CSC 365 Lab 1, Part 1: Why Databases?

Ty Farris
Caitlin Settles

Initial Decisions

Programming language: Python
Environment: MacOS
Editor: SublimeText
Version Control: Git

Internal Structure

- Student class that contains all the data for one student
- A list of student objects called students
- search_xxx() functions for each of the R requirements, taking in the necessary parameters
- Main loop of the program that will prompt until the user chooses Q(uit) or the process is interrupted
- Main loop parses input and calls the appropriate search_xxx() function

Task Log

Task	**Assignee**	**Start**	**End**	**Total**
Parse + store input file	Caitlin	Monday 6	Monday 6	20 min
Parse prompt input	Ty	Monday 6	Monday 6	40 min
Filter data for search	Caitlin	Monday 6	Monday 6	1 hr
Combine all parts	Caitlin	Thursday 7	Thursday 7	30 min
Make testing file	Ty	Saturday 11	Saturday 11	3 hr
Make testing output file	Caitlin	Sunday 12	Sunday 12	45 min

Testing

Testing was completed on Friday 17th by Ty. Below is a log of the number of bugs found and fixed in the program.

Bug	Start	End	Total
Test output for student command and teacher command was missing information	12:00pm	12:15pm	15 min
The command `Teacher:` created an index out of bound error.	12:15pm	12:50pm	35 min
A list of options for the commands did appear if the user inputs the wrong command.	12:50pm	1:00pm	10 min
The command `G: 0 H` created ValueError where a function was being called on an empty sequence	1:00pm	1:30pm	30 min

Final Notes

Each query runs in O(N) time. A hashtable would be more efficient but require more space to key the necessary columns. We determined that a list was acceptable because of the small amount of data required for this assignment (only about 60 students).

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Modifications

- Removed Teacher's last name and first name field from our Student class
- Added a Teacher class that stores first and last name and classroom
- The two lists of information can be joined on the classroom number. There will be a many:one relationship between students and teachers.
- The parsing function was modified to add the new commands.

Syntax

NR1: "C: [Number] Students" or "Classroom: [Number] Students"
E.g. C: 101 Students

NR2: "C: [Number] Teachers" or "Classroom: [Number] Teachers"
E.g. C: 101 Teachers

NR3: "G: [Number] Teachers" or "Grade: [Number] Teachers"
E.g. G: 1 Teachers

NR4: "Enrollments" or "E"
E.g. E

NR5: "Analyze: [Grade|Teacher|Bus]"
E.g. Analyze: Grade