Degree Planning Tool Using AI

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Features
- Creates a highly optimized course plan based on specified majors and minors
- Suggests relevant electives by running machine learning modules on past student data
- Historical extrapolation detects if classes are only offered in the Fall or Spring
- Automatic requirement checking ensures students are planning a valid schedule
- Allows students to modify and save multiple course plans
- Integrates with UTD's databases and student information system
- Toggleable light and dark themes work with any university palette
- Intuitive UI developed with feedback from multiple students and advisors
- Adjusts suggestions based on classes already taken and current course catalog

Student Impact
- Students have 24/7 access, allowing them to get advising without waiting in long lines.
- By lowering the chance of taking classes that won’t count towards graduation, students are saving time and money.
- Students now have a better understanding of their academic degree plan and how decisions such as switching majors affect their path to graduation.

Architecture
Front-End
The front-end was built using the Bootstrap framework and was inspired by Material Design. It uses Jinja2 templates to dynamically populate the HTML. Uses input sanitization to prevent SQL injection.

Server
The server is created in Python and uses the Flask library to define RESTful APIs that can be called by other modules. Uses Redis for sessions which allows for server-side transmissions of private data.

Back-end
The back-end is coded in Python and contains the business logic of the tool.

RamifAI Database
The MySQL database is configured using SSL and optimized to work with constraint-based scheduling algorithms.

School Database
The tool is compatible with UTD’s configuration of PeopleSoft Campus Solutions.

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Future Plans
A beta version of this tool is planned to be tested in NSM and JSOM over this summer. The eventual goal is to implement it university wide to help both students and advisors. To increase the tool’s adoption, a mobile application is going to be developed. There are also plans to develop functionality for administrators that would suggest what courses should be offered each semester based on the aggregate data of student course plans.