

# Students record manager

## 1.Introduction& Objective

Every company needs software to manage data. In our case we have school as company, our objective here is to build a software that makes easy to school or teachers to manage student record. Software that has function of input, retrieve, modify, add, removing, output. Information of student include: studentID, name, sex, scores of Chinese, Math, English, Physics, Chemistry, total score, and ranking. System has function menu. Total score and ranking is got by computing. Student information can be retrieved and modified by studentID, name, total score, or ranking. Student information can be outputted by studentID or ranking.

## 2.Method

```
// display and stabilizer functions
void DISPLAY_STUDENT();
void SEARCH_STUDENT();
void ADD_STUDENT();
void MODIFY_STUDENT();
void DELETE_STUDENT();
void RETRIEVED();
//stabilizer functions
void RANK_OF_STUDENT();
void ID_OF_STUDENT();
void COUNT_NUMBER_OF_STUDENT();
void CORRECT_NAME(char *);
void CHECK_IF_EXIST(int, char* ,const char* , int* );
void BACKUPS_STABILIZER(struct student, const char*);
void DATA_SECURE(int);
```

To make this work perfectly, I made 13 functions (6 *display and stabilizer functions*, 7 *stabilizer function*) neither to main function. I will firstly about stabilizer functions:

### Stabilizer functions:

#### 1. void DATA\_SECURE(int);

While you are using the software your electricity could shut down, or your computer's stuck or anything could happen stop the software while it's running.

So here we come to the importance of this function, this function simply at being of running, copy data from files "20210950\_STD\_INFO.txt", "20210950\_BACKUPS.txt" and put it in "projectC.txt", "backups.txt" which are the functions the program work with, so if the program stop running in any *display and stabilizer functions*, just run again and you will get the previous version of the data. If everything done perfectly and

you choose to exit the software, *DATA\_SECURE* will update “20210950\_STD\_INFO.txt”, “20210950\_BACKUPS.txt” and remove “projectC.txt”, “backups.txt” so it’s free more space.

## 2. `void COUNT_NUMBER_OF_STUDENT();`

This function as his name count number of student and give the value to:

```
static int NUMBER_OF_STUDENT;
```

so other function whose work with number of student call this function.

## 3. `void CORRECT_NAME(char *);`

To avoid problem of pickup students by name (for example “hamza el assyry” is totally different from “haMza el aSsY” or “ hamza el assyry ”)

So for that I created this which correct name from this function which correct name from this “ haMza el assyry ” to this “Hamza El Assyry”.

## 4. `void CHECK_IF_EXIST(int, char* ,const char* ,int* );`

This function check if student id or student name exist in the file, we enter it like this (id,name,“filename.txt”, integer called valid) if the student id or student name exist , valid return 0, else return 1.

This function make sure to not adding the same student twice.

## 5. `void RANK_OF_STUDENT();`

*RANK\_OF\_STUDENT* function collect student total score with their id from “project.txt”, and order the total scores in descending order, read again “projectC.txt” and print it in order in “temp.txt” (temporary file) with giving the students rank, after closing the files, remove “projectC.txt”, rename “temp.txt” to “projectC.txt”.

So we have ranked version.

## 6. `void ID_OF_STUDENT();`

*ID\_OF\_STUDENT* function is the same as *RANK\_OF\_STUDENT* function, the only difference is that it order the id in ascending order, and it collect just the ids.

## 7. `void BACKUPS_STABILIZER(struct student,const char*);`

This function I will explain it after *DELET\_STUDENT* function.

Now let’s move on to **display and stabilizer functions:**

## 1. `int main()`

*main* function just print on screen the menu and took your choice and call the function you want.

```
Windows PowerShell
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PS C:\Users\Invité\Desktop\C files> cd "c:\Users\Invité\Desktop\C files\C_home_work\C_project\" ; if ($?) { g++ 20210950.C -o 20210950 } ; if ($?) { .\20210950 }

=====STUDENT RECORD MANAGEMENT=====

1-Display
2-Search
3-Add
4-Modify
5-Delete
6-Retrieved
0-Exit
Enter your choice:
```

## 2. void DISPLAY\_STUDENT();

This function will ask if you want to display student by their rank or id:

```
=====STUDENT RECORDS=====

1-Display by student ID
2-Display by student RANK
Enter your choice:
```

If you choose for example second option (rank) will display number of students and students:

```
=====STUDENT RECORDS=====

1-Display by student ID
2-Display by student RANK
Enter your choice:2

There's 4 students

StudentID  name          sex  chinese  math  english  physic  chemistry  total  rank
20210954  Achraf Hakimi  M    92.50    92.50  92.50    92.50    92.50    462.50    1
20210953  Khaoula Tabaa  F    92.50    92.50  92.50    92.50    92.50    462.50    2
20210952  Nourimane Charifi  F    90.50    90.50  90.50    90.50    90.50    452.50    3
20210951  Rim El Kili    F    89.50    89.50  89.50    89.50    89.50    447.50    4

Press any key to back to MENU.....
```

Press any key and you will back *main* function.

## 3. void SEARCH\_STUDENT();

This function ask you to choose whether you want to search by id or rank, if the student exist it will print it if doesn't exist it will print "*Student not found*".

```
=====SEARCH STUDENT=====

1-Search by student ID
2-Search by student RANK
Enter your choice:1

Enter Student ID:20210954

StudentID   name      sex      chinese  math    english  physic   chemistry  total   rank
20210954   Achraf Hakimi  M        92.50    92.50   92.50    92.50    92.50      462.50   1

Press any key to back to MENU.....
```

```
=====SEARCH STUDENT=====

1-Search by student ID
2-Search by student RANK
Enter your choice:1

Enter Student ID:20210999

Student Not found.
Press any key to back to MENU.....
```

And press any key and you will back *main* function.

#### 4. `void ADD_STUDENT();`

This function let you add student, if the student does exist the function won't add it to the file, if the student doesn't exist in the file, the function will add it and call *RANK\_OF\_STUDENT* function to recalculate ranks.

```
=====ADDING STUDENT=====

Enter student ID      :20210954
Enter student name    :achraf hakimi
Enter student sex(M/F):m
Enter score of Chinese :92.5
Enter score of Math    :92.5
Enter score of English :92.5
Enter score of Physic  :92.5
Enter score of chemistry :92.5

20210954 , Achraf Hakimi exists in student list, can not store this student twice

If you want to modify record use "Modify" function in menu.

Do you want to add another student?(y/n)
y

=====ADDING STUDENT=====

Enter student ID      :20210899
Enter student name    :mona fito
Enter student sex(M/F):f
Enter score of Chinese :78.5
Enter score of Math    :78.5
Enter score of English :78.5
Enter score of Physic  :78.5
Enter score of chemistry :78.5

Student added successfully

Do you want to add another student?(y/n)
n

Press any key to back to MENU.....
```

And press any key and you will back *main* function.

#### 5. `void MODIFY_STUDENT();`

As the name, the function let you modify the student data, so you don't have to delete student and add it again.

```
=====MODIFY STUDENT=====

1-Modify by student ID
2-Modify by student RANK
3-Modify by student NAME
4-Modify by student TOTAL SCORE
Enter your choice:
```

There's no students can have same id, name or rank, but can have same total score. For this, the function will ask if the student you want to modify is this.

```
=====MODIFY STUDENT=====

1-Modify by student ID
2-Modify by student RANK
3-Modify by student NAME
4-Modify by student TOTAL SCORE
Enter your choice:4

Enter Student TOTAL SCORE:462.5

StudentID  name      sex  chinese  math  english  physic  chemistry  total  rank
20210953  Khaoula Tabaa  F    92.50    92.50  92.50    92.50    92.50    462.50    1

Is this the student you want to modify?(y/n)
n

StudentID  name      sex  chinese  math  english  physic  chemistry  total  rank
20210954  Achraf Hakimi  M    92.50    92.50  92.50    92.50    92.50    462.50    2

Is this the student you want to modify?(y/n)
y

Re-enter the data:
Enter student ID      :20210954
Enter student name    :achraf hakimi
Enter student sex(M/F):M
Enter score of Chinese:79.5
Enter score of Math   :79.5
Enter score of English:79.5
Enter score of Physic :79.5
Enter score of chemistry:79.5

Student modified successfully.
Press any key to back to MENU.....
```

And press any key and you will back *main* function.

## 6. `void DELETE_STUDENT();`

This function deletes student you want to delete. As *MODIFY\_STUDENT* function, there's no students can have same id, name or rank, but can have same total score. For this, the function will ask if the student you want to delete is this.

```

=====DELETE STUDENT=====

1-Delete by student ID
2-Delete by student RANK
3-Delete by student NAME
4-Delete by student TOTAL SCORE
Enter your choice:4

Enter Student TOTAL SCORE:462.5
StudentID name sex chinese math english physic chemistry total rank
20210953 Khaoula Tabaa F 92.50 92.50 92.50 92.50 92.50 462.50 1

Are you sure you want delete this student(y/n)?
n
StudentID name sex chinese math english physic chemistry total rank
20210954 Achraf Hakimi M 92.50 92.50 92.50 92.50 92.50 462.50 2

Are you sure you want delete this student(y/n)?
y

Student deleted successfully.
Press any key to back to MENU.....

```

But here what truly happen is that *DELETE\_STUDENT* function don't delete student, it just move it from "projectC.txt" to "backups.txt" by calling *BACKUPS\_STABILIZER* function which check (by *CHECK\_IF\_EXIST* function) if this student exist before in "backups.txt", if he exist it will delete him and add the last version ,if not it will add him simply to the file.

## 6. void RETRIEVED();

This function simply print all student in "backups.txt", and let you retrieve the student you want by enter the id, name, total score and rank. As *DELETE\_STUDENT* function, *RETRIEVED* use *BACKUPS\_STABILIZER* function to retrieve student to "projectC.txt", if he exist, it will remove him and upload last version.

```

=====STUDENT RECORDS=====

1-Display by student ID
2-Display by student RANK
Enter your choice:2

There's 5 students
StudentID name sex chinese math english physic chemistry total rank
20210953 Khaoula Tabaa F 92.50 92.50 92.50 92.50 92.50 462.50 1
20210952 Nourimane Charifi F 90.50 90.50 90.50 90.50 90.50 452.50 2
20210951 Rim El Kili F 89.50 89.50 89.50 89.50 89.50 447.50 3
20210954 Achraf Hakimi M 79.50 79.50 79.50 79.50 79.50 397.50 4
20210899 Mona Fito F 78.50 78.50 78.50 78.50 78.50 392.50 5
Press any key to back to MENU.....

```

```

=====RETRIEVE STUDENT=====

StudentID  name          sex    chinese  math    english  physic  chemistry  total  rank
20210955   Reda El Korchy      M      95.50    95.50    95.50    95.50    95.50    477.50    3
20210950   Hamza El Assyry     M      91.50    91.50    91.50    91.50    91.50    457.50    3
20210954   Achraf Hakimi       M      92.50    92.50    92.50    92.50    92.50    462.50    3

1-Retrieve by student ID
2-Retrieve by student NAME
3-Retrieve by student TOTAL SCORE
4-Retrieve by student RANK
Enter your choice:4

Enter student RANK:3

StudentID  name          sex    chinese  math    english  physic  chemistry  total  rank
20210955   Reda El Korchy      M      95.50    95.50    95.50    95.50    95.50    477.50    3

Is this the student you want to modify?(y/n)
n

StudentID  name          sex    chinese  math    english  physic  chemistry  total  rank
20210950   Hamza El Assyry     M      91.50    91.50    91.50    91.50    91.50    457.50    3

Is this the student you want to modify?(y/n)
n

StudentID  name          sex    chinese  math    english  physic  chemistry  total  rank
20210954   Achraf Hakimi       M      92.50    92.50    92.50    92.50    92.50    462.50    3

Is this the student you want to modify?(y/n)
y

Student backup successfully
Press any key to back to MENU.....

```

```

=====STUDENT RECORDS=====

1-Display by student ID
2-Display by student RANK
Enter your choice:2

There's 5 students

StudentID  name          sex    chinese  math    english  physic  chemistry  total  rank
20210953   Khaoula Tabaa      F      92.50    92.50    92.50    92.50    92.50    462.50    1
20210954   Achraf Hakimi       M      92.50    92.50    92.50    92.50    92.50    462.50    2
20210952   Nourimane Charifi   F      90.50    90.50    90.50    90.50    90.50    452.50    3
20210951   Rim El Kili         F      89.50    89.50    89.50    89.50    89.50    447.50    4
20210899   Mona Fito           F      78.50    78.50    78.50    78.50    78.50    392.50    5

Press any key to back to MENU.....

```

### 3.Experiment results and Discussion

While making this program I learned many thing such as (type of files, how to make your own header, how programmer analyze the project...) and most think I learned is that you should start making the program first then updated.

I was looking for binary file to make it fast as possible but notice a problem if we transfer binary file from x64 computer to x86 computer we will risk to lose data.

The big problem I faced is human fault, for example adding the same student twice, input the name in wrong way, enter the wrong choice in *display and stabilizer functions*... for that I tried to make this program to help the user to input data and deal with human errors as much as possible.

So I will give some warnings to avoid system error:

- **Do not do any modification on files directly, the program is made to deal with human errors not files errors.**
- **If you change files name, the program will automatically create new files to work with, so the program back to 0 students.**
- **In case you have to modify directly in the file, please try to write data as other student, and don't forget to leave new line after last student.**
- **If something happen to your computer while the program is running check in (MENU>1-Display>1-Display by student rank) if the data still there, if not : do not exit the program by menu (MENU>0-Exit), stop the program in other way or you will risk to lose data.**
- **Do not delete "projectC.txt" and "backups.txt" the program is made to delete those two files after you exit by menu (MENU>0-Exit).**

#### **4.Conclusion**

Thank God I choose this task, I learned many things while I made it, and thank teacher for teaching us and sharing with us your knowledge. And finally I hope for us to get best knowledge and improve our level

#### **5.Reference**

I took as reference courses in Clanguage in CJLU.