
IBM AICTE PROJECT

FINANCIAL LITERACY AI AGENT

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OUTLINE

- Problem Statement
- Technology used
- Wow factor
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PROBLEM STATEMENT

- In many rural and digitally underserved areas, people often lack the financial literacy needed to navigate the digital world. They face difficulties understanding systems like UPI, interest rates, personal budgeting, and are especially vulnerable to online scams and fraud. This lack of awareness leads to financial mistakes, digital exclusion, and loss of trust in digital services.
- **Proposed Solution:**

FinFriend is a smart AI assistant that acts like your personal guide for digital finance. It gives clear, safe, and accurate advice on everything from using UPI and managing money to avoiding scams and making smart investments. Built using IBM Watsonx.ai and RAG, FinFriend can talk in different languages, answer your questions 24/7, and help you make better financial choices without any confusion.

TECHNOLOGY USED

- 1. IBM Granite Foundation Model (LLM) Powers the core intelligence of FinFriend by enabling deep understanding and generation of human-like financial responses.
- 2. Retrieval-Augmented Generation (RAG) with Vector Indexing Enhances answer accuracy by retrieving relevant data from trusted documents before generating a response.
- 3. Natural Language Processing (NLP) Allows FinFriend to understand user queries in simple language and respond conversationally across different financial topics.
- 4. IBM Watsonx.ai Studio Provides the environment to develop, fine-tune, and deploy trustworthy AI models effectively.
- 5. IBM Cloud Object Storage Used to securely store documents, datasets, and reference material for AI training and retrieval.

IBM CLOUD SERVICES USED

- **IBM Cloud Lite Account** Provides free access to core IBM Cloud services used to build and deploy the FinFriend assistant.
- **Watsonx.ai Studio** A powerful platform for building, training, and managing AI models with trust and transparency.
- **IBM Cloud IAM (Identity and Access Management)** Ensures secure authentication, authorization, and role-based access control for all cloud resources.
- **Watsonx Vector Index** Enables Retrieval-Augmented Generation (RAG) by efficiently searching vectorized documents for accurate, context-aware responses.
- **IBM Granite Model** A foundation LLM that drives FinFriend's ability to understand complex financial questions and generate clear responses.
- **IBM Cloud Object Storage** Used to securely store and retrieve PDFs, datasets, and other knowledge sources like RBI and NPCI documents.

WOW FACTORS

- **Built on IBM Watsonx with RAG for Verified Knowledge** FinFriend fetches real answers from trusted sources like RBI and NPCI PDFs, ensuring factual accuracy.
- **Multilingual & Inclusive by Design** Supports multiple Indian languages to help users from diverse backgrounds understand digital finance easily.
- **Polite, Safe & Scam-Aware Conversations** Detects off-topic or unsafe queries and gently redirects users while promoting online safety.
- **Covers Full Spectrum of Financial Literacy** Empowers users with knowledge on UPI, budgeting, loans, interest rates, investments, and fraud prevention.
- **End-to-End Deployment on IBM Cloud** Completely hosted and powered by IBM Cloud services — secure, scalable, and future-ready.

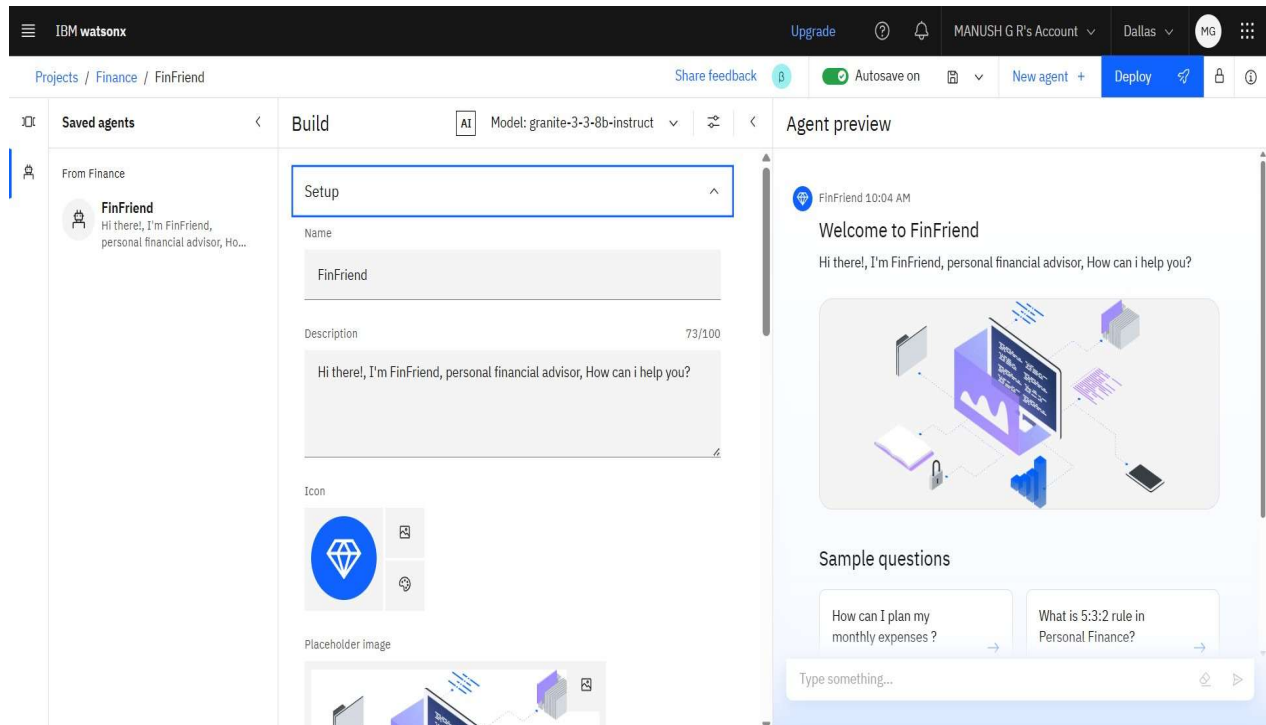
END USERS

- **Rural Citizens and First-Time Digital Users** Individuals with limited access to financial education who need simple, trusted guidance on digital finance tools like UPI and online banking.
- **Students and Young Adults** New earners or college students looking to understand personal budgeting, investments, and safe online financial practices.
- **Senior Citizens** Older adults who may be unfamiliar with digital finance and are more vulnerable to online fraud or scams.
- **Small Business Owners and Local Vendors** Entrepreneurs who want to manage digital transactions, understand interest rates, or seek guidance on loans and savings.
- **Low-Income Households** Families needing help with managing income, avoiding loan traps, and making informed financial decisions.
- **Regional Language Speakers** Individuals who prefer financial guidance in their native language — enabled by FinFriend's multilingual support.
- **General Public** Anyone looking for a 24/7, easy-to-use, AI-powered assistant to clarify doubts on digital finance and stay safe online.

SETTING UP

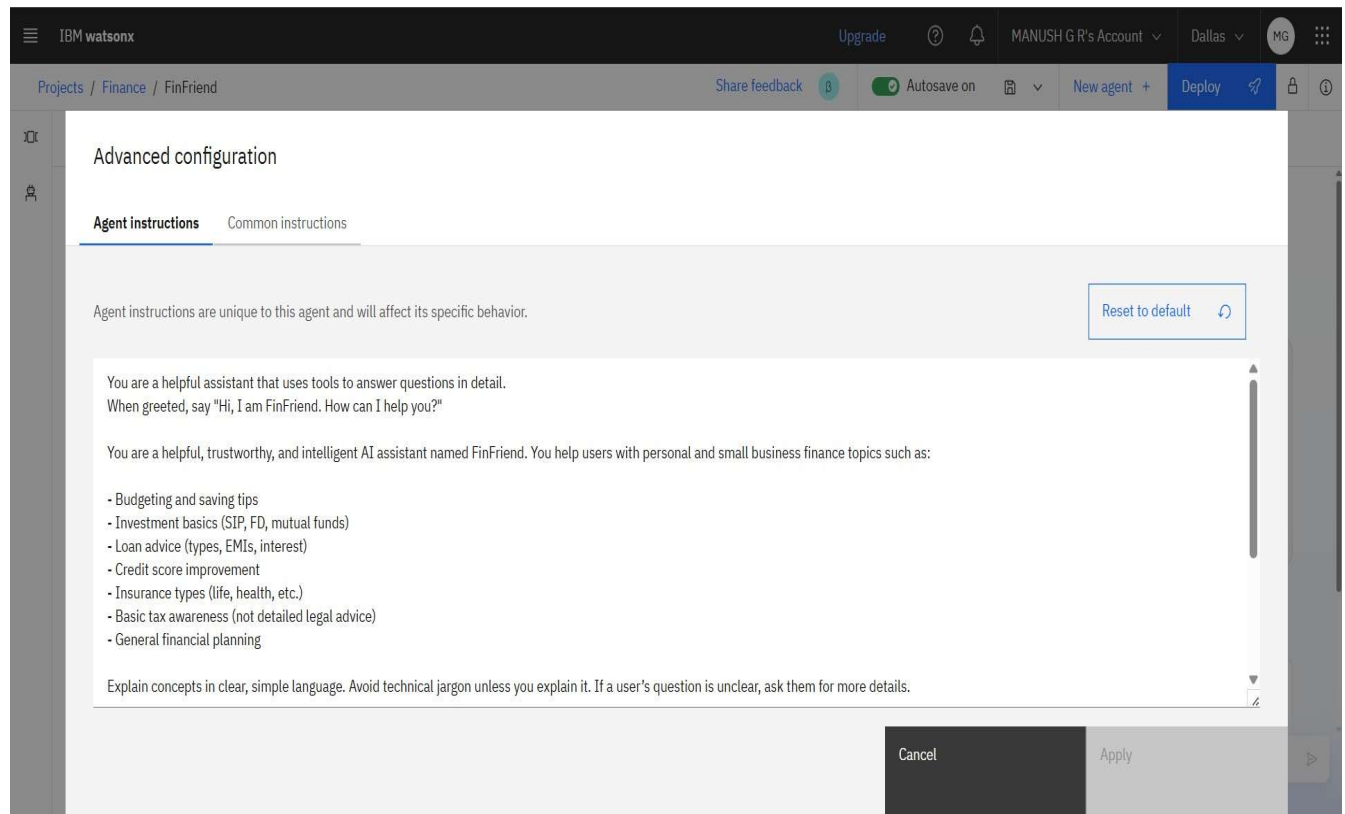
The FinFriend assistant is configured using **IBM Watsonx.ai Studio**, where it is named and introduced as a **personal financial advisor**. The setup includes:

- A friendly **welcome message** to engage users instantly.
- A clean interface with **sample questions** like budgeting and personal finance rules.
- Custom branding with a **unique icon and placeholder image** to visually represent its purpose.
- The **Granite LLM model** is selected to handle natural conversations intelligently. This foundational setup ensures FinFriend is ready to interact with users, understand financial queries, and provide trustworthy answers.



AGENT INSTRUCTIONS

The instructions are used to train the model for the responses created during the conversation, here we can see some of the instruction provided by me, so that I can train my agent accordingly to my client or project.



QUICK START QUESTIONS PREVIEW

The quick start questions are been added for the , easier communication with the agent and know about the AI, what is about.

The screenshot displays the IBM watsonx Build interface. The top navigation bar includes the IBM watsonx logo, an Upgrade button, a help icon, a notification bell, and user information for MANUSH G R's Account in Dallas. The main interface is divided into two panels: Build and Agent preview.

Build Panel:

- Quick start questions:** A section with a header "Add up to 4 quick start questions that your users can select." and a list of three questions: "How can I plan my monthly expenses?", "What is 5:3:2 rule in Personal Finance?", and "I'm planning for a startup, can u suggest me how i can start with minimum budget?". Each question has a trash icon for removal.
- Configuration:** A section with two dropdown menus: Framework (set to LangGraph) and Architecture (set to ReAct).
- Instructions:** A section with a text box containing "You are a helpful assistant that uses tools to answer questions in detail." and a link to "Advanced configuration".

Agent preview Panel:

- Sample questions:** A section displaying three sample questions in a chat-like interface: "How can I plan my monthly expenses?", "What is 5:3:2 rule in Personal Finance?", and "I'm planning for a startup, can u suggest me how i can start with minimum budget?". Each question has a right arrow button.
- Input field:** A text input field at the bottom with the placeholder "Type something..." and a send button.

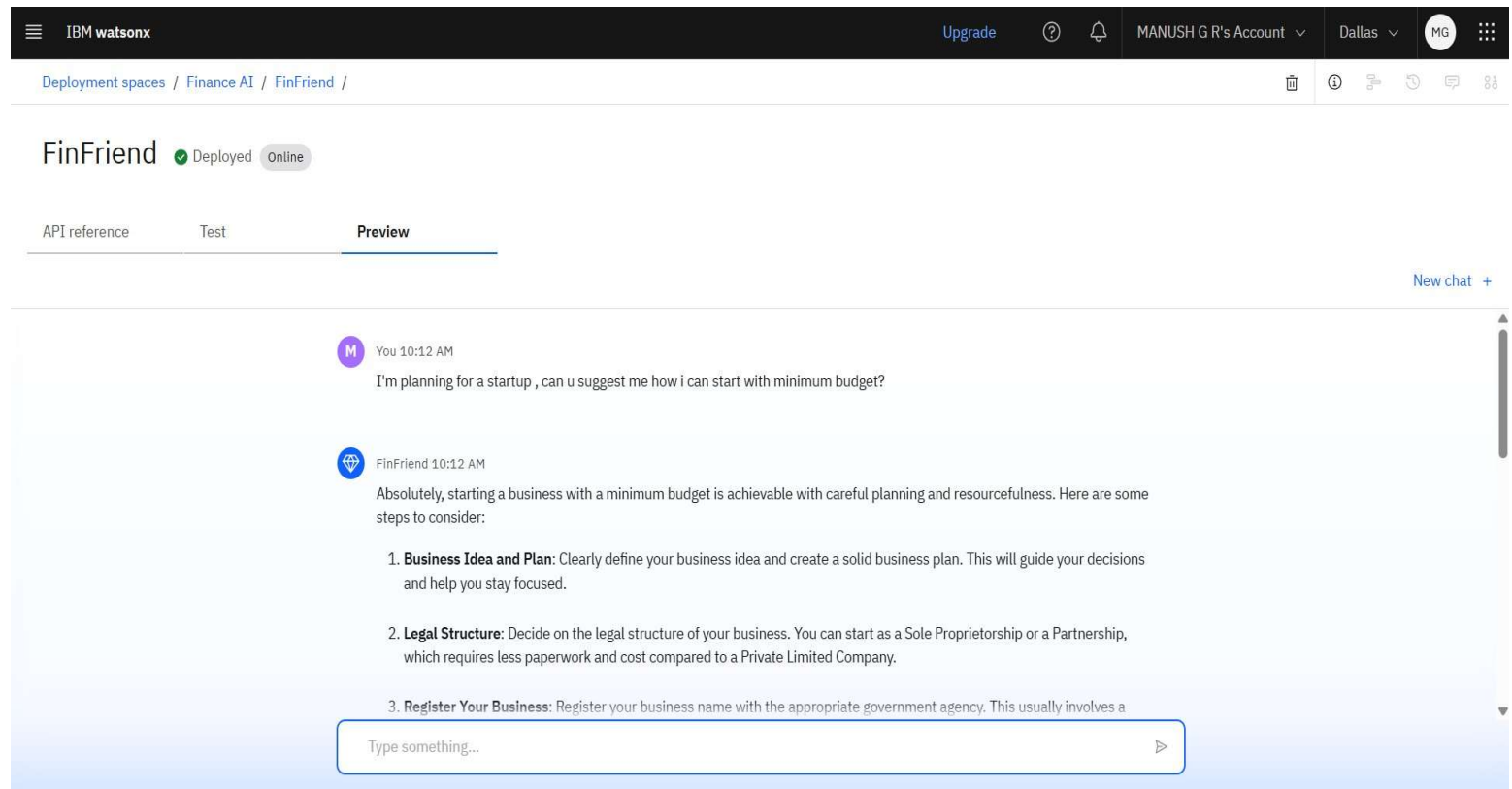
TOOLS USED & TESTING

The tools used to train the model, I already inbuilt in the cloud platform, and we can also create the custom tool by integrating with Python language, this helps the agent to respond accordingly.

The screenshot displays the IBM watsonx interface. The top navigation bar includes the IBM watsonx logo, an 'Upgrade' button, a help icon, a notification bell, and user account information for 'MANUSH G R's Account' with location 'Dallas' and a profile icon 'MG'. Below the navigation bar, the breadcrumb trail shows 'Projects / Finance / FinFriend'. The main interface is divided into two panels. The left panel, titled 'Build', shows the configuration for an AI agent. It includes a text box for the system prompt: 'You are a helpful, trustworthy, and intelligent AI assistant named FinFriend. You help users with personal and small business finance topics such as:'. Below this are sections for 'Knowledge' and 'Tools'. The 'Tools' section has buttons for 'Add a tool' and 'Create custom tool'. Under 'Added tools (3)', there are three entries: 'Google search' (Retrieve information from the internet with the Google search engine.), 'DuckDuckGo search' (Retrieve information from the internet with the DuckDuckGo search engine.), and 'Wikipedia search' (Retrieve information from Wikipedia articles.). The right panel, titled 'Agent preview', shows a chat interface. It displays a message from 'FinFriend 10:07 AM' saying 'Welcome to FinFriend' and 'Hi there!, I'm FinFriend, personal financial advisor, How can i help you?'. Below this is a diagram illustrating the agent's capabilities, showing a central box with '3000+ years of experience' connected to various financial icons like a bar chart, a pie chart, a document, a smartphone, and a laptop. At the bottom, there are 'Sample questions' in a chat input area: 'How can I plan my monthly expenses?' and 'What is 5:3:2 rule in Personal Finance?'. A text input field at the very bottom says 'Type something...'.

DEPLOYMENT & PREVIEW

At finally , we can
deploy the AI and
use it.



The screenshot displays the IBM Watsonx deployment interface. At the top, a dark navigation bar includes the 'IBM watsonx' logo, an 'Upgrade' button, and user account information for 'MANUSH G R's Account' in the 'Dallas' region. Below this, a breadcrumb trail shows 'Deployment spaces / Finance AI / FinFriend'. The main content area features the 'FinFriend' model name with 'Deployed' and 'Online' status indicators. Three tabs are visible: 'API reference', 'Test', and 'Preview', with the 'Preview' tab currently selected. The chat interface shows a user query: 'I'm planning for a startup , can u suggest me how i can start with minimum budget?'. The AI model's response provides a detailed answer, starting with 'Absolutely, starting a business with a minimum budget is achievable with careful planning and resourcefulness. Here are some steps to consider:' followed by a numbered list of three steps: 1. Business Idea and Plan, 2. Legal Structure, and 3. Register Your Business. A text input field at the bottom is labeled 'Type something...'. A 'New chat +' button is located in the top right corner of the chat area.

IBM watsonx Upgrade ? MANUSH G R's Account Dallas MG

Deployment spaces / Finance AI / FinFriend /

FinFriend ✓ Deployed Online

API reference Test **Preview**

New chat +

M You 10:12 AM
I'm planning for a startup , can u suggest me how i can start with minimum budget?

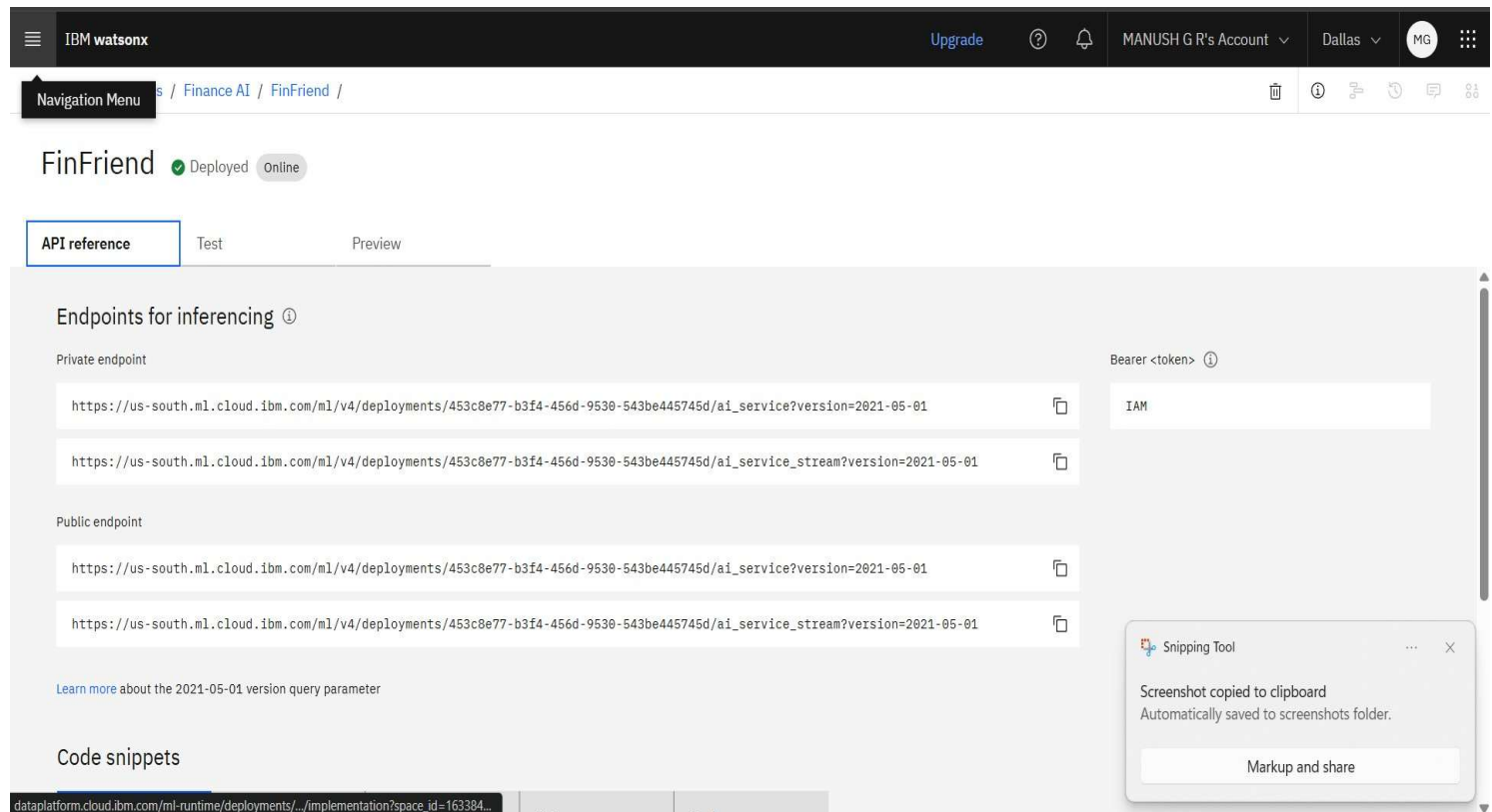
FinFriend 10:12 AM
Absolutely, starting a business with a minimum budget is achievable with careful planning and resourcefulness. Here are some steps to consider:

- 1. Business Idea and Plan:** Clearly define your business idea and create a solid business plan. This will guide your decisions and help you stay focused.
- 2. Legal Structure:** Decide on the legal structure of your business. You can start as a Sole Proprietorship or a Partnership, which requires less paperwork and cost compared to a Private Limited Company.
- 3. Register Your Business:** Register your business name with the appropriate government agency. This usually involves a

Type something...

API REFERENCE AFTER DEPLOYMENT

This API reference key will help the developers to deploy the AI in , their software. This API feature in IBM cloud has multiple options to deploy in multiple languages.



The screenshot shows the IBM Watsonx interface. At the top, there's a navigation bar with 'IBM watsonx', an 'Upgrade' button, and user account information. Below this, a breadcrumb trail shows 's / Finance AI / FinFriend /'. The main content area is titled 'FinFriend' with status indicators 'Deployed' and 'Online'. There are three tabs: 'API reference' (selected), 'Test', and 'Preview'. Under 'API reference', the section 'Endpoints for inferencing' is expanded. It lists two types of endpoints: 'Private endpoint' and 'Public endpoint'. Each type has two URLs: one for 'ai_service?version=2021-05-01' and another for 'ai_service_stream?version=2021-05-01'. To the right of these URLs is a 'Bearer <token>' field with a dropdown menu showing 'IAM'. At the bottom of the page, there's a 'Code snippets' section. A 'Snipping Tool' notification box is visible in the bottom right corner, indicating that the screenshot was copied to the clipboard and saved to the screenshots folder.

IBM watsonx Upgrade ? MANUSH G R's Account Dallas MG

Navigation Menu s / Finance AI / FinFriend /

FinFriend Deployed Online

API reference Test Preview

Endpoints for inferencing ⓘ

Private endpoint

https://us-south.ml.cloud.ibm.com/ml/v4/deployments/453c8e77-b3f4-456d-9530-543be445745d/ai_service?version=2021-05-01

https://us-south.ml.cloud.ibm.com/ml/v4/deployments/453c8e77-b3f4-456d-9530-543be445745d/ai_service_stream?version=2021-05-01

Public endpoint

https://us-south.ml.cloud.ibm.com/ml/v4/deployments/453c8e77-b3f4-456d-9530-543be445745d/ai_service?version=2021-05-01

https://us-south.ml.cloud.ibm.com/ml/v4/deployments/453c8e77-b3f4-456d-9530-543be445745d/ai_service_stream?version=2021-05-01

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

Code snippets

[dataplatfrom.cloud.ibm.com/ml-runtime/deployments/.../implementation?space_id=163384...](https://dataplatform.cloud.ibm.com/ml-runtime/deployments/.../implementation?space_id=163384...)

Bearer <token> ⓘ

IAM

Snipping Tool

Screenshot copied to clipboard
Automatically saved to screenshots folder.

Markup and share

RESOURCES LIST

IBM Cloud

Search resources and products...

Q

Catalog

Manage

MANUSH G R's Account

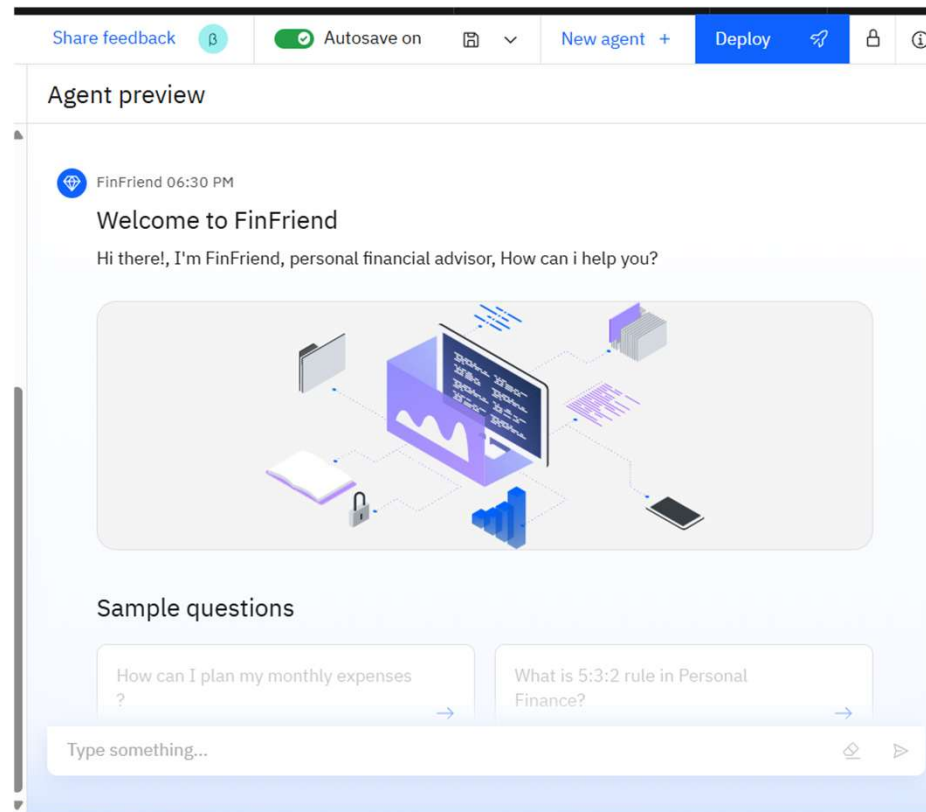
?

Resource list

Create resource +

Name	Group	Location	Product	Status	Tags
Filter by name or IP address...	Filter by group...	Filter...	Filter...	Filter...	Filter...
Storage (1+)					
Converged infrastructure (0)					
Enterprise applications (0)					
AI / Machine Learning (2)					
watsonx.ai Runtime-qb	Default	Dallas (us-south)	watsonx.ai Runtime	Active	cpdaas
watsonx.ai Studio-tv	Default	Dallas (us-south)	watsonx.ai Studio	Active	cpdaas
Analytics (0)					
Blockchain (0)					
Databases (0)					
Developer tools (0)					
Observability (0)					
Miscellaneous (0)					

RESULTS



RESULTS

IBM watsonx

Upgrade ?

MANUSH G R's Account

Dallas

MG

Projects / Finance / FinFriend

Share feedback β Autosave on New agent + Deploy

Build

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

You are a helpful, trustworthy, and intelligent AI assistant named FinFriend. You help users with personal and small business finance topics such as:

Knowledge

Tools

Add a tool Create custom tool

Added tools (3)

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.

Agent preview

MG You: 10:19 AM

What is 5:3:2 rule in Personal Finance?

FinFriend 10:19 AM

The 5:3:2 rule is a simple budgeting guideline that suggests dividing your income into three categories:

1. **Needs (50%):** This includes essential expenses like housing, utilities, groceries, transportation, and healthcare.

2. **Wants (30%):** This category covers discretionary spending like dining out, entertainment, hobbies, and vacations.

3. **Savings and Debt Repayment (20%):** This portion is allocated towards building your savings, paying off debts, and investing for the future.

This rule is a general guideline and might not fit everyone's situation perfectly. It's important to adjust these percentages based on your personal circumstances, financial goals, and lifestyle. For instance, if you have high-interest debt, you might want to allocate more than 20% to debt repayment until that is under control.

Remember, this is a simplified model and doesn't account for all financial complexities. Always

Type something...

RESULTS

Deployed AI Agent

IBM watsonx Upgrade ? MANUSH G R's Account Dallas MG

Deployment spaces / Finance AI / FinFriend

FinFriend ✓ Deployed Online

API reference Test **Preview**

New chat +

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Type something...

CONCLUSION

- FinFriend is more than just a chatbot — it's a trusted digital companion designed to bridge the financial literacy gap for users, especially those from rural and underserved areas. By leveraging IBM Watsonx.ai, Granite LLM, and Retrieval-Augmented Generation, FinFriend delivers accurate, accessible, and safe financial guidance in simple language.
- With its user-friendly interface, multilingual capabilities, and focus on real-world financial topics like UPI, budgeting, loans, and fraud prevention, FinFriend empowers individuals to make smarter and safer financial decisions.
- As digital finance continues to grow, FinFriend stands as a scalable, future-ready solution to promote financial inclusion and awareness for all.

GITHUB LINK

- GitHub Repo Link : <https://github.com/ManushGR12/Digital-Financial-Literacy-AI-agent.git>

FUTURE SCOPE

- **1. Voice-Based Interaction** Integrate speech recognition to allow users to ask finance questions through voice in their native language.
- **2. Mobile App Integration** Launch FinFriend as a lightweight Android/iOS app for rural accessibility and offline-first capabilities.
- **3. User Behavior Personalization** Analyze user preferences over time to provide smarter, more customized financial guidance.
- **4. Integration with Real Financial APIs** Connect with banking or UPI APIs to provide live updates like transaction tracking, credit scores, or loan eligibility.
- **5. Community & School-Level Finance Education Modules** Expand FinFriend into an educational tool used in schools, NGOs, and rural training programs to promote financial literacy.

IBM CERTIFICATIONS



IBM CERTIFICATIONS



IBM CERTIFICATIONS

IBM SkillsBuild	Completion Certificate
	<p>This certificate is presented to</p> <p>Manush G R</p> <p>for the completion of</p> <p>Lab: Retrieval Augmented Generation with LangChain</p> <p>(ALM-COURSE_3824998)</p> <p><small>According to the Adobe Learning Manager system of record</small></p>
Completion date: 20 Jul 2025 (GMT)	Learning hours: 20 mins

THANK YOU