**CSC122F2020ProgrammingReview**

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**Problem summary:**

Program to keep track of students, professors, and courses.

**List of requirements:**

* Every class has constructors, all the accessors, mutators, and methods specific for that class.
* Both students and professors inherit Person class.
* Professors have a group of students that they advise (Queue).
* To modify student’s GPA, program uses modifyGpa(int, char) where int is number of hours, and char is a grade that student got for those hours.
* In Course class, students are a list, and there is a seating chart for students that is 2D array
* Student have two compareTo methods, one commented out. One is comparing two students by their GPA, other is comparing two students by their names. (15 minutes)
* Course class has find method which returns true if the student with the given id is in that course, or false if not. The course class also keeps the number of compares as a field variable searchCompares. (15 minutes)
* Course class has sort method which sort list of students by their names. The course also keeps track of number of compares and number of moves in the sorting process (15 minutes)
* Course class has binary search method and sequential ordered search.

**Lessons learned:**

* Creating and using UML Diagram
* Testing the work (testing of classes, testing for bad cases, etc.)
* Creating project documentation
* Class inheritance
* Working with priority queues
* Comparable interface
* Sequential unordered search
* Selection sort
* Binary search and sequential ordered search

**Estimated time:** 3hr

**Time:** 3hr – Coding takes little time, most of the time is for writing tests.

**If I had more time:** I would write test for binary search and sequential ordered search, and I would also finish step 8.

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| Student |
| -gpa: float  -hours: int  -major: String |
| +Student()  +Student(String, String, String, String, float, int, String)  +getGpa(): float  +getHours(): int  +getMajor(): String  +setGpa(float): void  +setHours(int): void  +setMajor(String): void  +modifyGpa(int, char): void  +compareTo(Student): int  +toString(): String |

|  |
| --- |
| Person |
| -name: String  -email: String  -id: String  -dob: String |
| +Person()  +Person(String, String, String, String)  +getName(): String  +getEmail(): String  +getID(): String  +getDob(): String  +setName(String): void  +setEmail(String): void  +setId(String): void  +setDob(String): void  +isEqual(Person): boolean  +toString(): String |

|  |
| --- |
| Course |
| -courseCode: String  -courseName: String  -instructor: Professor  -hours: int  -searchCompares: int  -sortCompares: int  -sortMoves: int  -students: ArrayList<Student>  -seating: Student[][] |
| +Course()  +Course(String, String, Professor, int, int)  +getCourseCode(): String  +getCourseName(): String  +getInstructor(): String  +getHours(): int  +getSearchCompares(): int  +getSortCompares(): int  +getSortMoves(): int  +setCourseCode(String): void  +setCourseName(String): void  +setInstructor(Professor): Professor  +setHours(int): void  +setSearchCompares(int): void  +setSortCompare(int): void  +setSortMoves(int): void  +printStudents(): StringID  +addStudent(Student): void  +removeStudent(String): Student  +printSeating(): String  +assignSeating(Student, int, int): void  +removeSeating(String): Student  +removeSeating(int, int): Student  +find(String): Boolean  +sort(): void  +binarySearch(int, int, String): int  +findSequentiaOrder(String): boolean  +toString(): String |

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| Professor |
| -department: String  -salary: double  -advisees: PriorityQueue<Student> |
| +Professor()  +Professor(String, String, String, String, String, double)  +getDepartment(): String  +getSalary(): double  +setDepartment(String): void  +setSalary(double): void  +printAdvisees(): String  +addAdvisee(Student): void  +peekAdvisee(): String  +removeAdvisee(): Student  +toString(): String |