

Project ID: 22

Project Title

Intelligent Academic Advisor

Client Name

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Group Capacity

2 groups

Project Background

Effective academic advising plays a critical role in supporting students throughout their educational journey—from program exploration to graduation planning. Yet, accessing this support can often be constrained by availability, response delays, and limited scalability during high-demand periods. These barriers may hinder students' ability to make timely, informed academic decisions. This project proposes the development of a virtual academic advising system that leverages AI to deliver scalable, responsive, and personalised guidance. By automating routine support tasks, the system aims to improve access to academic advice, reduce institutional workload, and enhance the student experience across various stages of their academic lifecycle.

To address this issue, this project aims to develop a web application that provides AI-powered academic guidance to students. The system will offer real-time, personalised guidance to both prospective and enrolled students, covering program selection, course planning, academic issue resolution, and transfer evaluation. By automating routine advising tasks, the system improves accessibility, enhances the student experience, and reduces the workload on academic staff.

Project Scope

The system will serve two main user groups. Prospective students will receive personalised degree program recommendations based on their academic background, interests, and career goals. Enrolled students will benefit from course planning assistance, academic progress tracking, and support for resolving common academic challenges or planning credit transfers.

The application will use LLMs to understand natural language input and deliver tailored responses. It will feature a conversational interface, store user sessions, and present academic plans.

Project Requirements

The system is designed for two primary user types.

For Prospective Students:

Help future students explore suitable degree programs and receive personalised recommendations.

- Describe their academic background, interests, and career aspirations using natural language. → The system builds a basic profile to guide personalised program matching.
- Receive tailored program recommendations that match their profile.
- Users can compare programs, bookmark options, and explore alternatives.
- Ask follow-up questions to refine their understanding of available programs and receive clear explanations in response.

For Enrolled Students:

Help enrolled students plan courses, track progress, resolve academic issues, and evaluate transfer options.

- Monitor their academic progress and track completed versus outstanding requirements in a visual, easy-to-understand format.
- Based on the user's current progress and program requirements, the assistant suggests: valid course combinations, warnings for overload or conflicts, alternate study paths (e.g., summer or exchange units)
- Handles common problems like: failed subjects, missed deadlines, study interruptions or leave requests. → The assistant explains consequences and offers actionable solutions.
- Users input a new program they want to switch to. → The system evaluates: which credits are transferable, extra time or courses needed, and a transfer plan.

System Features

- Offer an intuitive, web-based conversational interface that supports both structured and natural language inputs.
- Natural language understanding powered by LLMs.
- Integration with institutional databases or mock APIs for program/course information.
- User session management and profile storage.
- Support for multi-turn dialogue and interactive querying.
- Personalised dashboards showing course plan, progress, and transfer simulations.

Required Skills

- Web application development (front-end and back-end)
- Fundamental grasp of Large Language Models (LLMs)
- (Optional) Basic Agent framework concepts (Langgraph, Langchain, AutoGen...)
- This project is well-suited for postgraduate students majoring in AI, but is also open to undergraduate students who possess relevant AI skills.

Expected Outcomes

- Functional Prototype: A working web application of the AI agent that successfully demonstrates all core functionalities.
- Source Code: complete, well-organised, and adequately commented source code.
- Final Project Report
- User Guide: Easy-to-follow, step-by-step instructions for end-users.

Disciplines

Web Application Development;Artificial Intelligence (Machine/Deep Learning, NLP);Generative AI (GenAI);

Other Resources

None