#include<stdio.h>

#include<stdlib.h>

typedef struct stu

{

    int rno;

    char name[20];

    int marks1,marks2,marks3;

    int total;

    float per;

}student;

//appending

void append()

{

    FILE \*fp;

student \*s;

int n,i;

fp=fopen("student.txt","a");

printf("How many records u want to store??");

scanf("%d",&n);

s=(student\*)calloc(n,sizeof(student));

for(i=0;i<n;i++)

{

s[i].total=0;

printf("Enter rno,name of student no %d:",i+1);

scanf("%d",&s[i].rno);

fflush(stdin);

gets(s[i].name);

printf("Enter 3 subject marks");

scanf("%d%d%d",&s[i].marks1,&s[i].marks2,&s[i].marks3);

s[i].total+=s[i].marks1+s[i].marks2+s[i].marks3;

s[i].per=s[i].total/3.0;

//write the details to the file

fwrite(&s[i],sizeof(student),1,fp);

}

fclose(fp);

}

//count the no.of records

void count()

{

    FILE \*fp;

    student s1;

    int n;

    fp=fopen("student.txt","r");

    fseek(fp,0,SEEK\_END);

    n=ftell(fp)/sizeof(student);

    printf("No.of records=%d\n",n);

    fclose(fp);

}

//insert a new record to the file

void insert()

{

}

//search for a record in the file

void search()

{

    FILE \*fp;

    student s1;

    int rno,flag=0;

    fp=fopen("student.txt","r");

    printf("Enter rollnumber that u want to search:");

    scanf("%d",&rno);

    while(fread(&s1,sizeof(student),1,fp))

    {

        if(s1.rno==rno)

        {

            printf("Record found\n");

            printf("Rollnum=%d\t",s1.rno);

            printf("Name=%s\n",s1.name);

            printf("Total=%d\n",s1.total);

            printf("Percentage=%f\n",s1.per);

            flag=1;

            break;

        }

        if(flag==0)

            printf("Record not found\n");

        fclose(fp);

    }

}

void delete(){}

void update()

{

    int rno;

    FILE \*fp,\*fp1;

    student s1;

    int flag=0;

    fp=fopen("student.txt","r");

    fp1=fopen("temp.txt","w");

    printf("Enter roll number to update:");

    scanf("%d",rno);

    while(fread(&s1,sizeof(student),1,fp))

    {

        if(s1.rno==rno)

        {

            flag=1;

            printf("Enter new rollnum:");

            scanf("%d",&s1.rno);

            printf("Enter new name:");

            gets(s1.name);

            printf("Enter marks of 3 subjects:");

            scanf("%d%d%d",&s1.marks1,&s1.marks2,&s1.marks3);

            s1.total=s1.marks1+s1.marks2+s1.marks3;

            s1.per=s1.total/3.0;

            fwrite(&s1,sizeof(student),1,fp1);

            break;

        }

        else

            fwrite(&s1,sizeof(student),1,fp1);

    }

        if(flag==0)

            printf("Record not found..can't update\n");

        else

            rename("temp.txt","student.txt");

        fclose(fp);

        fclose(fp1);

}

void create()

{

FILE \*fp;

student \*s;

int n,i;

fp=fopen("student.txt","w");

printf("How many records u want to store??");

scanf("%d",&n);

s=(student\*)calloc(n,sizeof(student));

for(i=0;i<n;i++)

{

s[i].total=0;

printf("Enter rno,name of student no %d:",i+1);

scanf("%d",&s[i].rno);

fflush(stdin);

gets(s[i].name);

printf("Enter 3 subject marks");

scanf("%d%d%d",&s[i].marks1,&s[i].marks2,&s[i].marks3);

s[i].total+=s[i].marks1+s[i].marks2+s[i].marks3;

s[i].per=s[i].total/3.0;

//write the details to the file

fwrite(&s[i],sizeof(student),1,fp);

}

fclose(fp);

}

//display all the records

void display()

{

    student s1;

    FILE \*fp;

    fp=fopen("student.txt","r");

    while(fread(&s1,sizeof(student),1,fp))

    {

        printf("%d\t%s\n",s1.rno,s1.name);

        printf("%d\t%d\t%d\t",s1.marks1,s1.marks2,s1.marks3);

        printf("Total=%d\n",s1.total);

        printf("Percentage=%f\n",s1.per);

    }

}

void main()

{

    int choice;

    char rep='y';

    do

    {

        printf(".....Menu.....\n");

        printf("1.Create\n2.Display\n3.Append\n");

        printf("4.Count\n5.Search for a record\n");

        printf("6.Delete a record\n7. Update\n8.Exit\n");

        printf("Select one option:");

        scanf("%d",&choice);

        switch(choice)

        {

            case 1:

                create();

                break;

            case 2:

                display();

                break;

            case 3:

                append();

                break;

            case 5:

                search();

                break;

            case 6:

                delete();

                break;

            case 7:

                update();

                break;

            case 4:

                count();

                break;

            case 8:

                exit(0);

            default:

                printf("Invalid option chosen\n");

        }

        printf("Do u want to repeat y/n?");

        scanf(" %c,&rep");

   } while(rep=='y'||rep=='Y');

}

Version2:

#include<stdio.h>

#include<stdlib.h>

typedef struct student

{

    int rno;

    char name[20];

    int m1,m2,m3;

    int total;

    float per;

}stu;

//creating a new file

void create()

{

    FILE \*fp;

    int n,i;

    stu \*s;

    fp=fopen("student.dat","w");

    printf("How many records u want to enter in a file:");

    scanf("%d",&n);

    s=(stu\*)calloc(n,sizeof(stu));

    for(i=0;i<n;i++)

    {

        s[i].total=0;

        printf("Enter rollnum: ");

        scanf("%d",&s[i].rno);

        printf("Enter name:");

        scanf("%s",s[i].name);

        printf("Enter marks of 3 subjects:");

        scanf("%d%d%d",&s[i].m1,&s[i].m2,&s[i].m3);

        s[i].total =s[i].m1+s[i].m2+s[i].m3;

        s[i].per=s[i].total/3.0;

        fwrite(&s[i],sizeof(stu),1,fp);

    }

    fclose(fp);

}

//displaying the exisitng records

void display()

{

    FILE \*fp;

    stu s1;

    fp=fopen("student.dat","r");

    if(fp==NULL)

    {

        printf("Error opening the file\n");

        exit(0);

    }

    while(fread(&s1,sizeof(stu),1,fp))

    {

        printf("%d\t%s\t%d\t%d\t%d\t%d\t%f\n",s1.rno,s1.name,

        s1.m1,s1.m2,s1.m3,s1.total,s1.per);

    }

    fclose(fp);

}

//counting the no. of records

/\*void count()

{

    int cou=0;

    FILE \*fp;

    stu s;

    fp=fopen("student.dat","r");

    while(fread(&s,sizeof(stu),1,fp))

    {

        cou++;

    }

    printf("No.of records=%d\n",cou);

    fclose(fp);

}

\*/

void count()

{

    int cou;

    FILE \*fp;

    stu s1;

    fp=fopen("student.dat","r");

    fseek(fp,0,SEEK\_END); //move zero bytes from the file end

    cou=ftell(fp)/sizeof(stu);

    printf("No.of records=%d\n",cou);

    fclose(fp);

}

//appending a record

void append()

{

 FILE \*fp;

    int n,i;

    stu \*s;

    fp=fopen("student.dat","a");

    printf("How many records u want to enter in a file:");

    scanf("%d",&n);

    s=(stu\*)calloc(n,sizeof(stu));

    for(i=0;i<n;i++)

    {

        s[i].total=0;

        printf("Enter rollnum: ");

        scanf("%d",&s[i].rno);

        printf("Enter name:");

        scanf("%s",s[i].name);

        printf("Enter marks of 3 subjects:");

        scanf("%d%d%d",&s[i].m1,&s[i].m2,&s[i].m3);

        s[i].total =s[i].m1+s[i].m2+s[i].m3;

        s[i].per=s[i].total/3.0;

        fwrite(&s[i],sizeof(stu),1,fp);

    }

    fclose(fp);

}

//search for a particular record

void search()

{

    int rno,flag=0;

    FILE \*fp;

    stu s;

    fp=fopen("student.dat","r");

    printf("Enter rno of student whose details u are searching for:");

    scanf("%d",&rno);

    while(fread(&s,sizeof(s),1,fp))

    {

        if(rno==s.rno)

        {

            printf("Roll num %d is found\n",rno);

            flag=1;

            break;

        }

    }

    if(flag==0)

    {

        printf("Rollnum %d is not found\n",rno);

    }

    else

    {

        printf("%d\t%s\t%d\t%d\t%d\t%d\t%f\n",s.rno,s.name,

        s.m1,s.m2,s.m3,s.total,s.per);

    }

    fclose(fp);

}

//deleting a record

void delete()

{

FILE \*fp,\*fp1;

stu s;

int rno,flag=0;

fp=fopen("student.dat","r");

fp1=fopen("temp","w");

printf("Enter the rollnum to delete:");

scanf("%d",&rno);

while(fread(&s,sizeof(stu),1,fp))

{

    if(s.rno!=rno)

    {

     //write to temp file

     fwrite(&s,sizeof(stu),1,fp1);

    }

    else

        flag=1;

}

if(flag==0)

    printf("Rollnum %d is not existing\n",rno);

else

{

    remove("student.dat");

    rename("temp","student.dat");

}

fclose(fp);

fclose(fp1);

}

//Updating a particular record

void update()

{

   FILE \*fp,\*fp1;

    stu s;

    int rno,flag=0;

    fp=fopen("student.dat","r");

    fp1=fopen("temp","w");

    printf("Enter the roll num u want to update:");

    scanf("%d",&rno);

    while(fread(&s,sizeof(stu),1,fp))

    {

        if(s.rno==rno)

        {

            flag=1;

            printf("enter new rollnum,name,3 subj marks\n");

            scanf("%d%s%d%d%d",&s.rno,s.name,&s.m1,&s.m2,&s.m3);

            s.total=s.m1+s.m2+s.m3;

            s.per=s.total/3.0;

        }

        fwrite(&s,sizeof(stu),1,fp1);

    }

    if(flag==0)

        printf("Rollnum %d is not found\n",rno);

    else

    {

        remove("student.dat");

        rename("temp","student.dat");

    }

    fclose(fp);

    fclose(fp1);

}

//Sorting the records

void sort()

{

FILE \*fp;

int n,i,j;

stu \*s,s1;

fp=fopen("student.dat","r");

fseek(fp,0,SEEK\_END);

n=ftell(fp)/sizeof(stu);

s=(stu\*)calloc(n,sizeof(stu));

rewind(fp);

for(i=0;i<n;i++)

    fread(&s[i],sizeof(stu),1,fp);

for(i=0;i<n;i++)

{

    printf("%d\t%s\t",s[i].rno,s[i].name);

    for(j=i+1;j<n;j++)

    {

        if(s[i].total>s[j].total)

        {

            s1=s[i];

            s[i]=s[j];

            s[j]=s1;

        }

    }

}

for(i=0;i<n;i++)

{

    printf("%d\t%s\t",s[i].rno,s[i].name);

    printf("%d\t%d\t%d\t%s\t%f\n",s[i].m1,s[i].m2,s[i].m3,

    s[i].total,s[i].per);

}

fclose(fp);

}

void main()

{

    int choice;

    char rep='y';

    do

    {

        printf(".....MENU.....\n");

        printf("1.CREATE A FILE\n");

        printf("2. DISPLAY\n");

        printf("3.COUNT\n");

        printf("4. SEARCH\n");

        printf("5.DELETE\n");

        printf("6.UPDATE\n");

        printf("7. EXIT\n");

        printf("8. APPEND\n");

        printf("9.SORTING\n");

        printf("10.INSERT\n");

        printf("Choose one option: ");

        scanf("%d",&choice);

        switch(choice)

        {

            case 1:

                create();

                break;

            case 2:

                display();

                break;

            case 3:

                count();

                break;

            case 4:

                search();

                break;

            case 5:

                delete();

                break;

            case 6:

                update();

                break;

            case 7:

                exit(0);

            case 8:

                append();

                break;

            case 9:

                sort();

                break;

            case 10:

                insert();

                break;

            default:

                printf("Invalid choice\n");

        }

        printf("Do u want to repeat y/n:");

        scanf(" %c",&rep);

    } while(rep=='y'||rep=='Y');

}

Hostel room allocation system:

#include<stdio.h>

#include<stdlib.h>

typedef struct hostel

{

    int rno;

    char name[50];

    char class[50];

    char gender[5];

    int room\_num;

}hostel;

int max=10;

//validating the room\_num

int check(int room\_num)

{

    int allotted=0; //not yet allotted

    hostel h;

    FILE \*fp;

    fp=fopen("hostel.txt","r");

    while(fread(&h,sizeof(hostel),1,fp))

    {

        if(h.room\_num == room\_num)

            allotted=1; //was already allocated

    }

    fclose(fp);

    if(allotted==0)

        return room\_num;

    else if(room\_num==0)

        return check(rand()%max+1);

    else

        return check(rand()%max+1);

}

//Room allocation

void allot()

{

    FILE \*fp;

    hostel h;

    fp=fopen("hostel.txt","a");

    if(fp==NULL)

    {

        printf("Can't open the file..\n");

        exit(0);

    }

    printf("Enter rollnum,name,class,gender\n");

    scanf("%d%s%s%s",&h.rno,h.name,h.class,h.gender);

    h.room\_num=check(rand()%max+1);

    fwrite(&h,sizeof(hostel),1,fp);

    fclose(fp);

}

void display()

{

    FILE \*fp;

    hostel h;

    fp=fopen("hostel.txt","r");

    while(fread(&h,sizeof(hostel),1,fp))

    {

        printf("%d\t%s\t%s\t%s\t%d\n",h.rno,h.name,

        h.class,h.gender,h.room\_num);

    }

    fclose(fp);

}

void main()

{

    int choice;

    char rep='y';

    do

    {

        printf(".....MENU.....\n");

        printf("1. Allot the Room\n");

        printf("2. Display\n");

        printf("3. Exit\n");

        printf("Choose one option:");

        scanf("%d", &choice);

        switch(choice)

        {

            case 1:

                allot();

                break;

            case 2:

                display();

                break;

            case 3:

                exit(0);

            default:

                printf("Invalid option\n");

        }

        printf("Do u want to repeat y/n:");

        scanf(" %c",&rep);

    } while (rep=='y'||rep=='Y');

}