

Mastering Embedded System Online Diploma

Student Management System Project

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First Term (Final Project 2)

Eng. Assem Ayman Hasballa

My Profile:

<https://www.learn-in-depth.com/online-diploma/assemayman79@gmail.com>



PROBLEM STATEMENT

Write a program to build simple software for a student information management system that can perform the following operations:

1. Store the first name of the student.
 2. Store the last name of the student.
 3. Store the unique roll number (ID) for every student.
 4. Store the GPA of every student.
 5. Store the courses registered by the student.
-

APPROACH

Using a queue to be the database that contains the students. The processes performed on the system are divided into functions that do:

1. Add student details manually.
2. Add student details from a text file.
3. Find students by a given roll number.
4. Find students by a given first name.
5. Find students registered in a specific course.
6. Number of students registered.
7. Delete students by roll number.
8. Update student information.

IMPLEMENTATION

The project has four files:

1. main.c which has the main program interface and calling the functions.
2. student.h which has the functions' prototypes, a global struct for student data, another global struct for the queue and an array of students to be the buffer.
3. student.c which has the functions' definitions.
4. data.txt which has a set of students' data.

- **To Access Source Files Please Press the Link below: -**

https://github.com/AssemAyman/Mastering-Embedded-System-Online-Diploma/tree/main/Student_Management_System_Project

SIMULATION

- Add Students from a text file

```
data.txt - Notepad
File Edit Format View Help
20010770 Assem Ayman 3.75 211 222 233 244 255
20010770 Assem Ayman 3.75 211 222 233 244 255
20010769 Adel Mahmoud 3.86 211 222 233 244 255
20010886 Abdo Nasr 3.44 211 222 233 244 255
```

Welcome To The Student Management System

Choose one of the following options:-

- 1.Add new student manually.
- 2.Add students from text file.
- 3.Find student by ID.
- 4.Find student by first name.
- 5.Find students registered in a specific course.
- 6.Total number of students.
- 7.Delete student by ID.
- 8.Update student by ID.
- 9.Print all students.
- 10.Exit.

Enter option number: 2

[INFO] ID 20010770 added Successfully

[ERROR] ID 20010770 is already taken

[INFO] ID 20010769 added Successfully

[INFO] ID 20010886 added Successfully

[INFO] The total number of Student is 3

[INFO] You can add up to 50 Students

[INFO] You can add 47 more students

- Add student manually
 - (CASE 1)

```
Choose one of the following options:-
1.Add new student manually.
2.Add students from text file.
3.Find student by ID.
4.Find student by first name.
5.Find students registered in a specific course.
6.Total number of students.
7.Delete student by ID.
8.Update student by ID.
9.Print all students.
10.Exit.
Enter option number: 1
-----
Add the Students Details
-----
Enter the ID Number: 20010333
Enter the first name of the student: Ziad
Enter the last name of the student: Ahmed
Enter the GPA you obtained: 3.2
Enter the course ID of each course
Course 1 ID: 211
Course 2 ID: 222
Course 3 ID: 233
Course 4 ID: 111
Course 5 ID: 144
[INFO] Students Details are added Successfully
-----
[INFO] The total number of Student is 4
[INFO] You can add up to 50 Students
[INFO] You can add 46 more students
-----
```

– (CASE 2)

```
-----
Choose one of the following options:-
1.Add new student manually.
2.Add students from text file.
3.Find student by ID.
4.Find student by first name.
5.Find students registered in a specific course.
6.Total number of students.
7.Delete student by ID.
8.Update student by ID.
9.Print all students.
10.Exit.
Enter option number: 1
-----
Add the Students Details
-----
Enter the ID Number: 20010770
[ERROR] ID is already taken
-----
```

- Find Student by his ID
 - (CASE 1)

```
Choose one of the following options:-
1.Add new student manually.
2.Add students from text file.
3.Find student by ID.
4.Find student by first name.
5.Find students registered in a specific course.
6.Total number of students.
7.Delete student by ID.
8.Update student by ID.
9.Print all students.
10.Exit.
Enter option number: 3
-----
Enter the ID of the student: 20010769
[The Student Details are
The First name is Adel
The Last name is Mahmoud
The GPA is 3.86
Courses IDs are 211  222  233  244  255
-----
```

– (CASE 2)

```
-----  
Choose one of the following options:-  
1.Add new student manually.  
2.Add students from text file.  
3.Find student by ID.  
4.Find student by first name.  
5.Find students registered in a specific course.  
6.Total number of students.  
7.Delete student by ID.  
8.Update student by ID.  
9.Print all students.  
10.Exit.  
Enter option number: 3  
-----  
Enter the ID of the student: 2001000  
[ERROR] ID 2001000 was not found  
-----
```

- Find Student by his first name

– (CASE 1)

```
-----  
Choose one of the following options:-  
1.Add new student manually.  
2.Add students from text file.  
3.Find student by ID.  
4.Find student by first name.  
5.Find students registered in a specific course.  
6.Total number of students.  
7.Delete student by ID.  
8.Update student by ID.  
9.Print all students.  
10.Exit.  
Enter option number: 4  
-----  
Enter the First Name of the student: abdo  
The Student Details are  
The First name is Abdo  
The Last name is Nasr  
The GPA is 3.44  
Courses IDs are 211 222 233 244 255  
-----
```

– (CASE 2)

```
-----  
Choose one of the following options:-  
1.Add new student manually.  
2.Add students from text file.  
3.Find student by ID.  
4.Find student by first name.  
5.Find students registered in a specific course.  
6.Total number of students.  
7.Delete student by ID.  
8.Update student by ID.  
9.Print all students.  
10.Exit.  
Enter option number: 4  
-----  
Enter the First Name of the student: tarek  
[ERROR] First Name tarek was not found  
-----
```

- Find All Students registered in a specific course
 - (CASE 1)

```

-----
Choose one of the following options:-
1.Add new student manually.
2.Add students from text file.
3.Find student by ID.
4.Find student by first name.
5.Find students registered in a specific course.
6.Total number of students.
7.Delete student by ID.
8.Update student by ID.
9.Print all students.
10.Exit.
Enter option number: 5
-----
Enter the Course ID: 211
[The Student Details are
The First name is Assem
The Last name is Ayman
The GPA is 3.75
Courses IDs are 211  222  233  244  255
-----
The Student Details are
The First name is Adel
The Last name is Mahmoud
The GPA is 3.86
Courses IDs are 211  222  233  244  255
-----
The Student Details are
The First name is Abdo
The Last name is Nasr
The GPA is 3.44
Courses IDs are 211  222  233  244  255
-----
The Student Details are
The First name is Ziad
The Last name is Ahmed
The GPA is 3.20
Courses IDs are 211  222  233  111  144
-----
[INFO] Total Numbers of Students Enrolled: 4
-----

```

– (CASE 2)

```
-----  
Choose one of the following options:-  
1.Add new student manually.  
2.Add students from text file.  
3.Find student by ID.  
4.Find student by first name.  
5.Find students registered in a specific course.  
6.Total number of students.  
7.Delete student by ID.  
8.Update student by ID.  
9.Print all students.  
10.Exit.  
Enter option number: 5  
-----  
Enter the Course ID: 333  
[ERROR] Course ID 333 was not found  
-----
```

- Count Number of students

```
-----  
Choose one of the following options:-  
1.Add new student manually.  
2.Add students from text file.  
3.Find student by ID.  
4.Find student by first name.  
5.Find students registered in a specific course.  
6.Total number of students.  
7.Delete student by ID.  
8.Update student by ID.  
9.Print all students.  
10.Exit.  
Enter option number: 6  
[-----  
[INFO] The total number of Student is 4  
[INFO] You can add up to 50 Students  
[INFO] You can add 46 more studetns  
-----
```

- Update Student Data

```
-----
Enter the ID to update its student data: 20010770
What do you want to update?
1. First Name.
2. Last Name.
3. ID.
4. GPA.
5. Courses IDs.
1
Enter the new first name: Tarek
[INFO] Student Data Updated Successfully.
-----
Choose one of the following options:-
1.Add new student manually.
2.Add students from text file.
3.Find student by ID.
4.Find student by first name.
5.Find students registered in a specific course.
6.Total number of students.
7.Delete student by ID.
8.Update student by ID.
9.Print all students.
10.Exit.
Enter option number: 4
-----
Enter the First Name of the student: tarek
The Student Details are
The First name is Tarek
The Last name is Ayman
The GPA is 3.75
Courses IDs are 211  222  233  244  255
-----
```

- Delete a student

- (CASE 1)

```
Choose one of the following options:-
1.Add new student manually.
2.Add students from text file.
3.Find student by ID.
4.Find student by first name.
5.Find students registered in a specific course.
6.Total number of students.
7.Delete student by ID.
8.Update student by ID.
9.Print all students.
10.Exit.
Enter option number: 7
-----
Enter The ID to be deleted: 20010886
[INFO] The Student is removed Successfully
-----
```

- (CASE 2)

```
-----
Choose one of the following options:-
1.Add new student manually.
2.Add students from text file.
3.Find student by ID.
4.Find student by first name.
5.Find students registered in a specific course.
6.Total number of students.
7.Delete student by ID.
8.Update student by ID.
9.Print all students.
10.Exit.
Enter option number: 7
-----
Enter The ID to be deleted: 2001000
[ERROR] This ID 2001000 was not found
-----
```

- Print All Students

```
-----
Choose one of the following options:-
1.Add new student manually.
2.Add students from text file.
3.Find student by ID.
4.Find student by first name.
5.Find students registered in a specific course.
6.Total number of students.
7.Delete student by ID.
8.Update student by ID.
9.Print all students.
10.Exit.
Enter option number: 9
-----
The Student Details are
The First name is Tarek
The Last name is Ayman
The GPA is 3.75
Courses IDs are 211  222  233  244  255
-----
The Student Details are
The First name is Adel
The Last name is Mahmoud
The GPA is 3.86
Courses IDs are 211  222  233  244  255
-----
The Student Details are
The First name is Ziad
The Last name is Ahmed
The GPA is 3.20
Courses IDs are 211  222  233  111  144
-----
[INFO] The total number of Student is 3
[INFO] You can add up to 50 Students
[INFO] You can add 47 more studetns
-----
```