The AI agent is called “IITK-Aero-MTech-Companion”. You can access it https://chatgpt.com/g/g-JeRmGcVIB-iitk-aero-mtech-companion and start conversing by simply saying "Hi"

Problem Statement:
As an MTech freshman, We faced significant challenges in selecting my electives. When you're new to the college environment and asked to choose subjects, it can be overwhelming, especially when you don't have a network of friends to consult. With the vast number of courses offered at IIT Kanpur each semester, figuring out which ones you're eligible for, finding courses that align with your interests and career goals, and ensuring that they don't clash with already selected subjects can be incredibly time-consuming and difficult.
This is a common struggle for almost every new student.

Solution:
To address this challenge, we developed an AI agent by leveraging the customizable GPTs feature on ChatGPT-4. We've trained the model with specific logic tailored to the Aerospace MTech program at IIT Kanpur, making it a valuable tool for course selection and elective planning.

Outcome:
This AI-agent has been adopted by more than 80% of the MTech Aerospace freshmen. It has significantly streamlined the process of course selection and elective choice, providing essential assistance to students as they navigate their academic journey.

Architecture and Logic

The architecture of the IITK-Aero-MTech-Companion is designed around a sequential logic flow that begins with background identification and specialization selection. This information is used to query a pre-defined database of courses tailored to the Aerospace Engineering MTech program at IIT Kanpur. The logic flow can be broken down into several key components:

1. Background Identification:

- The user's academic background is determined (e.g., Non-IIT Non-Aero, IIT Aero).
- The assistant filters relevant course options based on this information.

2. Specialization Specification:

- The user selects their specialization (e.g., Aerodynamics, Structures).
- The system matches this with compulsory courses for the semester.

3. Course and Elective Matching:

- Core and elective courses are suggested based on the user's specialization and interests.
- Electives are verified against the current semester offerings from the `course_schedule.pdf` (https://www.iitk.ac.in/doaa/data/Course_Schedule_2024-25-1.pdf)

4. Timetable Creation:

- A timetable is generated by cross-referencing selected courses with the available time slots.

The IITK-Aero-MTech-Companion operates on a modular architecture designed to handle multiple user interactions and decision branches based on user inputs. Below is an overview of the core components:

1. Input Handling:

- User input is processed to determine their academic background and specialization.
- Input is validated against a predefined set of backgrounds and specializations.

2. Logic Engine:

- The core logic engine drives the flow of the interaction.
- Based on the input, the engine filters and selects relevant course data.

3. Data Repository:

- The repository contains detailed course lists and requirements.
- Data is structured in a way that allows for easy querying based on user inputs.

4. Cross-Referencing System:

- Courses are cross-referenced against the current semester's offerings to ensure availability.
- This is done by parsing the `course_schedule.pdf` and matching course codes.

5. Output Generation:

- The final output is a compiled list of courses and a suggested timetable.
- The system can output data in various formats, such as a table for timetable viewing.

This architecture ensures that the IITK-Aero-MTech-Companion remains a reliable and useful tool for students navigating their academic careers in aerospace engineering. The project is scalable and can be adapted to similar programs in other institutions with minor modifications to the course database and logic flow.