



西北工业大学
NORTHWESTERN POLYTECHNICAL UNIVERSITY

程序设计挑战式课程设计

极限挑战

挑战，不是为着征服自然，而是为着突破自我，超越自我
生命有极限，思想无极限，高度有极限，境界无极限

作业名称: **Students Record Manager(2nd Assignment)**

学 院: **Computer Science**

班 级: **2ND YEAR, 2019**

学 号: **2019380141**

姓 名: **ABID ALI**

团队组成: **ONLY ME**

(Job name/College/ Class/ student ID/Name/Team composition)

西北工业大学

2021 年 6 月 9 日

Please fill in the following ten items, align the form by page (insert blank lines), and do not delete any parts.

1. Problem and background (describe the problem to be solved by the program or the application background)

Here is a project I developed as “Students Record Manager”. It is complete and totally error-free. This project is focused on Students Record Manager in school, so it is named “Students Record Management System”. In this management system project in C, file handling has been used for almost all functions. File has been used to store data related to new student, deleting the old data, editing of student information and viewing of student information.

2. Development tools (list the development tools used and third-party development libraries)

OS: Windows 10
Editor: Code::Blocks

3. Main functions (specify the functions of the program)

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

struct student{
int rollno;
char fName[20];
char lName[20];
double marks;
//int pf for pass or fail boolean value
int pf;
//Grade Letter Will be auto selected based on marks
char gradeLetter;
};

int isRunning=1;
struct student st[200];
int sizeOfArray = sizeof(st) / sizeof(st[0]);
int xsize=0;
int passedCount=0;
int failedCount=0;
```

```
//A function used along with insert and update options to check and prevent duplicate roll no inputs
int duplicateChecker(int nroll){
int xindex=0;
int rchk=0;
for (xindex=0;xindex<=sizeofArray;xindex++){
    if(nroll==st[xindex].rollno){
        rchk=2;
        break;
    }
    else {
        rchk=1;
    }
}
return rchk;
}

//The function for Grade Letter Auto Selection
char gradeSelector(double nmarks){
if (nmarks>=90 && nmarks <=100){
    return 'A';
}
else if (nmarks>=80 && nmarks <=89){
    return 'B';
}
else if (nmarks>=70 && nmarks <=79){
    return 'C';
}
else if (nmarks>=60 && nmarks <=69){
    return 'D';
}
else if (nmarks<=50){
    return 'F';
}
return 'T';
}
```

Here we can see that, I use many headers file to complete my project for student database. I use int, void, stuck, float and double for assign all the elements perfectly that's called the main function with header's file.

4. Design content (describe in detail the principle and method of solving the problem, algorithm, data structure, etc.)

Problem Statement:

Write a program to build a simple Student Management System using C which can perform the following operations:

Clear and Effective Student record keeping which includes information about students:

- First Name
- Last Name
- Roll No
- Marks
- Grade Letter
- Passed or Failed Status
- Individual search of Student records
- Exit

Approach:

Below is the approach to do the above operations:

1. Create new student data: This method takes details from the student like name, Roll No., Marks, and Grade and creating a new student account.

2.Update information of existing account: Here we can update our local data like name, Roll No., type of account, and depositing money

3.Check the details of existing student: Display existing account function will show the details of the student like name, roll, grade and passed or failed status.

4.Removing existing entry: It's worked for deleting current information and data which is already update in the local list.

5.View students's list: In this case we can find all student history, data and update information.

6.Exit: It's worked as the main menu.

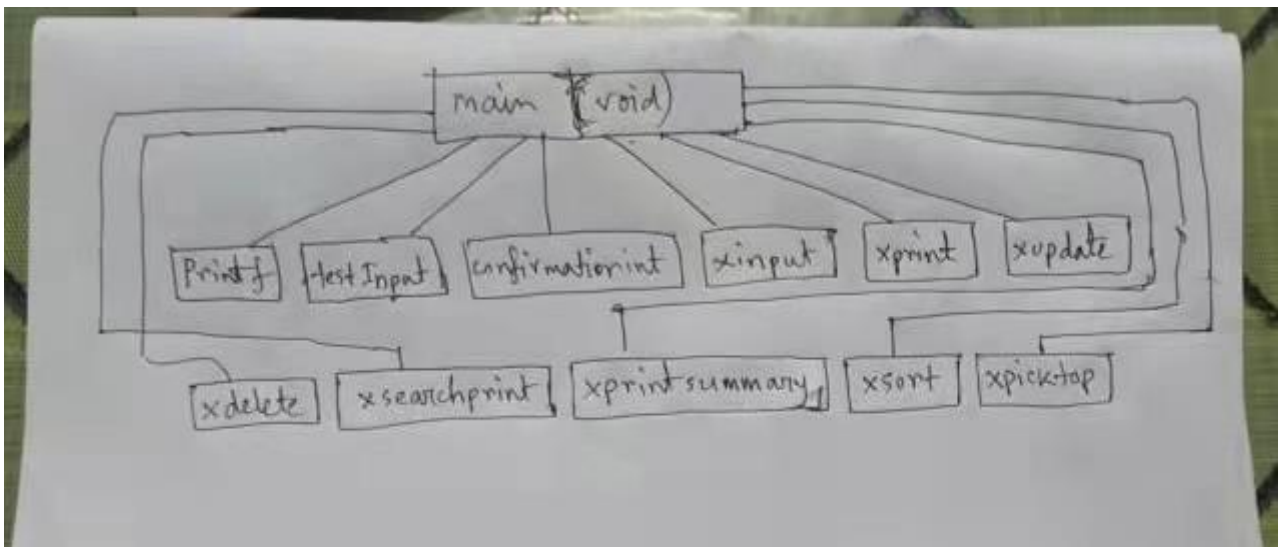
```

Student Management System

STUDENT RECORD SYSTEM
Northwestern Polytechnical University
Created by-ABID ALI

Select Option i.e 1 or 2 or 3 or 4 or .....
Enter New Entry --> 1
Print All Entry --> 2
Update Existing Entry --> 3
Delete Existing Entry --> 4
Search and Print Entry By Roll --> 5
Print Summary of Students --> 6
Sort Record According to Marks --> 7
Pick The Top nth Student Based On Marks --> 8
Exit Whole Program --> 0
    
```

Data Structure:



5. Program file and project name (mark all file names, project names and their descriptions in the program)

Program file: main.c: Here all the source are typed in.

project name: 2019380141ABID2(main.c, 2019380141ABID2.cb): It's the debugging folder and all the project files are attached.

6. Function module (prototype declaration and description of each function in the program)

The source code for Student Management System is unique,it has real life use and easy to

understand. I have divided this C mini project into many functions, most of which are related to different managing student data . Listed below are some of the more important functions which may help you understand the project better.

- //A function used along with insert and update options to check and prevent duplicate roll no inputs
- `int duplicateChecker(int nroll)`
- //The function for Grade Letter Auto Selection
- `char gradeSelector(double nmarks)`
- //The function for Option 1(Inserting new Entry)
- `void xinput(int nsize)`
- //The function for Option 2(Printing All Current Available Recors)
- `void xprint(xsize)`
- //The function for Option 3(Update of Records)
- `void xupdate()`
- //The function for Option 4(Deleting a existing Record)
- `void xdelete()`
- //The function for Option 5(Search and print specific record based on roll number)
- `void xsearchprint()`
- //The function for Option 6(Summary of current situation of records which include passed, failed students along with percentages of passed and failed students)
- `void xprintsummary()`
- //The function for effective sorting of records based on marks from high to low
- `void xsort(int xop)`
- //The function for Option 8(Finding specific order of student like 1st 2nd based on marks)
- `void xpicktop()`

7. Instructions for use (small manual for running the program)

1. For running this project program we need to create a console application project.
2. After creating the project we need to add our code in the main.c file
4. After adding our source code we will debug the file and run it one by one and check our program it is working or not.
- 4.After that we can tap on build and run button for running the program.
- 5.Then it will display all the instructions for student management system.
 - **Auto** Assignment of Letter Grade
 - Easy Navigation
 - Check for duplicate input of **roll** number and also preventive measures included
 - Effective record Input Function

- Easy Print All Function for currently inputted records
- Update Entry Function with entry availability check
- Delete Function on record
- Sort Function on records
- Finding top nth student function that is useful in cases finding 1st 2nd or 3rd based on marks
- Specific record search and print based on roll

8. Summary of program development (a brief description of the gains and thoughts of writing this homework)


While I was doing the program, I had many bugs which had influence on program's working and many troubles with compilation programs, because of wrong syntax. It was very difficult for me to understand what errors I made. Later I figured out I had kept the space between row, col and count which occurred problem in running the program. Therefore, I corrected the statement. This program helped me understand the concept of how to manage Student's Records . In addition to that, it also helped me to understand and how to create different types to function and call them.

In the processes of solving this assignment I looked for a lot of information in the internet. I watched several videos related to banking and took few notes in the process of understanding. Finally, I have done in this report.

9. Run the screenshot (attach the screenshot of the program running, at least one, the more detailed the screenshot, the higher the score)

In Windows, grab the current active window: Alt + Print Screen, grab the full screen: Print Screen. Or use Hyper Snap and other software (Baidu search).

Updating Existing Entry

 Student Management System

ALL RECORDS PRINTED

=====

Select Option i.e 1 or 2 or 3 or 4 or

Enter New Entry --> 1

Print All Entry --> 2

Update Existing Entry --> 3

Delete Existing Entry --> 4

Search and Print Entry By Roll --> 5

Print Summary of Students --> 6

Sort Record According to Marks --> 7

Pick The Top nth Student Based On Marks --> 8

Exit Whole Program --> 0

3

Enter Roll To Be Updated: 2019380141

Record Found For Update

Enter Updated Roll no: 2019380135

Enter Updated First Name: ABID

Enter Updated Last Name: ALI

Enter Updated Marks In PERCENTAGE: 92

=====

UPDATE Successful

=====

Select Option i.e 1 or 2 or 3 or 4 or

Enter New Entry --> 1

Print All Entry --> 2

Update Existing Entry --> 3

Delete Existing Entry --> 4

Search and Print Entry By Roll --> 5

Print Summary of Students --> 6

Sort Record According to Marks --> 7

Pick The Top nth Student Based On Marks --> 8

Exit Whole Program --> 0

D.

Delete Existing Entry:

```
Enter Rollno To Find: ~
2019380135
Record Found...
Printing Results
Roll No: 2019380135
First Name: ABID
Last Name: ALI
92.00
Passed Passed OR Failed:
Letter Grade A
=====
Record Found And Printed Successful
=====
Select Option i.e 1 or 2 or 3 or 4 or .....
Enter New Entry --> 1
Print All Entry --> 2
Update Existing Entry --> 3
Delete Existing Entry --> 4
Search and Print Entry By Roll --> 5
Print Summary of Students --> 6
Sort Record According to Marks --> 7
Pick The Top nth Student Based On Marks --> 8
Exit Whole Program --> 0

4
```

```
Enter Rollno To Delete:
2019380135
=====
Record Found...Continuing to Delete
=====
Record DELETED Successful
=====
```

Finding student using roll

```
Enter Rollno To Find:
12
Record Found...
Printing Results
Roll No: 12
First Name: Abid
Last Name: Ali
60.00
Passed Passed OR Failed:
Letter Grade D
=====
Record Found And Printed Successful
=====
Select Option i.e 1 or 2 or 3 or 4 or .....
Enter New Entry --> 1
Print All Entry --> 2
Update Existing Entry --> 3
Delete Existing Entry --> 4
Search and Print Entry By Roll --> 5
Print Summary of Students --> 6
Sort Record According to Marks --> 7
Pick The Top nth Student Based On Marks --> 8
Exit Whole Program --> 0
```

Finding student using roll(Typing invalid value)

We just changed the roll from 2019380141 ,so we can't find it.So,no record found will be showed.

```
Print All Entry --> 2
Update Existing Entry --> 3
Delete Existing Entry --> 4
Search and Print Entry By Roll --> 5
Print Summary of Students --> 6
Sort Record According to Marks --> 7
Pick The Top nth Student Based On Marks --> 8
Exit Whole Program --> 0
```

```
3
Enter Roll To Be Updated: 2019380141
```

Record Found For Update

```
Enter Updated Roll no: 2019380135
```

```
Enter Updated First Name: ABID
```

```
Enter Updated Last Name: ALI
```

```
Enter Updated Marks In PERCENTAGE: 92
```

```
=====
UPDATE Successful
=====
```

```
Select Option i.e 1 or 2 or 3 or 4 or .....
Enter New Entry --> 1
Print All Entry --> 2
Update Existing Entry --> 3
Delete Existing Entry --> 4
Search and Print Entry By Roll --> 5
Print Summary of Students --> 6
Sort Record According to Marks --> 7
Pick The Top nth Student Based On Marks --> 8
Exit Whole Program --> 0
```

```
5

Enter Rollno To Find:
2019380141
No Record Found....Try Again...
Enter Rollno To Find:
```

■

Summary of Student showed


```
Enter Rollno To Find:
2019380135
Record Found...
Printing Results
Roll No: 2019380135
First Name: ABID
Last Name: ALI
2.00
Passed Passed OR Failed:
Letter Grade A
=====
Record Found And Printed Successful
=====
Select Option i.e 1 or 2 or 3 or 4 or .....
Enter New Entry --> 1
Print All Entry --> 2
Update Existing Entry --> 3
Delete Existing Entry --> 4
Search and Print Entry By Roll --> 5
Print Summary of Students --> 6
Sort Record According to Marks --> 7
Pick The Top nth Student Based On Marks --> 8
Exit Whole Program --> 0
```

Picking student based on their postion:

```
Select Option i.e 1 or 2 or 3 or 4 or .....
Enter New Entry --> 1
Print All Entry --> 2
Update Existing Entry --> 3
Delete Existing Entry --> 4
Search and Print Entry By Roll --> 5
Print Summary of Students --> 6
Sort Record According to Marks --> 7
Pick The Top nth Student Based On Marks --> 8
Exit Whole Program --> 0

8
Enter the nth position to be picked according to marks
1
Record Found...
Printing Results
Roll No: 12
First Name: Abid
Last Name: Ali
60.00
Passed Passed OR Failed:
Letter Grade D
=====
Record Found And Printed Successful
=====
Select Option i.e 1 or 2 or 3 or 4 or .....
Enter New Entry --> 1
Print All Entry --> 2
Update Existing Entry --> 3
Delete Existing Entry --> 4
Search and Print Entry By Roll --> 5
Print Summary of Students --> 6
Sort Record According to Marks --> 7
Pick The Top nth Student Based On Marks --> 8
Exit Whole Program --> 0
```

Printing all the existing entry:

 Student Management System

Input Successful

=====

Select Option i.e 1 or 2 or 3 or 4 or

Enter New Entry --> 1

Print All Entry --> 2

Update Existing Entry --> 3

Delete Existing Entry --> 4

Search and Print Entry By Roll --> 5

Print Summary of Students --> 6

Sort Record According to Marks --> 7

Pick The Top nth Student Based On Marks --> 8

Exit Whole Program --> 0

2

Printing Results

Roll No: 2019380141

First Name: ABID

Last Name: ALI

Student Marks: 95.00

Passed OR Failed: Passed

Letter Grade: A

=====

Printing Results

Roll No: 219380181

First Name: Samun

Last Name: Islam

Student Marks: 85.00

Passed OR Failed: Passed

Letter Grade: B

=====

=====

ALL RECORDS PRINTED

=====

Select Option i.e 1 or 2 or 3 or 4 or

Enter New Entry --> 1

Print All Entry --> 2

Update Existing Entry --> 3

Delete Existing Entry --> 4

Search and Print Entry By Roll --> 5

Print Summary of Students --> 6

Sort Record According to Marks --> 7

Pick The Top nth Student Based On Marks --> 8

Exit Whole Program --> 0

This following functions the program can do:

```
Student Management System

                                STUDENT RECORD SYSTEM
                                Northwestern Polytechnical University
                                Created by-ABID ALI

    Select Option i.e 1 or 2 or 3 or 4 or .....
Enter New Entry --> 1
Print All Entry --> 2
Update Existing Entry --> 3
Delete Existing Entry --> 4
Search and Print Entry By Roll --> 5
Print Summary of Students --> 6
Sort Record According to Marks --> 7
Pick The Top nth Student Based On Marks --> 8
Exit Whole Program --> 0
```

Entering new data in system(1st student)

```
Student Management System

Sort Record According to Marks --> 7
Pick The Top nth Student Based On Marks --> 8
Exit Whole Program --> 0

1

Enter Rollno: 2019380141

Enter First Name: ABID

Enter Last Name: ALI

Enter Marks in PERCENTAGE: 95

=====
Input Successful
=====

Select Option i.e 1 or 2 or 3 or 4 or .....
Enter New Entry --> 1
Print All Entry --> 2
Update Existing Entry --> 3
Delete Existing Entry --> 4
Search and Print Entry By Roll --> 5
Print Summary of Students --> 6
Sort Record According to Marks --> 7
Pick The Top nth Student Based On Marks --> 8
Exit Whole Program --> 0
```

Entring new data in system(2nd student)

1

Enter Rollno: 219380181

Enter First Name: Samun

Enter Last Name: Islam

Enter Marks in PERCENTAGE: 85

=====
Input Successful
=====

Select Option i.e 1 or 2 or 3 or 4 or

Enter New Entry --> 1

Print All Entry --> 2

Update Existing Entry --> 3

Delete Existing Entry --> 4

Search and Print Entry By Roll --> 5

Print Summary of Students --> 6

Sort Record According to Marks --> 7

Pick The Top nth Student Based On Marks --> 8

Exit Whole Program --> 0

■

Exiting the program

```
Enter New Entry --> 1
Print All Entry --> 2
Update Existing Entry --> 3
Delete Existing Entry --> 4
Search and Print Entry By Roll --> 5
Print Summary of Students --> 6
Sort Record According to Marks --> 7
Pick The Top nth Student Based On Marks --> 8
Exit Whole Program --> 0

0
ARE YOU SURE?...ALL DATA WILL BE CLEARED....Input 1 IF YOU WOULD LIKE TO EXIT OR ELSE INPUT 0
1
Exiting Program...Thank You...
> ■
```

10. Source program (attach the program source code, if there are multiple files, mark the file name)



2019380141ABID1.cb
p



main.c

I have attached 3 files.

- 1) 2019380141_ABID ALI(2).pdf
- 2) 2019380141ABID2.cb
- 3) main.c

Acknowledgement

I complete this assignment by myself by using online videos and different books discussing about C and C++ It was very useful and helpful for me to increase knowledge for solving complex problem.