

Computer Project 19CSE102

Team Members:

S.No.	Name	Roll No.
1	SIVA DHANUSH KOSURI	CB.EN.U4CCE20057
2	HEMCHAND	CB.EN.U4CCE20024
3	BARATHI M S	CB.EN.U4CCE20009
4	V SRIHARI MOORTHY	CB.EN.U4CCE20060
5	NITHIN	CB.EN.U4CCE20002

**Project on STUDENT INFORMATION SYSTEM (SIS)
using C Programming**

Problem Statement:

To design a software application “Student Information Management System” or also known as “Student Information System (SIS)” using C language for schools, colleges, and universities to manage student data efficiently. This system can store students' information and perform the following functionalities through a data file.

Functionalities:

1. **Add student details** - Gets data from the user and stores in the file.
2. **Search student by roll number**- Reads the roll number from the user and prints the corresponding details of the student present in the file.
3. **List all students with same first name** - Reads the first name from the user and prints the corresponding details of the student present in the file.
4. **Identifying students by registered course**- Reads the course from the user and prints group of student details in registered course.
5. **Count of students** - Prints the total number of students present in the file
6. **Top 10 Ranks**- Based on CGPA as a criterion, lists the details of top 10 ranked students.
7. **Update details**- Reads the roll number from the user and allows the user to modify required details of the particular student.
8. **Delete a student** - Reads the roll number from the user and allows the user to delete the details of particular student.
9. **Display students**- Prints all the student details present in the file.

[illegible]

```
printf("\n\n\t\t\t\t\tMAIN MENU\n\n");  
printf("\n\t\t\t\t\t1. ADD STUDENT DETAILS.\n\n\t\t\t\t\t2. FIND STUDENT  
USING ROLL NUMBER.\n\n");  
printf("\t\t\t\t\t3. LIST ALL STUDENTS WITH SAME FIRST NAME.\n\n");  
printf("\t\t\t\t\t4. FIND ALL STUDENTS REGISTERED IN A COURSE.\n\n");  
printf("\t\t\t\t\t5. COUNT OF STUDENTS IN THE INSTITUTION.\n\n");  
printf("\t\t\t\t\t6. UPDATE STUDENT DETAILS.\n\n\t\t\t\t\t7. DELETE A  
STUDENT.\n\n");  
printf("\t\t\t\t\t8. DISPLAY TOP 10 STUDENTS BASED ON THEIR  
CGPA.\n\n");  
printf("\t\t\t\t\t9. VIEW STUDENTS IN THE INSTITUTION.\n\n");  
printf("\t\t\t\t\t0. Exit\n");  
printf("\n\t\t\t\t\tSelect a choice: ");  
scanf("%d",&choice);  
switch(choice)  
{  
case 1:  
    add_student();  
    break;  
case 2:  
    find_student();  
    break;  
case 3:  
    list_student();  
    break;  
case 4:  
    course();  
    break;  
case 5:  
    printf("\n\t\t\t\t\tTotal Count of Students: %d",count);  
    printf("\n\t\t\t\t\tPress any key to continue.....");  
    fflush(stdin);  
    getchar();  
    break;  
case 6:  
    update();  
    break;  
case 7:  
    delete_student();  
    break;  
case 8:  
    top10(ptr);  
    break;  
case 9:  
    view_student();  
    break;  
case 0:  
    exit(0);  
    break;  
default:  
    printf("\n\t\t\t\t\tInvalid choice.\n");  
}  
}while(choice!=0);  
return 0;
```

```

}

//function to add new student
void add_student()
{
    int choice;
    int found = 1;
    int studentRoll = 0;
    struct student s1 = {0};
    FILE* fp;
    fp=fopen("student.dat","a+");
    printf("\n\t\t\tEnter Student Roll No.: ");
    scanf("%d",&studentRoll);
    while (fread (&s1, sizeof(s1), 1, fp))
    {
        if(s1.roll == studentRoll)
        {
            found = 0;
            break;
        }
        else
        {
            found = 1;
        }
    }
    if(found==1)
    {
        count++;
        s1.roll = studentRoll;
        printf("\n\t\t\tStudent first name: ");
        fflush(stdin);
        fgets(s1.fname,30,stdin);
        printf("\n\t\t\tStudent last name: ");
        fflush(stdin);
        fgets(s1.lname,30,stdin);
        do{
            printf("\n\t\t\t1.COMPUTER SCIENCE
ENGINEERING (CSE)\n\t\t\t2.COMPUTER AND COMMUNICATION
ENGINEERING (CCE)\n\t\t\t3.ELECTRONICS AND COMMUNICATION
ENGINEERING (ECE) \n\t\t\t4.ARTIFICIAL INTELLEGRNCE (AI)\n\t\t\tSelect
your choice: ");
            scanf("%d",&choice);
            switch(choice)
            {
                case 1:
                    strcpy(s1.course,"CSE");
                    break;
                case 2:
                    strcpy(s1.course,"CCE");
                    break;
                case 3:
                    strcpy(s1.course,"ECE");
                    break;
            }
        }
    }
}

```

```

        case 4:
            strcpy(s1.course,"AI");
            break;
        default:
            printf("\n\t\t\tInvalid choice.\n");
    }
}while(!(choice>0&&choice<6));

printf("\t\t\tCourse:%s",s1.course);
printf("\n\t\t\tCGPA: ");
scanf("%f",&s1.cgpa);
fwrite(&s1,sizeof(s1),1,fp);
printf("\n\t\t\tPress any key to continue.....");
fflush(stdin);
getchar();
}
else
{
    printf("\n\t\t\tRecord already exist\n");
    printf("\n\t\t\tPress any key to continue.....");
    fflush(stdin);
    getchar();
}

fclose(fp);
}

void find_student()//Search students using roll no
{
    int rollno, flag=0;
    FILE *fp;
    fp=fopen("student.dat","r");
    printf("\t\t\tEnter a roll no to be searched: ");
    scanf("%d",&rollno);
    while(fread(&s,sizeof(s),1,fp))
    {
        if(s.roll==rollno)
        {
            flag=1;
            printf("\n\t\t\tStudent Roll No.: %d",s.roll);
            printf("\n\t\t\tStudent first name: %s",s.fname);
            printf("\n\t\t\tStudent last name: %s",s.lname);
            printf("\n\t\t\tCourse: %s",s.course);
            printf("\n\t\t\tCGPA: %f\n",s.cgpa);
            break;
        }
    }
    fclose(fp);
    if(flag==0)
        printf("\n\t\t\tThe Roll No. does not exist!");
}

void list_student()//Display all students with same first name
{

```

```

char fname[30];
FILE *fp;
fp=fopen("student.dat","r");
printf("\t\t\tDisplaying all students with same first name.....\n");
printf("\t\t\tEnter first name: ");
fflush(stdin);
fgets(fname,30,stdin);
while(fread(&s,sizeof(s),1,fp))
{
    if(!(strcmpi(s.fname,fname)))//Comparing first names with the
entered name
    {
        printf("\n\t\t\tStudent Roll No.: %d",s.roll);
        printf("\n\t\t\tStudent first name: %s",s.fname);
        printf("\n\t\t\tStudent last name: %s",s.lname);
        printf("\n\t\t\tCourse: %s",s.course);
        printf("\n\t\t\tCGPA: %f\n",s.cgpa);
    }
}
fclose(fp);
printf("\n\t\t\tPress any key to continue.....");
fflush(stdin);//clears the buffer
getchar();
}

```

//function to view students registered under a course

```

void course()
{
    char c[10];
    FILE*fp;
    fp=fopen("student.dat","r");
    printf("\n\t\t\tListing Students by course....\n");
    printf("\t\t\tEnter Course: ");
    scanf("%s",&c);
    while(fread(&s,sizeof(s),1,fp))
    {
        if(!(strcmpi(c,s.course)))//compares registered course with the
entered reg course
        {
            printf("\n\t\t\tStudent Roll No.: %d",s.roll);
            printf("\n\t\t\tStudent first name: %s",s.fname);
            printf("\n\t\t\tStudent last name: %s",s.lname);
            printf("\n\t\t\tCourse: %s",s.course);
            printf("\n\t\t\tCGPA: %f\n",s.cgpa);
        }
    }
    fclose(fp);
    printf("\n\t\t\tPress any key to continue.....");
    fflush(stdin);
    getchar();
}

```

//function to update student records

```

void update()

```

```

{
    FILE *fp,*tmpfp;
    fp=fopen("student.dat","r");
    tmpfp=fopen("tmp.dat","w");
    int rollno,ch;
    printf("\t\t\tEnter roll no.: ");
    scanf("%d",&rollno);
    while(fread(&s,sizeof(s),1,fp))
    {
        if(s.roll==rollno)
        {
            printf("\n\t\t\t1.Student first name\n\t\t\t2.Student last
name\n\t\t\t3.Course\n\t\t\t4.CGPA\n\t\t\tSelect a choice to update:");
            scanf("%d",&ch);
            switch(ch)
            {
                case 1:
                    printf("\t\t\tStudent first name: ");
                    fflush(stdin);
                    fgets(s.fname,30,stdin);
                    break;
                case 2:
                    printf("\t\t\tStudent last name: ");
                    fflush(stdin);
                    fgets(s.lname,30,stdin);
                    break;
                case 3:
                    printf("\t\t\tCourse: ");
                    scanf("%s",&s.course);
                    break;
                case 4:
                    printf("\t\t\tCGPA: ");
                    scanf("%f",&s.cgpa);
                    break;
                default:
                    printf("\t\t\tInvalid");
            }
            fwrite(&s,sizeof(s),1,tmpfp);
            printf("\n\t\t\tUpdate Successful.");
        }
        else
        {
            fwrite(&s,sizeof(s),1,tmpfp);
        }
    }
    fclose(fp);
    fclose(tmpfp);
    remove("student.dat");//deletes the student.dat file
    rename("tmp.dat","student.dat");//renames the "tmp.dat"
    to
    student.dat"
    printf("\n\t\t\tPress any key to continue.....");
    fflush(stdin);
    getchar();
}

```



```

}

//function to delete student records with roll no.
void delete_student()
{
    int found = 0;
    int studentDelete = 0;

    FILE *fp;
    FILE *tmp;
    fp = fopen("student.dat","r");
    tmp= fopen("tmp.dat","w");
    printf("\n\t\t\t\tEnter Student Roll No. to delete:");
    scanf("%d",&studentDelete);
    while (fread (&s, sizeof(s), 1, fp))
    {
        if(s.roll!= studentDelete)
        {
            fwrite(&s,sizeof(s), 1, tmp);
        }
        else
        {
            found = 1;
        }
    }
    if(found!=1)
    {
        printf("\n\t\t\t\tRecord deleted successfully.....");
        count--;
    }
    else
        printf("\n\t\t\t\tRecord not found");

    printf("\n\t\t\t\tPress any key to continue.....");
    fflush(stdin);
    getchar();
    fclose(fp);
    fclose(tmp);
    remove("student.dat"); //deletes the student.dat file

    rename("tmp.dat","student.dat"); //renames the "tmp.dat" to
    "student.dat"

    printf("\n\t\t\t\tPress any key to continue.....");
    fflush(stdin);
    getchar();
}

//function to display top 10 cgpa
void top10(float *ptr)
{
    int i=0,j=0,m=0,n=0;
    float temp;
    FILE *fp;

```

```

fp=fopen("student.dat","r");
ptr=(float*)malloc(count*sizeof(float)); //dynamically allocating
                                         memory for the array.
while(fread(&s,sizeof(s),1,fp))
{
    ptr[i]=s.cgpa;
    i++;
}
for(m=0;m<count;m++)
{
    for(n=0;n<=m;n++)
    {
        if((*ptr+m)>(*ptr+n))
        {
            temp=(*ptr+m);
            (*ptr+m)=(*ptr+n);
            (*ptr+n)=temp;
        }
    }
}

for(i=0,j=0;i<10;i++)
{
    if(*ptr+i==*ptr+i-1)
        continue;
    fseek(fp,0,SEEK_SET);
    printf("\n\t\t\tRank:%d",j+1);
    while(fread(&s,sizeof(s),1,fp))
    {
        if((s.cgpa==*ptr+i))
        {
            printf("\n\t\t\tStudent Roll No.: %d",s.roll);
            printf("\n\t\t\tStudent first name: %s",s.fname);
            printf("\n\t\t\tStudent last name: %s",s.lname);
            printf("\n\t\t\tCourse: %s",s.course);
            printf("\n\t\t\tCGPA: %f\n",s.cgpa);
        }
    }
    j++;
}
free(ptr);
fclose(fp);
printf("\n\t\t\tPress any key to continue.....");
fflush(stdin);
getchar();
}

//Display all students present in institution
void view_student()
{
    FILE *fp;
    fp=fopen("student.dat","r");
    while(fread(&s,sizeof(s),1,fp))

```

```

{
    printf("\n\t\t\tStudent Roll No.: %d",s.roll);
    printf("\n\t\t\tStudent first name: %s",s.fname);
    printf("\n\t\t\tStudent last name: %s",s.lname);
    printf("\n\t\t\tCourse: %s",s.course);
    printf("\n\t\t\tCGPA: %f\n",s.cgpa);
}
printf("\n\t\t\tPress any key to continue.....");
fflush(stdin);
getchar();
fclose(fp);
}

```

Sample Output:

```

#####
                        STUDENT INFORMATION MANAGEMENT SYSTEM
#####
                        MAIN MENU

1. ADD STUDENT DETAILS.
2. FIND STUDENT USING ROLL NUMBER.
3. LIST ALL STUDENTS WITH SAME FIRST NAME.
4. FIND ALL STUDENTS REGISTERED IN A COURSE.
5. COUNT OF STUDENTS IN THE INSTITUTION.
6. UPDATE STUDENT DETAILS.
7. DELETE A STUDENT.
8. DISPLAY TOP 10 STUDENTS BASED ON THEIR CGPA.
9. VIEW STUDENTS IN THE INSTITUTION.
0. Exit
Select a choice: _

```

Select a choice: 9

Student Roll No.: 1
Student first name: Srihari
Student last name: V
Course: CSE
CGPA: 9.560000

Student Roll No.: 2
Student first name: Siva Dhanush
Student last name: Kosuri
Course: CCE
CGPA: 10.000000

Student Roll No.: 3
Student first name: Hemchand
Student last name: R
Course: CCE
CGPA: 8.500000

Student Roll No.: 4
Student first name: Barathi
Student last name: M S
Course: CCE
CGPA: 9.000000

Student Roll No.: 5
Student first name: Nithin
Student last name: Akkineni
Course: ECE
CGPA: 8.000000

Press any key to continue.....

```
1. ADD STUDENT DETAILS.
2. FIND STUDENT USING ROLL NUMBER.
3. LIST ALL STUDENTS WITH SAME FIRST NAME.
4. FIND ALL STUDENTS REGISTERED IN A COURSE.
5. COUNT OF STUDENTS IN THE INSTITUTION.
6. UPDATE STUDENT DETAILS.
7. DELETE A STUDENT.
8. DISPLAY TOP 10 STUDENTS BASED ON THEIR CGPA.
9. VIEW STUDENTS IN THE INSTITUTION.
0. Exit

Select a choice: 1

Enter Student ROLL NO.:9

Student first name: Ram

Student last name: Lakshman

1.COMPUTER SCIENCE ENGINEERING(CSE)
2.COMPUTER AND COMMUNICATION ENGINEERING(CCE)
3.ELECTRONICS AND COMMUNICATION ENGINEERING(ECE)
4.ARTIFICIAL INTELLIGRNCE(AI)
Select your choice: 1
Course:CSE
CGPA: 10
```

STUDENT INFORMATION MANAGEMENT SYSTEM

#####

MAIN MENU

1. ADD STUDENT DETAILS.
2. FIND STUDENT USING ROLL NUMBER.
3. LIST ALL STUDENTS WITH SAME FIRST NAME.
4. FIND ALL STUDENTS REGISTERED IN A COURSE.
5. COUNT OF STUDENTS IN THE INSTITUTION.
6. UPDATE STUDENT DETAILS.
7. DELETE A STUDENT.
8. DISPLAY TOP 10 STUDENTS BASED ON THEIR CGPA.
9. VIEW STUDENTS IN THE INSTITUTION.
0. Exit

Select a choice: 7

Enter Student ROLL NO. for delete:1

Record deleted successfully.....

Press any key to continue.....

#####

STUDENT INFORMATION MANAGEMENT SYSTEM

#####

MAIN MENU

1. ADD STUDENT DETAILS.
2. FIND STUDENT USING ROLL NUMBER.
3. LIST ALL STUDENTS WITH SAME FIRST NAME.
4. FIND ALL STUDENTS REGISTERED IN A COURSE.
5. COUNT OF STUDENTS IN THE INSTITUTION.
6. UPDATE STUDENT DETAILS.
7. DELETE A STUDENT.
8. DISPLAY TOP 10 STUDENTS BASED ON THEIR CGPA.
9. VIEW STUDENTS IN THE INSTITUTION.
0. Exit

Select a choice: 3
Displaying all students with same first name.....
Enter first name: Ram

Student Roll No.: 7
Student first name: Ram
Student last name: Lakshman
Course: CSE
CGPA: 10.000000

Student Roll No.: 8
Student first name: Ram
Student last name: Krishna
Course: CCE

#####

STUDENT INFORMATION MANAGEMENT SYSTEM

#####

MAIN MENU

1. ADD STUDENT DETAILS.
2. FIND STUDENT USING ROLL NUMBER.
3. LIST ALL STUDENTS WITH SAME FIRST NAME.
4. FIND ALL STUDENTS REGISTERED IN A COURSE.
5. COUNT OF STUDENTS IN THE INSTITUTION.
6. UPDATE STUDENT DETAILS.
7. DELETE A STUDENT.
8. DISPLAY TOP 10 STUDENTS BASED ON THEIR CGPA.
9. VIEW STUDENTS IN THE INSTITUTION.
0. Exit

Select a choice: 2
Enter a roll no to be searched: 2

Student Roll No.: 2
Student first name: Siva Dhanush
Student last name: Kosuri
Course: CCE
CGPA: 10.000000

.. ..

#####

STUDENT INFORMATION MANAGEMENT SYSTEM

#####

MAIN MENU

1. ADD STUDENT DETAILS.
2. FIND STUDENT USING ROLL NUMBER.
3. LIST ALL STUDENTS WITH SAME FIRST NAME.
4. FIND ALL STUDENTS REGISTERED IN A COURSE.
5. COUNT OF STUDENTS IN THE INSTITUTION.
6. UPDATE STUDENT DETAILS.
7. DELETE A STUDENT.
8. DISPLAY TOP 10 STUDENTS BASED ON THEIR CGPA.
9. VIEW STUDENTS IN THE INSTITUTION.
0. Exit

Select a choice: 5

Total Count of Students: 10
Press any key to continue.....

#####

STUDENT INFORMATION MANAGEMENT SYSTEM

#####

MAIN MENU

1. ADD STUDENT DETAILS.
2. FIND STUDENT USING ROLL NUMBER.
3. LIST ALL STUDENTS WITH SAME FIRST NAME.
4. FIND ALL STUDENTS REGISTERED IN A COURSE.
5. COUNT OF STUDENTS IN THE INSTITUTION.
6. UPDATE STUDENT DETAILS.
7. DELETE A STUDENT.
8. DISPLAY TOP 10 STUDENTS BASED ON THEIR CGPA.
9. VIEW STUDENTS IN THE INSTITUTION.
0. Exit

Select a choice: 6

Enter roll no.: 6

- 1.Student first name
- 2.Student last name
- 3.Course
- 4.CGPA

Select a choice to update:2

Student last name: Shree

Rank:2
Student Roll No.: 1
Student first name: Srihari
Student last name: V
Course: CSE
CGPA: 9.560000

Rank:3
Student Roll No.: 9
Student first name: Priya
Student last name: Kumari
Course: ECE
CGPA: 9.500000

Rank:4
Student Roll No.: 4
Student first name: Barathi
Student last name: M S
Course: CCE
CGPA: 9.000000

Student Roll No.: 8
Student first name: Ram
Student last name: Krishna
Course: CCE
CGPA: 9.000000

Rank:5
Student Roll No.: 3
Student first name: Hemchand
Student last name: R
Course: CCE
CGPA: 8.500000

Student Roll No.: 10
Student first name: Ram
Student last name: Kumar
Course: AI
CGPA: 8.500000