
MASTERING EMBEDDED SYSTEM ONLINE DIPLOMA

WWW.LEARN-IN-DEPTH.COM

FIRST TERM (FINAL PROJECT 2)

ENG. MOHAMED KHALED AHMED

- My Profile:
 - <https://www.learn-in-depth.com/online-diploma/mohammed.khaled101199%40gmail.com>
-

STUDENT MANAGEMENT SYSTEM



PROBLEM STATEMENT

We need to write a software Management system that performs the following processes to Manage student's data

- Store students names
 - Store students IDs
 - Store Student Courses
 - Represent Number of students
 - Delete student
 - Update students info
 - Add students Manually or through file
-

APPROACH

- Create a structure data base that store the students information
- Create individual function that can do the (Add, delete , update , store) operations

DESIGN

- Structured Data Base:

we have a (student_info) struct with data(first_name, last_name, GPA, course ID)

We use the Queue data structure to store this data to 55 student

```
#define element_type uint8_t
typedef struct student_info{
    unsigned int ID;
    char fname[50];
    char lname[50];
    float GPA;
    int CourseID[5];
}Student_info;

typedef struct {
    uint32_t length;
    int front;
    int rear;
    Student_info Student_QUEUE[55];
}QUEUE_t;
```

DESIGN

- Operations :

Here is the individual functions that performs the operations of the software

The (QUEUE_Status) Enum is used as a return type of some function for check of the operation had done correctly or not

```
typedef enum{
    QUEUE_NO_ERROR,
    QUEUE_FULL,
    QUEUE_EMPTY,
    QUEUE_NULL,
}QUEUE_Status;

QUEUE_Status Queue_init(QUEUE_t *BUFF);
void add_student_file(QUEUE_t *BUFF,Student_info std,FILE *fp);
QUEUE_Status add_student_manually(QUEUE_t *BUFF,Student_info stud);
void find_ID(QUEUE_t *BUFF);
void find_fname(QUEUE_t *BUFF);
void find_course(QUEUE_t *BUFF);
int total_stud(QUEUE_t *BUFF);
QUEUE_Status delete_student(QUEUE_t *PQ,Student_info *std);
QUEUE_Status update_stud_info(QUEUE_t *PQ);
void show_students(QUEUE_t *BUFF);
void add_info(Student_info *stud);
```



```
XPRISTO@HP MINGW32 /d/embedded diploma/Embedded-online-Diploma/First Term Final
project/Student_Mangment_System (main)
$ ./Mang.exe
```

```
=====
Choose one of the following options
```

```
1: Add student manually
2: Add file of students
3: View students
4: Find a course
5: Find student info with name
6: Find student info with ID
7: update student info
8: Delete student
9: Total students 1
```

```
Enter First Name : Mohamed
```

```
Enter Last Name : Khaled
```

```
Enter student ID : 22
```

```
Enter GPA : 3
```

```
Enter Course 1: ID : 55
```

```
Enter Course 2: ID : 44
```

```
Enter Course 3: ID : 11
```

```
Enter Course 4: ID : 3
```

```
Enter Course 5: ID : 8
```

```
=====
Choose one of the following options
```

```
1: Add student manually
2: Add file of students
3: View students
4: Find a course
5: Find student info with name
6: Find student info with ID
7: update student info
8: Delete student
9: Total students 3
```

```
Student Number 1
Student First Name: Mohamed
Student Last Name: Khaled
Student ID: 22
Student GPA: 3.000000
Student Course 1 ID: 55
Student Course 2 ID: 44
Student Course 3 ID: 11
Student Course 4 ID: 3
Student Course 5 ID: 8
=====
```

SOFTWARE TEST

=====

Choose one of the following options

1: Add student manually
2: Add file of students
3: View students
4: Find a course
5: Find student info with name
6: Find student info with ID
7: update student info
8: Delete student
9: Total students 2

DONE

loop
adding
loop
adding
loop
adding
loop
adding
loop
adding
loop
adding

Choose one of the following options

1: Add student manually
2: Add file of students
3: View students
4: Find a course
5: Find student info with name
6: Find student info with ID
7: update student info
8: Delete student
9: Total students 3

Student Number 1
Student First Name: Mohamed
Student Last Name: Khaled
Student ID: 22
Student GPA: 3.000000
Student Course 1 ID: 55
Student Course 2 ID: 44
Student Course 3 ID: 11
Student Course 4 ID: 3
Student Course 5 ID: 8

Student Number 2
Student First Name: mark
Student Last Name: maged
Student ID: 1
Student GPA: 2.560000
Student Course 1 ID: 1
Student Course 2 ID: 2
Student Course 3 ID: 3
Student Course 4 ID: 4
Student Course 5 ID: 5

SOFTWARE TEST