Prototype of an AI-Based Conversational Coach for Apprentices' Learning Documentation

A proof-of-concept conversational system that lowers the entry barrier for structured learning documentation

Student

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Initial Situation: Salto is Jomb's digitalization platform, where an increasing share of apprenticeship management processes is being centralised. A core aspect of the platform is the learning documentation that apprentices are required to produce regularly to ensure their training covers the competences defined in their profession-specific training plan. The writing of this documentation and linkage to the competences is expected by Jomb to be done at least once per week. In practice, documentation is often produced too infrequently, and journal entries tend to lack structure and sufficient content depth. Likely causes include the difficulty of starting from a blank page, limited willingness to invest effort, and insufficient expertise to correctly link activities to the training plan.

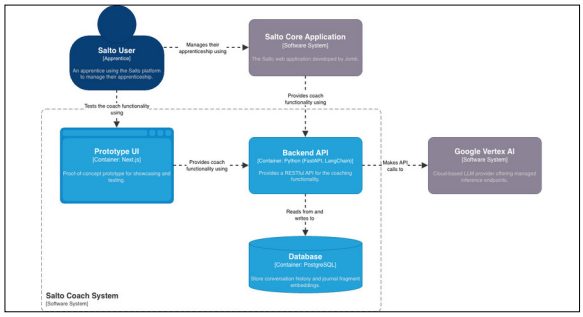
Approach: This project proposes a digital coach prototype that supports apprentices in creating structured learning documentation in a more approachable and natural way. A conversation is initiated with only a few unstructured words. The coach then responds with targeted questions to encourage reflection on acquired experiences and to extract information for documenting learning progress. The coach is aware of the apprentice's training plan and guides the conversation accordingly. The conversation can subsequently be transformed into a journal entry, while suggested competences are provided to aid linkage to the training plan.

Ideally, the coach accompanies the apprentice throughout the entire traineeship and incorporates past experiences in their conversation. To enable the digital coach to do this, the past journal entries are indexed in a vector store to be retrieved during conversations. The segments of entries that seem most relevant through similarity search of their content are added to the prompt on a per-message basis.

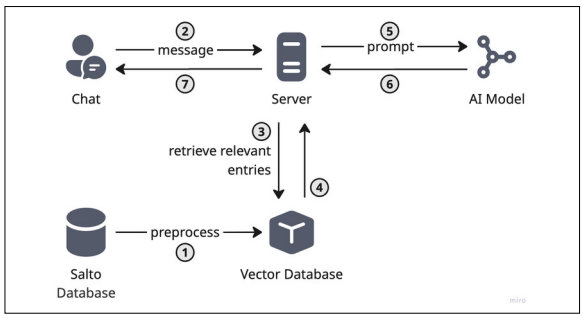
Conclusion: Through automated conversation emulation, a situation description is used to generate a simulated conversation and a resulting journal entry. Semantic similarity is evaluated by converting the input and resulting documentation into embedding vectors and comparing them. The results indicate strong semantic coverage. In addition, the suggested competences are selected with coherent and traceable reasoning.

Complementing this, a qualitative user test with a single apprentice from Jomb was conducted to identify early usability issues and gather feedback. While not intended for statistical validation, the results further support the feasibility of the concept and highlight areas for improvement.

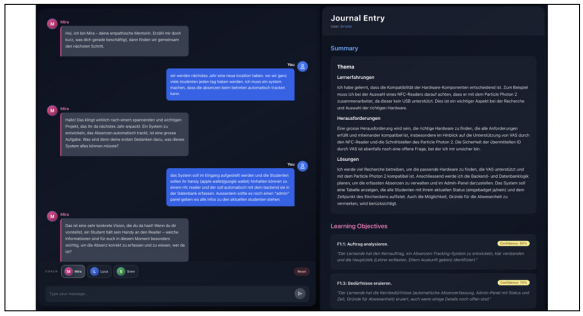
C4 Software System diagram of the Salto Coach System
Own presentment



Request and response flow of interaction with the coach
Own presentment



Prototype screenshot of a conversation with the coach
Own presentment



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