

The Dev48- Innovative Features Showcase

Future Minds - Challenge 01 Submitted by: TheDev48 on 25/04/2025

Innovative Feature Highlights

Context-Aware Chatbot with Streamlit Interface

Description: Streamlit-powered chatbot maintaining conversation history for relevant multi-turn responses, ensuring coherent interactions.

Innovation & Value: Combines robust context tracking with an intuitive Streamlit UI, enabling natural and seamless complex dialogues for an enhanced user experience.

Multi-Agent Task Decomposition

- *Description:* A planning agent breaks complex user queries into smaller, manageable sub-tasks routed to specialized agents.
- *Innovation & Value:* Improves modularity and enables specialized handling, mimicking human problem-solving and enhancing robustness, aligning with the multi-agent system goal.

Optimized RAG via Query Segmentation

- *Description:* Sub-tasks are refined into multiple specific RAG queries for targeted information retrieval from the textbook embeddings.
- *Innovation & Value:* Yields more focused context by reducing noise, directly improving Context Precision and Answer Faithfulness compared to broad searches.

Multi-Source Verification & Synthesis

- *Description:* For web searches, initial results are cross validated against a secondary source before synthesizing the final answer.
- *Innovation & Value:* Increases reliability and Answer Correctness by adding a critical verification layer absent in basic web-search agents.