# CAPSTONE PROJECT

# SYNCSKILL AI


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# OUTLINE

- **Problem Statement Proposed System/Solution**
- **System Development Approach** (Technology Used)
- **Result (Output Image)**
- **Conclusion**
- **Future Scope**
- **References**

# PROBLEM STATEMENT

The Challenge - Students often struggle to identify the right learning path that aligns with their interests and long-term goals due to the overwhelming number of online courses and a lack of personalized guidance. SyncSkill aims to solve this by acting as an Agentic AI coach that interacts with students, understands their interests (like Frontend Development, Cybersecurity, UI/UX Design, etc.), assesses their current skill level, and dynamically builds a personalized course roadmap that adapts over time based on progress and preferences.

# PROPOSED SOLUTION

**Interest and Skill Mapping**

Gathers user preferences and assesses current knowledge level through interactive inputs.

**Role Recommendation**

Suggests relevant industry roles based on interests and skill trends using web search (Google, DuckDuckGo, Wikipedia).

**Personalized Learning Path**

Generates a dynamic course and project roadmap aligned with the selected role.

**Real-Time Updates**

Continuously adapts the roadmap based on learner progress, preferences, and updated web content

**AI-Powered Q&A**

Responds to student queries using publicly available information and retrieved resources.

**Powered by IBM Cloud Lite and Granite**

Ensures scalability, secure deployment, and strong AI-model performance using IBM tools.

# SYSTEM APPROACH

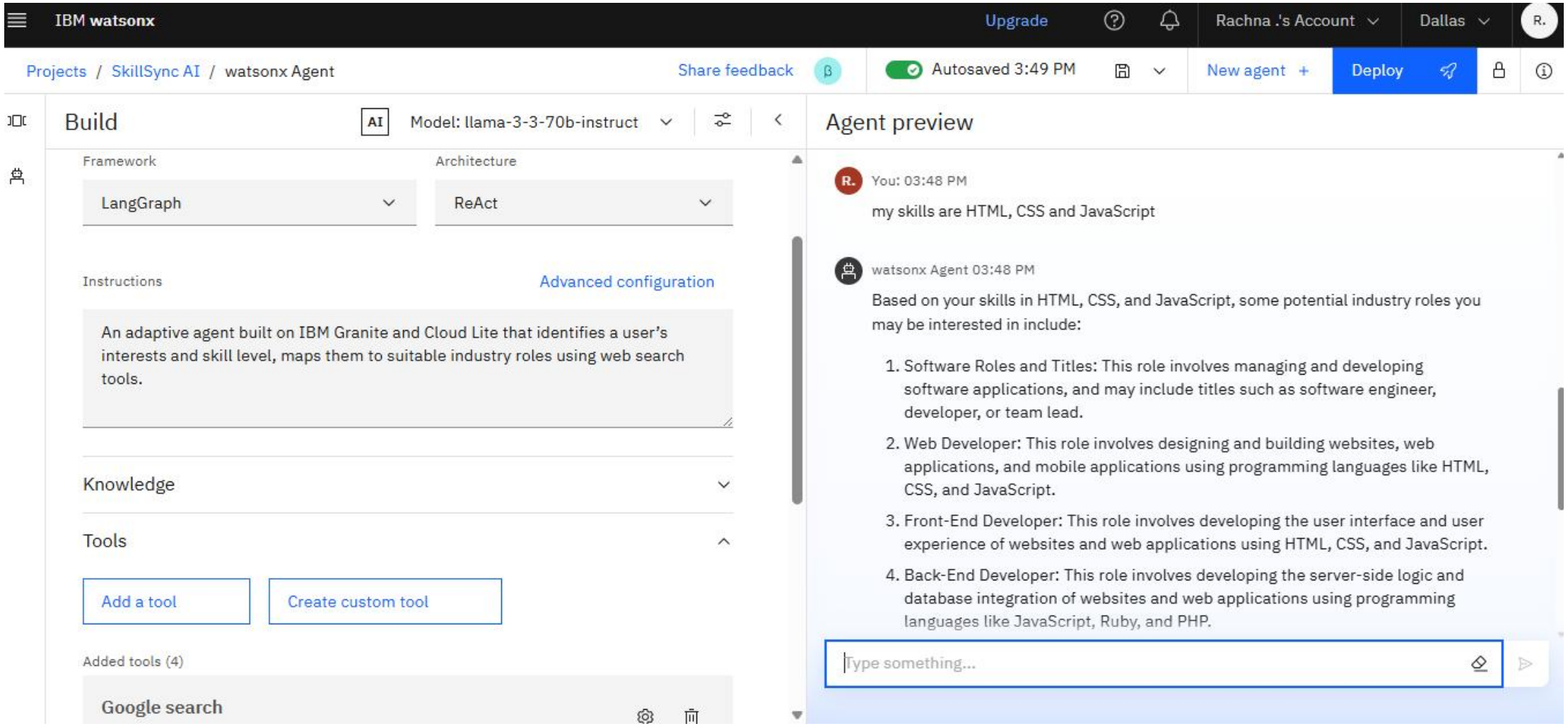
Hardware Requirements:

- Minimum 8 GB RAM
- Quad-core processor
- Stable internet connection
- 10 GB disk space (for model, logs, and data storage)
- Software Requirements:
- Operating System: Windows/Linux/macOS

2. Libraries Required to Build the Model

- transformers – for integrating IBM Granite APIs
- requests / httpx – for API communication
- BeautifulSoup / Scrapy – for web crawling and course/project extraction
- pandas / NumPy – for user data handling and analysis

# RESULT



# CONCLUSION

**Conclusion – SkillSync AI**

SkillSync AI redefines the way students navigate their educational journey by offering an intelligent, adaptive, and highly personalized learning experience. Acting as a proactive mentor, SkillSync analyzes a student's current skills, interests, and career aspirations to build a custom roadmap of courses, hands-on projects, and industry-relevant goals. What sets SkillSync apart is its dynamic nature—it evolves in real-time based on user feedback, progress tracking, and changing market trends, ensuring learners always stay aligned with the most relevant opportunities. By integrating cutting-edge AI capabilities with accessible design, SkillSync empowers students to make informed decisions, explore suitable career paths, and develop job-ready skills with confidence.

# FUTURE SCOPE

1.Integration of Additional Data Sources

- Incorporate real-time labor market data, job board APIs, LinkedIn trends, and college curriculum databases to improve career-path predictions and course recommendations.
- Include data from GitHub, Kaggle, and Stack Overflow to track trending technologies and in-demand skills dynamically.

2. Algorithm Optimization

- Use advanced ML techniques like reinforcement learning or meta-learning to enhance recommendation adaptability and learning path personalization.
- Implement feedback loops to continuously improve predictions based on user performance and preferences.

3. Emerging Technologies Integration

- Deploy edge computing for faster, privacy-preserving inference on student devices.
- Integrate with AI copilots or voice-based assistants for intuitive student interaction.
- Explore federated learning to train on decentralized user data securely across institutions.

# REFERENCES


1. **Devlin, J., Chang, M. W., Lee, K., & Toutanova, K.**

BERT: Pre-training of Deep Bidirectional Transformers for Language Understanding

→ Foundation for natural language understanding used in skill matching and resume parsing.

2. **Chattopadhyay, S., & Ghosh, A.** A Survey on Career Path Recommendation Systems Using Machine Learning

→ Overview of ML models for career recommendations and path prediction.

3. **Yu, S., Cai, Y., & Leung, H.**

Learning Path Recommendation Using Recurrent Neural Network

→ Describes sequence modeling for skill learning paths.

4. **LinkedIn Economic Graph**

→ Real-world job trends, skill demand, and data-driven insights for recommendation accuracy.

# IBM CERTIFICATIONS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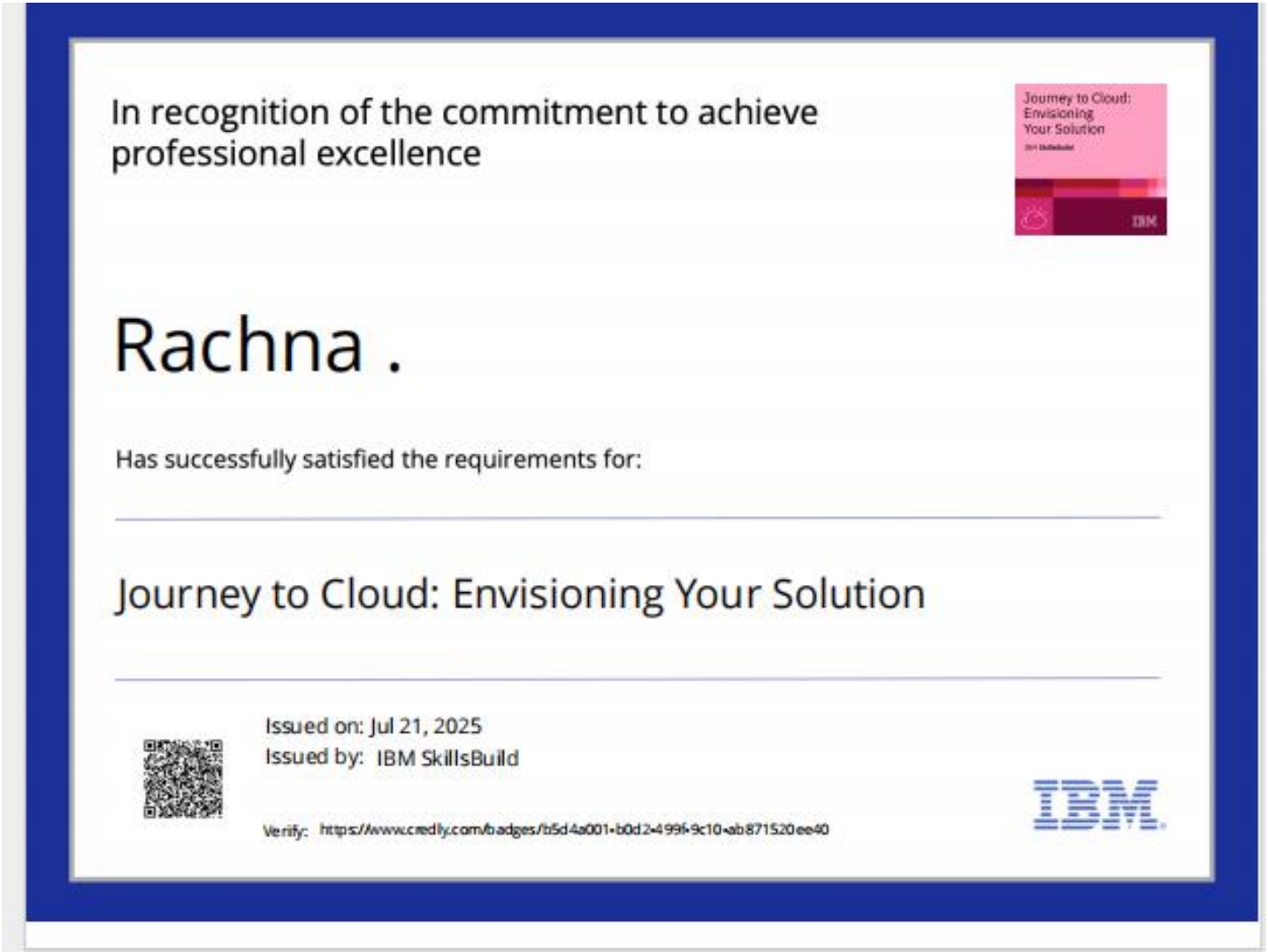

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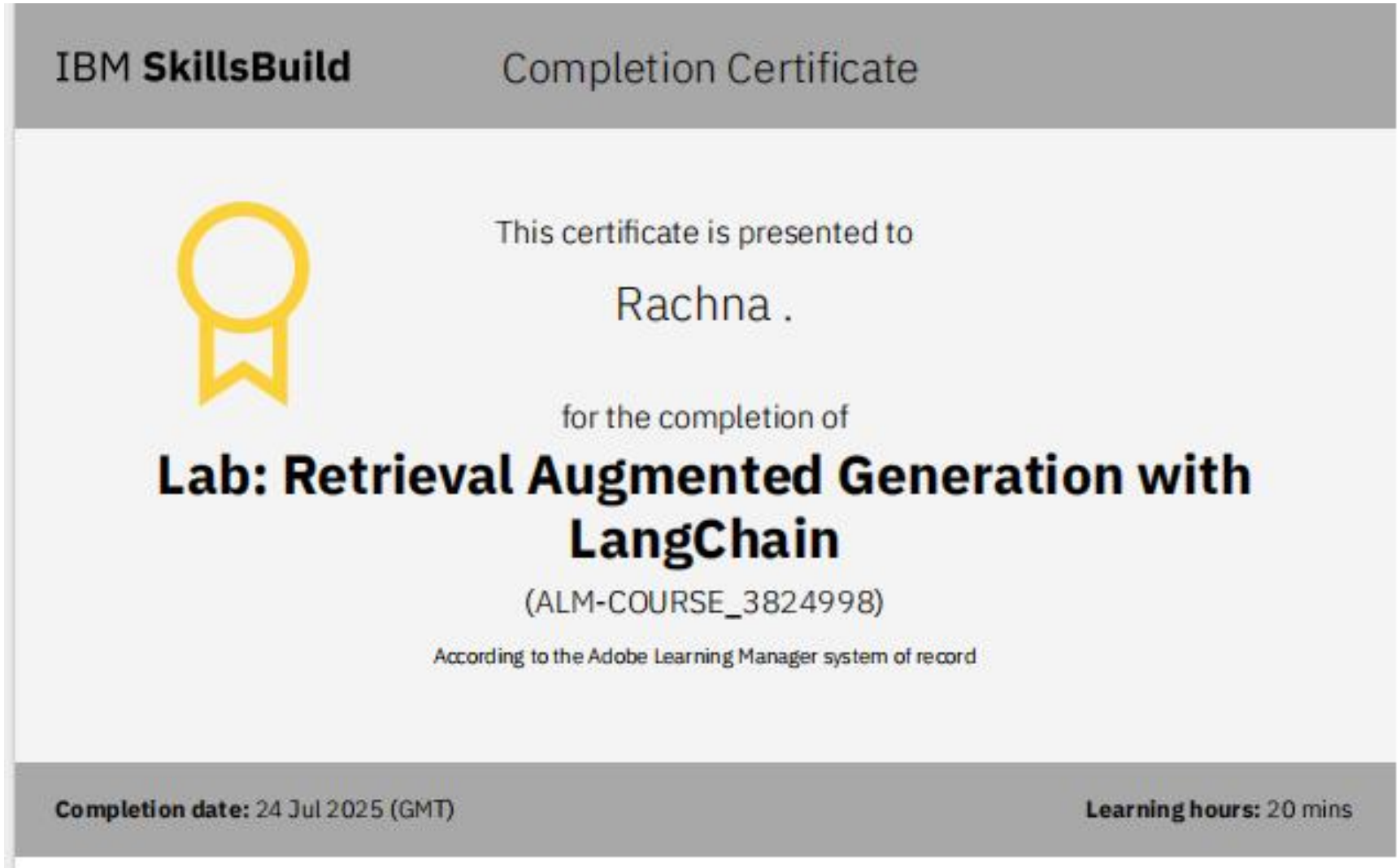

IBM **SkillsBuild** Completion Certificate

This certificate is presented to

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**Lab: Retrieval Augmented Generation with LangChain**

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According to the Adobe Learning Manager system of record

**Completion date:** 24 Jul 2025 (GMT) **Learning hours:** 20 mins

# THANK YOU

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