

# Poeas Design Document

Project Name: Scheduling Engine

TNPG: Poeas

Roster: Andy Shyklo, Jady Lei, Mr. Dillon

TARGET SHIP DATE: 5/30/2025

## Program Overview:

“In this project, developers will write an algorithm that places students into course sections (aka a scheduling engine) based on the students need to graduate (requirements) and want to take (electives). Students will work with Mr. Dillon using anonymized Stuyvesant data. You'll learn some of the intricacies of the Program Offices/Registrar. This is not a feature that Talos currently has and would be used to more effectively program students.” (Dillon, April 29th via DTM Piazza)

## Program Components:

1. Organize a schedule request per student
2. Create a readable table of students and their scheduled classes and periods.
3. Allow elective requests to supplement impossible lists.
4. Factor class sizes and class selectiveness into sorting out impossible schedules.

## Database Organization:

- SQLite for applicable data
- Generally, we use CSV files to access student data, as it needs to be easily readable and accessible for Excel and sheets integration.

## Recursion Organization:

- We iterate through each students schedule, and find the first matching schedule where all classes fit together, using recursion to add or remove classes from that schedule
- Students with conflicting schedules can use recursive functions for multiple students at once, creating an adaptive schedule (unschedules one student in preference for another's perfect schedule).

**Site Map:**

N/A - so far. If time permits, a simple one/two page scheduler site (similar to backend talos) can be made, utilizing tailwind as our FEF and Flask.

**Component Map:**

Read csv

-> find course availability

-> create schedule

-> edit class table

-> modify schedules (for impossible results)

-> store created schedules

**Database Organization:**

Student Requests: List of Dictionaries

Course List: List of Dictionary

Availability List: 2D list of periods for requested course

Created Schedule: List of period numbers

Schedules: List of Dictionaries

**APIS: None****Modules:**

- CSV - necessary as our primary input of data

**Task Breakdown:**

- Andy: Project Manager
  - Coding to specification of Mr. Dillon
  - Modifying existing code to accommodate for schedule inflexibility
  - Debugging and special cases
- Jady:
  - Coding to specification of Mr. Dillon

- Creating schedule creation and recursive functions
- Manage overall data structure