

INFSCI 2470 Final Design Project Report

StudentPaths Project

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Introduction

Our team chose to work with Prof. Daniel Mossé and his group, whose goal is to develop technological solutions that benefit academic advisors to provide better academic insights to students.

The stakeholders include Dr. Mossé (The project leader), Nathan Ong (The project manager, and Ph.D. student), Jiah Margallo (Industry visualization expert), and the academic advisors (eventually the main users of the system). For this project, Dr. Mossé and Nathan act as proxy advisors and therefore are our users.

The main product we are currently developing is called StudentPaths. StudentPaths is designed to provide student data insights to academic advisors, by showing advisors how students have historically gone through the computer science program at Pitt, and how an advisee compares to those students. *This class project focuses on designing and developing the web app that advisors will use. Part of that design will be incorporating the visualizations created by Jiah.*

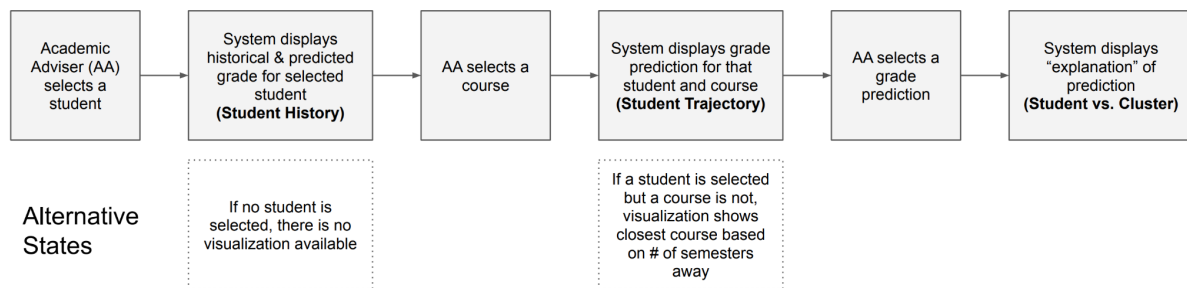
Through the web app, advisors will be able to track and predict the students' academic performance with their course name, semester, past academic performance, etc so there is no need for advisors to manually track students' progress when advisors give students advice.

System Requirements

1. The system should be able to authenticate a user.
2. The system should have the ability to store student, course, semester, and GPA data of mandatory CS courses at Pitt.
3. The system should provide a user-friendly visualization that shows students' historical performance and their possible trajectory so that academic advisers can give effective academic advice.
4. The system should have interactive filters and options that allow academic advisers to update the visualization based on their advising needs.

The above System Requirements were discussed and given by our client during our system requirement refinement meetings. To understand and analyze more about the users, we also went through the User flow and user tasks.

User flow



Design & Functions on Prototype

Task Analysis

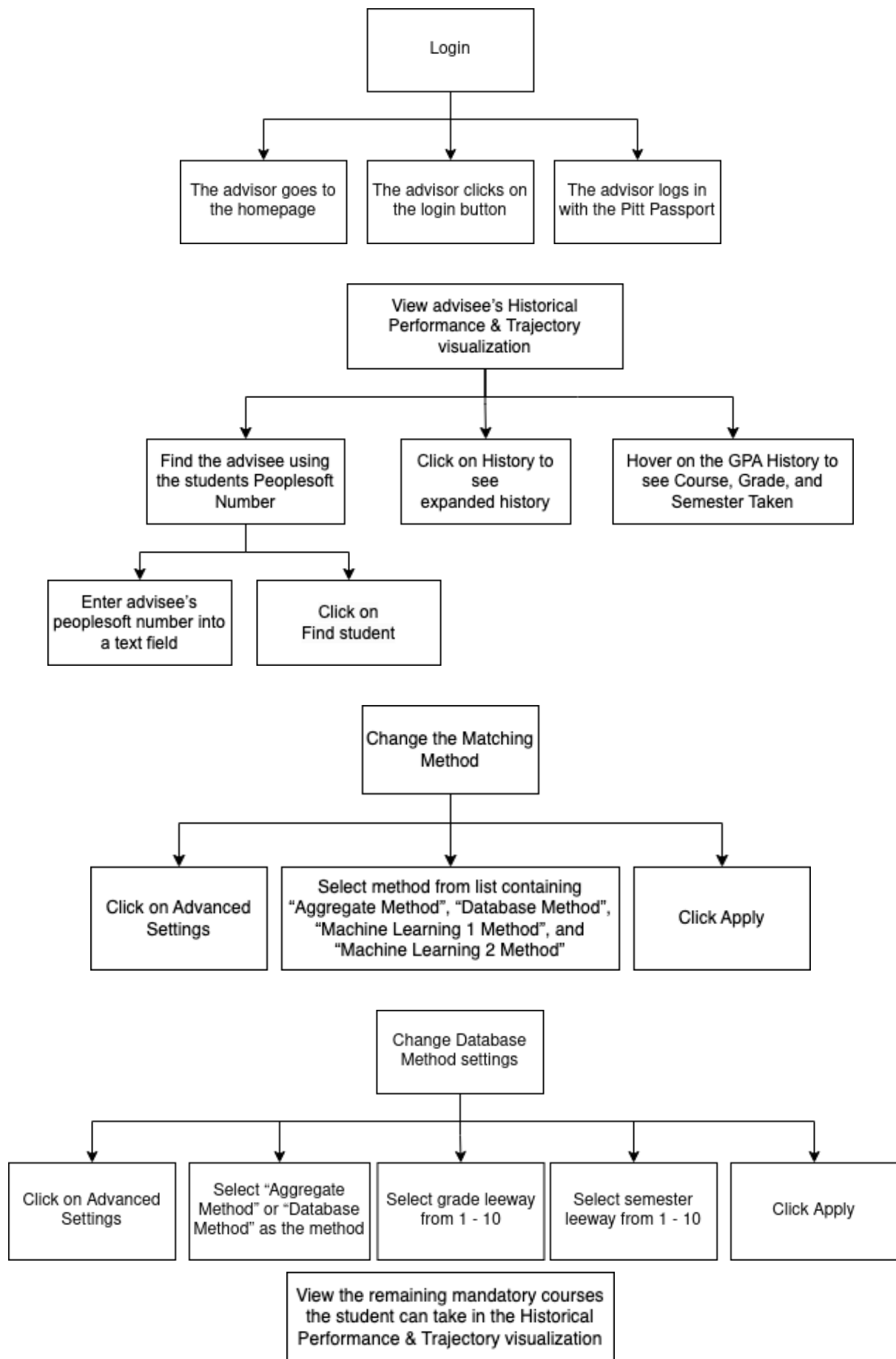
In order to gather our requirements and tasks, we performed a focus group session with Dr. Mossé and Nathan. We decided to use a focus group because both of our users were available to meet at the same time. The focus group was done as an exploratory unstructured interview with the goal of learning about the project, how we fit into it given that this is an ongoing project, and what tasks the users needed to perform for our portion.

After the focus group meeting, we performed a task analysis by going back through the recording of the meeting and extracting an initial set of tasks. We then went through the recording of our initial meeting with Jiah to see if there were any additional tasks related to her visualizations that we should capture in our analysis. After gathering the initial set of tasks, we went through each task and created a task hierarchy for all tasks that could be broken down into subtasks.

We then presented our task analysis to Dr. Mossé and Nathan to get their feedback. After several rounds of refinement, we landed on the following set of Tasks.

Definitions

- **Advisee:** Student who the Advisor is currently advising
- **Historical Performance & Trajectory:** Visualization developed by Jiah to display an advisee's past performance and future courses.
- **Grade Trajectory:** Visualization developed by Jiah to display potential grades for a course based on what future semester the student may take the course in.
- **Historical Peers:** Students who previously went through the computer science program with the same Academic Track as the advisee.



View a list of the top 5 electives the advisee can take based on the 5 courses historical peers performed the best in

Add an elective to the Historical Performance & Trajectory visualization

Click on the elective to add to the visualization

Click on the semester to add the course to

Remove an elective from the Historical Performance & Trajectory visualization

Hover over the course to be removed to display an 'x'

Click the 'x' to remove the course

Remove a mandatory course from the Historical Performance & Trajectory visualization

Hover over the course to be removed to display an 'x'

Click the 'x' to remove the course

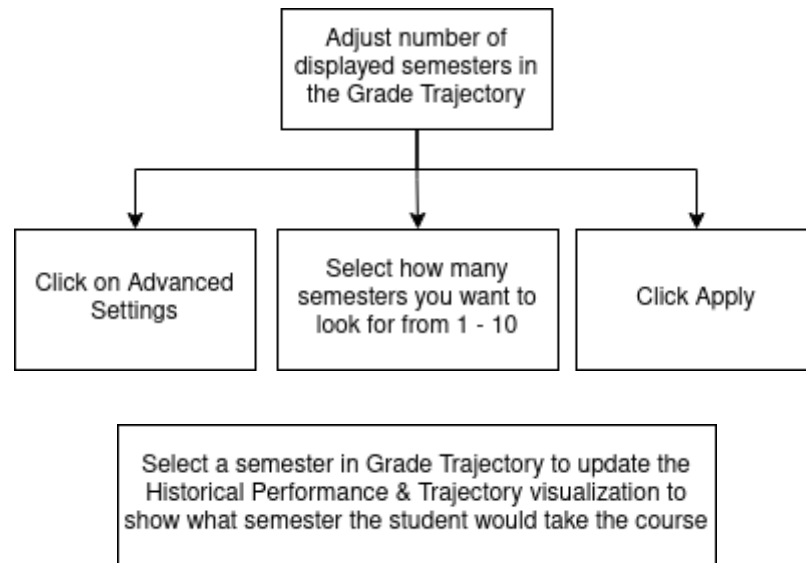
Click continue on warning message that a mandatory course is being removed

View course predicted grades based on Grade Trajectory

Click on a future course in Historical Performance & Trajectory visualization to show the Grade Trajectory for that course

View visualization of a students predicted grade based on how historical peers performed in future classes

Hover over predicted grade in the Grade Trajectory to display Predicted Grade and Likelihood of that grade



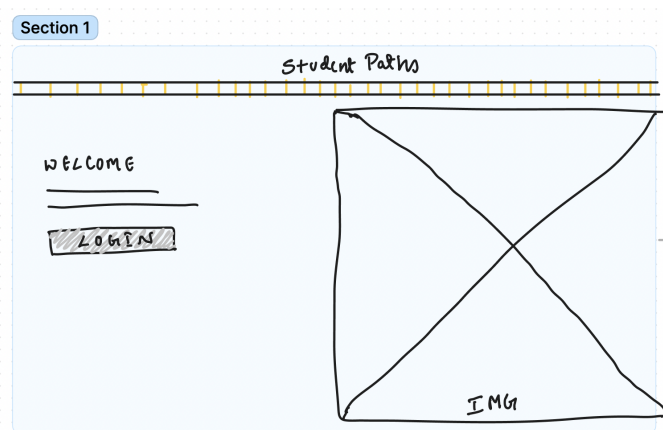
1st round prototyping

Based on the user flow, and 3 rounds discussion and editing, the low-fidelity wireframes were designed via Figma:

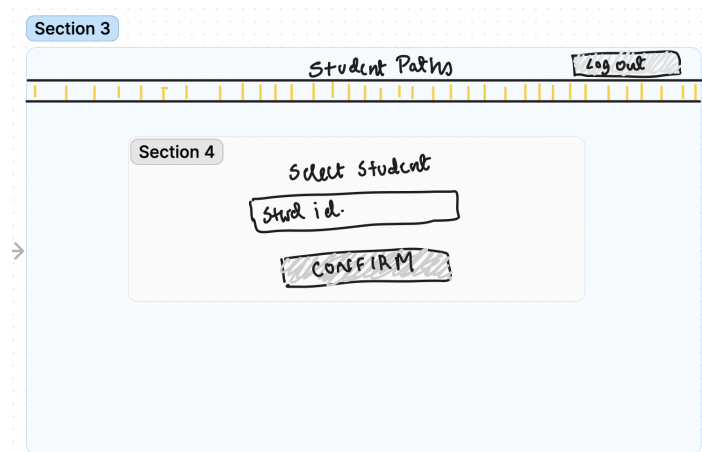
First Round: Initial design from the system requirements given by Jiah.

Second Round: First version of User tasks analysis was written, adjustments to the design were done according to the step-by-step User Task Hierarchy.

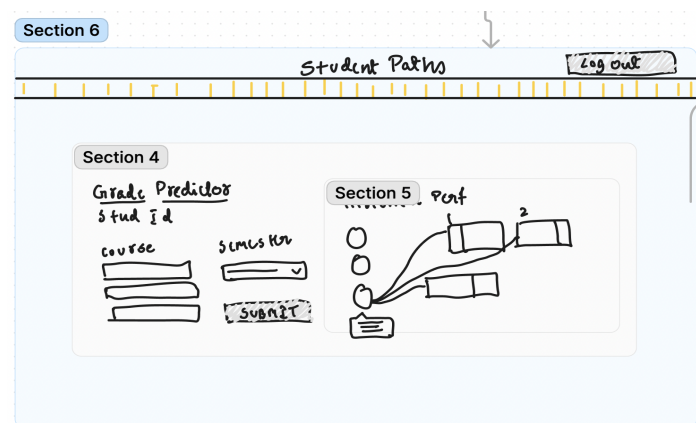
Third Round: Our group is still actively discussing with our client. The below wireframes are the most updated version we have now.



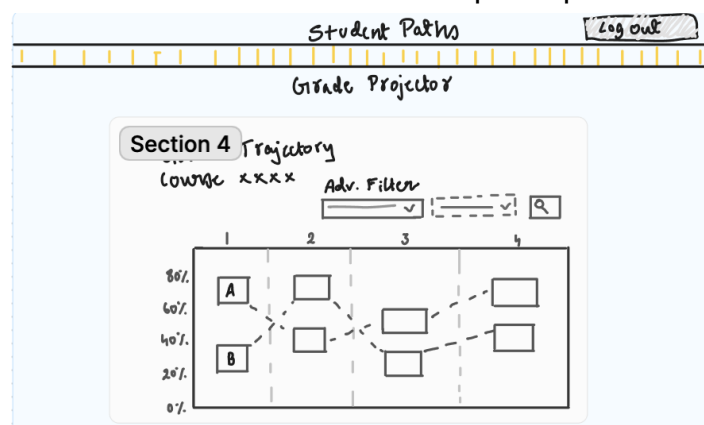
This is the login page where users(advisors) would login in to the system. After clicking on the login page, it leads to the pitt Passport page.



In order to view the advisee's Historical Performance & Trajectory visualization, users will enter advisee's peoplesoft number into a text field, and click Confirm.



Users view the remaining mandatory courses the student can take in the Historical Performance & Trajectory visualization, and view a list of the top 5 electives the advisee can take based on the 5 courses historical peers performed the best in.



Then users View course predicted grades based on Grade Trajectory.

Contribution

Adam Hobaugh	A.C.Hobaugh@pitt.edu	User Study Interview, Task Analysis
Ashumi Rokadia	apr36@pitt.edu	high-fidelity design (Not yet done)
Nihal Desai	nid91@pitt.edu	Low-Fidelity design (3 rounds)
Pin-Jen Wang	piw19@pitt.edu	Slide structure, Introduction, Task Analysis
Priyanka Sarkate	prs107@pitt.edu	Presenter, Slides