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CSC 365
Lab 1-2

Writeup

Initial Decisions:
We chose to use Python for its simplicity as a scripting language and its strength in parsing command line input. Complex libraries were not needed for this lab, so we had little reason to use a compiled language such as Java or C. We programmed on the CSL Unix Servers to ensure consistent results and easy testability. We used GitHub to maintain a repository of the code and allow for simple collaboration.

Internal Architecture:
We used a list of Student objects to hold data for each student from the list.txt file. We also added a list of Teacher objects to hold data for each teacher from the teachers.txt. This allows us to easily parse through all students and teachers.

Task Log:

1. Program Design
    a. Dane
    b. 09/25/2017 18:00-19:00
    c. 1 hour
2. Modifying Old Searches
    a. Kartik
    b. 09/25/2017 12:00-13:00
    c. 1 hour
3. Implementing New Searches
    a. Dane
    b. 09/25/2017 19:00-21:00
    c. 2 hours
4. Implementing Analytics
    a. Kartik
    b. 09/26/2017 11:00-12:30
    c. 1.5 hours
5. Test Suite
    a. Dane
    b. 09/26/2017 11:00-13:00
    c. 2 hours
6. Writeup
    a. Kartik
    b. 09/26/2017 12:30-13:00
    c. 0.5 hours

Testing Notes:
We faced an early bug concerning command inputs. If the command entered started with the same letter as a valid command, but contained incorrect letters afterwards, it was still registered as a valid command. This was resolved by using string constants with Python's substring functionality. The bug was quickly resolved.

Modification Notes:
Reading in the text files had to be modified. Any code that utilized a Student object also had to be updated.

New Syntax:

1. G[rade]: <grade> T[eacher]
    a. Given a grade, find all teachers who teach it
    b. "Grade: 4 Teacher"
2. C[lassroom]: <classroom>
    a. Given a classroom number, list all students assigned to it
    b. "Classroom: 101"
3. C[lassroom]: <classroom> T[eacher]
    a. Given a classroom number, find the teacher (or teachers) teaching in it
    b. "Classroom: 101 Teacher"
4. E[nrollment]
    a. Report the enrollments broken down by classroom
    b. "Enrollment"
5. D[ata]: G[rade]
    a. Analyze relationship between GPA and grade
    b. "Data: Grade"
6. D[ata]: T[eacher]
    a. Analyze the relationship between GPA and teacher
    b. "Data: Teacher"
7. D[ata]: B[us]
    a. Analyze the relationship between GPA and bus
    b. "Data: Bus"