FIT Schedule Planner

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Goal and Motivation:

Students use PAWS to register for classes in upcoming semesters. They can access CAPP degree evaluations and FIT programs to ensure they take the right courses. The current system works but can be a headache since there is a lot of room for misunderstanding and confusion. Some students take unnecessary classes and have difficulty fitting all their classes together. The FIT Schedule Planner aims to bring everything a student needs into one place with a user-friendly interface to streamline the class registration process.

Approach:

The user will be able to view all available classes and times that fulfill certain credits from their program. From there, they can add classes to their schedule and look for where they have time gaps (a weekly schedule will be depicted as classes are added/removed). When adding classes, the FIT Schedule Planner will check if prerequisites are met, whether the class is available (full or offered), and highlight any overlapping classes. Filters will also be available in the search process so students can look for classes by subject, professor, times, course number, credit range, or RateMyProfessor score. Users can also add personal time blocks (e.g., basketball practice) to ensure classes do not overlap with extracurriculars.

The user will be able to view a checklist that depicts their progress toward their program completion. The checklist is generated from the same programs that students on the FIT website can access. The student would be required to load their CAPP Degree Evaluation in order to make use of this feature's main functionality. The checklist will take the student's CAPP Degree Evaluation and compare it to their selected program to determine which credits they have fulfilled, and which credits still need some work. It will then post a scrollable list for the student to review.

The user will have access to a simple interface with a consistent layout to minimize confusion. A navigation bar will be located at the top to make it easy to jump in between the schedule planner and the checklist. There will also be a FAQs tab if additional assistance is needed. Each tab will include instructions at the top to inform the student how to navigate and use that tab. All components in the tab will be labeled making it easier for the student to make a connection between the instructions and the content. Pop-ups will appear when necessary to

inform the student if an error has occurred and what caused it. Loading bars will appear when necessary to depict that the interface is working rather than frozen (during checklist creation and class search).

Novel Features/Functionalities:

Streamlined web interface that allows students to view classes, see what classes they need to take, select courses based on professor's rating and reviews. What makes the FIT Schedule Planner special is how it combines all these systems into one. When registering for classes now, students have to go to three different domains in order to access FIT programs, CAPP degree evaluations, and PAWS class registration. A lot of students use Rate My Professor, so that makes four. With the FIT Schedule Planner, students can access all of this information in one place, which saves them time and energy.

Algorithms and Tools:

- Python
    - Programming language
- Scapy (Python)
    - Allow us to scrape information from the internet
- Django/Flask
    - Framework to build our web application
- Render.com
    - Web Application deployment
- https://apps.fit.edu/schedule/main-campus/fall
    - Data source for webscraping fall classes
- https://apps.fit.edu/schedule/main-campus/spring
    - Data Source for webscraping spring classes
- https://www.fit.edu/programs/
    - Degree requirements data source

Technical Challenges:

Privacy could be a challenge since students' CAPP Degree Evaluations are password-protected. In the prototype stage of this project, students may be required to manually download their CAPP evaluation and providing it to the system during testing of the application

Distribution of the final application could be a challenge since the FIT Schedule Planner is intended to be a GUI. Our group is only familiar with creating GUI in executable files, but executable files are not compatible with Apple devices. Distribution may require the development of a web application in place of a GUI. A web application might be more convenient for users compared to a GUI anyway.

Web application creation to display our content could be a challenge as well. Whether the FIT Schedule Planner will be a GUI that you download from the website or be completely accessible via a web application on the website, our team has minimal knowledge of website creation. Our team is confident that the tools needed to create a basic web app can be easily found on the internet, but if, for some reason, more complex structures are needed, guidance from our advisor may be needed.

Milestone 1:

- Compare and select technical tools for generating an interface, scraping information off the internet, developing the schedule planner, and developing the checklist.
    - Provide small ("hello world") demos to evaluate such tools.
- Resolve technical challenges with privacy, distribution, and website creation.
- Compare and select collaboration tools for software development, documents/presentations, communication, and a task calendar.
- Create Requirement Document
- Create Design Document
- Create Test Plan

Milestone 2:

- Implement, test, and demo traversing the interface
- Implement, test, and demo loading the CAPP Degree Evaluation
    - Include at least one test where the CAPP Degree Evaluation is reuploaded
- Implement, test, and demo accessing the program checklist
    - Include tests for a variety of different programs

Milestone 3:

- Implement, test, and demo searching for classes
- Implement, test, and demo class filtering system
    - Include at least one test for each filter
- Implement, test, and demo adding a class to the schedule
    - Include at least one test where prerequisites are not met
    - Include at least one test where a time conflict is present
    - Include at least one test where the class is full
- Implement, test, and demo removing a class from the schedule

Task Matrix for Milestone 1:

Task	Pedro	Jordan
Compare and select technical tools	interface, checklist	scraping, schedule planner
“hello world” demos	interface, checklist	scraping, schedule planner
Resolve technical challenges	distribution, website creation	privacy
Compare and select collaboration tools	documents/presentations, communication, task calendar	programs
Requirement Document	write 25%	write 75%
Design Document	write 75%	write 25%
Test Plan	write 50%	write 50%