

C++ Schedule Management Project

Grupo G76

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Main Implemented Classes

UC

```
class UC {  
  
    private:  
  
        std::string uc_code_;  
  
        std::list<std::shared_ptr<Class  
>> classes_;  
  
        std::list<Student>  
        enrolled_students_;  
  
    public:  
  
        // UC methods  
  
    {  
  
        _____  
    }
```

Class

```
class Class {  
  
private:  
  
    std::string class_code_;  
  
    std::vector<Lecture> lectures_  
  
    std::vector<std::pair<std::string,  
std::list<Student>>>  
enrolled_students_  
  
    std::list<std::pair<std::string,  
int>> student_count_  
  
public:  
  
    // Class methods  
  
}
```

Lecture

```
class Lecture {  
  
private:  
  
    std::string class_code_;  
  
    std::string uc_code_;  
  
    std::string weekday_;  
  
    std::string start_hour_;  
  
    std::string duration_;  
  
    std::string type_;  
  
public:  
  
    // Lecture methods  
  
}
```

Student

```
class Student {  
  
    private:  
  
        std::string student_code_;  
  
        std::string student_name_;  
  
        std::vector<std::pair<std::string,  
std::string>> enrolled_classes_;  
        //<uc_code, class_code>  
  
    public:  
  
        // Student methods  
  
}
```

Schedule

```
class Schedule {  
private:  
    std::vector<Lecture> lectures_;  
public:  
    Schedule(const Student &student, const  
std::vector<Lecture> &lectures) ;  
    explicit Schedule(const Class &c) ;  
    explicit Schedule(const UC &uc) ;  
    const std::vector<Lecture>  
&get_lectures () const;  
    void printSchedule () const;  
    bool conflicts(const Lecture &lecture) ;  
};
```

Functionalities

Consulting

Consult

< Schedules >

Students

Classes

UCs

Year

Main Menu

Requests

Process add, remove and switch requests

Application Class

- Add student to a UC class

```
std::string add_student_to_uc(const  
std::string &student, const std::string  
&uc, const std::string &c);
```

- Remove student from a UC class

```
std::string remove_student_from_uc(const  
std::string &student code, const  
std::string &uc, const std::string &c);
```

- Switch a student class

```
std::string switch_student_class(const  
std::string &student code, const  
std::string &uc, const std::string  
&old_class, const std::string &new_class);
```

Read and Write Data

File Reader

Read information of .csv dataset
files

```
class File_Reader {  
  
private:  
    std::ifstream file ;  
    std::vector<std::vector<std::string>>  
data_;  
  
public:  
    explicit File_Reader(const std::string  
&file_name);  
  
    std::vector<Lecture>  
instantiateLectures();  
  
    void  
instantiateStudents(std::set<Student>  
*students);  
  
    void classListing(std::map<std::string,  
std::list<std::string>> *c);  
    std::stack<std::vector<std::string>>  
read_changes();  
  
};
```

Write Data

Update changes in .csv files

- Write changes to `students_classes.csv`

```
void write_to_students_file(const  
std::string &line)
```

```
void remove_line_from_file(const  
std::string& lineToRemove)
```

- Record changes at `changes.csv`

```
void log_changes(const std::string  
&line)
```

Data Structures

Vectors, Lists, Sets and Stacks

- Vector

used in most cases, for grouping lectures, students, classes and UCs

- List

grouping classes and students of each UC

- Set

store all students in Application class

- Stack

Store most recent changes

Interface

< Search for students name or ID -> You can write here >

Sort by A-Z

Show students in at least 0 UCs

Back

Main Menu

Use 'up' and 'down' arrow keys to navigate and 'enter' to select
Use 'tab' to interact and stop interacting with the students list

Abel	202044867
Abilio	202040617
Adelaide	202025572
Adolfo	202047247
Adriana	202026422
Adriano	202073597
Afonso	202034072
Agata	202028462
Agostinho	202051667
Albano	201950477
Next Page ['n']	
Last Page	
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Number of students : 709

< UC >

Switch Classes

Main Menu

Use 'up' and 'down' arrow keys to navigate and 'enter' to select

< Revert removing of Adolfo(202047247) from UC L.EIC012 >

Main Menu

Use 'up' and 'down' arrow keys to navigate and 'enter' to select