

**Computer Science Major Project:
Scheduler (Documentation)**

ICS4U1

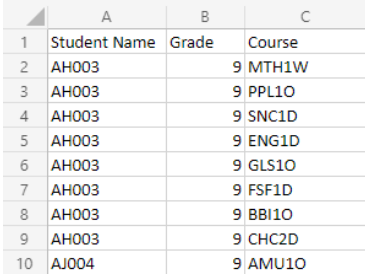
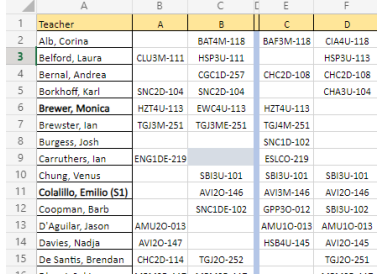
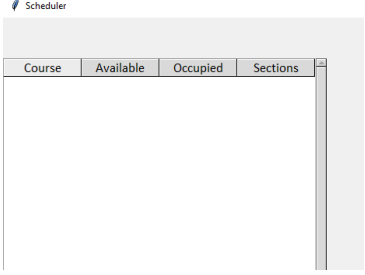
Submitted By: Tim Li, Alex Melnbardis, Bob Zheng

Submitted To: Mr. Smith

January 10th, 2022

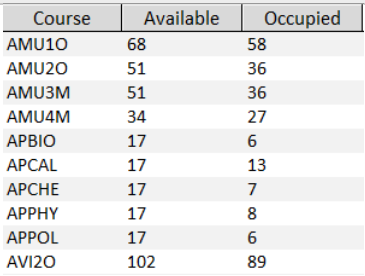
Day 1 (November 16th)

Daily Milestone: Prepare all data for reading/writing into the GUI

Group Member	Li, Tim	Melnbardis, Alex	Zheng, Bob
Individual Milestone	Format the “Student Demands” file into a readable form for the program.	Format the “Teacher and Course Information” file into a readable form for the program.	Create the program’s frame and create a TreeView on the first page (Homepage 1).
Time to Complete	~ 2 hours 25 minutes	~ 10 minutes	~ 2 hours 5 minutes
Explanation of Milestone	Column headings were added to the excel file for organization, and any extraneous or invalid data detected was removed.	Unnecessary pages or data from the excel file were removed to ensure the file is easily readable by the program.	Running the program generates a blank page with a single TreeView bearing pre-configured headings.
Code Output			

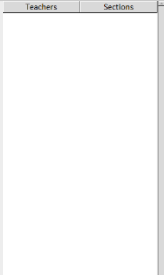
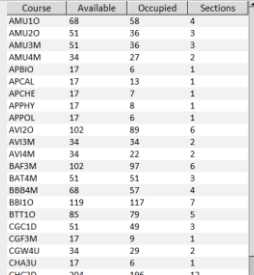
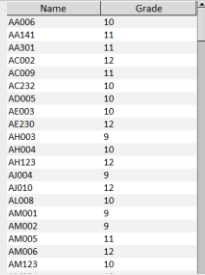
Day 2 (November 17th)

Daily Milestone: Compile and insert necessary data into the TreeView on the first page.

Group Member	Li, Tim	Melnbardis, Alex	Zheng, Bob
Individual Milestone	Display all compiled data on the TreeView.	Count the names of all students, and the number of students taking each course.	Compile student names, courses, and the students per course and store them.
Time to Complete	~ 53 minutes	~ 1 hour	~ 1 hour
Explanation of Milestone	Data from the nested dictionary and further calculations was inserted into columns 1-3 of the TreeView.	Each row of the “Student Demands” file was read, while appending necessary information to the nested dictionary.	A nested dictionary was created with three dictionaries: one for the courses and students in them, the course and # of students, and student names and their grade level.
Code Output			

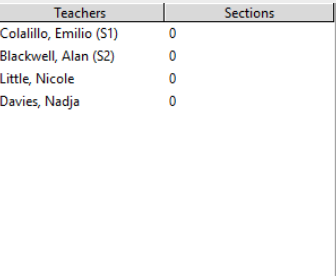
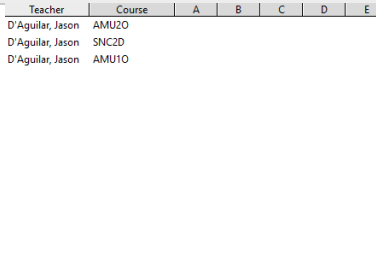
Day 3 (November 18th)

Daily Milestone: Complete the TreeView on the first page and add two more pages.

Group Member	Li, Tim	Melnbardis, Alex	Zheng, Bob
Individual Milestone	Create click events for the rows of the TreeView, leading to another page.	Separate courses into sections and display it on the TreeView on the first page.	Add a second page containing a TreeView displaying a list of all students.
Time to Complete	~ 1 hour 40 minutes	~ 1 hour 20 minutes	~ 35 minutes
Explanation of Milestone	Clicking on a row in the TreeView on the first page goes to a new page with a TreeView that will display the course's teachers and the number of sections they teach.	A fourth dictionary was added containing each courses' sections based on the number of students taking each course. The max number of spots was also calculated.	A second page was added, containing a TreeView displaying students' names and their grade. Two buttons were added allowing access between the course and student lists.
Code Output			

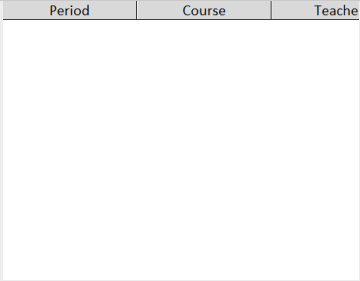
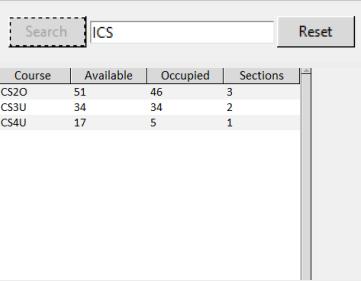
Day 4 (November 19th)

Daily Milestone: Complete half of Page 2 and add a fourth page.

Group Member	Li, Tim	Melnbardis, Alex	Zheng, Bob
Individual Milestone	Store data from the "Teacher and Course Information" file into dictionaries.	List the teachers teaching each course on the third page (Page 2).	Add a fourth page (Teacher Schedule page) and create a TreeView for it.
Time to Complete	~ 5 minutes	~ 5 minutes	~ 5 minutes
Explanation of Milestone	Data from the "Teacher and Course Information" file (ex. Teacher: course(s)) was gathered and stored into new dictionaries for later use.	On the Teacher – Section List page, the teachers related to each course are listed in the first column.	When a row of on the Teacher – Section List page is clicked, it brings up the frame of what will be the teacher's schedule (what periods they teach specific courses).
Code Output			

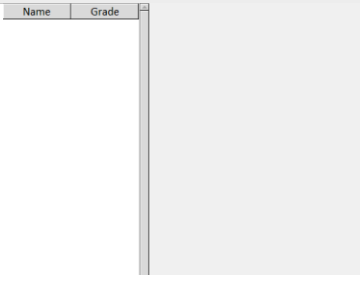
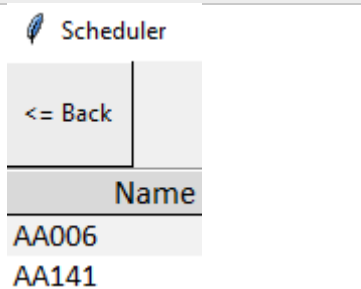
Day 5 (November 29th)

Daily Milestone: Finish the third page, add a fifth page, and add a button to the first page.

Group Member	Li, Tim	Melnbardis, Alex	Zheng, Bob
Individual Milestone	Create click events for the rows of the Student List page leading to another page.	Add a search function to the Course List and Student List pages.	Assign course sections to teachers.
Time to Complete	~ 30 minutes	~ 2 hours 30 minutes	~ 2 hours 15 minutes
Explanation of Milestone	When a row on the Student List page is clicked, it leads to page with a TreeView that will display the student's schedule.	On the Course List and Student List pages, typing in keywords and clicking the "Search" button will return rows with the best match. The "Reset" button resets the TreeView.	Based on the requirement of all teachers needing to teach 6 sections a day, course sections are randomly assigned.
Code Output	 		

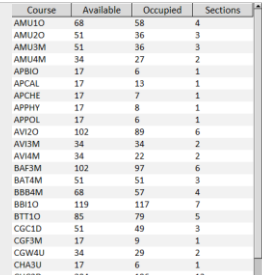
Day 6 (November 30th)

Daily Milestone: Create a sixth page and add a new button to the GUI.

Group Member	Li, Tim	Melnbardis, Alex	Zheng, Bob
Individual Milestone	Create a Class Student List page when clicking on a row on the Teacher Schedule page.	Add a "Back" button and make it functional.	Assign periods to each course section.
Time to Complete	~ 2 hours 10 minutes	~ 2 hours 7 minutes	~ 2 hours 30 minutes
Explanation of Milestone	Clicking on any row in one of the columns displaying a period will bring up a new page containing a TreeView that will display a list of the students in that section.	When the "Back" button in the top left-hand corner is clicked, it takes you back to the previous page you were on. This works for all pages of the program.	Each course section is assigned a random period (between A-H).
Code Output	 		

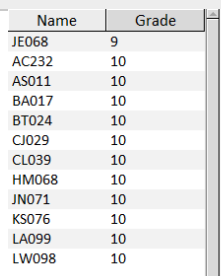
Day 7 (December 1st)

Daily Milestone: Add two new buttons and change the GUI's appearance.

Group Member	Li, Tim	Melnbardis, Alex	Zheng, Bob
Individual Milestone	Link room numbers to teachers (store together in a dictionary).	Modify and finalize the appearance of the GUI.	Add students to course sections.
Time to Complete	~ 45 minutes	~ 45 minutes	~ 45 minutes
Explanation of Milestone	Based off data read from the "Teacher and Course Information" file, a dictionary was created containing the rooms that teachers can teach in (based on their courses).	The font and sizing of text for each TreeView was modified, along with the reduction in column width and the addition of row striping for better readability.	Based on what courses students are taking, add them to a section in each of their courses, ensuring they cannot take two courses in the same period.
Code Output			

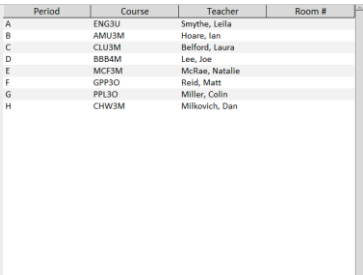
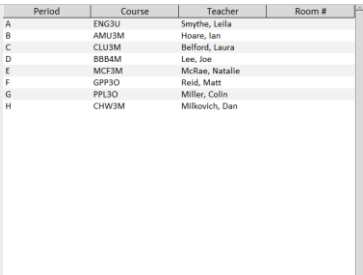
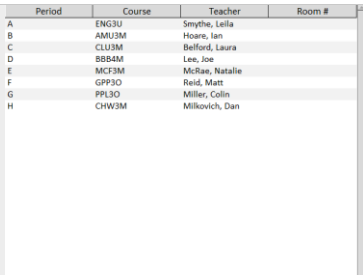
Day 8 (December 2nd)

Daily Milestone: Complete the Teacher Schedule page and the Class Student List page.

Group Member	Li, Tim	Melnbardis, Alex	Zheng, Bob
Individual Milestone	Fill the Class Student List with the names of the students in each section.	Assign room numbers for each section.	Fill each teacher's schedule based on the courses they teach during each period.
Time to Complete	~ 1 hour 35 minutes	~ 30 minutes	~ 1 hour 45 minutes
Explanation of Milestone	Based on the students assigned to each course section, their names and grade level display on the Class Student List page when each section is clicked on the Teacher Schedule page.	Room numbers are randomly assigned to each course section. However, sections with teachers who can only teach in one room are assigned room numbers first.	All of the courses that a teacher teaches, and what period they teach them, are displayed with numbers (representing class size) on the Teacher Schedule page.
Code Output			

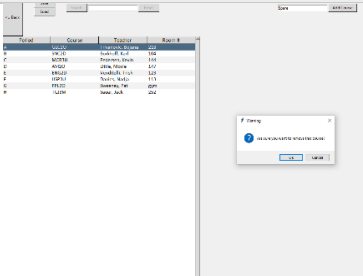
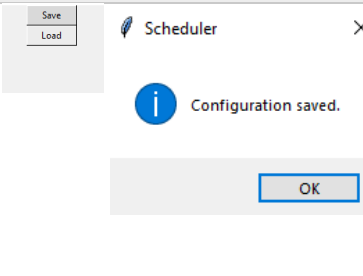
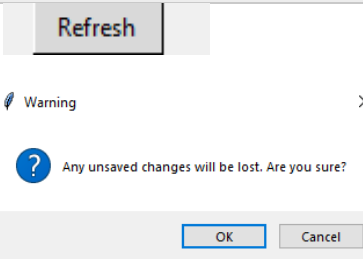
Day 9 (December 3rd)

Daily Milestone: Complete student schedules.

Group Member	Li, Tim	Melnbardis, Alex	Zheng, Bob
Individual Milestone	Link room numbers to student schedules	Link teachers to student schedules	Link courses to student schedules
Time to Complete	~ 30 minutes	~ 30 minutes	~ 45 minutes
Explanation of Milestone	For each course section a student is in, grab its room number and display it on their schedule.	For each course section a student is in, grab its teacher name and display it on their schedule.	For each course section a student is in, grab the course name and display it on their schedule.
Code Output			

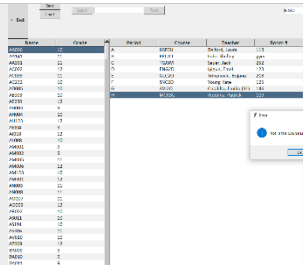
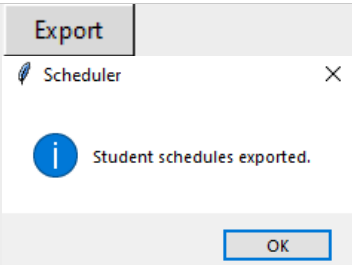
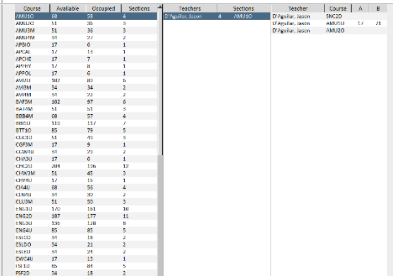
Day 10 (December 5th)

Daily Milestone: Add two new GUI features, as well as tools to modify student schedules.

Group Member	Li, Tim	Melnbardis, Alex	Zheng, Bob
Individual Milestone	Add manual input functions to the Student Schedule page.	Implement a “Save” and “Load” configuration feature.	Create a “Refresh” configuration feature.
Time to Complete	~ 1 hour 30 minutes	~ 1 hour 48 minutes	~ 1 hour 30 minutes
Explanation of Milestone	On the Student Schedule page, the user has the ability to swap, add, and remove courses on a student’s schedule within restrictions.	Clicking the “Save” button will save the state of the program by exporting all dictionaries to a .pickle file. Clicking the “Load” button will import the file.	Clicking the “Refresh” button will run the program’s process of creating teacher and student schedules again; any unsaved changes made by the user will be lost.
Code Output			

Day 11 (December 6th)

Daily Milestone: Finalize schedule functions, reformat pages, and add another GUI button.

Group Member	Li, Tim	Melnbardis, Alex	Zheng, Bob
Individual Milestone	Create error messages on the Student Schedule page when course changes create conflict.	Add an “Export” button to export student schedules to a separate file.	Make select TreeViews appear across the page where possible.
Time to Complete	~ 2 hours 30 minutes	~ 35 minutes	~ 45 minutes
Explanation of Milestone	If a change is attempted on a student’s schedule but conflicts with something, an error message describing the issue pops up.	When the “Export” button is clicked, every student and the courses they are taking are written into a .csv file.	When going to another page, the next page’s TreeView appears next to the previous page’s TreeView.
Code Output			

Day 12 (December 7th)

Daily Milestone: Finish the program.

Group Member	Li, Tim	Melnbardis, Alex	Zheng, Bob
Individual Milestone	Contingency.	Contingency.	Contingency.
Time to Complete	~ 2 hours 30 minutes	~ 2 hours 30 minutes	~ 2 hours 30 minutes
Explanation of Milestone	Program code was re-organized, checked for warnings, and program was fully tested and debugged to check for any errors.	Program code was re-organized, checked for warnings, and program was fully tested and debugged to check for any errors.	Program code was re-organized, checked for warnings, and program was fully tested and debugged to check for any errors.
Code Output			

Mr. Hall Interview Questions

1. What do you think are some key aspects of any kind of scheduling program?
2. How does the existing program create the schedules (what is the process)?
3. What factors does the program take into consideration when organizing people and classes together?
Are there any minimum requirements or restrictions?
4. What relevant/useful information does the program and its output provide?
5. What are any existing problems with the program and its ways of outputting information?
6. If you could add or change anything about the program, what would that be? Do you think there is a better way of scheduling?
7. What database should we use to build our program; do we generate by ourselves?
8. How does manual input affect schedule (change/drop courses of students, add/cancel courses in the school)?
9. What does the interface of the scheduler look like?
10. What does the data structure look like (teachers, courses, periods, rooms, students' course selection)?