Proposal: AI-Powered Tutoring Chatbot MVP

To: Antonie, Tshwane University of Technology
From: Augmented AI
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Project Reference: TUT-AI-MVP-001

1. Executive Summary

Augmented AI is pleased to present this proposal to the Tshwane University of Technology (TUT) for the development of a Minimum Viable Product (MVP) for an AI-powered tutoring chatbot interface.

This project aims to enhance TUT's existing tutoring platform by providing a sophisticated, interactive learning tool for students. The proposed solution involves creating a self-contained AI engine that allows educators to upload course materials, which are then processed to power an intelligent chatbot. Students can then interact with this chatbot to receive summaries, ask questions, and generate quizzes based on the specific documents they select.

This proposal outlines the project's architecture, a detailed scope of work, a project timeline, and the total investment required. Our focus will be squarely on developing the core AI functionalities as a self-contained "block," which TUT's development team can then integrate into your broader platform.

2. Project Understanding

We understand that TUT wishes to leverage artificial intelligence to create a more dynamic and personalized learning experience. The primary goal is to transform static course materials (documents, files) into an interactive resource.
The proposed system will consist of two primary workflows:

1. **Educator Workflow:** An educator uploads various course materials. The system processes and prepares this content for AI interaction.

2. **Student Workflow:** A student selects specific, pre-processed materials and engages with a chatbot that can function in three distinct modes: conversational chat, content summary, and quiz generation.

A key technical objective is to research and develop an efficient, on-the-fly processing mechanism rather than relying on a single, monolithic database of all content.

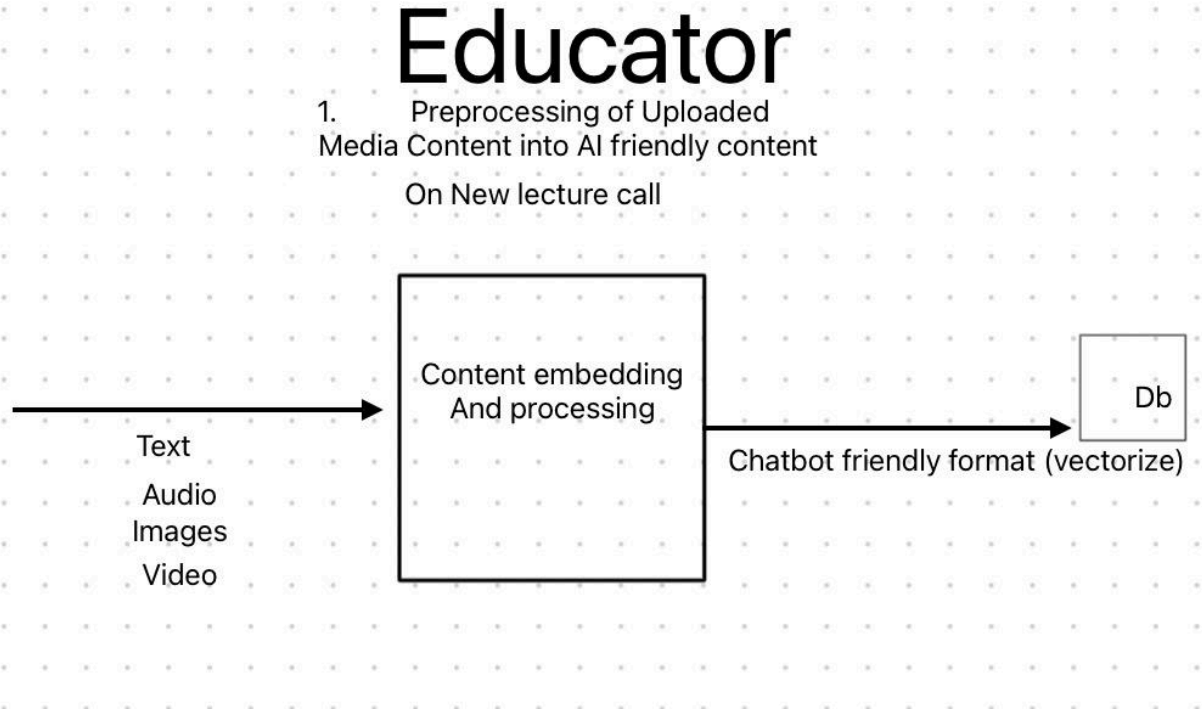
3. Proposed Solution Architecture

We propose a modular, three-part solution architecture. This "AI block" will be designed to receive inputs from your platform (e.g., user prompts, file selections) and return the appropriate output.

3.1. Educator Content Processing Module

This server-side module will be the foundation of the system.

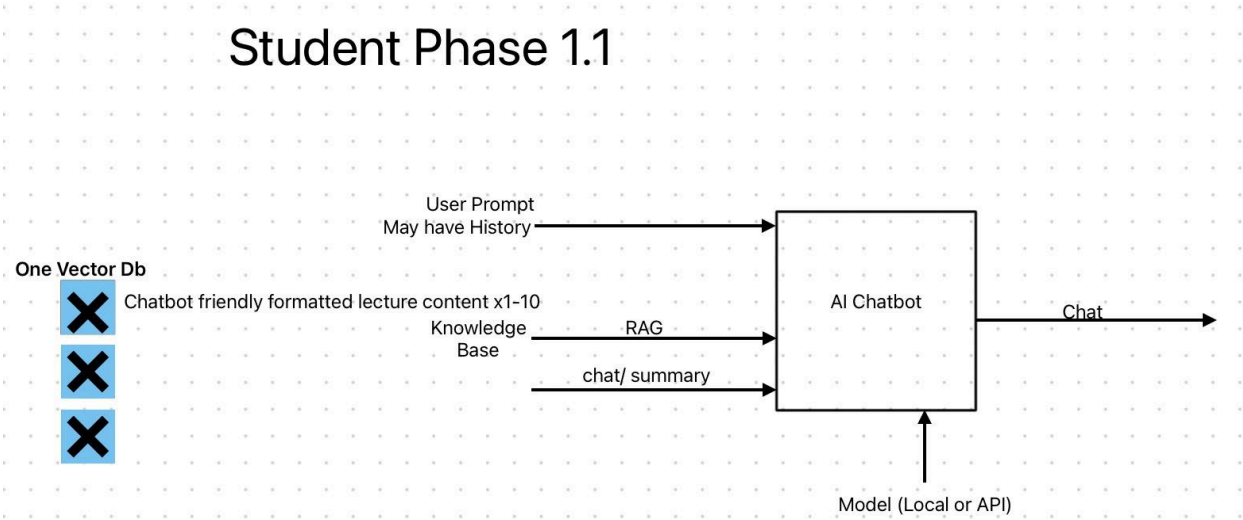
- **Input:** Accepts various file formats uploaded by educators.
- **Process:** Performs content extraction, embedding, and pre-processing to convert the raw materials into a chatbot-friendly format (e.g., vector representations).
- **Output:** A processed data format ready for the student-facing chatbot.



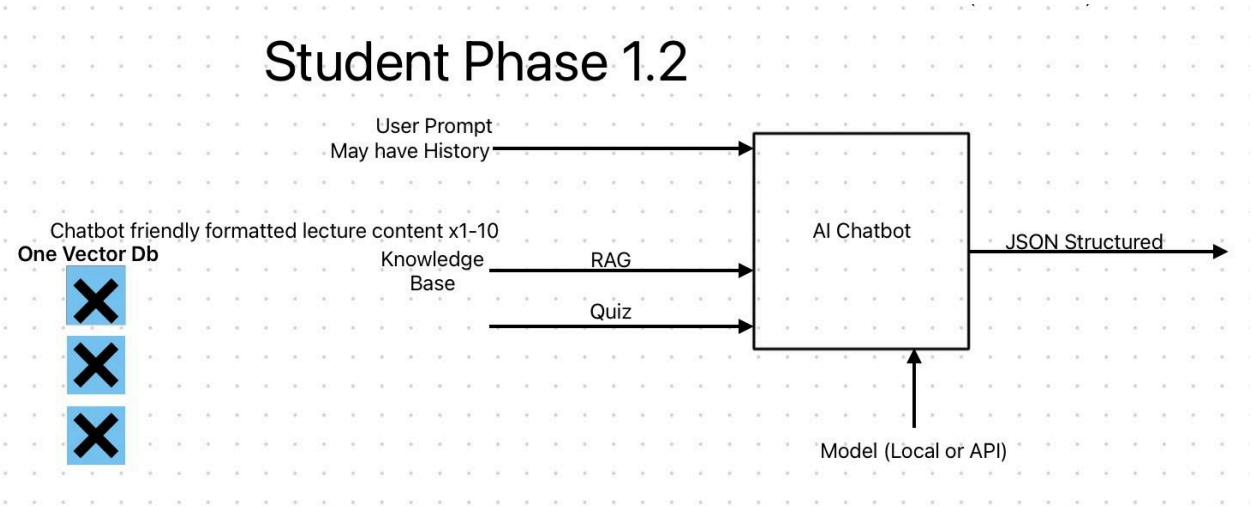
3.2. Student Interaction Module

This module is the core student-facing component and will consist of two distinct chatbot functionalities.

- **Chat & Summary Bot:**
  - **Function:** Handles natural language queries and provides concise summaries of selected documents.
  - **Input:** User prompt, conversation history, and the context from the selected processed files.
  - **Output:** A text-based response.



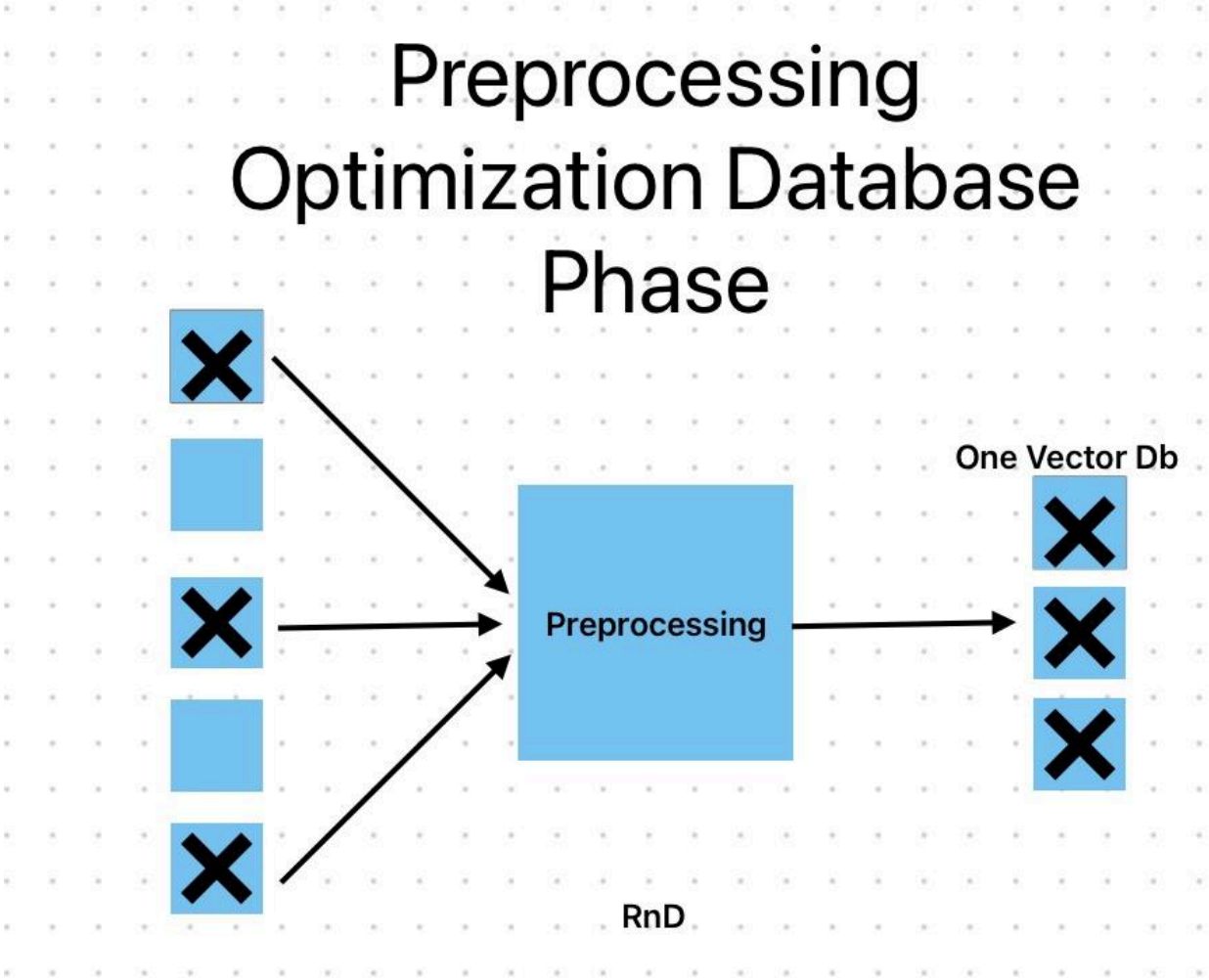
- **Quiz Generation Bot:**
  - **Function:** Generates interactive quizzes based on the selected content.
  - **Input:** A request for a quiz on the selected documents.
  - **Output:** A structured JSON object containing questions, options, and correct answers, which your platform can then render as a user-facing quiz.



3.3. R&D: Dynamic Processing & Vectorization Engine

This is a research-oriented component central to the project's innovation.

- **Objective:** To develop a system that processes content on-demand. When a student selects a specific combination of files, this engine will dynamically create a temporary, contextual database for their session.
- **Research Questions to Address:**
    1. The feasibility of combining multiple vector databases/embeddings in real-time.
    2. The efficiency and performance of processing and vectorizing content "on-the-fly" to provide a seamless user experience.
- **Output:** A final, session-specific context database that will be fed to the Student Interaction Module.



4. Scope of Work (System Requirements)

This scope is strictly limited to the deliverables enumerated below to ensure a focused and successful MVP delivery.

4.1. In-Scope Requirements (Deliverables)

- **SR-01: Content Processing Module:** We will deliver a functional module that can ingest text-based files, process them, and prepare them for the chatbot.
- **SR-02: Chat and Summary Module:** We will deliver a chatbot engine capable of:
  - Accepting a user prompt and relevant context.
  - Engaging in a conversational manner about the provided context.
  - Generating a summary of the provided context upon request.
- **SR-03: Quiz Generation Module:** We will deliver a dedicated module that generates a quiz based on the provided context and outputs it in a well-defined, structured JSON format.
- **SR-04: Dynamic Processing Engine (R&D):** We will develop and deliver a proof-of-concept engine that takes selected documents as input and produces a combined, contextual database for the chatbot modules.
- **SR-05: Documentation:** We will provide clear documentation for each module, explaining its function, inputs, and outputs to facilitate integration by the TUT team.
- **SR-06: Post-Launch Support:** We will provide one (1) month of technical support for bug fixes related to the delivered modules following project completion.

4.2. Out-of-Scope (Negative Scope)

To maintain clarity, the following items are expressly excluded from this project's scope:

- **Cloud Deployment & Infrastructure:** We will not deploy the solution on any cloud platform (e.g., AWS, Azure, Google Cloud).
- **Scalability & Performance Optimization:** The MVP will be functional but not optimized for large-scale, high-concurrency use. All scalability considerations are the responsibility of the client.
- **Containerization:** We will not be responsible for Docker, Kubernetes, or any other containerization of the final solution. We will provide the core code and modules.
- **User Interface (UI/UX):** We will not develop any front-end interfaces for educators or students.
- **User Management & Authentication:** All user accounts, history logging, and authentication are outside the scope of this project.
- **Database Management:** We will not handle the setup, management, or hosting of any persistent databases. Our output is the AI modules; data handling and integration are the client's responsibility.

- **Work outside the defined scope:** Any features or functionalities not explicitly listed in section 4.1 are considered out of scope.

5. Project Timeline

We estimate a total of **6 weeks** for the completion of the MVP, followed by one month of support.

- **Phase 1: Discovery and System Design (Week 1)**
  - Kick-off meeting and requirement finalization.
  - Detailed architecture and data flow mapping.
- **Phase 2: Core Processing Engine Development (Weeks 2-3)**
  - Development of the Educator Content Processing Module.
  - Implementation of the R&D Dynamic Processing Engine.
- **Phase 3: Student Chatbot Development (Weeks 4-5)**
  - Development of the Chat & Summary Bot.
  - Development of the Quiz Generation Bot and its JSON schema.
- **Phase 4: Integration Testing & Handover (Week 6)**
  - Internal testing of all modules working in concert.
  - Preparation of documentation and handover of the completed AI "block" to the TUT team.
- **Phase 5: Post-Launch Support (1 Month following Handover)**
  - Addressing any bugs or critical issues identified in the delivered code.

6. Project Investment

We are confident that we can deliver this comprehensive AI MVP solution within the proposed timeline and scope for the following fixed price.

- **Total Project Cost: ZAR 74,990.00** (Seventy-Four Thousand, Nine Hundred and Ninety Rand)
  - *(Price is exclusive of VAT)*
- **Payment Terms:**
  - **Upfront Deposit (70%): ZAR 52,493.00** is required before the commencement of the project.
  - **Final Payment (30%): ZAR 22,497.00** is due upon successful completion and handover of the project deliverables.

7. Next Steps

We are excited by the prospect of partnering with the Tshwane University of Technology on this innovative project. We believe this MVP will provide a powerful new dimension to your tutoring platform.

To proceed, please:

1. Review and sign this proposal.
2. Process the payment for the 70% upfront deposit.

Upon receipt of the signed proposal and deposit, we will schedule the project kick-off meeting and commence work immediately.

Kind Regards Ritesh Kanjee | Augmented AI
