

Project Assignment Tool

Team Success Members
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GOAL

Improve and extend the Project Selection Tool for CS project-based courses at Virginia Tech to allow for scalable, fair, and reliable project assignment with multiple faculty, classes, and sections, automating the process and increasing correctness and convenience.

Stakeholders

1. Rich Charles (System Owner / Admin)
2. VT CS Faculty
3. Students in VT CS group project-based courses

Objectives

- Implement an updated role-based user hierarchy with admin, faculty, and student types
- Extend the system to handle multiple faculty members, classes, and sections each semester, including students in multiple classes and faculty members with multiple sections
- Improve the current matching algorithm to ensure the matching constraints are consistently followed (ChatGPT Matching Query -> Hardcoded Matching Algorithm)
- Create a publish feature that will allow for hiding of results until they are finalized, and automated emailing of team results and project assignments
- Add more quality-of-life features and functionality to the student roster section for faculty and administrators
- Add features for student to switch views between their sections
- Develop separate admin view functionality, with faculty, student, and semester management.

Faculty

The Faculty Dashboard shows a 'Welcome, Kaitlyn Green' header and a 'Faculty Dashboard' title. It features a 'Logout' button and a 'Projects' section with a '+ Add' button. The 'ACTIVE SECTION' is '22647 - CS 4704 - 02 (spring 2026)'. There are tabs for 'Students', 'Skills', and 'Matching'. The 'Students' tab shows 14 enrolled and 0 unassigned students. A table lists students: Emma Anderson (PID: eanders20, Project: Smart Parking System), Chris Brown (PID: cbrown19, Project: Smart Parking System), Clark Clarkson (PID: cclark, Project: AI Assistant), and Noah (PID: [blank], Project: Smart). A modal for 'AI Assistant' is open, showing details like 'Required Team Size: 0 to 4 students', 'Required Skills: No skills assigned to this project.', and 'Assigned Students: (3 team members)'. Other project cards include 'AI Assistant', 'Peer Code Review Tool', and 'Smart Parking System'.

The Matching tab shows 'Section status: open'. Below this, it says 'Students can currently update their skills, preferences, and rankings. Lock the section when you are ready to run matching.' A large yellow 'Lock Section' button is prominent.

The Matching tab shows 'Section status: locked'. Below this, it says 'Students are locked out. Run matching as many times as needed until you are satisfied, then publish.' There are 'Unmatch All' and 'Match All' buttons. A large green 'Publish Results' button is at the bottom, with a 'Reopen Section' button below it.

Student

The Student Profile section shows 'Welcome, Kaitlyn Green' and 'Spring 2026'. It has tabs for 'Profile' and 'Projects'. The 'Profile' tab shows 'Manage Skills', 'Manage Preferred Teammates', 'Rank 1', and 'Campus Event Tracker'. The 'Projects' tab shows 'AI Study Assistant' and 'Research Data Dashboard'. A modal for 'Matching In Progress. Section Locked.' is open, stating 'Your professor has locked 22647 - CS 4704 - 02 while finalizing project assignments. You can no longer make changes to your skills, preferences, or rankings. Check back once your professor publishes the results.' A 'Switch to Another Section' button is at the bottom.

Matching Algorithm

Our reworked matching algorithm groups together teamed students and sorts them based on multiple criteria:

1. Team Size
2. Project Preference
3. Team/Student Skills

This ensures students are best fit matched with projects within project constraints without error.

Quality of Life Features

- Expanded roster search functionality
- Add and remove students from a section
- Ability to add, remove, and switch between sections
- Faculty Section can be open for students to rank projects and create teams, locked to allow matching, and published where project assignment results are visible to student
- Publishing project matching results sends out emails to students based on the project/group assignment
- Students can join course via a CRN
- Safety features implemented when deleting

Admin

- Manage roster for faculty
- Manage semesters