Embedded System online diploma
learn-in-depth
Be Professional In Embedded System
Eng. Keroles Shenouda

www.learn-in-depth.com

STUDENT MANAGEMENT SYSTEM

First Term (Final Project 2)

Name	**Magdy Adel Isaac**
My Profile	**learn-in-depth.com/online-diploma/magdyadel608@gmail.com**
Project Link	https://github.com/magdyadel/embedded_System_Online_Diploma/tree/main/FirstTermProjects/StudentManagement_Project

Student Management System:

Overview:-

Write a program to build a simple software for student information management system which 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 for every student.

4. Store the GPA of every student.

5. Store the courses registered by the student.

Approach:-

The idea is to form an individual functions for every operation. All the functions are unified together to form software.

1. Add Student Details Manually

2. Add Student Details From File

3. Find the student by the given roll number

4. Find the student by the given first name

5. Find the students registered in a course

6. Count of students

7. Delete a student.

8. Update Student

9. Show All Student

.

1. Add Student Details Manually

```c
//Add Student
FIFO_status AddStdManualy(SStd_buffer_t * fifo )
{
    Sdata* current= fifo->head;
    char data[40];
    int tempRoll;

    //check FIFO list is valid
    if(!fifo->base || !fifo->head || !fifo->tail)
        return FIFO_NULL;

    //check FIFO is full
    if(stdList_isFull(fifo) == FIFO_full)
        return FIFO_full;

    DPRINTF("------------Add Student Details-------------- \n");
    DPRINTF("Enter the Roll Number of student: \n");
    gets(data);
    tempRoll=atoi(data);
    if(!Check_RollNum(fifo, tempRoll))
    {
        DPRINTF("\n\"Roll Number is already exist..\" \n");
        return FIFO_no_error;
    }
    stList->Roll=tempRoll;
    DPRINTF("Enter First Name: \n");
    gets(stList->fname);
    DPRINTF("Enter Last Name: \n");
    gets(stList->lname);
    DPRINTF("Enter %c GPA : \n",stList->fname);
    gets(data);
    stList->GPA=atof(data);
    DPRINTF("Enter the Course ID of each course:\n");
    for(int i=0; i<5; ++i){
        DPRINTF("Course %d ID: ",i+1);
        gets(data);
        stList->courseID[i] = atoi(data);
    }

    //Enqueue Value
    fifo->head++;
    fifo->count++;

    DPRINTF("Student Added Successfully.\n");
    getTotalNum(fifo);
    return FIFO_no_error;
}
```

```
8. Update the Students Details by Roll Number
9. Show all information
10. To Exit
Enter your choice to perform the task: 1
===============================
Add the student Details
===============================
------------Add Student Details--------------
Enter the Roll Number of student:
22
Enter First Name:
aymn
Enter Last Name:
hany
Enter  GPA :
2.9
Enter the Course ID of each course:
Course 1 ID: 10
Course 2 ID: 20
Course 3 ID: 30
Course 4 ID: 40
Course 5 ID: 50
Student Added Successfully.
[INFO] The total number of student is 9
[INFO] You can add up to 50 students
[INFO] You can add 41 more students

Choose The Task that you want to perform
1. Add the student Details Manually
2. Add the student Details From Text File
3. Find the Student Details by Roll Number
4. Find the Student Details by First Name
5. Find the student Details by Course ID
6. Find the Total number of Students
7. Delete the Students Details by Roll Number
8. Update the Students Details by Roll Number
9. Show all information
10. To Exit
Enter your choice to perform the task:
```

2. Add Student Details From File

```c
284  void AddStudentFile(SStd_buffer_t* fifo){
285      FILE* fp = fopen("Add Student.txt","r");
286      int Rec_no = 0 , Field_no = 0 , Student_Count = 0;
287      char Line[50];
288      const char* Taken;
289      while(fgets(Line,sizeof Line,fp) != NULL){
290          Rec_no++;
291          Taken = strtok(Line,",");
292          Field_no = 0;
293          while(Taken != NULL)
294          {
295              Field_no++;
296              if(Field_no == 1){
297                  if(Check_RollNum(fifo, atoi(Taken)) == 0){
298                      DPRINTF("[ERROR] Roll Number %d is already Taken\n",atoi(Taken));
299                      Student_Count++;
300                      break;
301                  }else{
302                      fifo->head->Roll = atoi(Taken);
303                      DPRINTF("[INFO] Roll Number %d is saved successfully\n",atoi(Taken));}
304              }else if(Field_no == 2){
305                  strcpy(fifo->head->fname , Taken);
306              }else if(Field_no == 3){
307                  strcpy(fifo->head->lname , Taken);
308              }else if(Field_no == 4){
309                  fifo->head->GPA = atof(Taken);
310              }else if(Field_no == 5){
311                  fifo->head->courseID[0] = atoi(Taken);
312              }else if(Field_no == 6){
313                  fifo->head->courseID[1] = atoi(Taken);
314              }else if(Field_no == 7){
315                  fifo->head->courseID[2] = atoi(Taken);
316              }else if(Field_no == 8){
317                  fifo->head->courseID[3] = atoi(Taken);
318              }else if(Field_no == 9){
319                  fifo->head->courseID[4] = atoi(Taken);
320              }
321              Taken = strtok(NULL,",\n");
322          }
323          if(Check_RollNum(fifo, atoi(Taken)) == 0)
324              continue;
325          fifo->count++;
326          fifo->head++;
327      }
328      fclose(fp);
329      DPRINTF("\n[INFO] students Details is added successfully");
330      getTotalNum(fifo);
331  }
```

```
---------Welcome to Student Management System-----------


Choose The Task that you want to perform
1. Add the student Details Manually
2. Add the student Details From Text File
3. Find the Student Details by Roll Number
4. Find the Student Details by First Name
5. Find the student Details by Course ID
6. Find the Total number of Students
7. Delete the Students Details by Roll Number
8. Update the Students Details by Roll Number
9. Show all information
10. To Exit
Enter your choice to perform the task: 2
[INFO] Roll Number 1 is saved successfully
[INFO] Roll Number 2 is saved successfully
[INFO] Roll Number 3 is saved successfully
[INFO] Roll Number 4 is saved successfully
[INFO] Roll Number 5 is saved successfully
[INFO] Roll Number 6 is saved successfully
[INFO] Roll Number 7 is saved successfully
[INFO] Roll Number 8 is saved successfully
[INFO] Roll Number 9 is saved successfully


[INFO] students Details is added successfully
-----------------------------[INFO] The total number of student is 9
[INFO] You can add up to 50 students
[INFO] You can add 41 more students
```

3. Find the student by the given roll number

```c
//find by roll num
void getByRoll(SStd_buffer_t* fifo)
{
    Sdata * current=fifo->base;
    int temp;
    //check FIFO list is valid
    if(!fifo->base || !fifo->head || !fifo->tail)
        return ;

    //check FIFO is empty
    if(fifo->count == 0)
    {
        DPRINTF("\n List is already empty \n ");
        return ;
    }
    DPRINTF("Enter student Roll number: ");
    scanf("%d",&temp);
    for(int i=0;i<fifo->count;i++)
    {
        if(current->Roll==temp)
        {
            printStudent(current);
            return;
        }
        current++;
    }
    DPRINTF("\tThis Roll Number %d not found\n",temp);
}

//find by First Name
```

```
Choose The Task that you want to perform
1. Add the student Details Manually
2. Add the student Details From Text File
3. Find the Student Details by Roll Number
4. Find the Student Details by First Name
5. Find the student Details by Course ID
6. Find the Total number of Students
7. Delete the Students Details by Roll Number
8. Update the Students Details by Roll Number
9. Show all information
10. To Exit
Enter your choice to perform the task: 3
------------------------------------------
Enter student Roll number: 2
First name is   : Ahmed
Last  name is   : Said
roll  number is : 2
GPA             : 3.00
the course ID of each course
The course ID are: 50
The course ID are: 33
The course ID are: 20
The course ID are: 10
The course ID are: 12
------------------------------------------
------------------------------------------
```

4. Find the student by the given first name

```
176    //find by First Name
177    void getByFName(SStd_buffer_t* fifo)
178    {
179        Sdata * current=fifo->base;
180        char temp[40];
181        //check FIFO list is valid
182        if(!fifo->base || !fifo->head || !fifo->tail)
183            return ;
184
185        //check FIFO is empty
186        if(fifo->count == 0)
187        {
188            DPRINTF("\n List is already empty \n ");
189            return ;
190        }
191        DPRINTF("Enter student First Name: ");
192        gets(temp);
193        for(int i=0;i<fifo->count;i++)
194        {
195            if(!strcmp(current->fname, temp))
196            {
197                printStudent(current);
198                return;
199            }
200            current++;
201        }
202        DPRINTF("\%s not found\n",temp);
203    }
204
```

```
Choose The Task that you want to perform
1. Add the student Details Manually
2. Add the student Details From Text File
3. Find the Student Details by Roll Number
4. Find the Student Details by First Name
5. Find the student Details by Course ID
6. Find the Total number of Students
7. Delete the Students Details by Roll Number
8. Update the Students Details by Roll Number
9. Show all information
10. To Exit
Enter your choice to perform the task: 4
------------------------------------------
Enter student First Name: Mina
First name is   : Mina
Last  name is   : Amen
roll  number is : 8
GPA             : 3.20
the course ID of each course
The course ID are: 10
The course ID are: 20
The course ID are: 32
The course ID are: 35
The course ID are: 40
------------------------------------------
```

5. Find the students registered in a course

```c
void getByCourse(SStd_buffer_t* fifo){

    int CID , Count = 0;
    Sdata* Ptr = fifo->base;


    DPRINTF("Enter the course ID: ");
    scanf("%d",&CID);


    for(int i=0; i<fifo->count; ++i){


        for(int j=0; j<5; ++j){
            if(Ptr->courseID[j] == CID){

                Count++;
                printStudent(Ptr);

            }

        }

        Ptr++;

    }
    if(Count == 0){

        DPRINTF("[ERROR] Course ID %d not found\n",CID);

    }

    DPRINTF("[INFO] Total Number of Students Enrolled: %d\n",Count);

}
```

```
4. Find the Student Details by First Name
5. Find the student Details by Course ID
6. Find the Total number of Students
7. Delete the Students Details by Roll Number
8. Update the Students Details by Roll Number
9. Show all information
10. To Exit
Enter your choice to perform the task: 5
-------------------------------------
Enter the course ID: 35
First name is    : Salah
Last  name is    : Eldin
roll  number is : 3
GPA              : 3.50
the course ID of each course
The course ID are: 10
The course ID are: 20
The course ID are: 32
The course ID are: 35
The course ID are: 40
-----------------------------------------
First name is    : Ali
Last  name is    : Ahmed
roll  number is : 5
GPA              : 3.50
the course ID of each course
The course ID are: 10
The course ID are: 20
The course ID are: 32
The course ID are: 35
The course ID are: 40
-----------------------------------------
First name is    : Salah
Last  name is    : Eldin
roll  number is : 6
GPA              : 3.50
the course ID of each course
The course ID are: 10
The course ID are: 20
The course ID are: 32
The course ID are: 35
The course ID are: 40
-----------------------------------------
```

6. Count of students

```c
//get numbers of all of students
void getTotalNum(SStd_buffer_t * fifo )
{
    //check FIFO list is valid
    if(!fifo->base || !fifo->head || !fifo->tail)
        return;
    DPRINTF("[INFO] The total number of student is %d\n",fifo->count);
    DPRINTF("[INFO] You can add up to 50 students\n");
    DPRINTF("[INFO] You can add %d more students\n",50-fifo->count);
}
```

```
Choose The Task that you want to perform
1. Add the student Details Manually
2. Add the student Details From Text File
3. Find the Student Details by Roll Number
4. Find the Student Details by First Name
5. Find the student Details by Course ID
6. Find the Total number of Students
7. Delete the Students Details by Roll Number
8. Update the Students Details by Roll Number
9. Show all information
10. To Exit
Enter your choice to perform the task: 6
------------------------------------------------
[INFO] The total number of student is 9
[INFO] You can add up to 50 students
[INFO] You can add 41 more students
------------------------------------------------
```

7. Delete a student.

```c
//Delete student using roll number
void DeleteStudent(SStd_buffer_t * fifo)
{
    Sdata * current=fifo->base;
    int temp;
    //check FIFO list is valid
    if(!fifo->base || !fifo->head || !fifo->tail)
        return ;

    //check FIFO is empty
    if(fifo->count == 0)
    {
        DPRINTF("\n List is already empty \n ");
        return ;
    }
    DPRINTF("Enter student Roll number: ");
    scanf("%d",&temp);
    for(int i=0;i<fifo->count;i++)
    {
        if(current->Roll==temp)
        {
            //Dequeue Value
            *current = *(fifo->tail);
            fifo->count--;
            if( fifo->tail == ( fifo->base + (fifo->len * sizeof(stList) )))
                fifo->tail == fifo->base ;
            else
                fifo->tail++;
            DPRINTF("student deleted successfully");
            return ;
        }
        current++;
    }
    DPRINTF("\This Roll Number %d not found\n",temp);
}
```

```
Choose The Task that you want to perform
1. Add the student Details Manually
2. Add the student Details From Text File
3. Find the Student Details by Roll Number
4. Find the Student Details by First Name
5. Find the student Details by Course ID
6. Find the Total number of Students
7. Delete the Students Details by Roll Number
8. Update the Students Details by Roll Number
9. Show all information
10. To Exit
Enter your choice to perform the task: 7
---------------------------------
Enter student Roll number: 7
student deleted successfully----------------------------
```

8. Update Student

```c
void updateStudent(SStd_buffer_t* fifo){
    Sdata * current=fifo->base;
    int temp, option ;
    char t[40];
    DPRINTF("Enter student Roll number: ");
    scanf("%d",&temp);
    for(int i=0;i<fifo->count;i++) {
        if(current->Roll==temp) {
            printStudent(current);
            DPRINTF("1.first name\n");
            DPRINTF("2.last name\n");
            DPRINTF("3.roll no\n");
            DPRINTF("4. GPA\n");
            DPRINTF("5. courses\n");

            scanf("%d",&option);
            switch(option) {
            case 1:
                DPRINTF("Enter the new first name: ");
                gets(current->fname);
                break;
            case 2:
                DPRINTF("Enter the new last name: ");
                gets(current->lname);
                break;
            case 3:
                DPRINTF("Enter the new roll number: ");
                gets(t);
                current->Roll = atoi(t);
                break;
            case 4:
                DPRINTF("Enter the new GPA: ");
                gets(t);
                current->GPA = atof(t);
                break;
            case 5:
                DPRINTF("Enter the Course ID of each course:\n");
                for(int i=0; i<5; ++i) {
                    DPRINTF("Course %d ID: ",i+1);
                    gets(temp);
                    current->courseID[i] = atoi((int)temp);
                }
            }
            return;
        }
        current++;
    }
    DPRINTF("\nThis Roll Number %d not found\n",temp);
```

```
Choose The Task that you want to perform
1. Add the student Details Manually
2. Add the student Details From Text File
3. Find the Student Details by Roll Number
4. Find the Student Details by First Name
5. Find the student Details by Course ID
6. Find the Total number of Students
7. Delete the Students Details by Roll Number
8. Update the Students Details by Roll Number
9. Show all information
10. To Exit
Enter your choice to perform the task: 8
----------------------------
Enter student Roll number: 6
First name is   : Salah
Last  name is   : Eldin
roll  number is : 6
GPA             : 3.50
the course ID of each course
The course ID are: 10
The course ID are: 20
The course ID are: 32
The course ID are: 35
The course ID are: 40
----------------------------------------
1.first name
2.last name
3.roll no
4. GPA
5. courses
4
Enter the new GPA: 3.2
----------------------------------------
```

9. Show All Student.

```c
void ShowAll(SStd_buffer_t* fifo){
    Sdata* Ptr;

    //check FIFO list is valid
    if(!fifo->base || !fifo->head || !fifo->tail)
        return ;

    //check FIFO is empty
    if(fifo->count == 0)
    {
        DPRINTF("\n List is already empty \n ");
        return ;
    }
    Ptr=fifo->tail;
    DPRINTF("----------Student Details are-----------\n");
    for(int i=0; i<fifo->count; ++i)
        printStudent(Ptr++);
    getTotalNum(fifo );
}
```

```
7. Delete the Students Details by Roll Number
8. Update the Students Details by Roll Number
9. Show all information
10. To Exit
Enter your choice to perform the task: 9
----------------------------
---------Student Details are-----------
First name is    : Ahmed
Last   name is   : Said
roll   number is : 2
GPA              : 3.00
the course ID of each course
The course ID are: 50
The course ID are: 33
The course ID are: 20
The course ID are: 10
The course ID are: 12
---------------------------------------
First name is    : Salah
Last   name is   : Eldin
roll   number is : 3
GPA              : 3.50
the course ID of each course
The course ID are: 10
The course ID are: 20
The course ID are: 32
The course ID are: 35
The course ID are: 40
---------------------------------------
First name is    : Omar
Last   name is   : Elromy
roll   number is : 4
```