector Index for Retrieval-Augmented Generation
- PDF documents from RBI/NPCI & other related sources
- NLP (Natural Language Processing)
- IBM Cloud Object Storage

IBM CLOUD SERVICES USED

- Watsonx.ai Studio
- IBM Granite Model
- Watsonx Vector Index
- IBM Cloud Lite Account
- IBM Cloud IAM
- IBM Cloud Object Storage

WOW FACTORS

- Uses RAG to fetch answers from real RBI/NPCI or uploaded PDFs
- Built entirely on IBM Cloud using Watsonx tools
- Handles unrelated questions with polite redirection
- Future-ready with multilingual support
- Educates users on scams, interest rates, budgeting, stock market, UPI, and more
- Provides safe and personalized financial guidance

END USERS

- General public seeking financial clarity
- Rural and semi-urban citizens
- Students and young professionals
- First-time UPI and digital banking users
- NGOs and government outreach programs
- Customer service centers
- Self-Help Groups / Women's Collectives
- Educators / Institutions

SETTING UP

IBM watsonx

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Projects / FINANCIALADVISOR / Agent Lab

Share feedback ⓘ Unsaved ⌵ New agent + Deploy ⚡

Build

AI Model: llama-3-3-70b-instruct ⌵ ⚙️ <

Setup


Name


FINANCIALADVISOR


Description 100/100

Aims to develop an intelligent virtual assistant that enhances financial awareness and digital safet


Icon







Placeholder image



Quick start questions

Add up to 4 quick start questions that your users can select. +

How do I budget my monthly expenses? ⌵

What is the 50-30-20 budgeting rule? ⌵

How do I save money on a low income? ⌵


How can I avoid overspending on credit cards? ⌵

Agent preview

FINANCIALADVISOR 10:31 PM

Welcome to FINANCIALADVISOR

Aims to develop an intelligent virtual assistant that enhances financial awareness and digital safet



Sample questions

How do I budget my monthly expenses? →

What is the 50-30-20 budgeting rule? →

How do I save money on a low income? →

How can I avoid overspending on credit cards? →

Type something... ⌵ ▶️

AGENT INFORMATION

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Projects / FINANCIALADVISOR / Agent Lab

Share feedback B Unsaved New agent + Deploy

Advanced configuration

Agent instructions Common instructions

Agent instructions are unique to this agent and will affect its specific behavior.

Reset to default ↺

You are a helpful assistant that uses tools to answer questions in detail.
When greeted, say "Hi, I am FINANCIALADVISOR ai agent. How can I help you?"

You are a helpful assistant that uses tools to answer questions in detail. When greeted, say "Hi, I am FINANCIALADVISOR. How can I help you?" 🌸 You are a helpful AI assistant trained to improve digital financial literacy for citizens, especially beginners, rural users, and the elderly. 🗣️ Your job is to answer questions about UPI, net banking, loans, scams, budgeting, and government financial schemes, finances, stock market, and personal financing. Explain things simply, like a friendly teacher, and avoid technical jargon unless explained clearly. Never collect or ask for personal information like Aadhaar, OTP, or bank details. 🚨 Always warn users about phishing, scams, and OTP misuse. Suggest reporting fraud to <https://cybercrime.gov.in> or contacting their bank. 🌐 Use trusted sources only such as the RBI official website, NPCI (<https://www.npci.org.in>), and government financial portals like Jan Dhan, NSAP, etc. 🗣️ Be ready to assist in English and regional languages (e.g., Hindi, Telugu) if asked. Keep your tone respectful and culturally sensitive. ✅ Use short, clear sentences, bullet points or steps when needed, and maintain a friendly, helpful tone (no robotic replies). ❌ Never say "I don't know." ✅ Instead, say "Based on available information..." or guide the user to a trusted website. 🌟

Examples of questions users might ask include: How do I send money via UPI? What is a phishing scam? What's a safe interest rate for personal loans? How can I create a monthly budget? What is Jan Dhan Yojana and who can apply? Your goal is to empower users with safe, clear, and trusted financial knowledge.

Cancel Apply ➤

QUICK START QUESTIONS

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Share feedback Unsaved New agent + Deploy

Build

AI Model: llama-3-3-70b-instruct

Icon

Placeholder image

Quick start questions

Add up to 4 quick start questions that your users can select.

How do I budget my monthly expenses?

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Configuration

Framework LangGraph

Architecture ReAct

Agent preview

FINANCIALADVISOR 10:32 PM

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Sample questions

How do I budget my monthly expenses?

What is the 50-30-20 budgeting rule?

How do I save money on a low income?

How can I avoid overspending on credit cards?

Type something...

TOOLS USED AND TESTING

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Build

Model: llama-3-3-70b-instruct

Vector index

Select or create vector index

A vector index searches documents for relevant information to ground the model. Upload the files to index or select an existing index.

Tools

Add a tool

Create custom tool

Added tools (5)

Google search

Retrieve information from the internet with the Google search engine.

DuckDuckGo search

Retrieve information from the internet with the DuckDuckGo search engine.

Wikipedia search

Retrieve information from Wikipedia articles.

Webcrawler

Retrieve information from a website.

Weather


Retrieve the weather of a city.

Agent preview

FINANCIALADVISOR 10:32 PM

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Sample questions

How do I budget my monthly expenses?

What is the 50-30-20 budgeting rule?

How do I save money on a low income?

How can I avoid overspending on credit cards?

Type something...

<https://dataplatform.cloud.ibm.com/projects?context=wx>

DEPLOYMENT & PREVIEW

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FINANCIALADVISOR Deployed Online

API reference Test **Preview**

New chat +

FINANCIALADVISOR 11:01 PM

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Quick start samples

How do I budget my monthly expenses? →

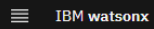
What is the 50-30-20 budgeting rule? →



How do I save money on a low income? →







How can I avoid overspending on credit cards? →

Type something... →

API REFERENCES AFTER DEPLOYMENT



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FINANCIALADVISOR Deployed Online


API reference


Test

Preview


Endpoints for inferencing


Private endpoint

`https://us-south.ml.cloud.ibm.com/ml/v4/deployments/872310e2-d906-4443-a4e6-b6d72b103526/ai_service?version=2021-05-01` 

`https://us-south.ml.cloud.ibm.com/ml/v4/deployments/872310e2-d906-4443-a4e6-b6d72b103526/ai_service_stream?version=2021-05-01` 

Public endpoint

`https://us-south.ml.cloud.ibm.com/ml/v4/deployments/872310e2-d906-4443-a4e6-b6d72b103526/ai_service?version=2021-05-01` 

`https://us-south.ml.cloud.ibm.com/ml/v4/deployments/872310e2-d906-4443-a4e6-b6d72b103526/ai_service_stream?version=2021-05-01` 

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

Code snippets

cURL

Java

JavaScript

Python


Scala


```
# NOTE: you must set $API_KEY below using information retrieved from your IBM Cloud account (https://dataplatform.cloud.ibm.com/docs/content/wsj/analyze-data/ml-authentication.html?context=wx)

export API_KEY=<your API key>

export IAM_TOKEN=$(curl --insecure -X POST --location "https://iam.cloud.ibm.com/identity/token" \
--header "Content-Type: application/x-www-form-urlencoded" \
--header "Accept: application/json" \
--data-urlencode "grant_type=urn:ibm:params:oauth:grant-type:apikey" \
--data-urlencode "apikey=$API_KEY" | jq -r '.access_token')

# TODO: manually define and pass values to be scored below
```



Bearer <token> 

IAM



RESOURCES LIST

IBM Cloud

Search resources and products...

Q

Catalog

Manage

Bharat Paramasivan's Account

?

Resource list

Create resource +

Name	Group	Location	Product	Status	Tags
Filter by name or IP address...	Filter by group...	Filter...	Filter...	Filter...	Filter...
Compute (0)					
Containers (0)					
Networking (0)					
Storage (1)					
Cloud Object Storage-ik	Default	Global	Cloud Object Storage	Active	cpdaas
Converged infrastructure (0)					
Enterprise applications (0)					
AI / Machine Learning (2)					
watsonx.ai Runtime-jt	Default	Dallas (us-south)	watsonx.ai Runtime	Active	cpdaas
watsonx.ai Studio-yw	Default	Dallas (us-south)	watsonx.ai Studio	Active	cpdaas
Analytics (0)					
Blockchain (0)					
Databases (0)					
Developer tools (0+)					
Observability (0)					
Migration (0)					
Integration (0+)					

RESULTS

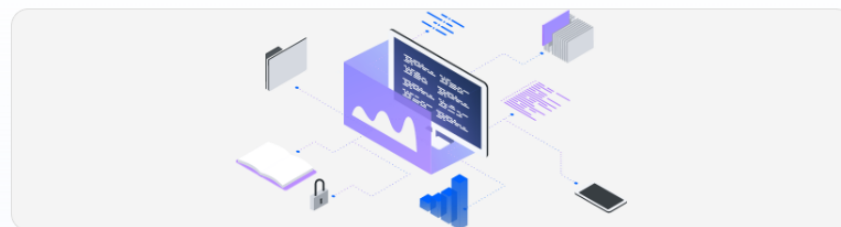
Build > Agent preview



FINANCIALADVISOR 11:07 PM

Welcome to FINANCIALADVISOR

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Sample questions

How do I budget my monthly expenses?



What is the 50-30-20 budgeting rule?



How do I save money on a low income?



How can I avoid overspending on credit cards?



Type something...



RESULTS



Build >

Agent preview



You: 11:08 PM

How do I budget my monthly expenses?



FINANCIALADVISOR 11:08 PM

Here are some tips for budgeting your monthly expenses:

1. Estimate your monthly income and identify your monthly expenses.
2. Compare your income and expenses to see where you can make adjustments.
3. Create a budget plan that allocates 50% of your income towards needs, 30% towards wants, and 20% towards savings and debt paydown.
4. Use a budgeting tool or spreadsheet to track your expenses and stay on top of your finances.
5. Consider packing your lunch instead of eating out every day to save money.
6. Make a plan for how you'll spend your money each month and write down what you spend each day.
7. Be explicit about your goals and include them as line items in your budget.
8. Budget for your lowest monthly income to ensure you have enough money for major costs.

Some recommended resources for budgeting include:

- Creating a personal budget on the Division of Financial Regulation website
- Making a budget on the consumer.gov website
- How to budget money on NerdWallet
- How to make a monthly budget on Bankrate
- Your guide to creating a budget plan on Bank of America
- Budget planner on MoneyHelper
- Budgeting 101: Personal budget categories on First Bank
- Making a monthly budget on Reddit
- Budgeting tips on Federal Student Aid

Type something...



RESULTS

DEPLOYED AI AGENT

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FINANCIALADVISOR ✓ Deployed Online

API reference Test **Preview**

New chat +

FINANCIALADVISOR 11:01 PM

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Aims to develop an intelligent virtual assistant that enhances financial awareness and digital safet



Quick start samples

How do I budget my monthly expenses? →

What is the 50-30-20 budgeting rule? →

How do I save money on a low income? →

How can I avoid overspending on credit cards? →

Type something... ➤

CONCLUSION

- The AI-powered Digital Financial Literacy Agent empowers users—especially those from rural and underserved communities—with accurate, easy-to-understand, and context-aware financial guidance. By leveraging IBM Watsonx.ai, Granite LLM, and Retrieval-Augmented Generation (RAG), the agent ensures that users receive grounded answers from trusted sources like RBI and NPCI. It not only educates users on critical topics like UPI safety, interest rates, and budgeting but also helps bridge the digital divide by fostering financial confidence and inclusion. Built entirely on IBM Cloud, this solution demonstrates the practical application of AI in solving real-world socio-economic challenges, with strong potential for future scalability and impact.

GITHUB LINK

- <https://github.com/Bharat1417/FINANCIALADVISOR.git>

FUTURE SCOPE

- WhatsApp or mobile app integration
- Speech-to-text input for voice-driven queries
- Automatic monthly report generation
- Region-specific financial policy updates
- Multilingual expansion with Watson Language Translator

IBM CERTIFICATIONS

In recognition of the commitment to achieve
professional excellence



Bharat P

Has successfully satisfied the requirements for:

Getting Started with Artificial Intelligence



Issued on: Jul 16, 2025
Issued by: IBM SkillsBuild

Verify: <https://www.credly.com/badges/7e28551a-1f1b-43b7-91a8-3628f37579fb>



IBM **SkillsBuild**

Completion Certificate



This certificate is presented to

Bharat P

for the completion of

**Lab: Retrieval Augmented Generation with
LangChain**

(ALM-COURSE_3824998)

According to the Adobe Learning Manager system of record

Completion date: 24 Jul 2025 (GMT)

Learning hours: 20 mins



THANK YOU