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/*
 * StudentComparators.h
 *
 * Created on: Oct 4, 2016
 * Author: Kenny Do
 */

#ifndef STUDENTCOMPARATORS_H_
#define STUDENTCOMPARATORS_H_

#include <string.h>

#include "ComparatorInterface.h"
#include "myDate.h"
#include "StudentStruct.h"

class StudentComparators {
    class CompareStudentID: public ComparatorInterface<Student> {
        /**
         * Compare by student ID
         */
        int compare(Student stu1, Student stu2) {
            return stu1.idNum - stu2.idNum;
        }
    };

    class CompareStudentAge: public ComparatorInterface<Student> {
        /**
         * Compare by student age
         */
        int compare(Student stu1, Student stu2) {
            return stu1.birthdate.daysBetween(myDate(1,1,2016)) -
                stu2.birthdate.daysBetween(myDate(1,1,2016));
        }
    };

    class CompareStudentName: public ComparatorInterface<Student> {
        /**
         * Compare by student name
         */
        int compare(Student stu1, Student stu2) {
            return strcmp(stu1.name, stu2.name);
        }
    };

    class CompareStudentGrade: public ComparatorInterface<Student> {
        /**
         * Compare by student grade
         */
        int compare(Student stu1, Student stu2) {
            return stu1.grade - stu2.grade;
        }
    };

public:
    static CompareStudentID* compareByStudentID() {
        return new CompareStudentID;
    }
    /**
     * Precondition:
     *     none
     * Postcondition:
     *     Returns a ComparatorInterface sorting by ID
     */

    static CompareStudentAge* compareByStudentAge() {
        return new CompareStudentAge;
    }

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}
/**
 * Precondition:
 *     none
 * Postcondition:
 *     Returns a ComparatorInterface sorting by Age
 */

static CompareStudentName* compareByStudentName() {
    return new CompareStudentName;
}
/**
 * Precondition:
 *     none
 * Postcondition:
 *     Returns a ComparatorInterface sorting by Name
 */

static CompareStudentGrade* compareByStudentGrade() {
    return new CompareStudentGrade;
}
/**
 * Precondition:
 *     none
 * Postcondition:
 *     Returns a ComparatorInterface sorting by Grade
 */

};
```

```
#endif /* STUDENTCOMPARATORS_H_ */
```