STUDENT RECORD MANAGEMENT SYSTEM IN C

Name: Aditya sirja
Roll No: 62B
Class : B

C PROGRAM SOURCE CODE

```
/*
      STUDENT RECORD MANAGEMENT SYSTEM

1.Name    : ADITYA SIRJA
  Rollno  : 62

Features:

      1 => Display record student
      2 => Search record student
      3 => Add Student Record
      4 => Update Student Record
      5 => Delete Student Record
      6 => Print Student MARKSHEET
*/
#include <stdio.h>
#include <conio.h>
#include <string.h>

#define FILENAME "C:\\TURBOC3\\BIN\\PROJECT\\student.txt"

int Menu();
void calculate(struct Student *s);
void Addstudent();
void DisplayAllstudent();
void Searchbyrollno();
void Deletestudent();
void Updatestudent();
void display_marks_table();
struct Student {
    int Rollno;
    char Name[100];
    struct DOB
    {
      int dd,mm,yy;
    }d;
    int Sem;
    int Marks[5];
    char College_name[50];
    int Total;
```

```
    float Percentage;
    char Grade[40];
};

int main()
{
    int choice;

    do
    {
      clrscr();
      choice=Menu();

      switch(choice)
      {
          case 1:
            clrscr();
            DisplayAllstudent();
            break;
          case 2:
            clrscr();
            Searchbyrollno();
            break;
          case 3:
            clrscr();
            Addstudent();
            break;
          case 4:
            clrscr();
            Updatestudent();
            break;
          case 5:
            clrscr();
            Deletestudent(); break;
          case 6:
            clrscr();
            display_marks_table(); break;

          case 7:
            clrscr();
            exit(0);
            break;
          default:
            printf("\nInvalid Choice!");
      }
      getch();
    }while(choice != 7);

    return 0;
}
int Menu(){
      int ch;
      printf("\n\t|---------------------------------|");
      printf("\n\t| 1.Display All Students          |");
      printf("\n\t| 2.Search Student by Roll No     |");
      printf("\n\t| 3.Add New Student               |");
      printf("\n\t| 4.Update Student                |");
```

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      printf("\n\t| 5.Delete Student                |");
      printf("\n\t| 6.Print Student MARKSHEET       |");
      printf("\n\t| 7.exit                          |");
      printf("\n\t|---------------------------------|");
      printf("\n\t Enter your choic : ");
      scanf("%d",&ch);

      return ch;
}

void calculate(struct Student *s)
{
    int i;
    s->Total = 0;
    for (i = 0; i < 5; i++)
    {
      s->Total =s->Total + s->Marks[i];
    }
    s->Percentage = s->Total / 5.0;

    if (s->Percentage >= 80)
      strcpy(s->Grade, "Distinction");
    else if (s->Percentage >= 60)
      strcpy(s->Grade, "First_Class");
    else if (s->Percentage >= 50)
      strcpy(s->Grade, "Second_Class");
    else if (s->Percentage >= 35)
      strcpy(s->Grade, "Pass");
    else
      strcpy(s->Grade, "Fail");
}

int isDuplicateRollNo(int rollNo, char *filename)
{
    struct Student s;
    FILE *fp = fopen(filename, "rb");

    if (fp == NULL)
      return 0; // No file yet → no duplicates

    while (fread(&s, sizeof(struct Student), 1, fp))
    {
      if (s.Rollno == rollNo)
      {
          fclose(fp);
          return 1; // Duplicate found
      }
    }

    fclose(fp);
    return 0; // No duplicate
}

void Addstudent()
{
    struct Student s;
    int i;
```

```
    FILE *fp;
    char filename[20];

    printf("\n\t\t|-----------------------------------------------|");
    printf("\n\t\t|                 ADD STUDENT                   |");
    printf("\n\t\t|-----------------------------------------------|");

    printf("\n\n\n\tEnter the Student Roll No: ");
    scanf("%d", &s.Rollno);

    printf("\n\tEnter the Semester (1-4): ");
    scanf("%d", &s.Sem);

    sprintf(filename, "sem%d.dat", s.Sem);

    if (isDuplicateRollNo(s.Rollno, filename))
    {
      printf("\nError: Roll No %d already exists in Semester %d!\n",
s.Rollno, s.Sem);
      return;
    }

    printf("\n\tEnter the Student Name: ");
    fflush(stdin);
    gets(s.Name);

    printf("\n\tEnter DOB [dd-mm-yy] : ");
    scanf("%d-%d-%d", &s.d.dd, &s.d.mm, &s.d.yy);

    printf("\n\tEnter the College Name: ");
    fflush(stdin);
    gets(s.College_name);

    printf("\n\tEnter 5 Subject Marks:");
    for (i = 0; i < 5; i++)
    {
      printf("\n\tSubject %d: ", i + 1);
      scanf("%d", &s.Marks[i]);
    }

    calculate(&s); // call calculation function

    fp = fopen(filename, "ab");
    if (fp == NULL)
    {
      printf("Error opening file\n");
      return;
    }

    fwrite(&s, sizeof(struct Student), 1, fp);
    fclose(fp);

    printf("\n\tStudent record added successfully in %s!\n", filename);
}
void DisplayAllstudent()
{
     struct Student s;
```

```
    FILE *fp;
    char filename[20];
    int sem, count = 0;

    printf("\n\n\tEnter the Semester number (1-4) to view records: ");
    scanf("%d", &sem);

    if (sem < 1 || sem > 4)
    {
      printf("\n\tInvalid Semester! Please enter between 1 and 4.\n");
      return;
    }

    sprintf(filename, "sem%d.dat", sem);
    fp = fopen(filename, "rb");

    printf("\n\t\t|---------------------------------------------|");
    printf("\n\t\t|       STUDENT DETAILS FOR SEMESTER %d        |",
sem);
    printf("\n\t\t|---------------------------------------------|");

    if (fp == NULL)
    {
      printf("\n\n\t No records found for Semester %d.\n", sem);
      return;
    }
    printf("\n\t|-----------------------------------------------------
--------|");
    printf("\n\t| %-8s | %-12s | %-10s | %-15s | %-3s |",
         "Roll No", "Name", "DOB", "College", "Sem");
    printf("\n\t|-----------------------------------------------------
--------|");

    while (fread(&s, sizeof(struct Student), 1, fp))
    {
      printf("\n\t| %-8d | %-12s | %02d-%02d-%04d | %-15s | %-3d |",
             s.Rollno, s.Name, s.d.dd, s.d.mm, s.d.yy, s.College_name,
s.Sem);
      count++;
    }

    if (count == 0)
    {
      printf("\n\t No student records in Semester %d.", sem);
    }

    printf("\n\t|-----------------------------------------------------
--------|");

    fclose(fp);

    printf("\n\n\tPress any key to continue...");
    getch();
}
void Searchbyrollno()
{
    struct Student s;
```

```
    FILE *fp;
    int found = 0, rollno, sem;
    char filename[20];

    printf("\n\tEnter the Semester (1-4): ");
    scanf("%d", &sem);

    if (sem < 1 || sem > 4)
    {
      printf("\n\tInvalid Semester! Please enter between 1 and 4.\n");
      return;
    }

    printf("\n\n\tEnter Roll Number to search: ");
    scanf("%d", &rollno);

    sprintf(filename, "sem%d.dat", sem);
    fp = fopen(filename, "rb");

    if (fp == NULL)
    {
      printf("\n\t No records found for Semester %d.\n", sem);
      return;
    }

    while (fread(&s, sizeof(struct Student), 1, fp))
    {
      if (s.Rollno == rollno)
      {
          printf("\n\t====================================\n");
          printf("\n\t Roll No   : %d", s.Rollno);
          printf("\n\t Name      : %s", s.Name);
          printf("\n\t DOB       : %02d-%02d-%04d", s.d.dd, s.d.mm,
s.d.yy);
          printf("\n\t College   : %s", s.College_name);
          printf("\n\t Semester  : %d", s.Sem);
         // printf("\n\t Marks     : %d %d %d %d %d", s.Marks[0],
s.Marks[1], s.Marks[2], s.Marks[3], s.Marks[4]);
         // printf("\n\t Total     : %d", s.Total);
          printf("\n\t Percentage: %.2f", s.Percentage);
          printf("\n\t Grade     : %s", s.Grade);
          printf("\n\t====================================");
          found = 1;
          break;
      }
    }

    fclose(fp);

    if (!found)
      printf("\n\tStudent with Roll No %d not found in Semester %d.",
rollno, sem);

    getch();
}
void Deletestudent()
{
```

```
    struct Student s;
    FILE *fp, *temp;
    int found = 0, rollno, sem;
    char filename[20], tempFile[] = "temp.dat";

    printf("\n\n\tEnter Semester (1-4): ");
    scanf("%d", &sem);

    if (sem < 1 || sem > 4)
    {
      printf("\n\tInvalid Semester! Please enter between 1 and 4.\n");
      return;
    }

    sprintf(filename, "sem%d.dat", sem);

    fp = fopen(filename, "rb");
    temp = fopen(tempFile, "wb");

    if (fp == NULL)
    {
      printf("\n\t No records found for Semester %d.\n", sem);
      return;
    }

    printf("\n\tEnter Roll Number to Delete: ");
    scanf("%d", &rollno);

    while (fread(&s, sizeof(struct Student), 1, fp))
    {
      if (s.Rollno == rollno)
      {
          found = 1;
          printf("\n\tRecord with Roll No %d deleted successfully from
Semester %d.\n", rollno, sem);
          continue; // Skip writing this record
      }
      fwrite(&s, sizeof(struct Student), 1, temp);
    }

    fclose(fp);
    fclose(temp);

    remove(filename);
    rename(tempFile, filename);

    if (!found)
      printf("\n\tNo record found with Roll No %d in Semester %d.\n",
rollno, sem);
}
void Updatestudent()
{
    struct Student s;
    FILE *fp, *temp;
    int found = 0, rollno, sem, choice, i;
    char filename[20], tempFile[] = "temp.dat";
```

```
printf("\n\tEnter Semester (1-4): ");
scanf("%d", &sem);

if (sem < 1 || sem > 4)
{
  printf("\n\tInvalid Semester! Please enter between 1 and 4.\n");
  return;
}

sprintf(filename, "sem%d.dat", sem);
fp = fopen(filename, "rb");
temp = fopen(tempFile, "wb");

if (fp == NULL)
{
  printf("\n\tNo records found for Semester %d.\n", sem);
  return;
}

printf("\n\tEnter Roll Number to update: ");
scanf("%d", &rollno);

while (fread(&s, sizeof(struct Student), 1, fp))
{
  if (s.Rollno == rollno)
  {
      found = 1;
      printf("\n\tRecord found. Choose fields to update:\n");

      do
      {
        printf("\n\t1. Name");
        printf("\n\t2. DOB");
        printf("\n\t3. College Name");
        printf("\n\t4. Exit Update");
        printf("\n\tEnter your choice: ");
        scanf("%d", &choice);

        switch (choice)
        {
        case 1:
            printf("\tEnter new Name: ");
            fflush(stdin);
            gets(s.Name);
            break;

        case 2:
            printf("\tEnter new DOB [dd mm yyyy]: ");
            scanf("%d %d %d", &s.d.dd, &s.d.mm, &s.d.yy);
            break;

        case 3:
            printf("\tEnter new College Name: ");
            fflush(stdin);
            gets(s.College_name);
            break;
```

```
            case 4:
                printf("\tUpdate Completed.\n");
                break;

            default:
                printf("\tInvalid choice. Try again.\n");
            }
          } while (choice != 4);

          printf("\nRecord updated successfully!\n");
      }

      fwrite(&s, sizeof(struct Student), 1, temp);
    }

    fclose(fp);
    fclose(temp);

    remove(filename);
    rename(tempFile, filename);

    if (!found)
    {
      printf("\nNo student found with Roll No %d in Semester %d.\n",
rollno, sem);
    }
}
void display_marks_table()
{
    struct Student s;
    FILE *fp;
    int rollno,i, sem;
    char filename[20];
    printf("\n\t\t|---------------------------------------------|");
    printf("\n\t\t|               STUDENT MARKSHEET             |");
    printf("\n\t\t|---------------------------------------------|");


    printf("\nEnter the Semester (1-4): ");
    scanf("%d", &sem);

    if (sem < 1 || sem > 4)
    {
      printf("\nInvalid Semester! Please enter between 1 and 4.\n");
      return;
    }
    printf("\n\n\tEnter roll number of student to print MARKSHEET: ");
    scanf("%d",&rollno);

    sprintf(filename, "sem%d.dat", sem);
    fp = fopen(filename, "rb");

    if (fp == NULL)
    {
      printf("\n\tNo records found for Semester %d.\n", sem);
      return;
    }
```

```
    while(fread(&s, sizeof(struct Student), 1, fp))
    {
      if(s.Rollno == rollno)
      {

            printf("\n\tRoll No    : %d", s.Rollno);
            printf("\n\tName       : %s", s.Name);
            printf("\n\tCollege    : %s", s.College_name);
            printf("\n\tSemester   : %d", s.Sem);

            printf("\n\n\tSubject\t\tMarks");
            printf("\n\t|-------------------------------------|");
            for (i = 0; i < 5; i++) {
                  printf("\n\t  Subject %d\t%d", i + 1, s.Marks[i]);
            }
            printf("\n\t|-------------------------------------|");
            printf("\n\t  Total\t\t%d", s.Total);
            printf("\n\t  Percentage\t%.2f", s.Percentage);
            printf("\n\t  Grade\t\t%s", s.Grade);
            printf("\n\t|-------------------------------------|");
            break;
      }
   }
   fclose(fp);
}
```

OUTPUT

```
------------------------------------------------------
          STUDENT RECORD MANAGEMENT SYSTEM
------------------------------------------------------
1. Display All Students
2. Search Student by Roll No
3. Add New Student
4. Update Student
5. Delete Student
6. Print Student Marksheet
7. Exit
------------------------------------------------------

============================
>>> OPTION 3: ADD STUDENT
============================
Enter the Student Roll No: 101
Enter the Semester (1-4): 2
Enter the Student Name: YASH PATEL
Enter DOB [dd-mm-yy]: 15-08-2004
Enter the College Name: ABC Institute of Technology
Enter 5 Subject Marks:
Subject 1: 80
Subject 2: 85
Subject 3: 90
Subject 4: 88
Subject 5: 92

Student record added successfully in sem2.dat!

------------------------------------------------------
```

```
================================
>>> OPTION 1: DISPLAY ALL STUDENTS
================================
Enter the Semester number (1-4): 2

|-------------------------------------------------------------|
| Roll No | Name         | DOB        | College           | Sem |
|-------------------------------------------------------------|
| 101     | YASH PATEL   | 15-08-2004 | ABC Institute     |  2  |
| 102     | PRIYA SHAH   | 20-07-2003 | ABC Institute     |  2  |
|-------------------------------------------------------------|

-----------------------------------------------------

============================
>>> OPTION 2: SEARCH STUDENT
============================
Enter Semester (1-4): 2
Enter Roll Number: 101

-------------------------------------------
Roll No   : 101
Name      : YASH PATEL
DOB       : 15-08-2004
College   : ABC Institute of Technology
Semester  : 2
Percentage: 87.00
Grade     : Distinction
-------------------------------------------

-----------------------------------------------------
```

```
============================
>>> OPTION 4: UPDATE STUDENT
============================
Enter Semester (1-4): 2
Enter Roll Number: 102

Record found. Choose fields to update:
1. Name
2. DOB
3. College Name
4. Exit Update
Enter your choice: 1
Enter new Name: PRIYA K. SHAH
Update Completed.

Record updated successfully!

------------------------------------------------------

============================
>>> OPTION 5: DELETE STUDENT
============================
Enter Semester (1-4): 2
Enter Roll Number to Delete: 102

Record with Roll No 102 deleted successfully from Semester 2.

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```

```
============================
>>> OPTION 6: PRINT MARKSHEET
============================
Enter Semester (1-4): 2
Enter Roll Number: 101

|-------------------------------------|
|           STUDENT MARKSHEET         |
|-------------------------------------|
Roll No    : 101
Name       : YASH PATEL
College    : ABC Institute of Technology
Semester   : 2

Subject      Marks
-----------------------
Subject 1     80
Subject 2     85
Subject 3     90
Subject 4     88
Subject 5     92
-----------------------
Total         435
Percentage    87.00
Grade         Distinction
|-------------------------------------|

------------------------------------------------------
>>> PROGRAM EXITED SUCCESSFULLY
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```