



COLLEGE OF
SCIENCE & ENGINEERING
DEPARTMENT OF COMPUTER SCIENCE

Echelon: Your AI Academic Advisor

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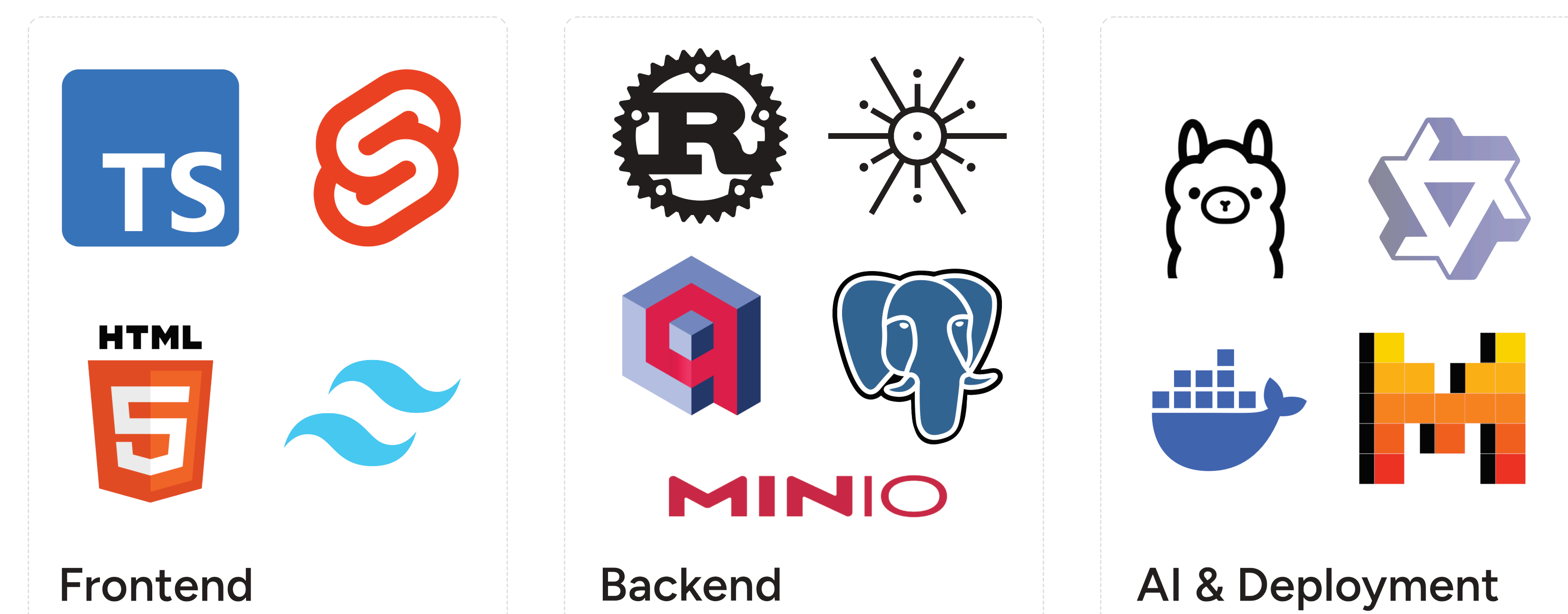
Background

Academic advising poses challenges for students, professors, and advisors. Professors can't individually advise every student, and advisors may lack specific major expertise. **Echelon bridges this gap as an AI academic advisor tailored to each student.** Built on open-source large language models and trained on TCU's public documents, it offers specialized guidance with reduced hallucinations. Hosted on TCU's servers for data privacy, **Echelon is free and accessible to all students at echelongpt.com.**

Challenges

- **Learning Curve:** the programming language (Rust) and associated frameworks were entirely new, requiring substantial time for learning and implementation.
- **Complex Deployment:** coordinating Docker Compose deployments and synchronizing across four servers introduced required careful management.
- **Tight Timeline:** designed, developed, and deployed within a single semester, significantly constraining development time.

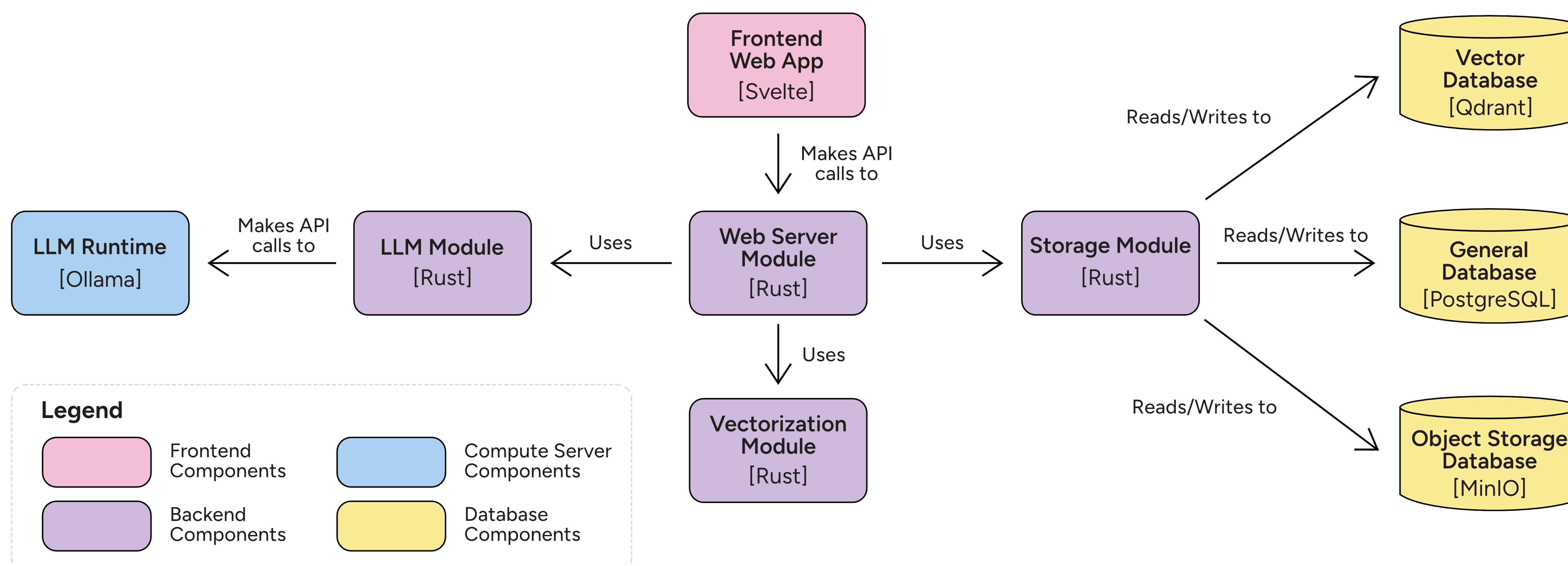
Technology Stack



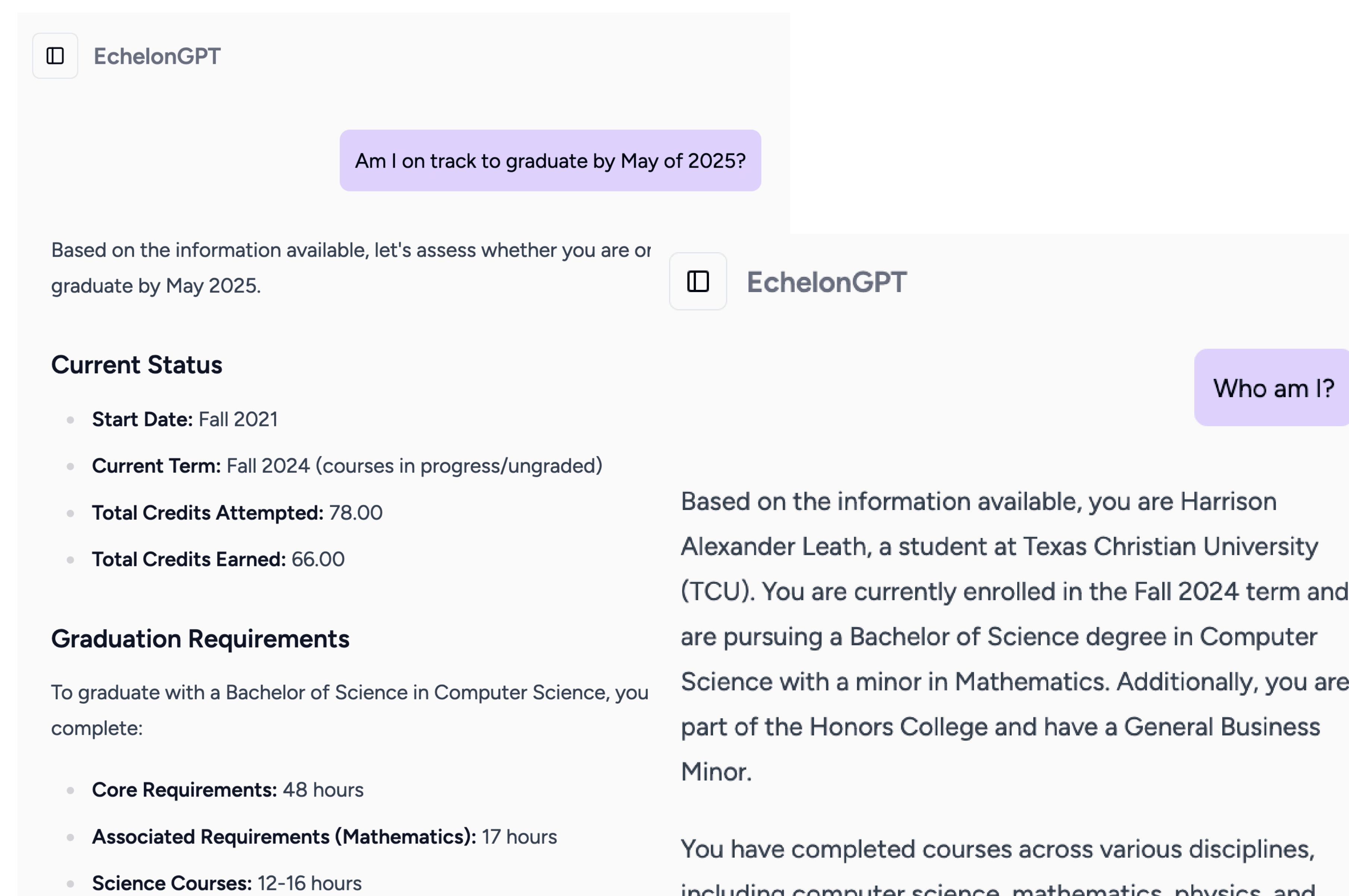
Acknowledgements

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System Architecture



Echelon In Action



Summary

Echelon is an AI-powered chatbot assistant designed as a supplemental advising tool. Students provide their transcripts, from which Echelon creates personalized profiles highlighting academic progress and strengths or weaknesses. Students can ask questions like "How close am I to completing a psychology minor?" or "Will I do well in Calculus II?". **Built with open-source LLMs, Echelon ensures data privacy by deploying directly on TCU's servers.**



Future Research

- **Enhanced Vector Search:** adopt advanced embedding techniques to boost the accuracy of Echelon's responses.
- **Scalable Concurrency:** leverage horizontal scaling and GPU resources to support more simultaneous users.
- **Y Combinator AI Startup School:** accepted to this summer's program featuring speakers like Elon Musk, Satya Nadella, Sam Altman, and Andrew Ng to deepen my AI expertise.