Multi-language Course Content Translator Agent

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Problem Statement

In India, many students struggle to understand academic materials due to language barriers.

Most course content is available only in English, limiting access for non-English-speaking learners.

There is a need for a solution that provides accurate translations of academic content into multiple Indian regional languages.

The translation must preserve technical accuracy, subject-specific meaning, and educational integrity.

Proposed System/Solution

An AI-powered translator agent that converts academic content into Indian regional languages.

Uses Retrieval-Augmented Generation (RAG) to provide accurate, context-aware translations.

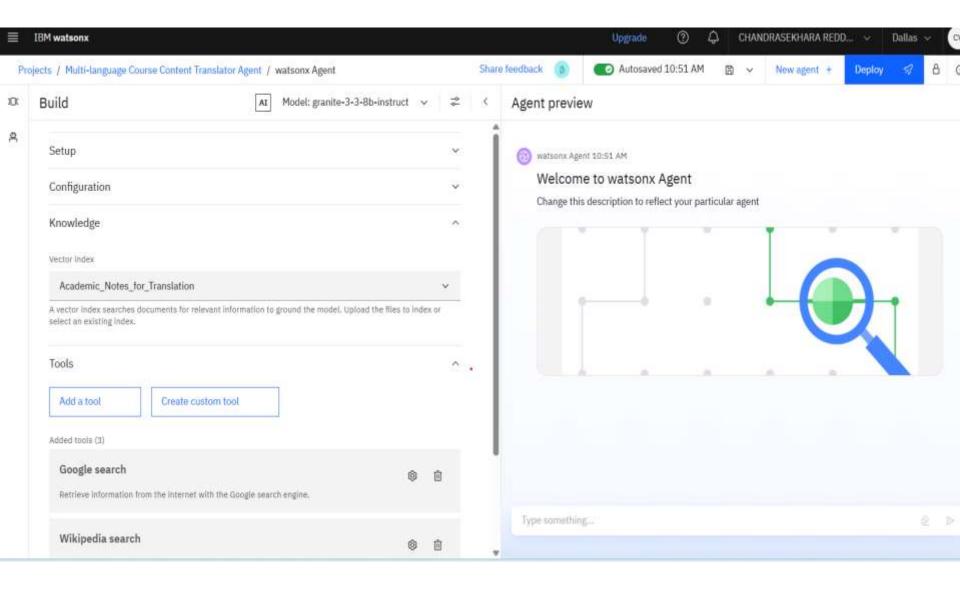
Ensures subject-specific terms are retained by retrieving content from glossaries and notes.

Built with IBM Watsonx.ai, it supports inputs like PDFs, DOCX, and text from users.

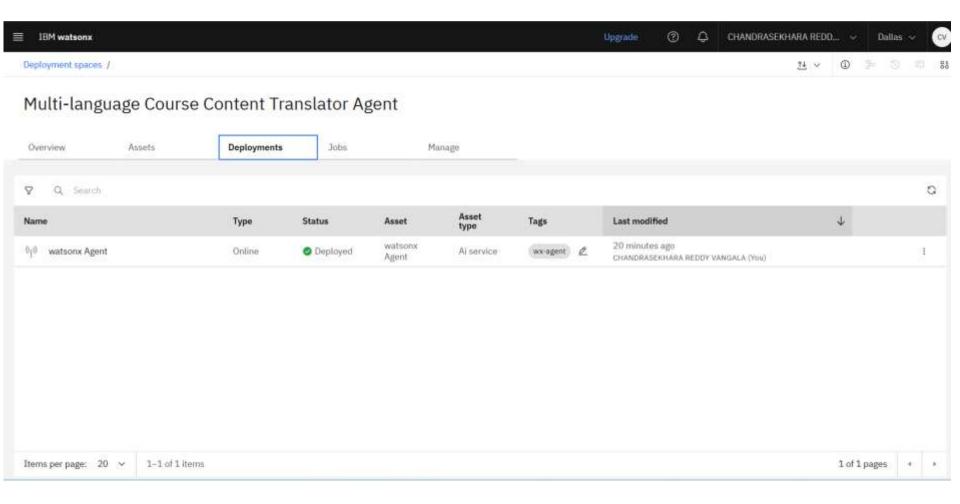
System Development Approach (Technology Used)

Platform: IBM Watsonx.ai Model: Granite-3-3-8b-instruct RAG Support: Document Search Tool (vector index for glossary & notes) Fallback Tools: Google Search, Wikipedia Search (optional) **LangGraph:** Used for designing flow of input → retrieval → translation → output Data Source: Uploaded glossary and academic notes (DOCX) Workflow: User inputs content → Document Search retrieves context → Granite generates translation → Output delivered Deployment: Manual testing via Watsonx UI preview panel; public links unsupported in Lite plan

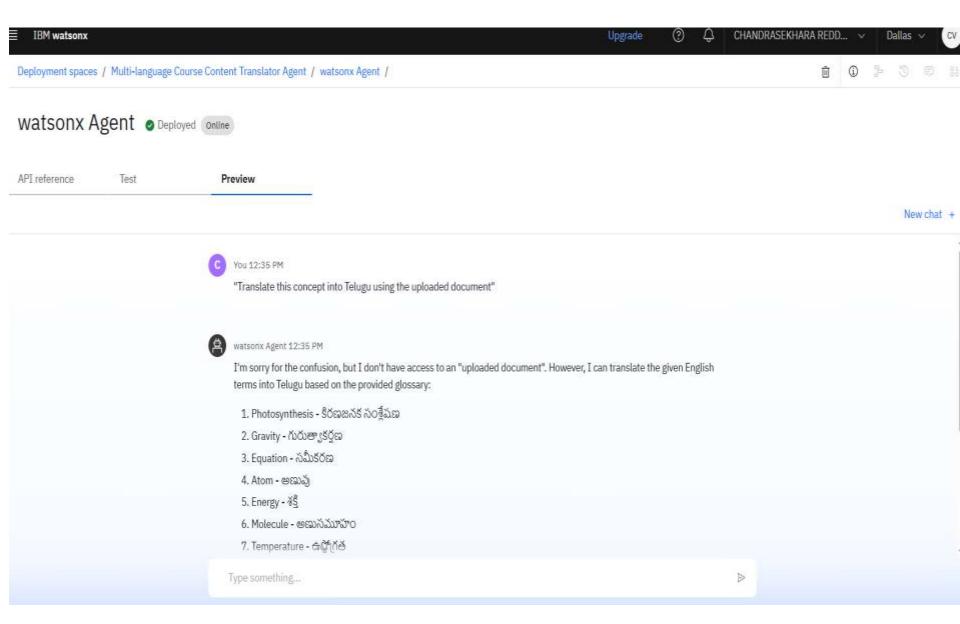
Result (Output Image)



Deployment



Final Out Put



Conclusion

The system successfully bridges language barriers in academic learning. Translations retain technical accuracy using glossary-driven RAG. Easy to test, modular to expand, and built on IBM's no-code AI platform. Enables equitable learning environments for students across India.

Future Scope

Add support for more Indian languages (Kannada, Punjabi, Gujarati).

Enable full file upload and parsing within the agent UI (available in paid plans).

Build a public-facing web or mobile app for broader reach.

Integrate curriculum-specific glossaries for CBSE and state boards. Include voice input/output for accessibility.

References

```
IBM Watsonx.ai Documentation
IBM Granite LLMs
LangGraph Builder
Academic Glossary Resources (NCERT, CBSE)
Project Files & Sample Notes by Author
https://github.com/Chandu-AB/Multi-language-Course-Content-Translator-Agent
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RAG LAB

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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 for your attention!