CAPSTONE PROJECT

AI AGENT FOR DIGITAL FINANCIAL LITERACY

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OUTLINE

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PROBLEM STATEMENT

- An AI Agent for Digital Financial Literacy, powered by Retrieval-Augmented Generation (RAG), helps users understand and navigate essential financial tools and practices. It retrieves reliable content on topics such as using UPI, avoiding online scams, understanding interest rates, budgeting, and personal finance management from trusted sources like government portals, banking websites, and educational platforms.

- With multilingual support, users from diverse backgrounds can interact in their preferred languages and ask questions like “How do I send money via UPI?” or “What is a safe interest rate for a loan?” The agent ensures that financial literacy is accessible, personalized, and culturally inclusive.

- This AI-powered assistant empowers individuals with knowledge, safeguards them against fraud, and boosts their confidence in managing digital financial services.

PROPOSED SOLUTION

- **The Challenge –**

An AI Agent for Predictive Bike Rental Demand Management leverages data analytics and machine learning to ensure an optimal supply of rental bikes across stations throughout the day. Urban mobility services often struggle to maintain the right number of bikes at each location, especially during peak hours, adverse weather conditions, or special events. This leads to user dissatisfaction and inefficient fleet utilization.

To address this, the proposed AI solution forecasts hourly bike demand by analyzing historical rental data, weather patterns, holidays, and local events. The system empowers stakeholders—such as city planners, rental companies, and commuters—by offering real-time, location-specific predictions of bike availability.

- **Key Features:**

1. **Data-Driven Forecasting: Uses historical rental records, weather data, time and date, and contextual information (e.g., holidays, events).**
2. **Advanced Time-Series Modeling: Integrates ML models like ARIMA, SARIMA, or LSTM for accurate hourly predictions.**
3. **User-Friendly Interface: Delivers intuitive dashboards for real-time demand insights.**
4. **Operational Efficiency: Helps reduce bike shortages or surpluses by guiding rebalancing strategies.**

Evaluation & Feedback: Continuously measures model performance using MAE/RMSE and refines based on real-time data feedback.

- **Impact:**

This AI agent will revolutionize the way urban bike-sharing systems are managed, reducing operational costs, improving user experience, and contributing to a more sustainable, smart city transport infrastructure.

TECHNOLOGY USED

- IBM cloud lite services
- Natural Language Processing (NLP)
- Retrieval Augmented Generation (RAG)
- IBM Granite model
- HTML & CSS: Designed a responsive user interface for the chatbot

IBM CLOUD SERVICES USED

- IBM Cloud Watsonx AI Studio
- IBM Cloud Watsonx AI runtime
- Watsonx Assistant
- IBM Cloud Agent Lab
- IBM Granite foundation model

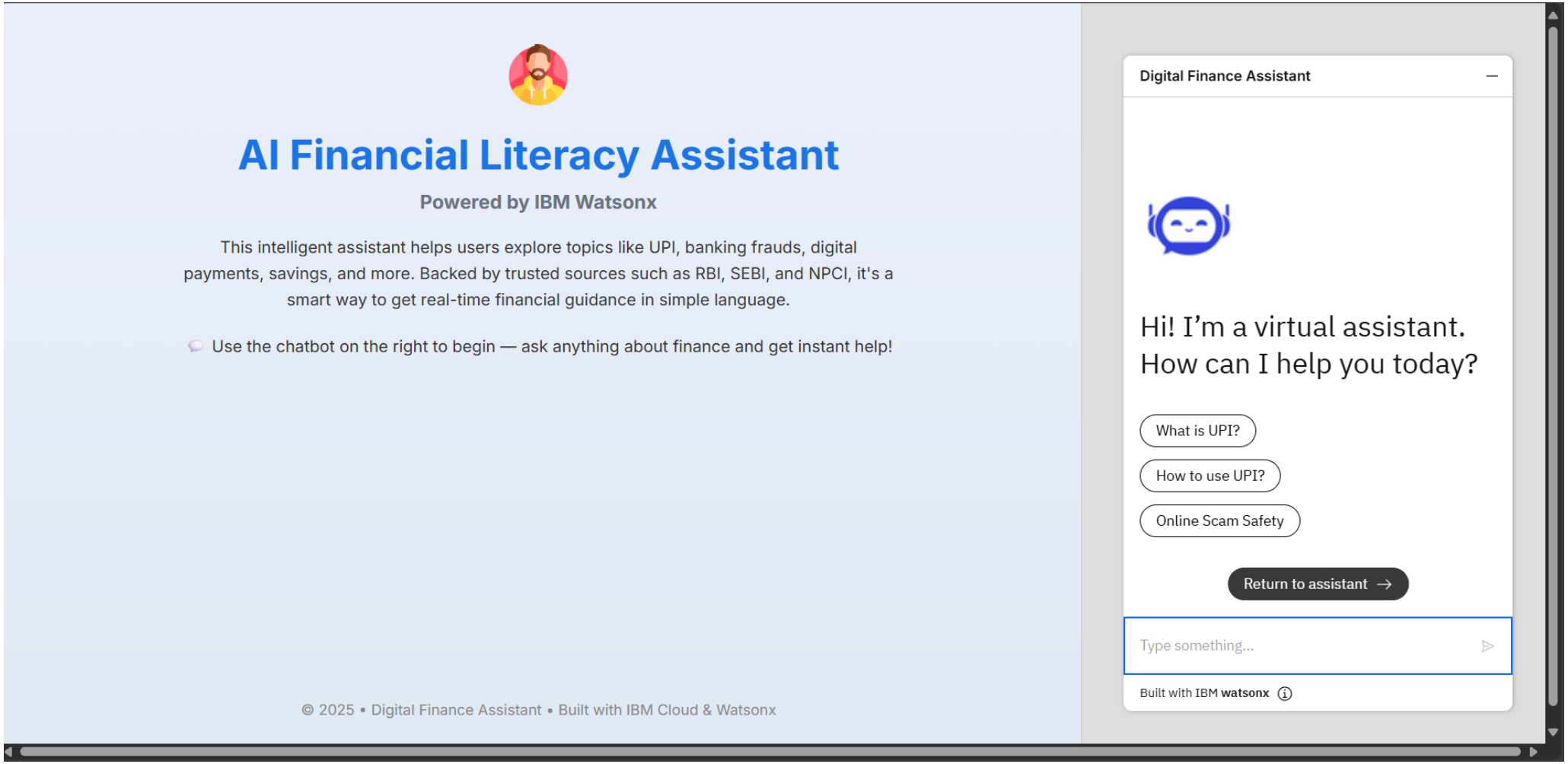
WOW FACTORS

Wow Factor – AI Agent for Research Intelligence This AI Agent goes beyond basic search—it's like having a personal research assistant with domain expertise. By combining semantic search, auto-summarization, and trend analysis, it empowers users to uncover insights in minutes that would normally take days. Its ability to recommend papers, map collaborations, and trace citation impact makes it an intelligent research guide, not just a tool. With features like co-author suggestions and topic-based recommendations, it fosters interdisciplinary innovation, helping early-stage researchers and professionals make faster, smarter, and more connected discoveries.

END USERS

- Academic Researchers
- Research Institutions and Universities
- Industry R&D Teams
- Educators

RESULTS



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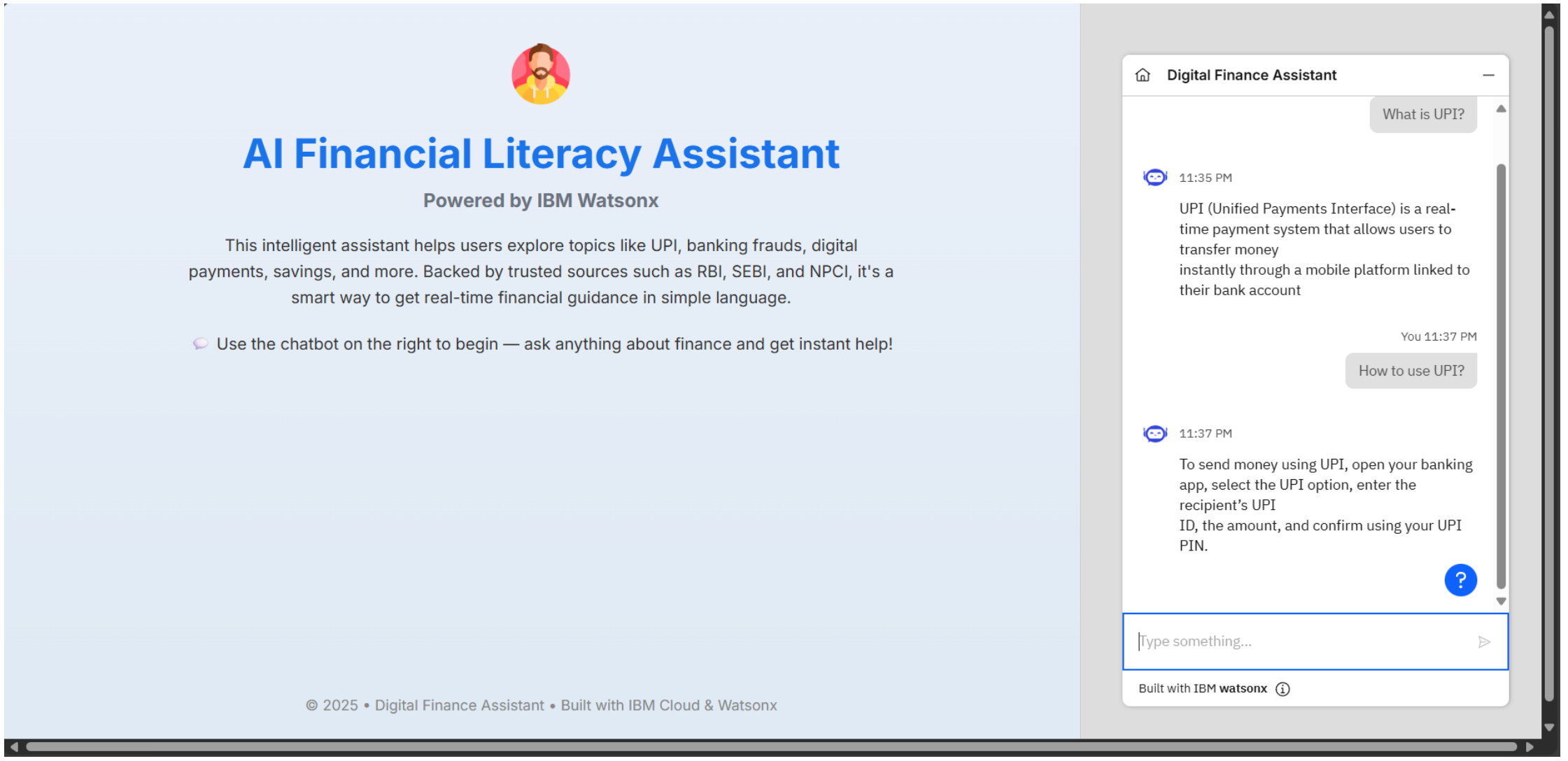
RESULTS



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CONCLUSION

- The AI Agent for Research Assistance revolutionizes how researchers interact with academic content by offering intelligent, real-time support. By integrating semantic search, auto-summarization, citation analysis, and collaboration mapping, the system not only streamlines literature reviews but also promotes deeper insights and interdisciplinary discovery.
- This solution has the potential to transform research workflows, making knowledge more accessible, efficient, and impactful for both new and experienced researchers.

FUTURE SCOPE

- Multilingual Support
- Voice Interaction
- Domain-Specific Agents
- Real-time Data Integration
- Personalized Research Dashboards

- **IBM CERTIFICATIONS**

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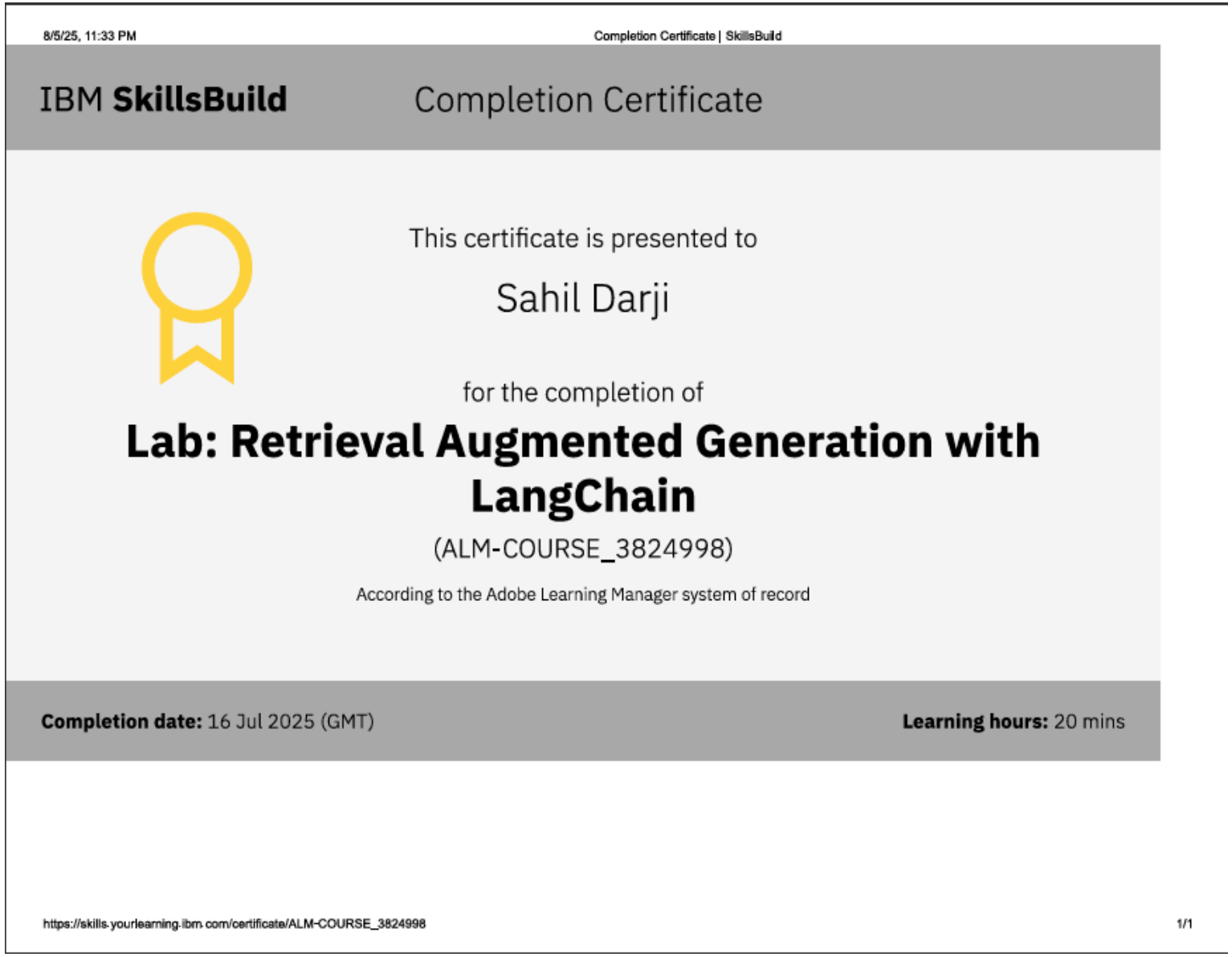
- **IBM CERTIFICATIONS:**

RAG



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IBM **SkillsBuild** Completion Certificate

This certificate is presented to

Sahil Darji

for the completion of

Lab: Retrieval Augmented Generation with LangChain

(ALM-COURSE_3824998)

According to the Adobe Learning Manager system of record

Completion date: 16 Jul 2025 (GMT) **Learning hours:** 20 mins

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IBM CERTIFICATIONS:

JOURNEY TO CLOUD

Git hub link : Digital-Finance-Assistant Github

GITHUB LINK

- Readme File for Digital-Finance-Assistant

THANK YOU

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