MoodleMate
UIR Connect

An AI Learning Companion for Students

Created By:

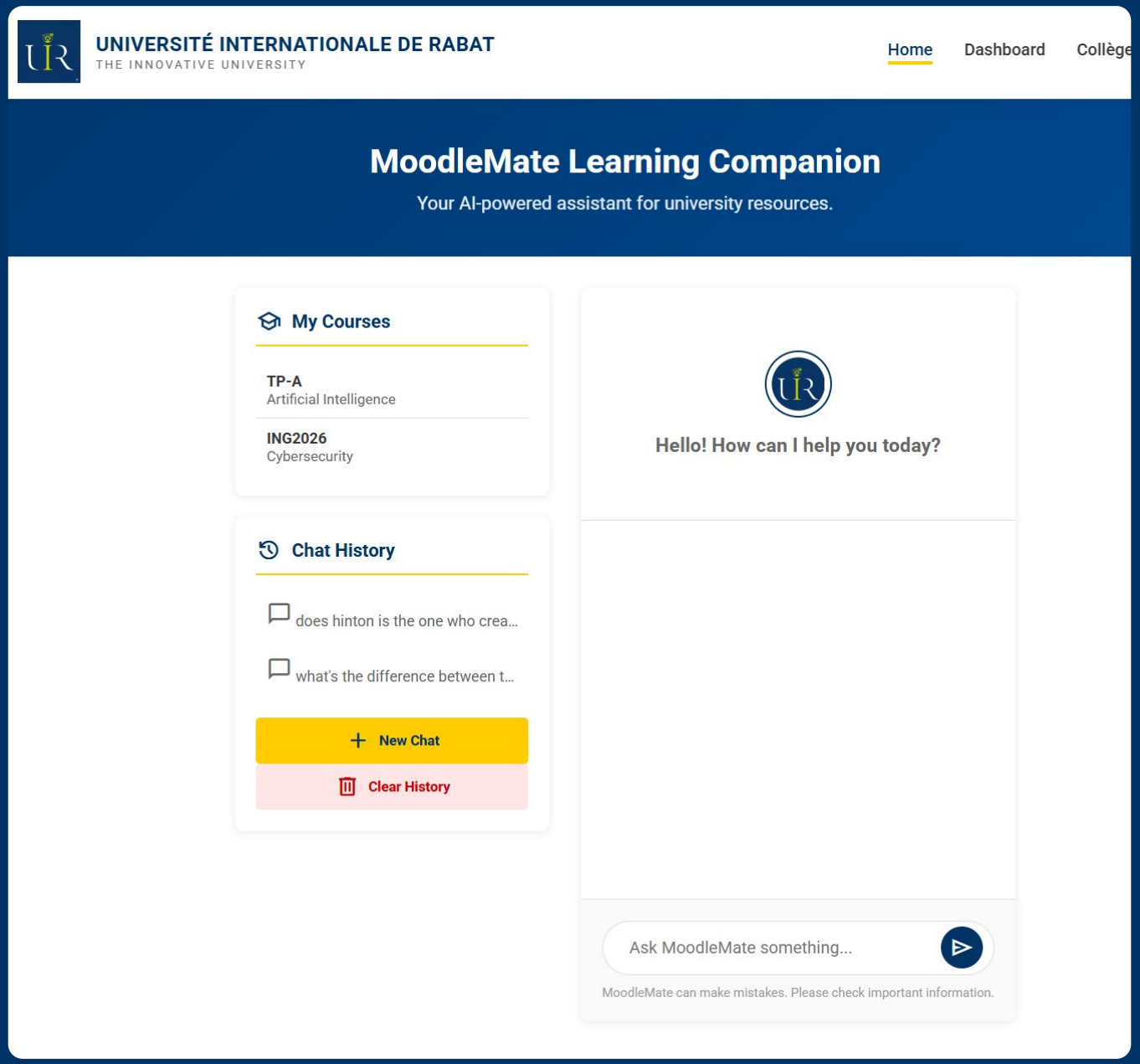
AKHRIDI Ahmed

AGHROUCH Badr

ANEGDOUIL Fatima Zahra

Supervised by:

GAMOUH Hamza

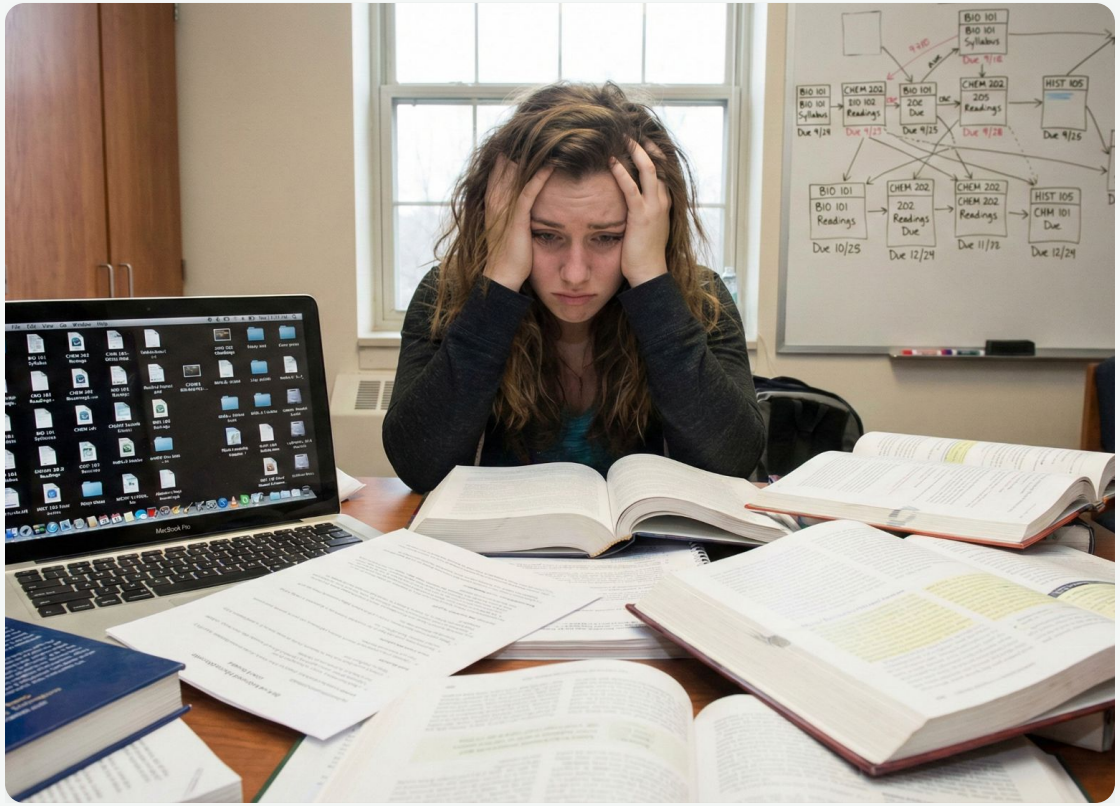


The Problem: Information Overload

Drowning in Documents

Students face a massive challenge: managing dozens of PDFs across multiple courses.

- Course syllabi, lab manuals, lecture notes.
- Specific answers are buried in hundreds of pages.
- Time wasted searching instead of learning.



The Solution: Chat with Your Data

A secure, instant, and accurate way to navigate university knowledge.

PDF Documents

Upload lecture notes and lab manuals securely.

AI Brain

MoodleMate processes and understands content.

Instant Answer

Get accurate responses cited from source.

Under the Hood: Architecture Overview

Ingestion

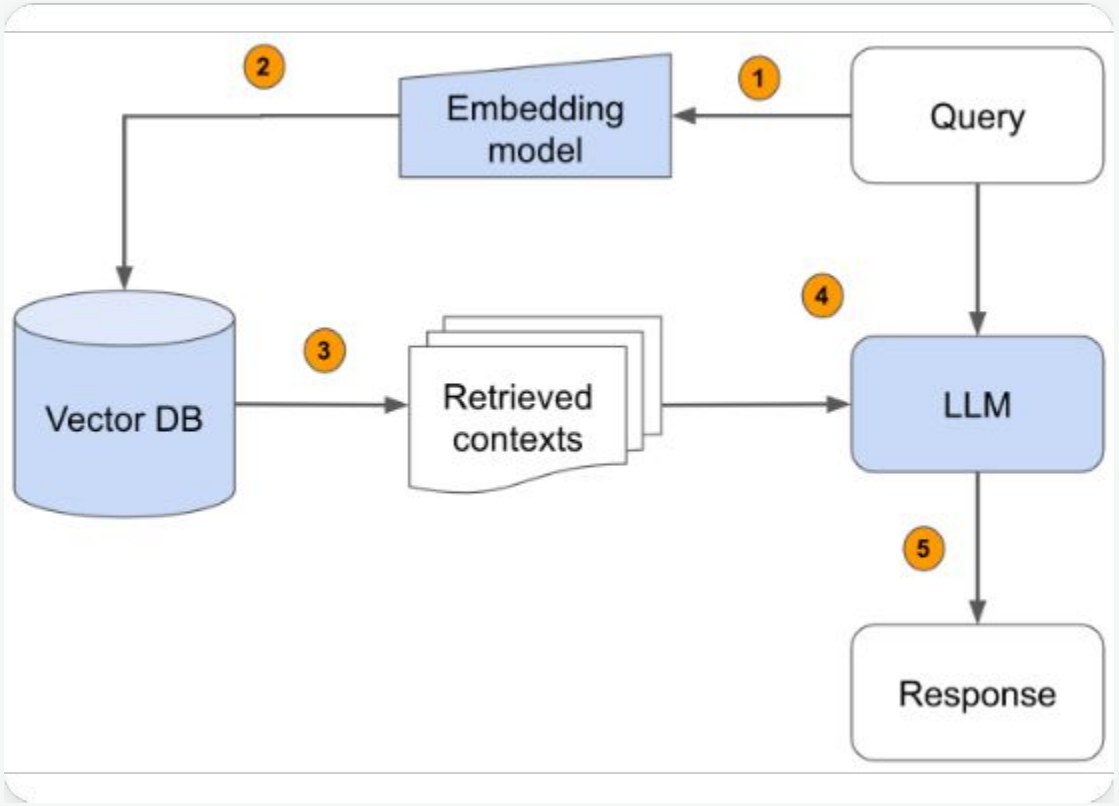
Python scripts automatically scan, chunk, and index PDF files for optimal processing.

Vector DB

ChromaDB stores knowledge locally, ensuring data privacy and fast retrieval.

LLM Power

Powered by **Llama 3 8B** (via Groq) to generate human-like, context-aware responses.



1. Large Language Model (LLM)

The Reasoning Engine

- **Tool:** Llama 3.1 8B (via Groq).
- **Concept:** A deep learning algorithm trained on massive datasets to recognize, summarize, and generate text.
- **Role in MVP:** It does NOT memorize your PDFs. Instead, it reads specific snippets we provide and formulates a coherent, human-like answer based **ONLY** on that content.

2. Vector Embeddings

Turning Text into Numbers

- **Tool:** HuggingFace (all-MiniLM-L6-v2).
- **Concept:** Converts text into long lists of numbers (vectors). Similar ideas get similar numbers, enabling the computer to understand "semantic meaning" rather than just keywords.
- **Role in MVP:** Converts every PDF paragraph and every user question into vectors, allowing us to mathematically compare them to find the most relevant matches.

3. Vector Database

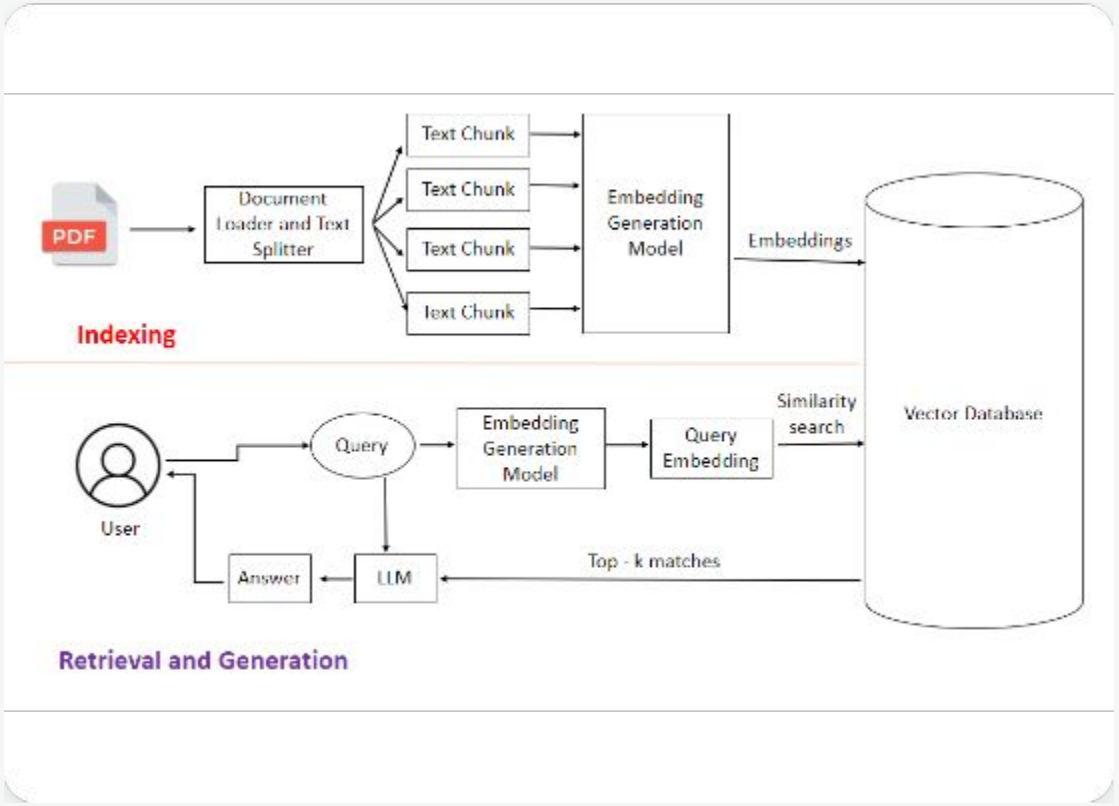
Long-Term Memory

- **Tool:** ChromaDB.
- **Concept:** A specialized database optimized for storing and querying high-dimensional vectors. Unlike SQL, it excels at finding "similar" data.
- **Role in MVP:** Acts as the application's long-term memory. It stores the embedded representations of your PDF files locally, allowing for near-instant search and retrieval.

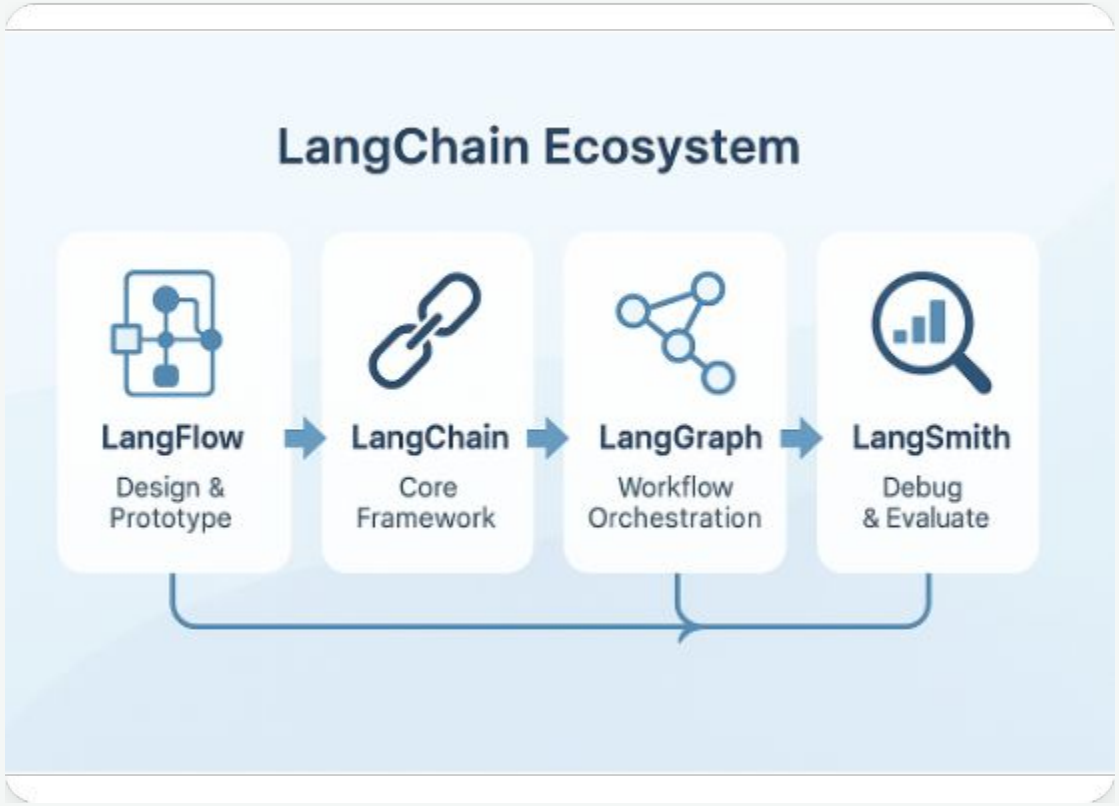
4. RAG Architecture

Retrieval-Augmented Generation Flow

1. **User asks a question** to the interface.
2. System searches **ChromaDB** for the Top 3 relevant PDF chunks.
3. System creates a prompt: *"Using these 3 chunks, answer the user's question."*
4. **Llama 3** generates the answer—accurate, sourced, and hallucination-free.



5. Orchestration



The "Glue" Code

- **Tool:** LangChain.
- **Concept:** A robust framework for developing applications powered by language models.
- **Role in MVP:** It handles the entire chain of logic, connecting all the pieces together:

  → Loading PDFs
  → Splitting Text
  → Embedding & Storing
  → Retrieving & Prompting

Key Features

Zero Hallucinations

Every answer includes a direct citation to the source material (e.g., "See Data.pdf Page 5").

Persistent Memory

A local SQLite database keeps your chat history safe and accessible across sessions.

University Focused

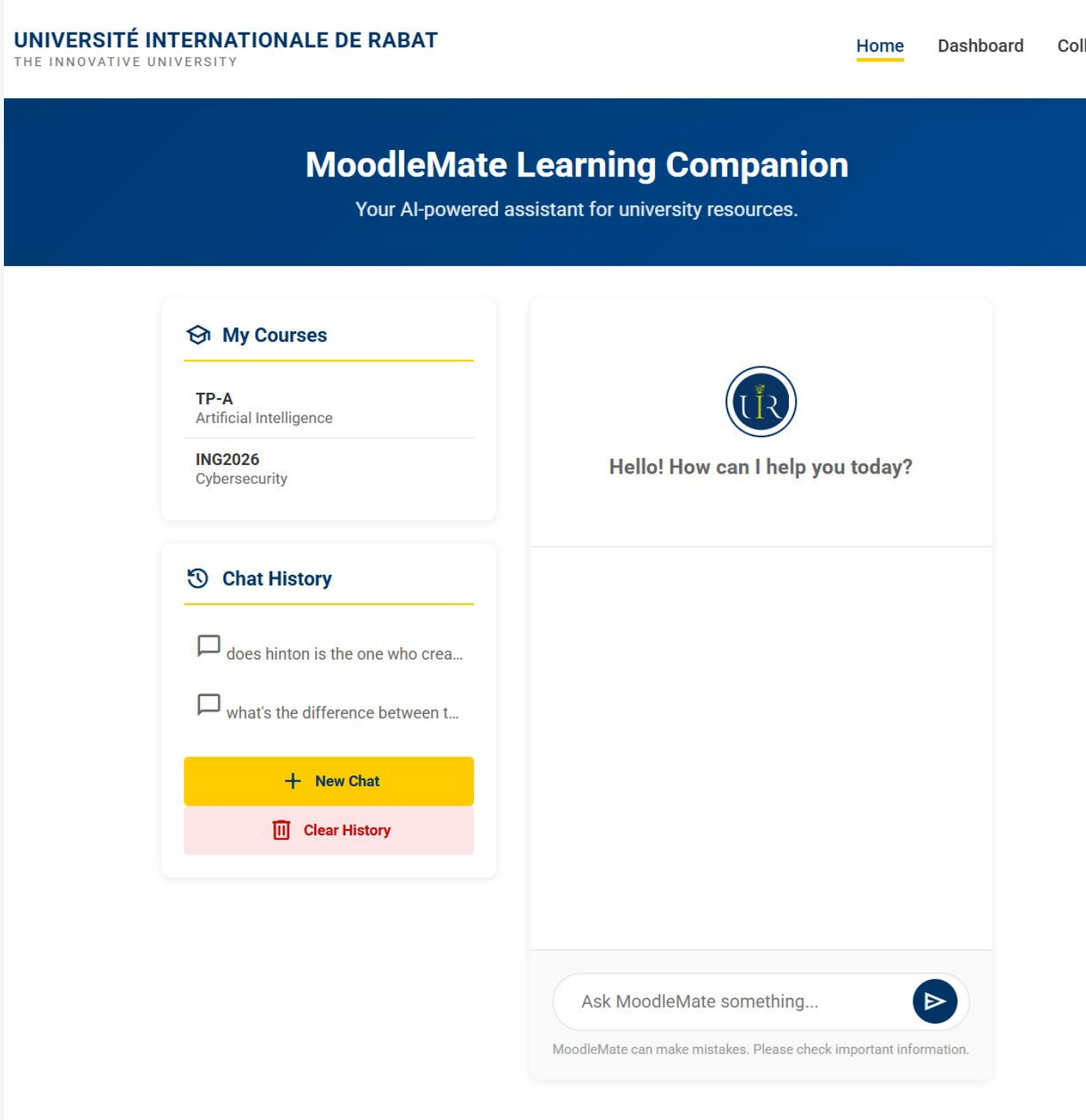
Pre-loaded with verified UIR course materials (Cybersecurity, AI, etc.) for instant value.

The User Interface

Intuitive & Clean

The interface is designed for focus and clarity.

- **Chat History:** Easy access to chat history and course selection.
- **Chat Area:** Modern bubble design for clear conversation flow.
- **Header:** Clean, blue-gradient branding.



Why MoodleMate?

Feature	Standard ChatGPT	MoodleMate (UIR)
Knowledge Source	Generic Internet Data	**Your Professor's Notes**
Relevance	Often Vague	**100% Course Aligned**
Citations	Rarely Specific	**Exact Page Numbers**
Data Privacy	Cloud / Public	**Secure & Local**

Demo Scenario

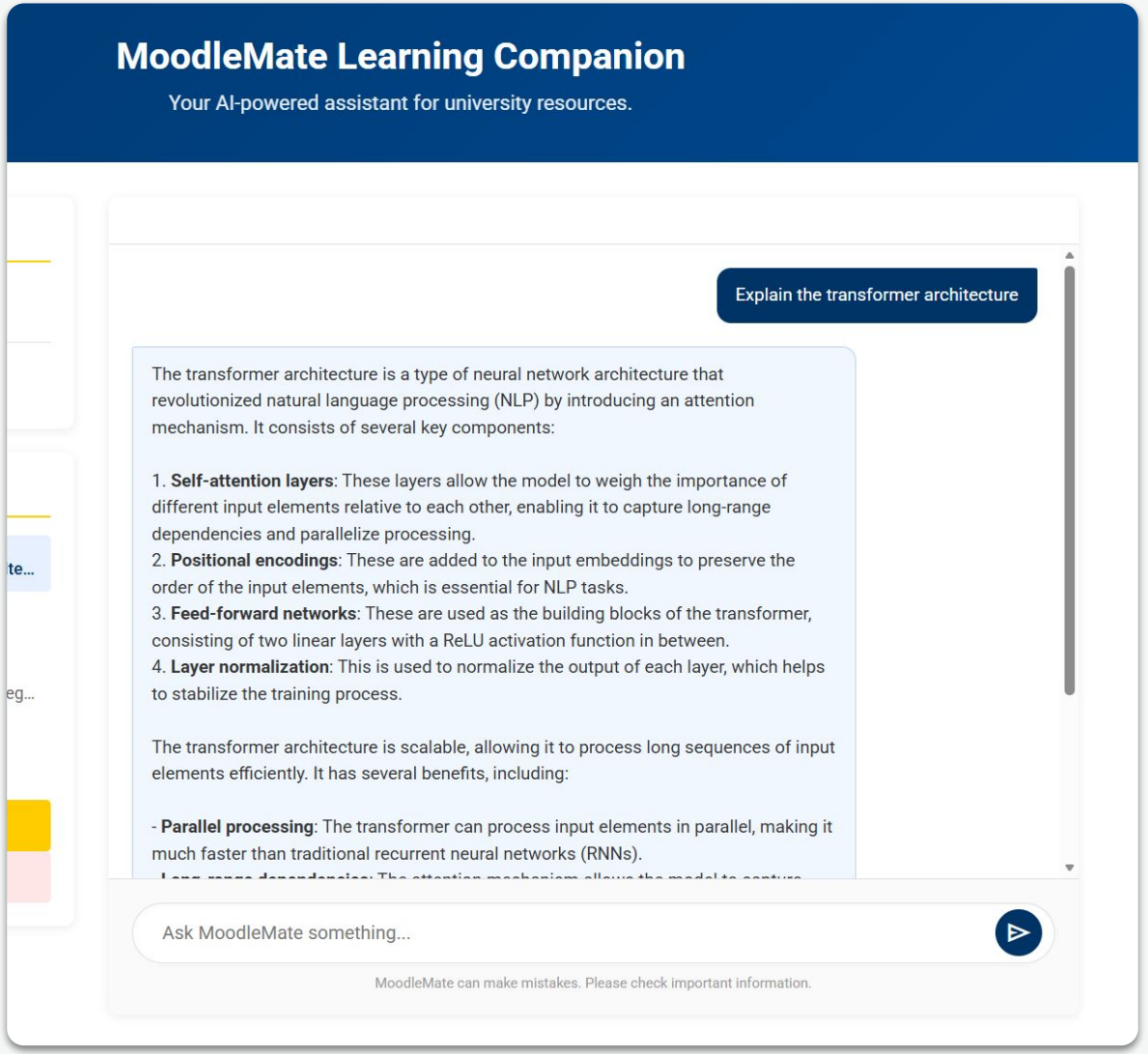
Real-Time Assistance

Student asks:

"Explain the Transformer architecture."

Result:

The bot replies instantly with the exact definition from the professor's slides, including a direct link to the specific page for further reading.



Université Internationale de Rabat

THE INNOVATIVE UNIVERSITY

The Future of Learning is Here.

Experience the power of AI-driven education with UIR Connect.

Thank you for your attention