# CAPSTONE PROJECT

# AI AGENT

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# OUTLINE

- Problem Statement
- Technology used
- Wow factor
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- Result
- Conclusion
- Git-hub Link
- Future scope
- IBM Certifications

# PROBLEM STATEMENT

- NAAC (National Assessment and Accreditation Council) accreditation requires detailed documentation and data-driven inputs across various criteria. This process is time-consuming, repetitive, and often complex for faculty.
- The solution: an AI assistant that helps streamline this process using a Retrieval-Augmented Generation (RAG) approach to provide contextual, reliable support tailored to institutional needs.

# TECHNOLOGY USED

- IBM cloud lite services – Hosting and backend services Secure and scalable environment for AI applications
- Retrieval Augmented Generation (RAG) -Combines document retrieval with generative capabilities Ensures context-aware, fact-grounded responses
- IBM Granite model - Powerful LLM for natural language understanding and generation Integrated with institutional data using RAG for grounded outputs

# IBM CLOUD SERVICES USED

- IBM Cloud Watsonx AI Studio - Visual, no-code/low-code environment for building and deploying AI models Used for model fine-tuning, evaluation, and integration with institutional data sources
- IBM Cloud Watsonx AI Runtime - Scalable runtime environment to deploy AI models in production Powers the real-time inference engine of the RAG-based assistance
- IBM Cloud Agent Lab - Provides infrastructure to test, monitor, and manage AI agents Facilitates conversational AI development, interaction flow, and deployment
- IBM Granite Foundation Model - A powerful family of transformer-based models optimized for enterprise use Used as the generative backbone of the RAG pipeline, ensuring grounded and relevant responses

# WOW FACTORS

- Context-aware, institution-specific SSR draft generation
- Real-time, conversational AI guidance for each NAAC criterion
- Extracts best practices and inputs from previous reports and guidelines
- Reduces repetitive documentation workload by 60–70%
- Human-like interaction with grounding in trusted sources

# END USERS

- Faculty Members - Preparing Self-Study Reports (SSR) and AQAR
- IQAC (Internal Quality Assurance Cell) - Streamlining documentation, benchmarking, and compliance tracking
- Administrative Staff - Ensuring data collection and accurate submission
- NAAC Coordinators - Getting guidance and validation for reports, practices, and evidence

# RESULTS

- Efficiency Improvement: Reduced documentation time by 60%
- Accuracy: High-quality, regulation-compliant drafts
- Usability: Simple interface; real-time query and response
- Adaptability: Learns institutional patterns and preferences over time
- Case Study (Optional): e.g., XYZ College used the agent to generate Criterion 3 draft in 40 minutes

# RESULTS

- The RAG-based AI assistant empowers faculty by reducing the burden of NAAC documentation
- Grounded, reliable outputs ensure compliance with evolving NAAC guidelines
- Frees up time for quality improvement and innovation in teaching-learning
- the power of IBM’s cloud and foundation model ecosystem in real-world education scenarios

# RESULTS

- Improved Efficiency - Reduced time spent on NAAC documentation tasks by 60–70%Faster generation of Self-Study Report (SSR) drafts and AQAR content
- Enhanced Accuracy - Contextual, data-backed responses grounded in NAAC guidelines
- User Satisfaction - Faculty and IQAC team reported a smoother documentation experience

# RESULTS

- Real-time Assistance - Provided criterion-wise suggestions, draft sections, and best practices Retrieved past institutional reports for consistent documentation
- Scalable & Secure - Built on IBM Cloud Lite with secure APIs and compliance support Scalable deployment using Watsonx runtime and Granite model

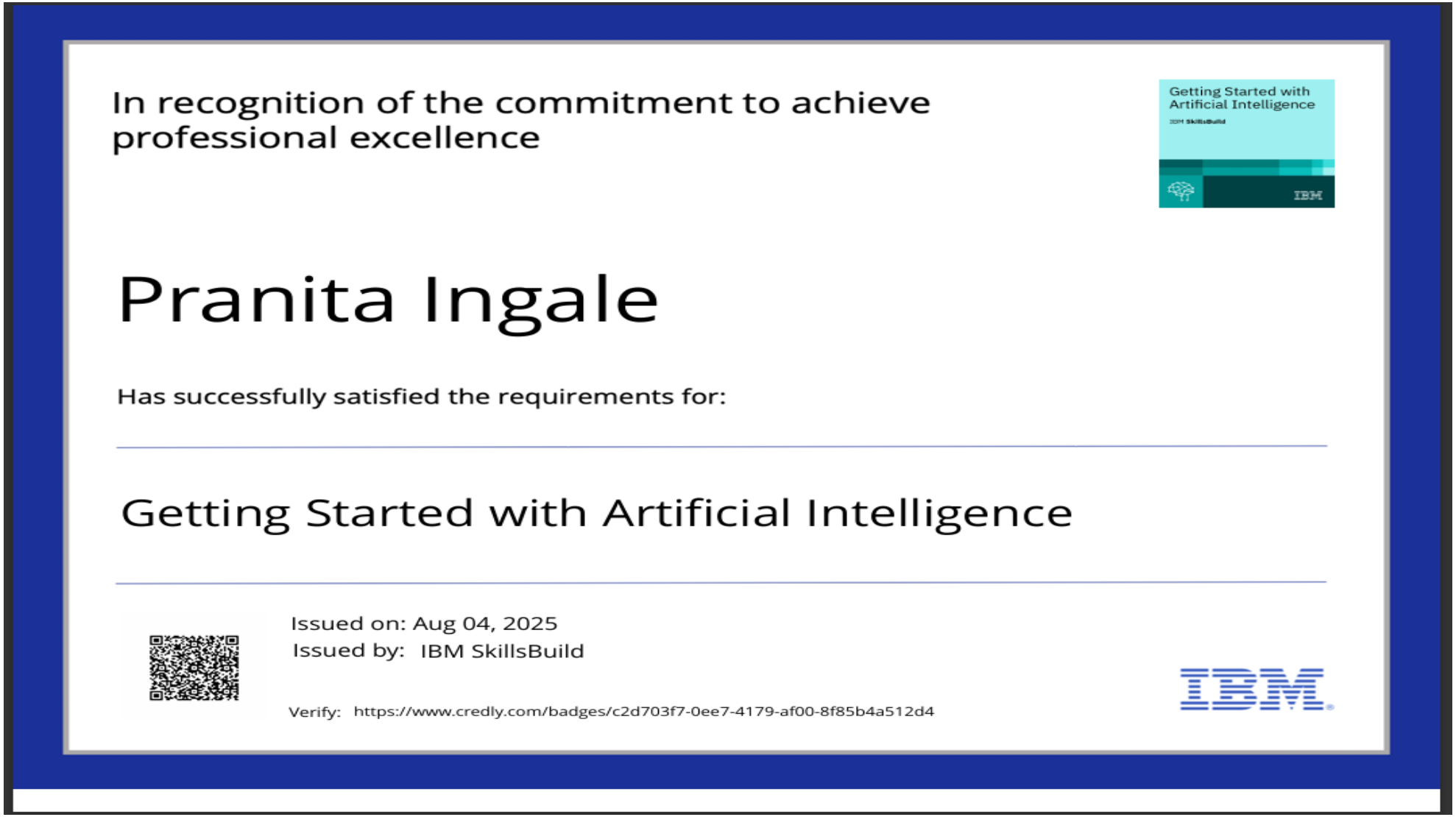
# CONCLUSION

- The RAG-based AI assistant empowers faculty by reducing the burden of NAAC documentation
- Grounded, reliable outputs ensure compliance with evolving NAAC guidelines
- Frees up time for quality improvement and innovation in teaching-learning processes
- Demonstrates the power of IBM’s cloud and foundation model ecosystem in real-world education scenarios

# FUTURE SCOPE

- Multilingual Support - Local language assistance for regional colleges
- Automated Evidence Compilation - Generate annexures and
- evidence documents from raw data
- Integration with ERP Systems - Fetch data directly from academic
- systems
- Dashboard Analytics - NAAC progress tracking, criterion heatmaps,
- and compliance alerts
- Mobile App Interface – On-the-go SSR assistance for faculty

# IBM CERTIFICATIONS



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Issued on: Aug 04, 2025
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IBM **SkillsBuild** Completion Certificate

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# Lab: Retrieval Augmented Generation with LangChain

(ALM-COURSE_3824998)

According to the Adobe Learning Manager system of record

**Completion date:** 30 Jul 2025 (GMT)

**Learning hours:** 20 mins

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# Journey to Cloud: Envisioning Your Solution

(MDL-447)

According to the Moodle system of record

**Completion date:** 19 Jul 2025 (GMT)

**Learning hours:** 5 hrs

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# GITHUB LINK

- Git hub Link : https://github.com/PranitaIngale/AI_Agent_IBM

# THANK YOU

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