Data Structures Mini Project:

<u>STUDENT RECORD MANAGEMENT SYSTEM</u>

- General Details

USN	Class	Name	Mobile	Email
1MV19IS059	ISE	Sushanth S Rao	9108594579	1MV19IS059@sirmvit.edu

Introduction

Using the basic concepts of Data Structures, we are developing "Student Record Management System".

Need of Work/Reason for Selection of this Project

- School/College has to maintain the list and details of its students
- It gets hectic to track, search and create the Student Record manually
- So we are developing this project of Student Record Management
- This project will help the school and colleges to keep record of their students

OBJECTIVE

The main objective of the Student Record Management System is to manage the details of Students. The project manages the information about Students – Name, Roll Number, Courses enrolled, CGPA. These data can be created, and can also be used to search for a particular student details using their Roll number.

PROBLEM STATEMENT

Program to build a simple Software for Student Record Management System which can perform the following operations:-
Store the First name of the student.
Store the Last name of the student.
-tore the unique Roll number of every student.
Store the CGPA of every student.
Store the courses registered by the student.

BENEFITS TO THE SURROUNDING SOCIETY

Education is a very important aspect for a civilized society. Thus, Schools and Colleges have a prominent role. By implementing this, schools and colleges' can increase their productivity. It benefits the students as well.

EQUIPMENTS AND FACILITIES REQUIRED

The code is written in C language and compiled using CodeBlocks IDE. It is the only requirement. The program runs in any low-end computer.

PROPOSED TECHNIQUE or METHODOLOGY

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

- Add Student Details: Get data from user and add a student to the list of students. While adding the students into the list, check for the uniqueness of the roll number.

- Find the student by the given roll number: This function is to find the student record for the given roll number and print the details.

- Find the student by the given first name: This function is to find all the students with the given first name and print their details.

- Find the students registered in a course: This function is to find all the students who have registered for a given course.

- Count of Students: This function is to print the total number of students in the system

- Delete a student: This function is to delete the student record for the given roll number.

- Update Student: This function is to update the student records. This function does not ask for new details for all fields but the user should be able to pick and choose what he wants to update.

ADVANTAGES

- Students Records can be created
- Helpful for Colleges and Schools to keep a log of their students
- Students Marks can be stored. It can be useful to track their performance.
- Unique Roll Number can be assigned to each student.
- Individual Students can be searched using their Roll Number, or Name.
- Any field of Student Data can be updated or modified.

LIMITATIONS

- Since the project is computer-based, a computer infrastructure is required. Schools with very low funding cannot afford it.
- Only the specified fields are available to store data. The user cannot add a separate field.

CODE

<global>

main.c ✕

```c
1   /* C program for the implementation
2    of menu driven program for
3    Student Management System
4   */
5
6   #include <math.h>
7   #include <stdio.h>
8   #include <stdlib.h>
9   #include <string.h>
10
11  // Variable to keep track of
12  // number of students
13  int i = 0;
14
15  // Structure to store the student
16  struct sinfo {
17      char fname[50];
18      char lname[50];
19      int roll;
20      float cgpa;
21      int cid[10];
22  } st[55];
23
24  // Function to add the student
25  void add_student()
26  {
27
28      printf("Add the Students Details\n");
29      printf("-------------------------\n");
30      printf("Enter the first name of student\n");
31      scanf("%s", st[i].fname);
```

G:_Programming\zCodeBlocks Projects\Student Record Management\main.c   C/C++   Windows (CR+LF)   WINDOWS-1252   Line 1, Col 36, Pos 35   Insert   Read/Write   default

<global>   add_student() : void

main.c ✕

```c
32
33      printf("Enter the last name of student\n");
34      scanf("%s", st[i].lname);
35
36      printf("Enter the Roll Number\n");
37      scanf("%d", &st[i].roll);
38
39      printf("Enter the CGPA you obtained\n");
40      scanf("%f", &st[i].cgpa);
41
42      printf("Enter the course ID of each course:\n");
43      for (int j = 0; j < 5; j++)
44          {
45              scanf("%d", &st[i].cid[j]);
46          }
47      i = i + 1;
48  }
49
50  // Function to find the student by the roll number
51  void find_rl()
52  {
53      int x;
54      printf("Enter the Roll Number of the student\n");
55      scanf("%d", &x);
56      for (int j = 1; j <= i; j++)
57          {
58              if (x == st[i].roll)
59                  {
60                      printf("The Students Details are\n");
61                      printf("The First name is %s\n",
62                          st[i].fname);
```

G:_Programming\zCodeBlocks Projects\Student Record Management\main.c   C/C++   Windows (CR+LF)   WINDOWS-1252   Line 32, Col 1, Pos 602   Insert   Read/Write   default

```c
 63                printf("The Last name is %s\n",
 64                    st[i].lname);
 65                printf("The CGPA is %f\n",
 66                    st[i].cgpa);
 67                printf("Enter the course ID of each course\n");
 68                }
 69
 70            for (int j = 0; j < 5; j++)
 71            {
 72            printf("The course ID are %d\n", st[i].cid[j]);
 73            }
 74            break;
 75        }
 76    }
 77
 78    // Function to find the student by the first name
 79    void find_fn()
 80    {
 81        char a[50];
 82        printf("Enter the First Name of the student\n");
 83        scanf("%s", a);
 84        int c = 0;
 85
 86        for (int j = 1; j <= i; j++)
 87        {
 88            if (!strcmp(st[j].fname, a))
 89            {
 90
 91                printf("The Students Details are\n");
 92                printf("The First name is %s\n",st[i].fname);
 93                printf("The Last name is %s\n",st[i].lname);
```
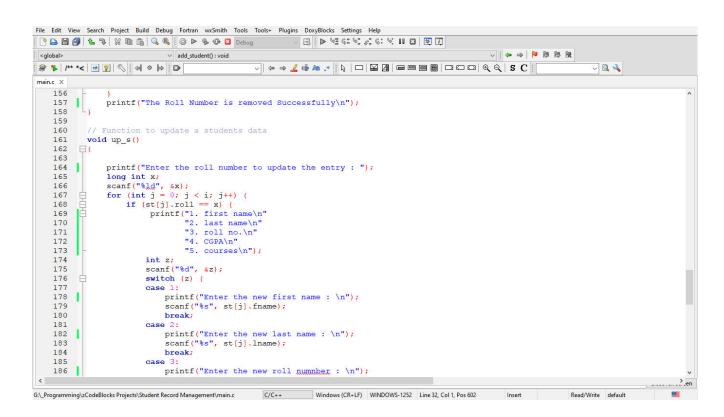
```c
 94                printf("The Roll Number is %d\n",st[i].roll);
 95                printf("The CGPA is %f\n",st[i].cgpa);
 96                printf("The course ID of each course\n");
 97
 98                for (int j = 0; j < 5; j++)
 99                {
100                    printf("The course ID are %d\n",st[i].cid[j]);
101                }
102                c = 1;
103                }
104                else
105                printf("The First Name not Found\n");
106            }
107    }
108
109    // Function to find the students enrolled in a particular course
110    void find_c()
111    {
112        int id;
113        printf("Enter the course ID \n");
114        scanf("%d", &id);
115        int c = 0;
116
117        for (int j = 1; j <= i; j++) {
118            for (int d = 0; d < 5; d++) {
119                if (id == st[j].cid[d])
120                {
121                    printf("The Students Details are\n");
122                    printf("The First name is %s\n",st[i].fname);
123                    printf("The Last name is %s\n",st[i].lname);
124                    printf("The Roll Number is %d\n",st[i].roll);
```

```c
125                     printf("The CGPA is %f\n",st[i].cgpa);
126
127                     c = 1;
128                     break;
129                     }
130                 else
131                     printf("The First Name not Found\n");
132             }
133         }
134 }
135
136     // Function to print the total number of students
137     void tot_s()
138     {
139         printf("The total number of Student is %d\n",i);
140         printf("\n you can have a max of 50 students\n");
141         printf("you can have %d more students\n",50 - i);
142     }
143
144     // Function to delete a student by the roll number
145     void del_s()
146     {
147         int a;
148         printf("Enter the Roll Number which you want to delete\n");
149         scanf("%d", &a);
150         for (int j = 1; j <= i; j++) {
151             if (a == st[j].roll) {
152                 for (int k = j; k < 49; k++)
153                     st[k] = st[k + 1];
154                 i--;
155             }
```

```c
156             }
157         printf("The Roll Number is removed Successfully\n");
158 }
159
160     // Function to update a students data
161     void up_s()
162     {
163
164         printf("Enter the roll number to update the entry : ");
165         long int x;
166         scanf("%ld", &x);
167         for (int j = 0; j < i; j++) {
168             if (st[j].roll == x) {
169                 printf("1. first name\n"
170                         "2. last name\n"
171                         "3. roll no.\n"
172                         "4. CGPA\n"
173                         "5. courses\n");
174                 int z;
175                 scanf("%d", &z);
176                 switch (z) {
177                 case 1:
178                     printf("Enter the new first name : \n");
179                     scanf("%s", st[j].fname);
180                     break;
181                 case 2:
182                     printf("Enter the new last name : \n");
183                     scanf("%s", st[j].lname);
184                     break;
185                 case 3:
186                     printf("Enter the new roll numnber : \n");
```

<global>   add_student() : void

main.c ✕

```c
187                 scanf("%d", &st[j].roll);
188                 break;
189             case 4:
190                 printf("Enter the new CGPA : \n");
191                 scanf("%f", &st[j].cgpa);
192                 break;
193             case 5:
194                 printf("Enter the new courses \n");
195                 scanf("%d%d%d%d%d", &st[j].cid[0],&st[j].cid[1], &st[j].cid[2],&st[j].cid[3], &st[j].cid[4]);
196                 break;
197             }
198             printf("UPDATED SUCCESSFULLY.\n");
199         }
200     }
201 }
202
203 // Driver code
204 void main()
205
206 {
207     int choice, count;
208     printf("WELCOME to the Student Record Management!\n\n");
209     printf("The Task that you can perform\n");
210     printf("1. Add the Student Details\n");
211     printf("2. Find the Student Details by Roll Number\n");
212     printf("3. Find the Student Details by First Name\n");
213     printf("4. Find the Student Details by Course Id\n");
214     printf("5. Find the Total number of Students\n");
215     printf("6. Delete the Students Details by Roll Number\n");
216     printf("7. Update the Students Details by Roll Number\n");
217     printf("8. To Exit\n");
```

<global>

*main.c ✕

```c
217     printf("8. To Exit\n");
218     while (i = 1) {
219
220         printf("\nEnter your choice: ");
221         scanf("%d", &choice);
222
223         switch (choice) {
224         case 1:add_student();
225             break;
226         case 2:find_rl();
227             break;
228         case 3:find_fn();
229             break;
230         case 4:find_c();
231             break;
232         case 5:tot_s();
233             break;
234         case 6:del_s();
235             break;
236         case 7:up_s();
237             break;
238         case 8:exit(0);
239             break;
240         }
241     }
242 }
243
244
245
246
247
```

OUTPUT

```
"G:\_Programming\zCodeBlocks Projects\Student Record Management\bin\Debug\Student Record Management.exe"
Enter the First Name of the student
Ashok
The Students Details are
The First name is Ashok
The Last name is Ammangi
The Roll Number is 6
The CGPA is 9.200000
The course ID of each course
The course ID are 30
The course ID are 31
The course ID are 32
The course ID are 33
The course ID are 34

Enter your choice: 4
Enter the course ID
30
The Students Details are
The First name is Ashok
The Last name is Ammangi
The Roll Number is 6
 The CGPA is 9.200000

Enter your choice: 5
The total number of Student is 1

 you can have a max of 50 students
you can have 49 more students

Enter your choice: 7
Enter the roll number to update the entry : 006

Enter your choice: 6
Enter the Roll Number which you want to delete
006
The Roll Number is removed Successfully

Enter your choice: 1
Add the Students Details
-------------------------
Enter the first name of student
Avinash
Enter the last name of student
K
```

```
"G:\_Programming\zCodeBlocks Projects\Student Record Management\bin\Debug\Student Record Management.exe"
Enter the last name of student
K
Enter the Roll Number
007
Enter the CGPA you obtained
9.3
Enter the course ID of each course:
30
31
32
33
34

Enter your choice: 8

Process returned 0 (0x0)   execution time : 372.436 s
Press any key to continue.
```

REFERENCES

- Ellis Horowitz and Sartaj Sahni, Fundamentals of Data Structures in C, 2nd Ed, Universities Press, 2014.

- Reema Thareja, Data Structures using C, 3rd Ed, Oxford press, 2012.