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MECHATRONICS ENGINEERING
DEPARTMENT

3rd Year Mechanical.

CSE 325

Computer Programming



1-Project over-view:

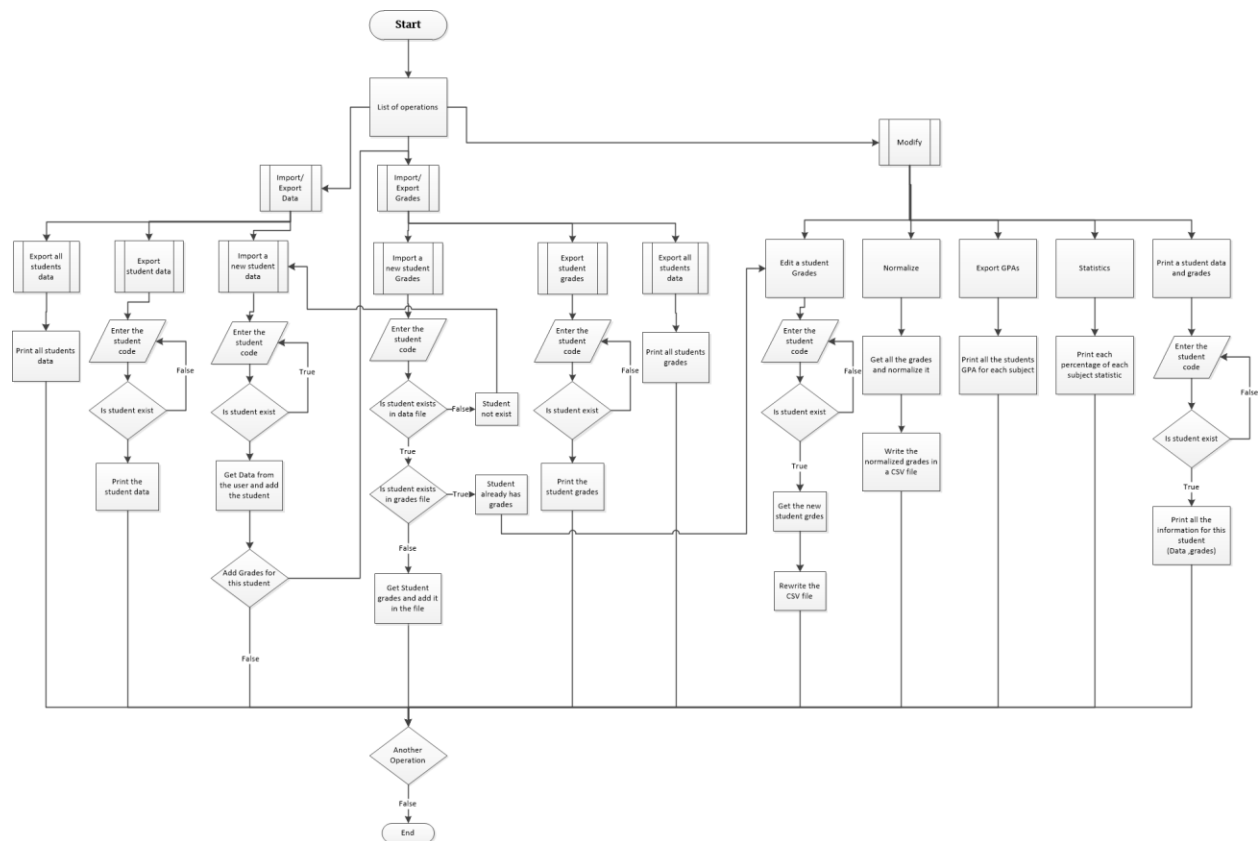
This is a LMS project with C++ as Programming language,
It's used to do the following operations:

- 1-Import a new student (data, grades) (Adding new student to the system)
- 2-Export an existing student's data or grades or both
- 3-Print all students data and grades on the screen
- 4-Converting the grades to GPAs for each subject and print it on the screen
- 5-Modify a student grades
- 6-Normalize the students' grades and save it into a CSV file
- 7-Print statistics for all subjects with all GPAs

Note: this project uses 4 files with CSV extension to hold the data
(Students' data, Students' grades, Students' GPAs, Normalized grades)

Location of the files : LMS\cmake-build-debug

2-Flow chart for the program:



3-Screenshots of the program while running:

A-Import a new student

```
"M:\C++ Projects\LMS\cmake-build-debug\LMS.exe"
Welcome to LMS, please choose an operation number to proceed.(Enter a character to exit)
1- Import/export student data...
2- Import/export student grades...
3- Modify...

1
    1- Import a new student data...
    2- Export a student data...
    3- Export all students data...

1
Enter the data of the new student...
Code:1701177

        Add new student
        -----
        Code:1701177
        Name:Mohamed Hassan
        Age:22
        Gender:M
Do you want to add grades for this student?(Y/N)
n

Do you want to do another operation?(Y/N)
n

Process finished with exit code 0
|
```

B-Import a new student and add grades

```
"M:\C++ Projects\LMS\cmake-build-debug\LMS.exe"
Welcome to LMS, please choose an operation number to proceed.(Enter a character to exit)
1- Import/export student data...
2- Import/export student grades...
3- Modify...

1
    1- Import a new student data...
    2- Export a student data...
    3- Export all students data...

1
Enter the data of the new student...
Code:1701177

        Add new student
        -----
        Code:1701177
        Name:Mohamed Hassan
        Age:22
        Gender:M
Do you want to add grades for this student?(Y/N)
Y

        Add new student grades
        -----
        Code:1701177
        Math grade:100
        Physics grade:70
        Drawing grade:50
        Computer grade:60
        Chemistry grade:41

Do you want to do another operation?(Y/N)
n
```

C-Export a student data

```
"M:\C++ Projects\LMS\cmake-build-debug\LMS.exe"
Welcome to LMS, please choose an operation number to proceed.(Enter a character to exit)
  1- Import/export student data...
  2- Import/export student grades...
  3- Modify...

1
  1- Import a new student data...
  2- Export a student data...
  3- Export all students data...

2
Enter the student ID...
17E1203

      Student data
      -----
Code: 17E1203
Name: Tarek Mohamed
Age: 22
Gender: M
```

```
Do you want to do another operation?(Y/N)
y
Welcome to LMS, please choose an operation number to proceed.(Enter a character to exit)
  1- Import/export student data...
  2- Import/export student grades...
  3- Modify...

1
  1- Import a new student data...
  2- Export a student data...
  3- Export all students data...

2
Enter the student ID...
1701177

      Student data
      -----
Code: 1701177
Name: Mohamed hassan
Age: 22
Gender: M

Do you want to do another operation?(Y/N)
n

Process finished with exit code 0
|
```

D-Export all students Data

```
"M:\C++ Projects\LMS\cmake-build-debug\LMS.exe"
Welcome to LMS, please choose an operation number to proceed.(Enter a character to exit)
1- Import/export student data...
2- Import/export student grades...
3- Modify...

1
1- Import a new student data...
2- Export a student data...
3- Export all students data...

3
Student No:1
Name:Yehia Mohamed
Code:17P2012
Age:22
Gender:M
-----
Student No:2
Name:Ayman Ali
Code:17P1982
Age:22
Gender:M
-----
Student No:3
Name:Menna Ashrad
Code:18P1236
Age:21
Gender:F
-----
Student No:4
Name:Radwa Ahmed
Code:16E1099
Age:23
```

E-Import new student grades

```
"M:\C++ Projects\LMS\cmake-build-debug\LMS.exe"
Welcome to LMS, please choose an operation number to proceed.(Enter a character to exit)
1- Import/export student data...
2- Import/export student grades...
3- Modify...

2
1- Import a new student grades...
2- Export a student grades...
3- Export all students grades...

1
Enter the Code of the new student...
Code:1701178

Add new student grades
-----
Code:1701178
Math grade:20
Physics grade:30
Drawing grade:50
Computer grade:40
Chemistry grade:80

Do you want to do another operation?(Y/N)
n

Process finished with exit code 0
|
```

F-Export student grades

```
"M:\C++ Projects\LMS\cmake-build-debug\LMS.exe"
Welcome to LMS, please choose an operation number to proceed.(Enter a character to exit)
  1- Import/export student data...
  2- Import/export student grades...
  3- Modify...

2
  1- Import a new student grades...
  2- Export a student grades...
  3- Export all students grades...

2
Enter the student ID...
Code:1701178

      Student grades
      -----
      Code: 1701178
      Math: 20
      Physics: 30
      Drawing: 50
      Computer: 40
      Chemistry: 80

Do you want to do another operation?(Y/N)
n

Process finished with exit code 0
|
```

G-Export all student grades

```
"M:\C++ Projects\LMS\cmake-build-debug\LMS.exe"
Welcome to LMS, please choose an operation number to proceed.(Enter a character to exit)
  1- Import/export student data...
  2- Import/export student grades...
  3- Modify...

2
  1- Import a new student grades...
  2- Export a student grades...
  3- Export all students grades...

3
Student No:1
  Code:17P2012
  Math grade:54
  Physics grade:56
  Drawing grade:88
  Computer grade:77
  Chemistry grade:74
-----
Student No:2
  Code:17P1982
  Math grade:50
  Physics grade:49
  Drawing grade:93
  Computer grade:64
  Chemistry grade:92
-----
Student No:3
  Code:18P1236
  Math grade:94
  Physics grade:77
  Drawing grade:45
  Computer grade:61
```

H-Normalize grades

```
student code,Math,Physics,Drawing,Computer,Chemistry
17P2012,-0.712254,-0.627681,0.912415,0.912415,0.860213,-0.173841
17P1982,-0.883194,-1.04948,1.21157,1.21157,0.0933945,0.93056
18P1236,0.997155,0.637724,-1.6603,-1.6603,-0.0835636,-1.15553
16E1099,1.1681,-0.266137,0.792754,0.792754,-1.02734,0.501071
17E1203,1.03989,-0.748196,0.673093,0.673093,2.15791,0.317004
18E1230,-0.242166,0.155665,0.673093,0.673093,-0.791396,-1.15553
17P0120,-0.498577,0.215923,0.0747881,0.0747881,0.211367,-0.112485
17E1100,-0.669518,1.18004,1.03208,1.03208,1.45007,0.991915
18P0101,0.313392,1.05953,-0.224364,-0.224364,-0.673424,0.439715
1701177,0.398862,0.215923,-0.762838,-0.762838,-0.73241,1.4214
1701177,1.25357,1.42107,-1.36114,-1.36114,-0.14255,-2.19858
1701178,-2.16525,-2.19437,-1.36114,-1.36114,-1.32227,0.194293
```

I-Edit student grades

```
"M:\C++ Projects\LMS\cmake-build-debug\LMS.exe"
Welcome to LMS, please choose an operation number to proceed.(Enter a character to exit)
1- Import/export student data...
2- Import/export student grades...
3- Modify...

3
1- Normalize...
2- Edit a student grades...
3- Export GPA grades...
4- Statistics...
5- Print a student data and grades...

2
Enter the code of the student...
Code:1701178

Edit a student grades
-----
Code:1701178
Math grade:100
Physics grade:100
Drawing grade:100
Computer grade:100
Chemistry grade:100

Do you want to do another operation?(Y/N)
n

Process finished with exit code 0
|
```


J-Export all GPAs

```
"M:\C++ Projects\LMS\cmake-build-debug\LMS.exe"
Welcome to LMS, please choose an operation number to proceed.(Enter a character to exit)
  1- Import/export student data...
  2- Import/export student grades...
  3- Modify...

3
  1- Normalize...
  2- Edit a student grades...
  3- Export GPA grades...
  4- Statistics...
  5- Print a student data and grades...

3
Student No:1
  Code:17P2012
  Math GPA:F
  Physics GPA:F
  Drawing GPA:B+
  Computer GPA:C+
  Chemistry GPA:C
-----
Student No:2
  Code:17P1982
  Math GPA:F
  Physics GPA:F
  Drawing GPA:A
  Computer GPA:D
  Chemistry GPA:A
-----
Student No:3
  Code:18P1236
  Math GPA:A
  Physics GPA:C+
```

K-Statistics

```
"M:\C++ Projects\LMS\cmake-build-debug\LMS.exe"
Welcome to LMS, please choose an operation number to proceed.(Enter a character to exit)
  1- Import/export student data...
  2- Import/export student grades...
  3- Modify...

3
  1- Normalize...
  2- Edit a student grades...
  3- Export GPA grades...
  4- Statistics...
  5- Print a student data and grades...

4
      Math
      ----
41.7% of the students got A
0% of the students got B+
8.33% of the students got B
8.33% of the students got C+
0% of the students got C
8.33% of the students got D+
0% of the students got D
33.3% of the students got F
```

```
Physics
-----
16.7% of the students got A
8.33% of the students got B+
8.33% of the students got B
8.33% of the students got C+
16.7% of the students got C
8.33% of the students got D+
8.33% of the students got D
25% of the students got F
```

```
Drawing
-----
25% of the students got A
16.7% of the students got B+
16.7% of the students got B
0% of the students got C+
8.33% of the students got C
8.33% of the students got D+
8.33% of the students got D
16.7% of the students got F
```

```
Computer
-----
16.7% of the students got A
8.33% of the students got B+
0% of the students got B
8.33% of the students got C+
0% of the students got C
8.33% of the students got D+
25% of the students got D
33.3% of the students got F
```

```
Computer
-----
16.7% of the students got A
8.33% of the students got B+
0% of the students got B
8.33% of the students got C+
0% of the students got C
8.33% of the students got D+
25% of the students got D
33.3% of the students got F
```

```
Chemistry
-----
33.3% of the students got A
8.33% of the students got B+
16.7% of the students got B
8.33% of the students got C+
8.33% of the students got C
0% of the students got D+
0% of the students got D
25% of the students got F
```

```
Do you want to do another operation?(Y/N)
```

```
n
```

```
Process finished with exit code 0
```

L-Student's basic information and grades

```
"M:\C++ Projects\LMS\cmake-build-debug\LMS.exe"
Welcome to LMS, please choose an operation number to proceed.(Enter a character to exit)
    1- Import/export student data...
    2- Import/export student grades...
    3- Modify...
3
    1- Normalize...
    2- Edit a student grades...
    3- Export GPA grades...
    4- Statistics...
    5- Print a student data and grades...
5
Enter the student code:1701177

Student's basic information and grades:
    Code:1701177
    Name:Mohamed hassan
    Age:22
    Gender:M
    Math grade:80(B)
    Physics grade:70(C)
    Drawing grade:60(D)
    Computer grade:50(F)
    Chemistry grade:100(A)

Do you want to do another operation?(Y/N)
n

Process finished with exit code 0
|
```