Green University of Bangladesh
Department of Computer Science and Engineering (CSE)

Faculty of Sciences and Engineering
Semester: (Summer, Year:2022), B.Sc. in CSE (Day)

Course Title: Structured Programming
Course Code: CSE-106 Section: DA

Lab Project Name: STUDENT MANAGEMENT SYSTEM

Student Details

Name	ID
Irteja Mahmud	213902016

Submission Date : 11 / 09 / 2022
Course Teacher's Name : Farhana Akter Sunny

[For Teachers use only: Don't Write Anything inside this box]

Lab Project Status

Marks: ………………………………… Signature: ....

Comments: .... Date: ....

Table of Contents

Chapter 1

Introduction

1.1 Introduction

Student Record System is a software solution for tracking and managing student data. (S.M.S.) is specifically designed for educational settings, and its many features enable school's efficient functioning on a daily basis. The computerization of the student record will improve the efficiency and reduce human stress, and also indirectly improving the human recourses. This system helps the user to easily access through all the information about students.

1.2 Design Goals/Objective

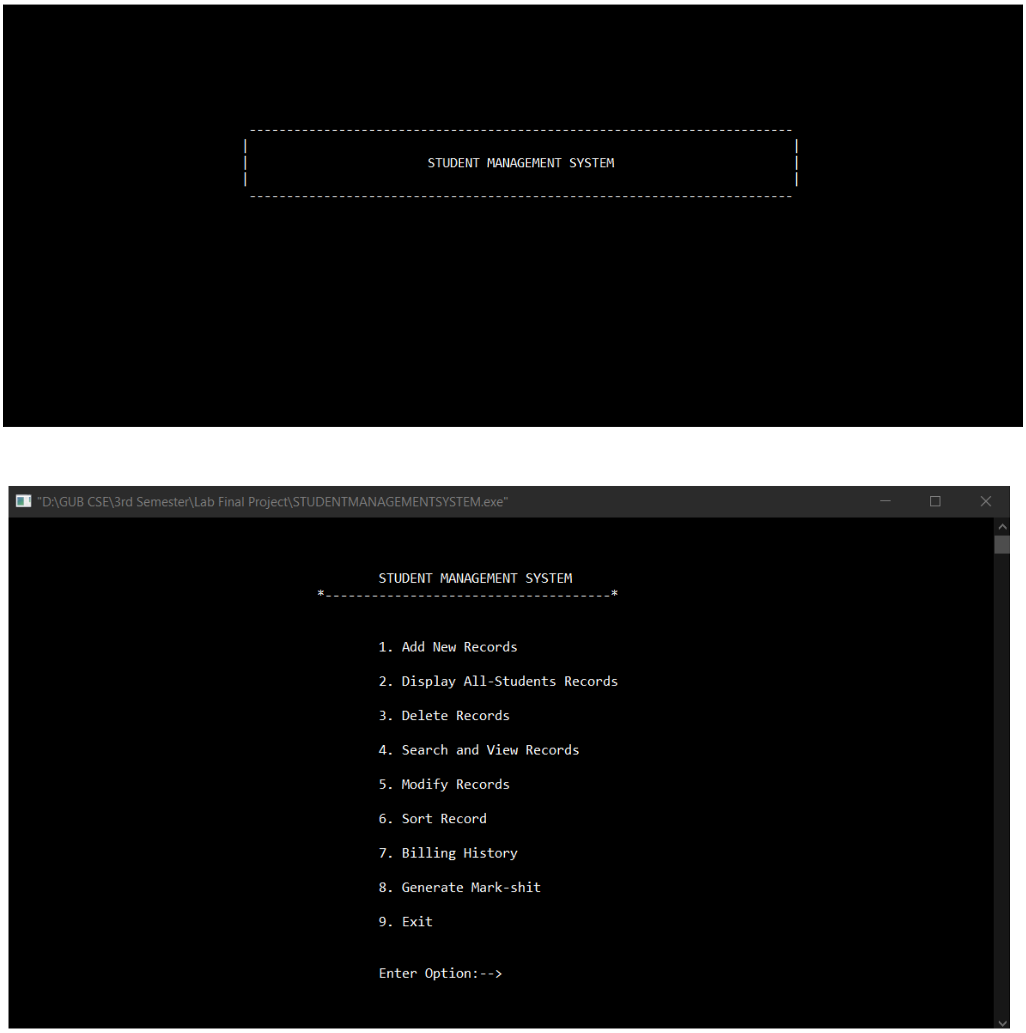
- The main focus of this project is to reduce time and lessen human efforts.
- To provide a user-friendly environment where a user can be serviced better easy.
- To gathers all the valuable student-related information on a single platform, enables quick retrieval of essential data, and filters their availability by the access level.
- To replace a complex net of educational bureaucracy and provide efficient communication channels on all levels.
- To keep all the information organized and keep them in a batter place, and reduce the chance of mistake.

Chapter 2

2.1 Student Record System Design

The Student Management System I made using C program will be look like this.

2.1.1 Interface



```
 -----------------------------------------------------------------------
|                                                                       |
|                     STUDENT MANAGEMENT SYSTEM                         |
|                                                                       |
 -----------------------------------------------------------------------
```

"D:\GUB CSE\3rd Semester\Lab Final Project\STUDENTMANAGEMENTSYSTEM.exe"

```
                STUDENT MANAGEMENT SYSTEM
         *--------------------------------------*

                1. Add New Records

                2. Display All-Students Records

                3. Delete Records

                4. Search and View Records

                5. Modify Records

                6. Sort Record

                7. Billing History

                8. Generate Mark-shit

                9. Exit

                Enter Option:-->
```

Figure 2.1: S.M.S.

2.2 Algorithm

Add Record().

Step 1: Take all input.

Step 2: Write the Data in file.

Step 3: Check if want to add more?

Display Record()

Step 1: Read saved data from File to linkedlist.

Step 2: Print the all the student record .

Step 3: Show how many Male and Female students

Search Record()

Step 1: Read saved data from File to linkedlist.

Step 2: Get the searching id from user

Step 3: Linear Search the whole linked-list to find the required id

Step 4: If Founded then Count=1;

Step 5: Display Information of that Node.

Modify Record()

Step 1: Read saved data from File to linkedlist.

Step 2: Get the id from user

Step 3: Linear Search the whole linked-list to find the required id

Step 4: If Founded then Count=1;

Step 5: Input the Information of that id.

Delete Record ()

Step 1: Read saved data from File to linkedlist.

Step 2: Get the id from user

Step 3: Linear Search the whole linked-list to find the required id

Step 4: If Founded then Count=1;

Step 5: Delete the data from file

Saved Data ()

Step 1: Scan the file

Step 2: Copy the data into linkedlist using strcpy function

Step 3: Connect one node with other

Step 4: exit.

Step 5: Delete the data from file

Sort Record ()

Step 1: Read saved data from File to linkedlist.

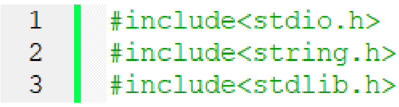
Step 2: Create two *trev and *right for swap the elements.

Step 3: Now use Bouble sort in the linklsit

Step 4: Save all the sorted data in the file

2.3 Implementation of the Project:

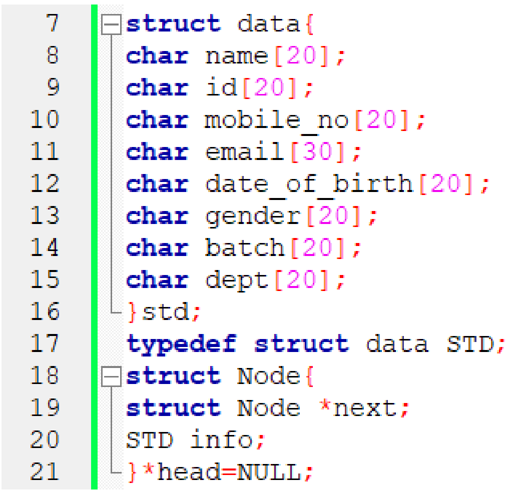
- **Start of the code:**



```
#include<stdio.h>
#include<string.h>
#include<stdlib.h>
```

- **typedef struct student**

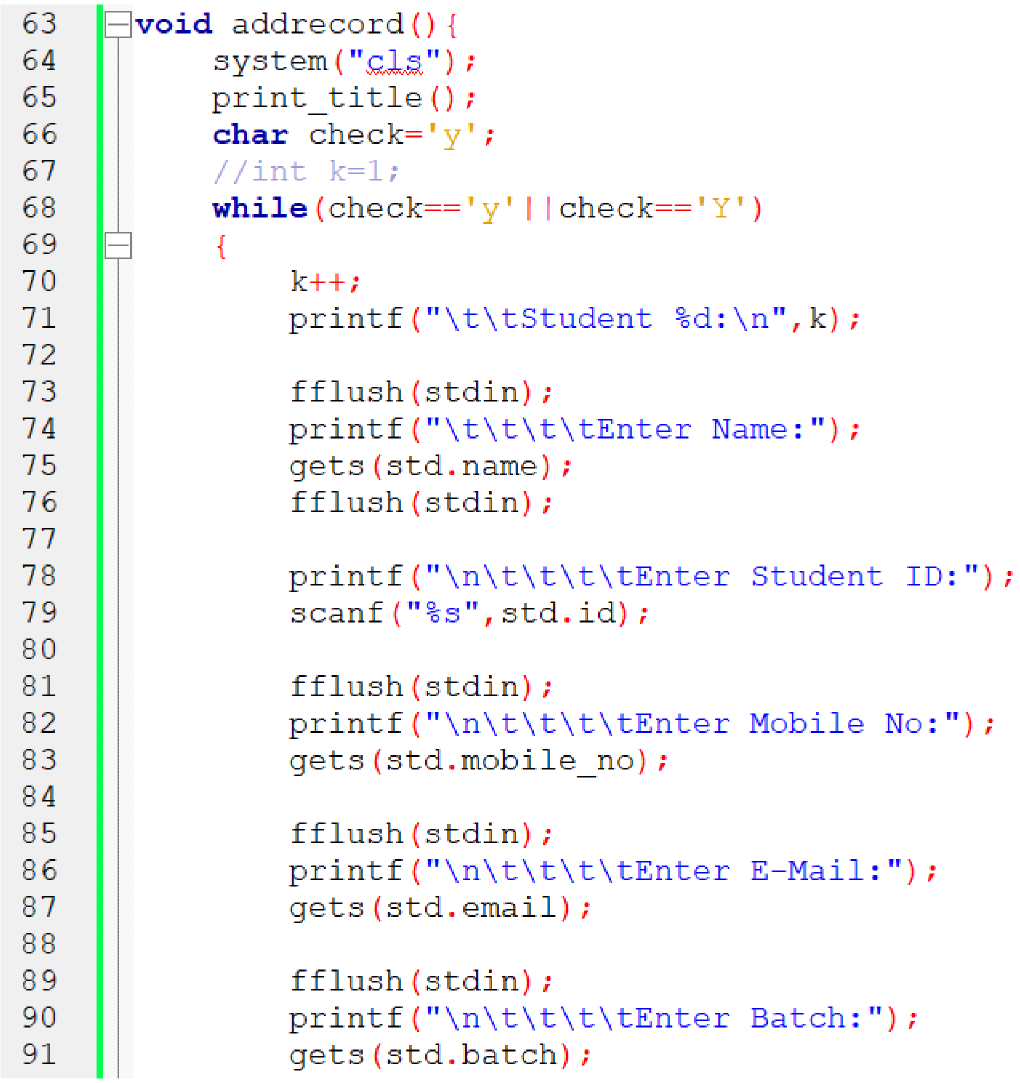
  this will contain the data in a single data type



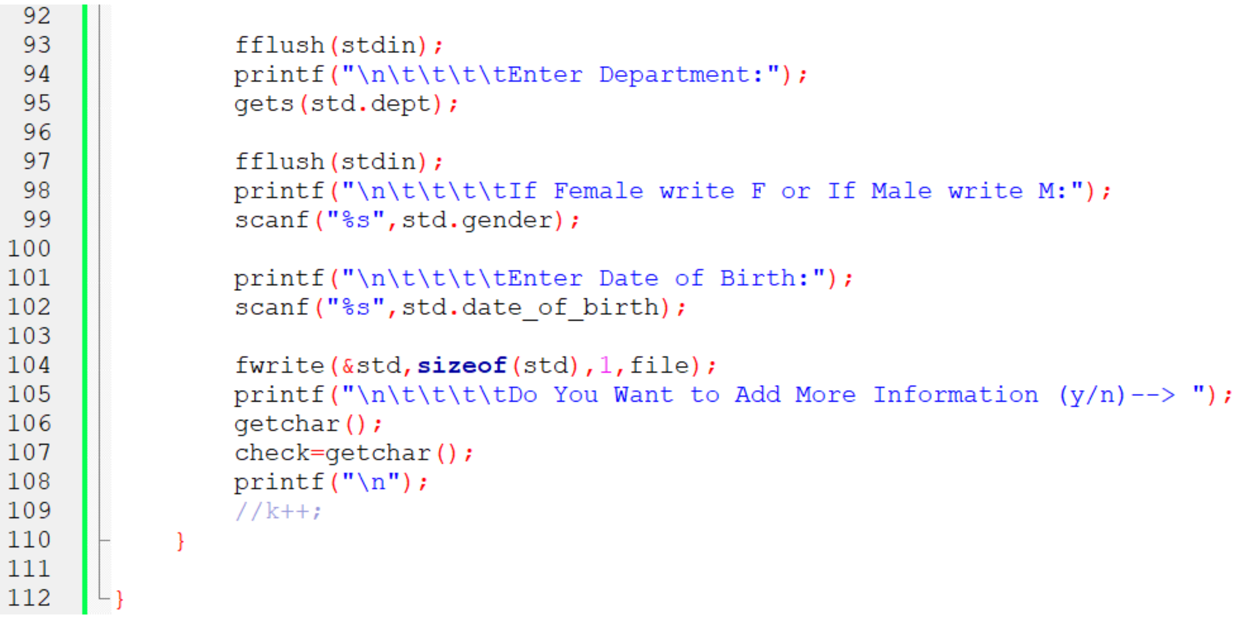
```c
struct data{
char name[20];
char id[20];
char mobile_no[20];
char email[30];
char date_of_birth[20];
char gender[20];
char batch[20];
char dept[20];
}std;
typedef struct data STD;
struct Node{
struct Node *next;
STD info;
}*head=NULL;
```

- **addrecord ()**

This function is used for add the information about a student.



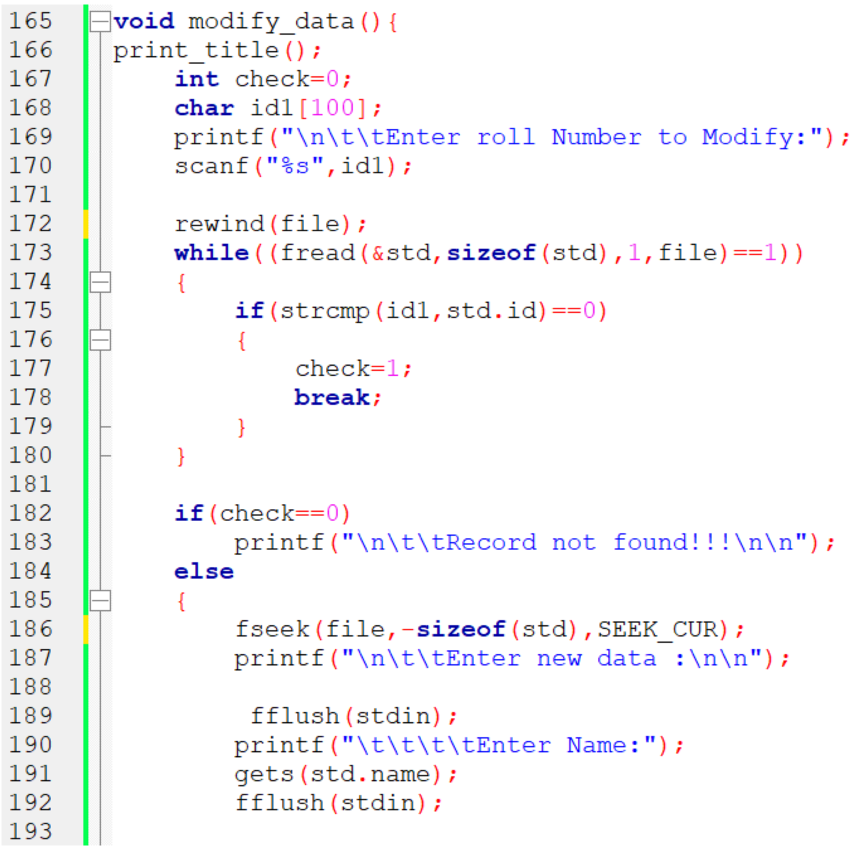
```c
void addrecord(){
    system("cls");
    print_title();
    char check='y';
    //int k=1;
    while(check=='y'||check=='Y')
    {
        k++;
        printf("\t\tStudent %d:\n",k);

        fflush(stdin);
        printf("\t\t\t\tEnter Name:");
        gets(std.name);
        fflush(stdin);

        printf("\n\t\t\t\tEnter Student ID:");
        scanf("%s",std.id);

        fflush(stdin);
        printf("\n\t\t\t\tEnter Mobile No:");
        gets(std.mobile_no);

        fflush(stdin);
        printf("\n\t\t\t\tEnter E-Mail:");
        gets(std.email);

        fflush(stdin);
        printf("\n\t\t\t\tEnter Batch:");
        gets(std.batch);
```



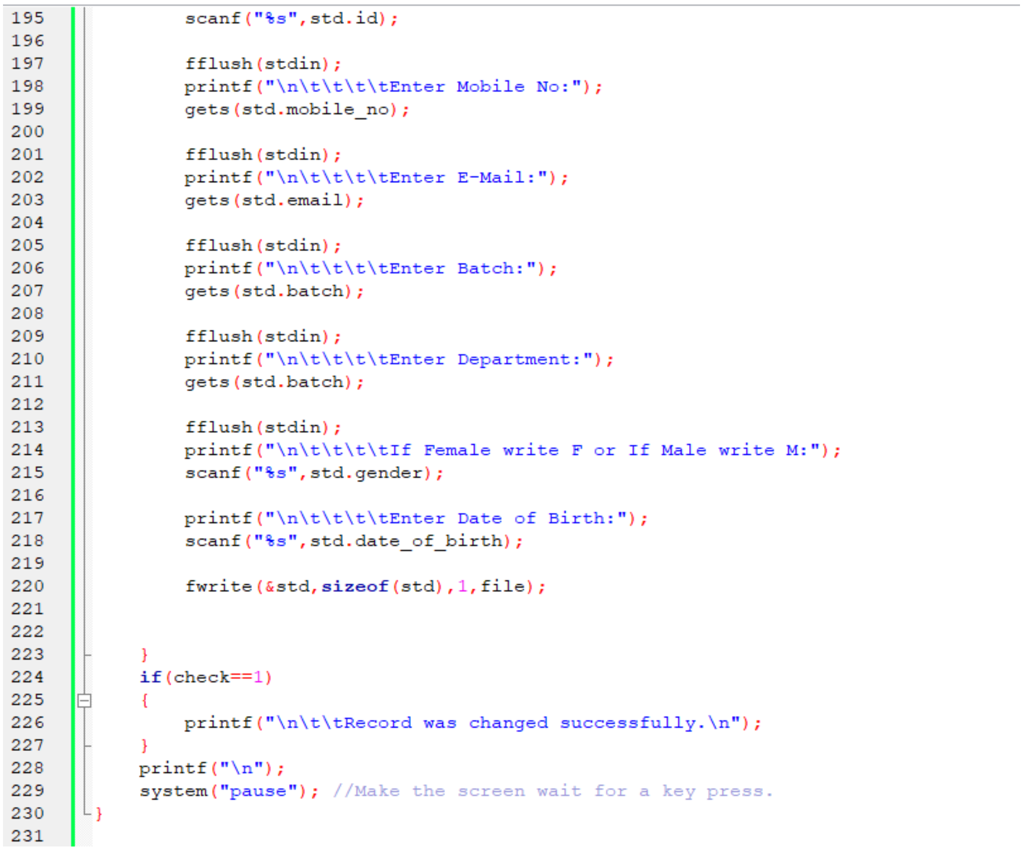
```c

        fflush(stdin);
        printf("\n\t\t\t\tEnter Department:");
        gets(std.dept);

        fflush(stdin);
        printf("\n\t\t\t\tIf Female write F or If Male write M:");
        scanf("%s",std.gender);

        printf("\n\t\t\t\tEnter Date of Birth:");
        scanf("%s",std.date_of_birth);

        fwrite(&std,sizeof(std),1,file);
        printf("\n\t\t\t\tDo You Want to Add More Information (y/n)--> ");
        getchar();
        check=getchar();
        printf("\n");
        //k++;
    }

}
```

- **modify_data ()**

this function will check the information and update the information about that student.



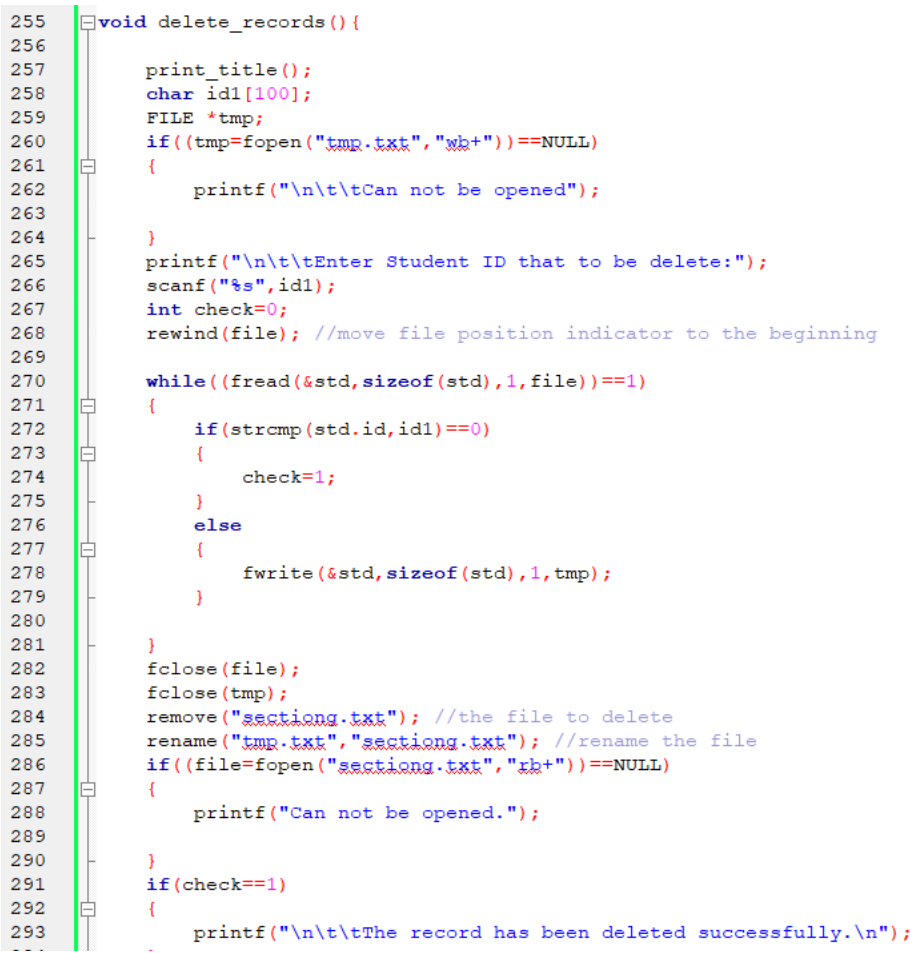
```c
void modify_data(){
print_title();
    int check=0;
    char id1[100];
    printf("\n\tEnter roll Number to Modify:");
    scanf("%s",id1);

    rewind(file);
    while((fread(&std,sizeof(std),1,file)==1))
    {
        if(strcmp(id1,std.id)==0)
        {
            check=1;
            break;
        }
    }

    if(check==0)
        printf("\n\t\tRecord not found!!!\n\n");
    else
    {
        fseek(file,-sizeof(std),SEEK_CUR);
        printf("\n\t\tEnter new data :\n\n");

         fflush(stdin);
        printf("\t\t\t\tEnter Name:");
        gets(std.name);
        fflush(stdin);

```



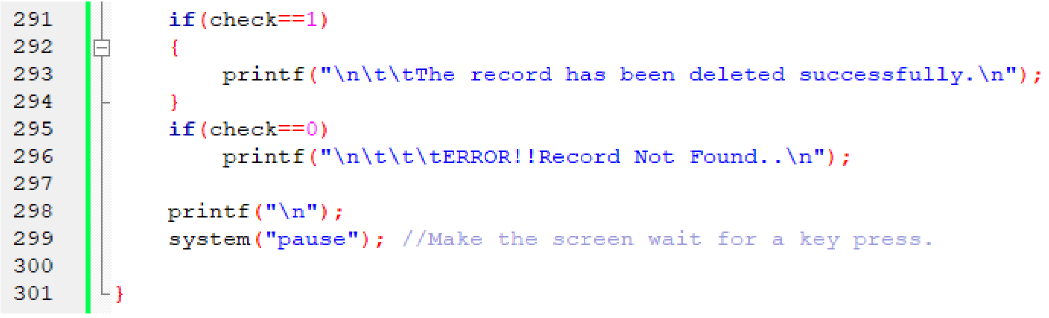
```c
        scanf("%s",std.id);

        fflush(stdin);
        printf("\n\t\t\t\tEnter Mobile No:");
        gets(std.mobile_no);

        fflush(stdin);
        printf("\n\t\t\t\tEnter E-Mail:");
        gets(std.email);

        fflush(stdin);
        printf("\n\t\t\t\tEnter Batch:");
        gets(std.batch);

        fflush(stdin);
        printf("\n\t\t\t\tEnter Department:");
        gets(std.batch);

        fflush(stdin);
        printf("\n\t\t\t\tIf Female write F or If Male write M:");
        scanf("%s",std.gender);

        printf("\n\t\t\t\tEnter Date of Birth:");
        scanf("%s",std.date_of_birth);

        fwrite(&std,sizeof(std),1,file);


    }
    if(check==1)
    {
        printf("\n\t\tRecord was changed successfully.\n");
    }
    printf("\n");
    system("pause"); //Make the screen wait for a key press.
}

```

➢ delete record()

This function will delete the record of a student which users want to delete.



```
void delete_records(){

    print_title();
    char id1[100];
    FILE *tmp;
    if((tmp=fopen("tmp.txt","wb+"))==NULL)
    {
        printf("\n\t\tCan not be opened");

    }
    printf("\n\t\tEnter Student ID that to be delete:");
    scanf("%s",id1);
    int check=0;
    rewind(file); //move file position indicator to the beginning

    while((fread(&std,sizeof(std),1,file))==1)
    {
        if(strcmp(std.id,id1)==0)
        {
            check=1;
        }
        else
        {
            fwrite(&std,sizeof(std),1,tmp);
        }

    }
    fclose(file);
    fclose(tmp);
    remove("sectiong.txt"); //the file to delete
    rename("tmp.txt","sectiong.txt"); //rename the file
    if((file=fopen("sectiong.txt","rb+"))==NULL)
    {
        printf("Can not be opened.");

    }
    if(check==1)
    {
        printf("\n\t\tThe record has been deleted successfully.\n");
```

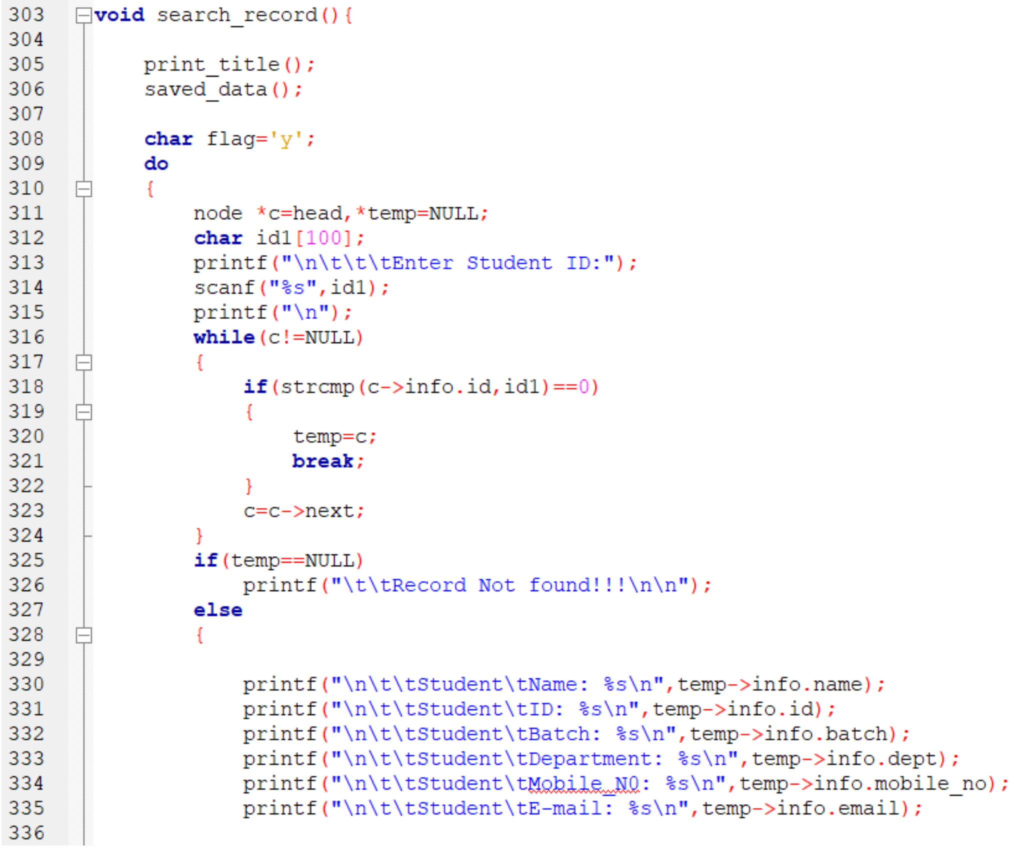


```
    if(check==1)
    {
        printf("\n\t\tThe record has been deleted successfully.\n");
```

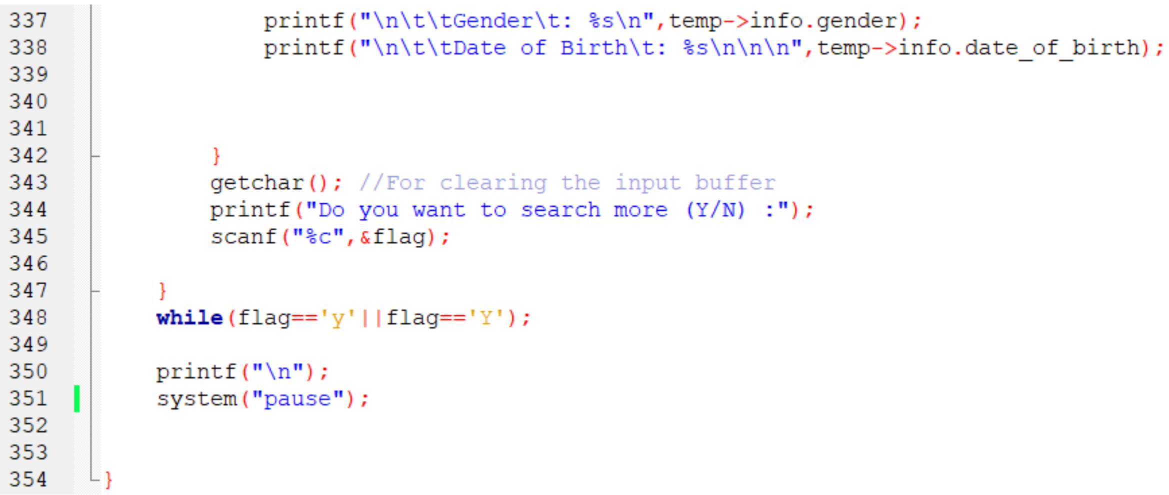
```
    }
    if(check==0)
        printf("\n\t\t\tERROR!!Record Not Found..\n");

    printf("\n");
    system("pause"); //Make the screen wait for a key press.

}
```

- **search_record ()**

This function will find you a information about a student which is a user is searching for.



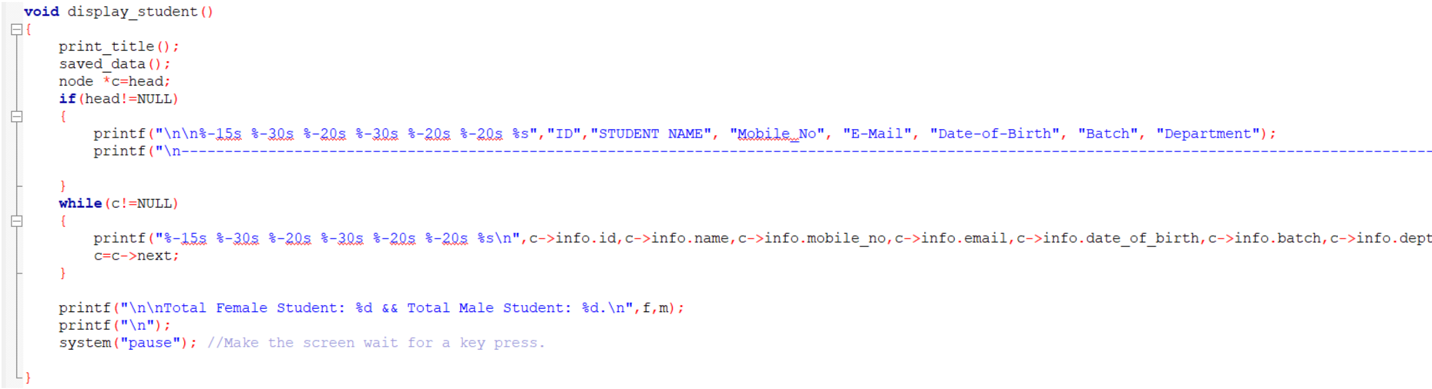
```
void search_record(){

    print_title();
    saved_data();

    char flag='y';
    do
    {
        node *c=head,*temp=NULL;
        char id1[100];
        printf("\n\t\t\tEnter Student ID:");
        scanf("%s",id1);
        printf("\n");
        while(c!=NULL)
        {
            if(strcmp(c->info.id,id1)==0)
            {
                temp=c;
                break;
            }
            c=c->next;
        }
        if(temp==NULL)
            printf("\t\tRecord Not found!!!\n\n");
        else
        {

            printf("\n\t\tStudent\tName: %s\n",temp->info.name);
            printf("\n\t\tStudent\tID: %s\n",temp->info.id);
            printf("\n\t\tStudent\tBatch: %s\n",temp->info.batch);
            printf("\n\t\tStudent\tDepartment: %s\n",temp->info.dept);
            printf("\n\t\tStudent\tMobile_N0: %s\n",temp->info.mobile_no);
            printf("\n\t\tStudent\tE-mail: %s\n",temp->info.email);

```



```
            printf("\n\t\tGender\t: %s\n",temp->info.gender);
            printf("\n\t\tDate of Birth\t: %s\n\n\n",temp->info.date_of_birth);



        }
        getchar(); //For clearing the input buffer
        printf("Do you want to search more (Y/N) :");
        scanf("%c",&flag);

    }
    while(flag=='y'||flag=='Y');

    printf("\n");
    system("pause");


}
```

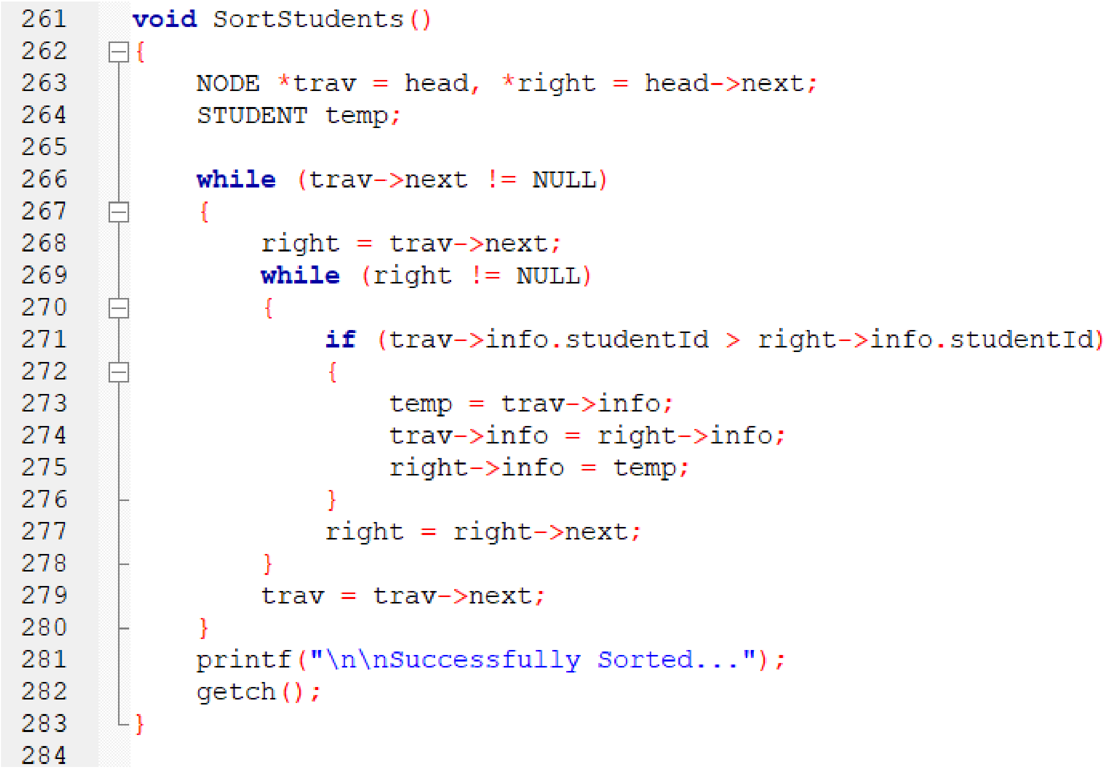
➢ display_students ()

This function will show us all the information have in the record.



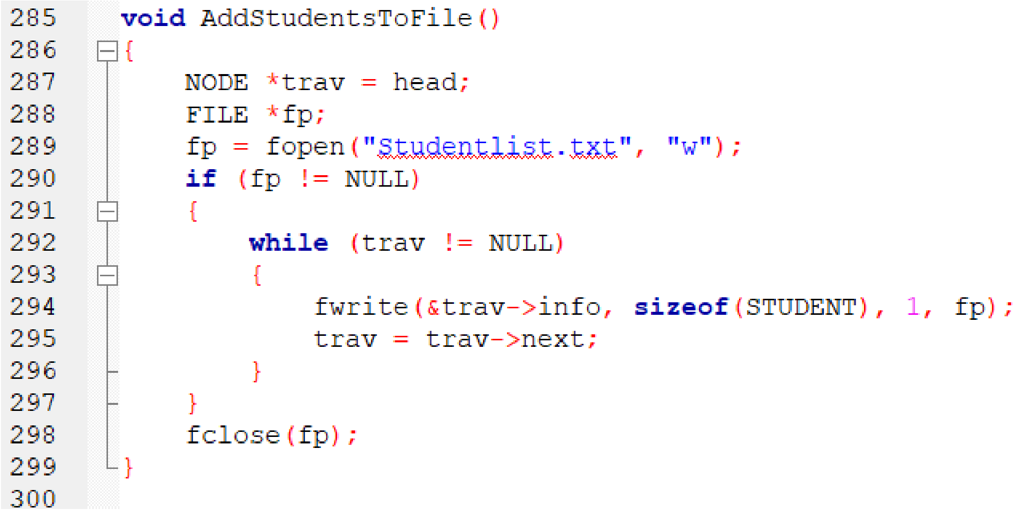
```c
void display_student()
{
    print_title();
    saved_data();
    node *c=head;
    if(head!=NULL)
    {
        printf("\n\n%-15s %-30s %-20s %-30s %-20s %-20s %s","ID","STUDENT NAME", "Mobile_No", "E-Mail", "Date-of-Birth", "Batch", "Department");
        printf("\n------------------------------------------------------------------------------------------------------------------------------------------------

    }
    while(c!=NULL)
    {
        printf("%-15s %-30s %-20s %-30s %-20s %-20s %s\n",c->info.id,c->info.name,c->info.mobile_no,c->info.email,c->info.date_of_birth,c->info.batch,c->info.dept
        c=c->next;
    }

    printf("\n\nTotal Female Student: %d && Total Male Student: %d.\n",f,m);
    printf("\n");
    system("pause"); //Make the screen wait for a key press.

}
```

➢ sortrecord()



```c
void SortStudents()
{
    NODE *trav = head, *right = head->next;
    STUDENT temp;

    while (trav->next != NULL)
    {
        right = trav->next;
        while (right != NULL)
        {
            if (trav->info.studentId > right->info.studentId)
            {
                temp = trav->info;
                trav->info = right->info;
                right->info = temp;
            }
            right = right->next;
        }
        trav = trav->next;
    }
    printf("\n\nSuccessfully Sorted...");
    getch();
}
```

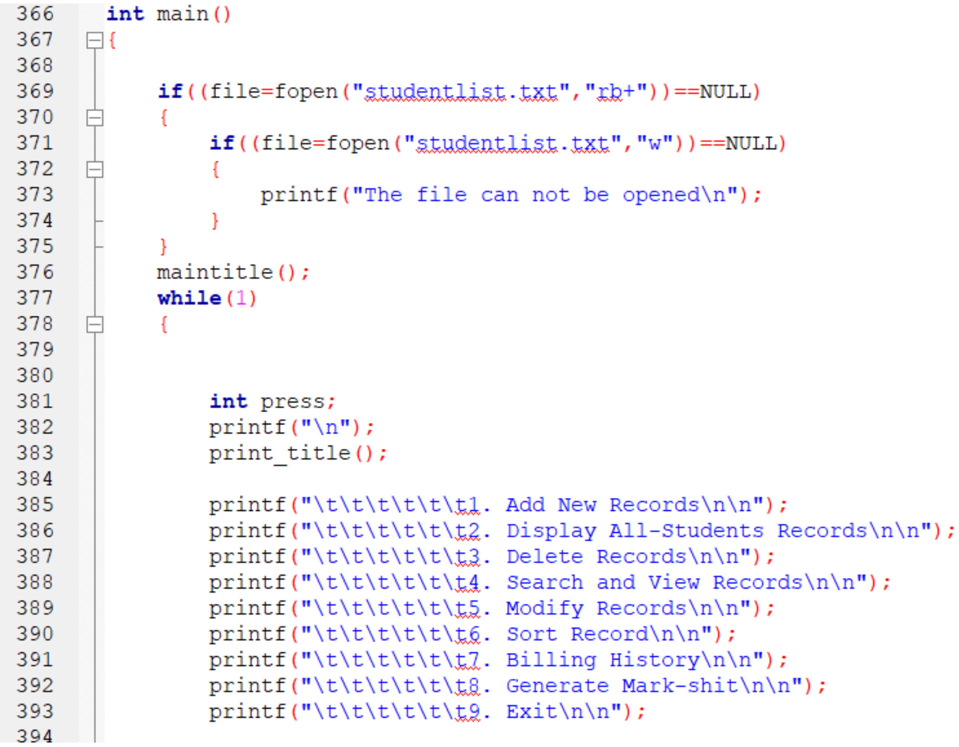
Addstudentstofile()



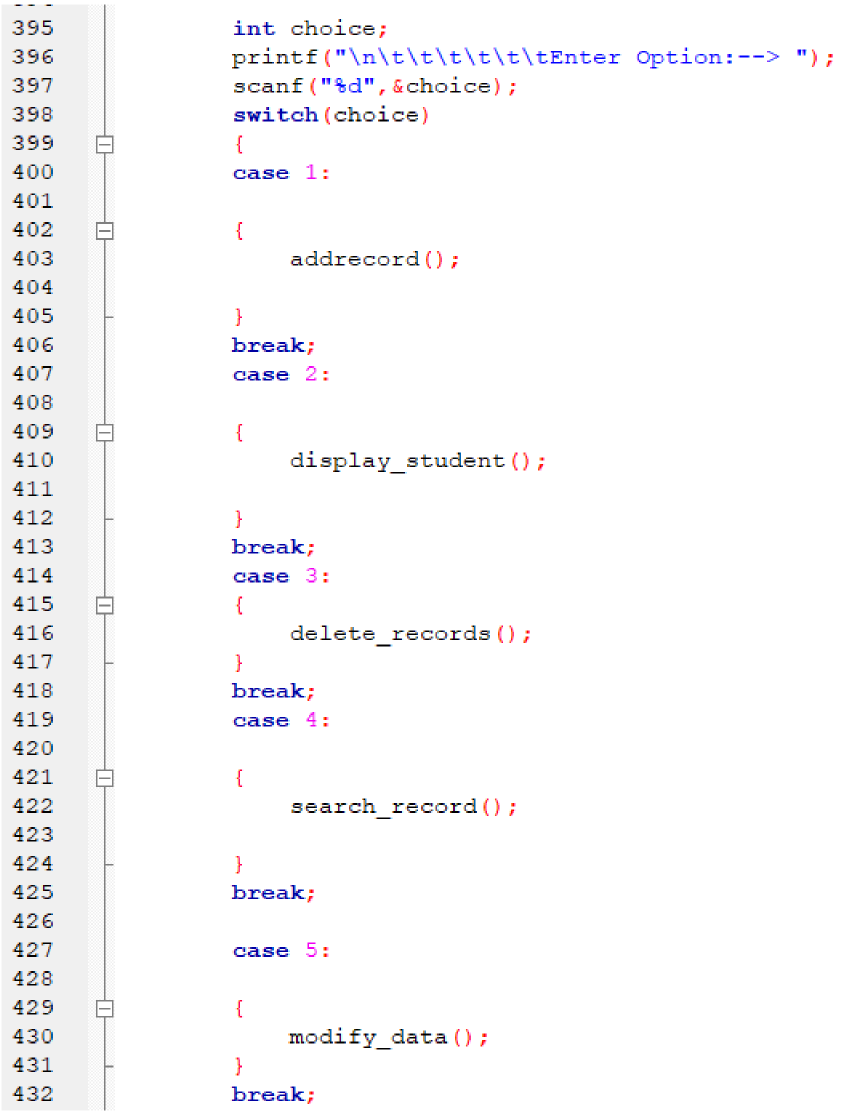
```
void AddStudentsToFile()
{
    NODE *trav = head;
    FILE *fp;
    fp = fopen("Studentlist.txt", "w");
    if (fp != NULL)
    {
        while (trav != NULL)
        {
            fwrite(&trav->info, sizeof(STUDENT), 1, fp);
            trav = trav->next;
        }
    }
    fclose(fp);
}
```

- **main ()**

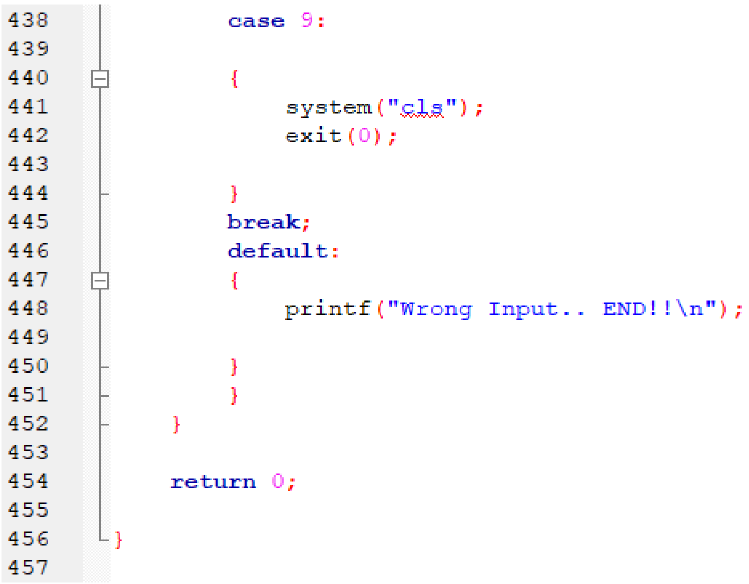
This is the main function which read from user what he wants and call that function. Then the defined function will do the operation as described.



```
int main()
{

    if((file=fopen("studentlist.txt","rb+"))==NULL)
    {
        if((file=fopen("studentlist.txt","w"))==NULL)
        {
            printf("The file can not be opened\n");
        }
    }
    maintitle();
    while(1)
    {


        int press;
        printf("\n");
        print_title();

        printf("\t\t\t\t\t\t1. Add New Records\n\n");
        printf("\t\t\t\t\t\t2. Display All-Students Records\n\n");
        printf("\t\t\t\t\t\t3. Delete Records\n\n");
        printf("\t\t\t\t\t\t4. Search and View Records\n\n");
        printf("\t\t\t\t\t\t5. Modify Records\n\n");
        printf("\t\t\t\t\t\t6. Sort Record\n\n");
        printf("\t\t\t\t\t\t7. Billing History\n\n");
        printf("\t\t\t\t\t\t8. Generate Mark-shit\n\n");
        printf("\t\t\t\t\t\t9. Exit\n\n");
```



```
        int choice;
        printf("\n\t\t\t\t\t\tEnter Option:--> ");
        scanf("%d",&choice);
        switch(choice)
        {
        case 1:

        {
            addrecord();

        }
        break;
        case 2:

        {
            display_student();

        }
        break;
        case 3:
        {
            delete_records();
        }
        break;
        case 4:

        {
            search_record();

        }
        break;

        case 5:

        {
            modify_data();
        }
        break;
```



```
        case 9:

        {
            system("cls");
            exit(0);

        }
        break;
        default:
        {
            printf("Wrong Input.. END!!\n");

        }
        }
    }

    return 0;

}
```

- This is the Source code of Student Management System of Green University of Bangladesh

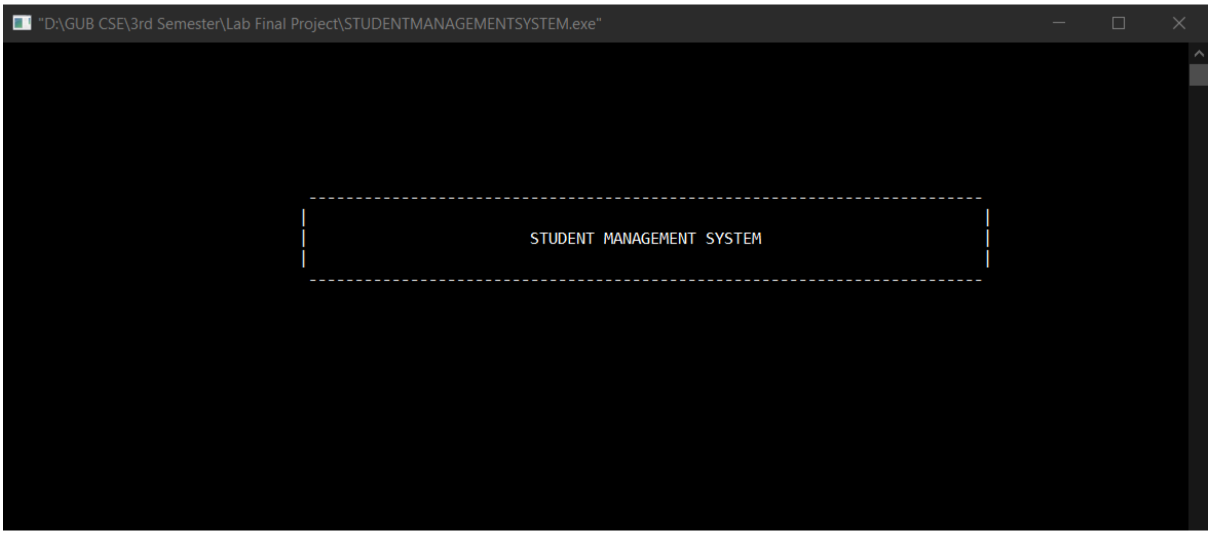
Chapter 3

Performance Evaluation

3.1 Results and Discussions

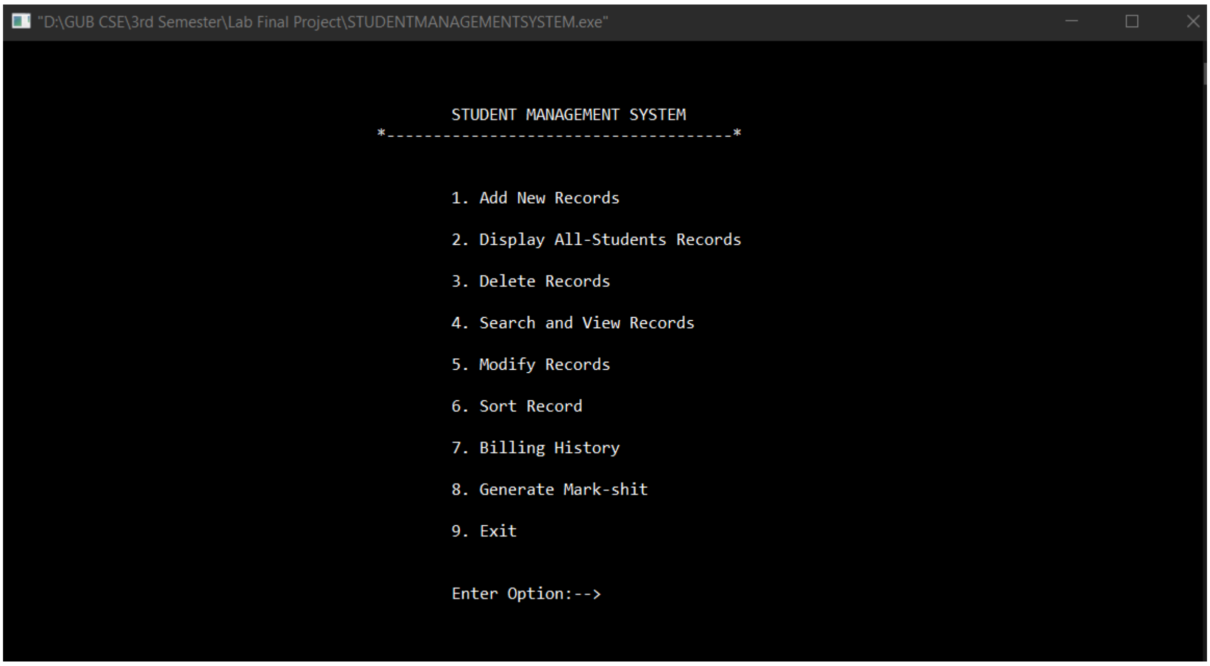
3.1.1 Output

- This is the main panel of the system. From there can do any of the following option.



"D:\GUB CSE\3rd Semester\Lab Final Project\STUDENTMANAGEMENTSYSTEM.exe"

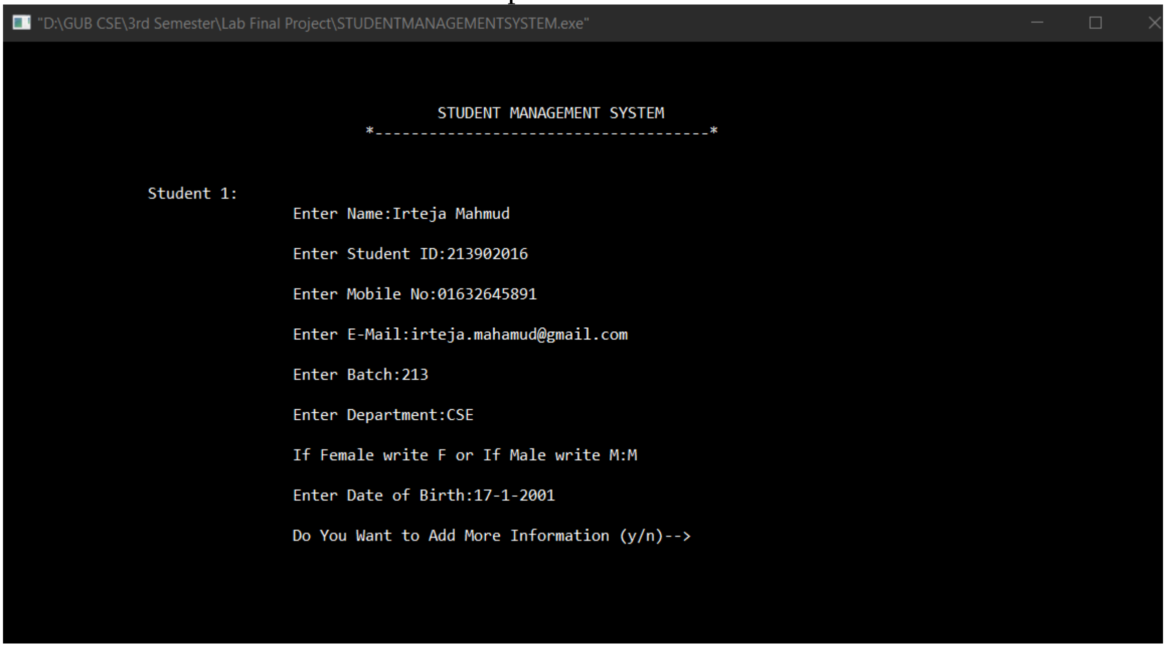
```
 -------------------------------------------------------------------------
|                                                                         |
|                        STUDENT MANAGEMENT SYSTEM                        |
|                                                                         |
 -------------------------------------------------------------------------
```



"D:\GUB CSE\3rd Semester\Lab Final Project\STUDENTMANAGEMENTSYSTEM.exe"

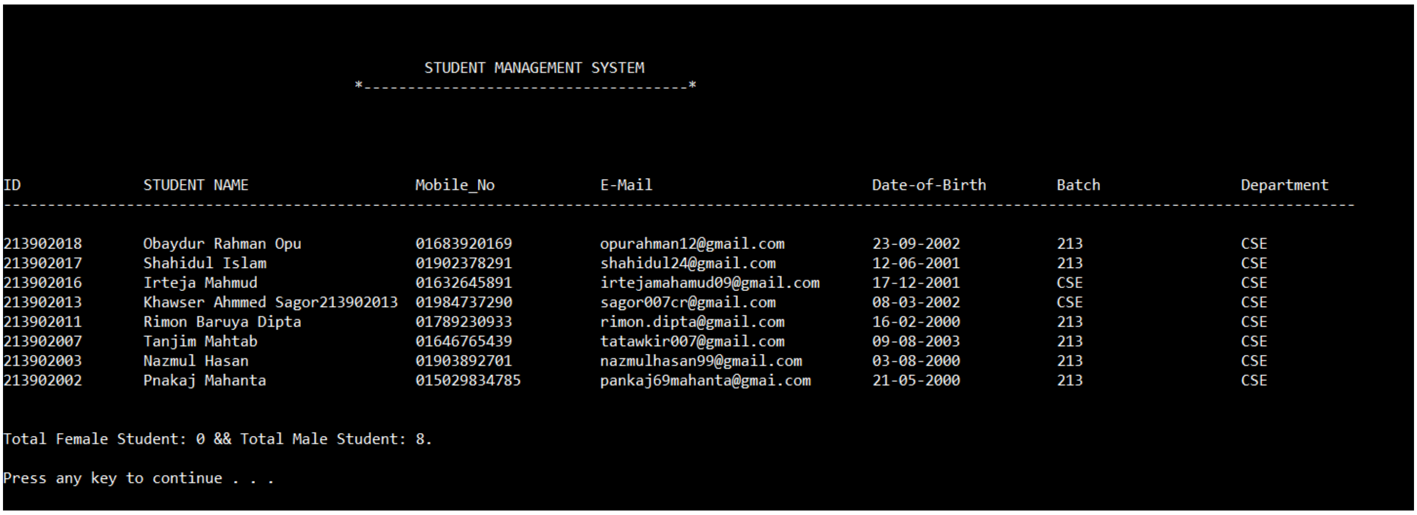
```
        STUDENT MANAGEMENT SYSTEM
*--------------------------------------*


        1. Add New Records

        2. Display All-Students Records

        3. Delete Records

        4. Search and View Records

        5. Modify Records

        6. Sort Record

        7. Billing History

        8. Generate Mark-shit

        9. Exit

        Enter Option:-->
```

- ❖ If the user enter 1 then the output will be look like that:



```
"D:\GUB CSE\3rd Semester\Lab Final Project\STUDENTMANAGEMENTSYSTEM.exe"

                                        STUDENT MANAGEMENT SYSTEM
                                *-------------------------------------*

                Student 1:
                                Enter Name:Irteja Mahmud

                                Enter Student ID:213902016

                                Enter Mobile No:01632645891

                                Enter E-Mail:irteja.mahamud@gmail.com

                                Enter Batch:213

                                Enter Department:CSE

                                If Female write F or If Male write M:M

                                Enter Date of Birth:17-1-2001

                                Do You Want to Add More Information (y/n)-->
```

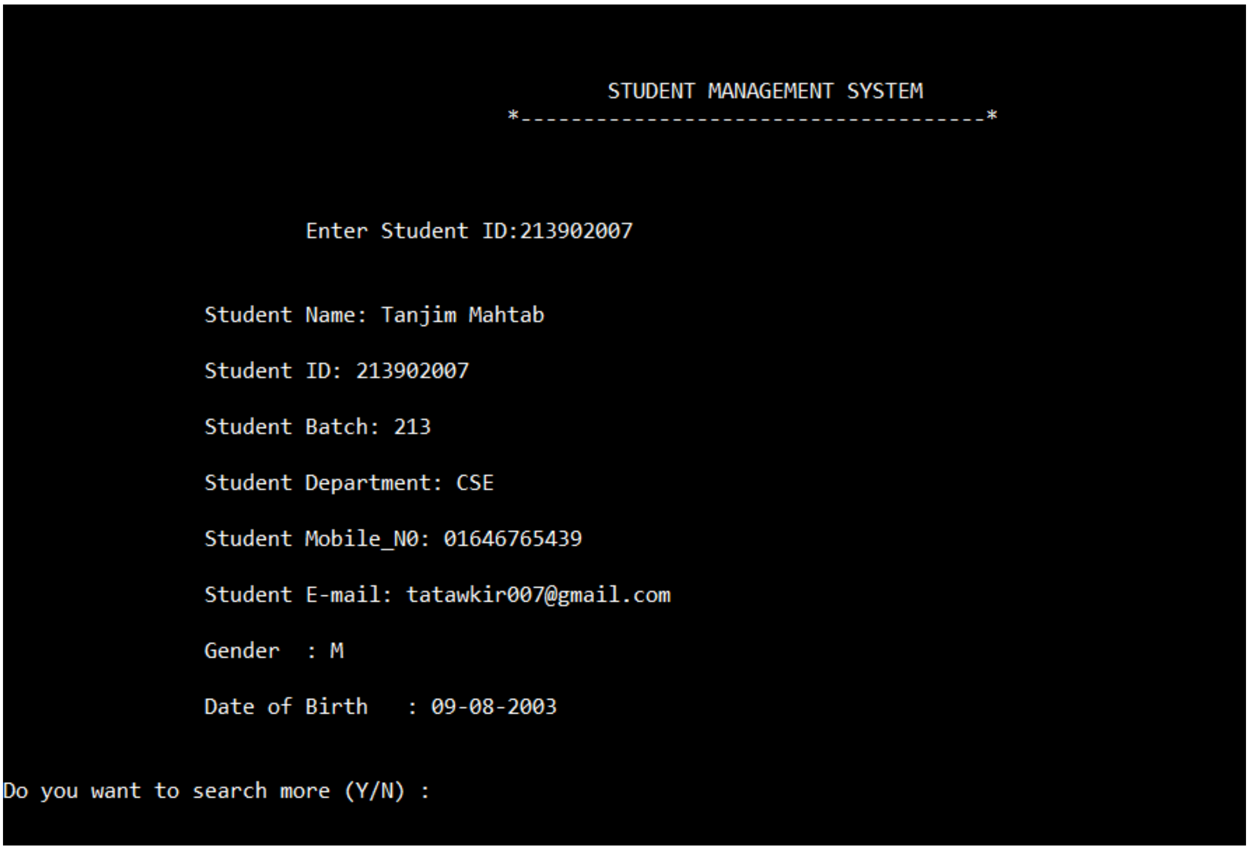
- ❖ Options 2 is for the display all the record available.



```
                                               STUDENT MANAGEMENT SYSTEM
                                       *-------------------------------------*



ID              STUDENT NAME                  Mobile_No           E-Mail                        Date-of-Birth       Batch               Department
-------------------------------------------------------------------------------------------------------------------------------------------------------------

213902018       Obaydur Rahman Opu            01683920169         opurahman12@gmail.com         23-09-2002          213                 CSE
213902017       Shahidul Islam                01902378291         shahidul24@gmail.com          12-06-2001          213                 CSE
213902016       Irteja Mahmud                 01632645891         irtejamahamud09@gmail.com     17-12-2001          CSE                 CSE
213902013       Khawser Ahmmed Sagor213902013 01984737290         sagor007cr@gmail.com          08-03-2002          CSE                 CSE
213902011       Rimon Baruya Dipta            01789230933         rimon.dipta@gmail.com         16-02-2000          213                 CSE
213902007       Tanjim Mahtab                 01646765439         tatawkir007@gmail.com         09-08-2003          213                 CSE
213902003       Nazmul Hasan                  01903892701         nazmulhasan99@gmail.com       03-08-2000          213                 CSE
213902002       Pnakaj Mahanta                015029834785        pankaj69mahanta@gmai.com      21-05-2000          213                 CSE

Total Female Student: 0 && Total Male Student: 8.

Press any key to continue . . .
```

Those are the record of student's

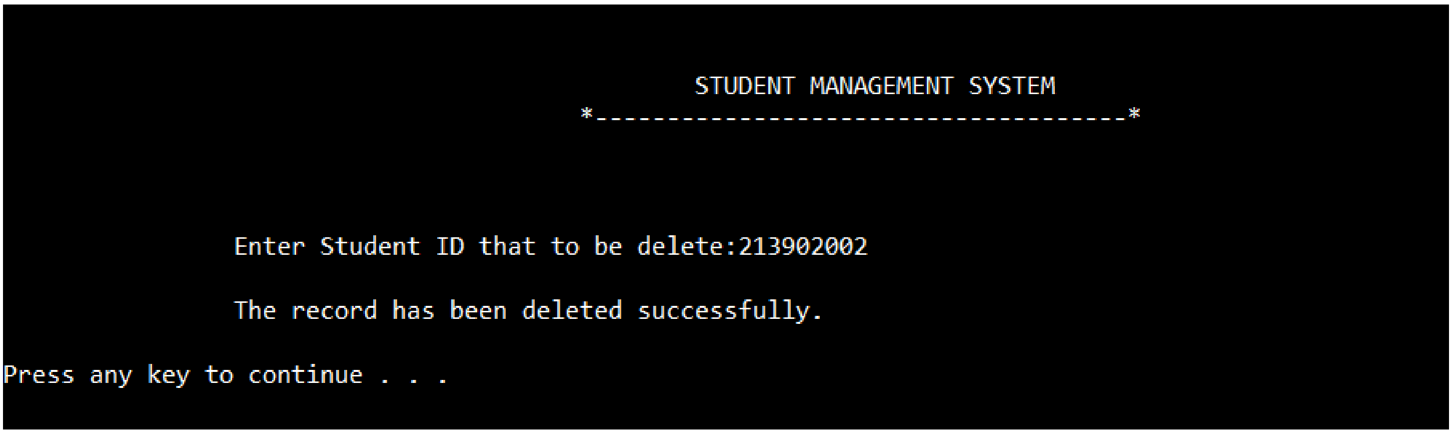
- ❖ Option 3 is for Search about a specific student's information



```
                                        STUDENT MANAGEMENT SYSTEM
                                *-------------------------------------*


                        Enter Student ID:213902007

                Student Name: Tanjim Mahtab

                Student ID: 213902007

                Student Batch: 213

                Student Department: CSE

                Student Mobile_N0: 01646765439

                Student E-mail: tatawkir007@gmail.com

                Gender  : M

                Date of Birth   : 09-08-2003

Do you want to search more (Y/N) :
```

We can search using (Student-ID)

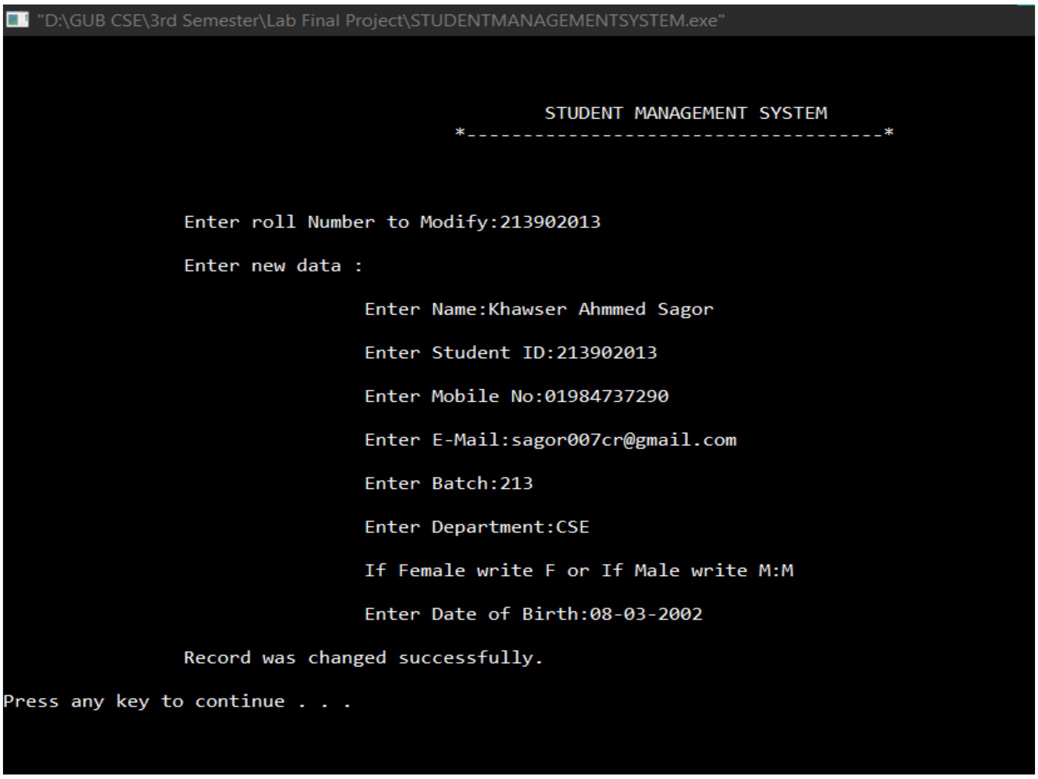
- Option 4 is for Delete an information about a student



```
                                        STUDENT MANAGEMENT SYSTEM
                                *--------------------------------------*


                Enter Student ID that to be delete:213902002

                The record has been deleted successfully.

Press any key to continue . . .
```

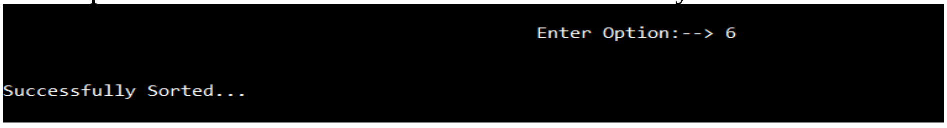
- Pankaj Mahanta’s information was deleted.
- Deletion was by searching student ID

- Option 5 is for modify a student's information



```
"D:\GUB CSE\3rd Semester\Lab Final Project\STUDENTMANAGEMENTSYSTEM.exe"

                                                 STUDENT MANAGEMENT SYSTEM
                                         *--------------------------------------*


                Enter roll Number to Modify:213902013

                Enter new data :

                                Enter Name:Khawser Ahmmed Sagor

                                Enter Student ID:213902013

                                Enter Mobile No:01984737290

                                Enter E-Mail:sagor007cr@gmail.com

                                Enter Batch:213

                                Enter Department:CSE

                                If Female write F or If Male write M:M

                                Enter Date of Birth:08-03-2002

                Record was changed successfully.

Press any key to continue . . .
```

Option 6 is for Sort the student's information By ID



```
                                               Enter Option:--> 6

Successfully Sorted...
```

3.1.2 Analysis and Outcome

The project is build using C programming language. We do the coding on Codeblocks using GCC compiler. This project is mainly built for reduce the pressure and do the work efficiently. In this project I use basic C-programming knowledge and use Linked-list, Linear Search, Sorting and Queue.We will update this project and add more feature. It will be helpful for all the students and the teachers. So fer we do the project using the course knowledge of structured programming.

Chapter 4

Conclusion

4.1 Introduction

The Student Management System needs to be computerized to reduce human errors and to increase efficiency. By computerized the system we can do the work lesser errors. This project is built for keep the information about a student safely. And track the information quickly. And gathers all the valuable student-related information on a single platform.

4.1 Practical Implications

The Student Management System helps the user to easily access through all the information about students.

4.2 Scope of Future Work

In future this can be the most useful product in the school, college and university. It will keep the student's information safe and synchronized. In future we can add more feature to this. Like add results of a student, billing history of a student, attendance of a student, and performance of that.

In future I will add teacher panel and student portal in this project so that student can also access. Student can also payment their tuition fee using this management system in future

This system can reduce the mistake and work more efficiently.In this way it can be helpful for our work.