

PDS Lab Section 11

Lab Day 13 (Lab Test 3) – March 3, 2021

The top two lines of your program must contain the following information:

//Roll No.: <Type in your roll no.>

//Name: <Type in your name>

You have to upload your program in Moodle. Please read the instructions given below.

Document your programs meaningfully using appropriately named variable and sufficient amount of comments as suggested earlier. Also appropriately indent your program code. There will be marks for documentation.

Write a C program to build the following software:

Student Management Software: Write the following functions to implement a student management software. A text file named **studs.txt** containing the following details of the students (less than 50) of the first year B.Tech. of a certain institute will be provided to you: First Name, Last Name, Address, Mobile Number and Marks obtained in each of 5 subjects.

Define the following with global scope:

- A structure named **student** consisting of the first name of student (20 characters), last name of student (20 characters), address (40 characters), mobile number (integer) and marks obtained in five subjects (5 integers each having a value between 0 to 100).
- An array named **studArray** containing 50 student structures.
- An integer named **nStuds** indicating the number of students in the class.

main: In this function in an infinite loop, display the following menu, and then prompt the user to enter a number between 1 to 6.

1. Create students
2. Display students
3. Search student
4. Edit student
5. Display merit list
6. Exit

Depending on the user input, carry out the following:

1. Call the function **createStuds**
2. Call the function **displayStuds**
3. Call the function **searchStuds**
4. Call the function **editStudMarks**
5. Call the function **dispMeritList**
6. Exit

createStuds: This function will open the supplied file **studs.txt** and initialize **nStuds** to 0. Each line of the file **studs.txt** contains the details of one student. Read each line of the file and enter the details in the appropriate element of the **studArray** and increment the variable **nStuds**. After all the lines of the file have been read, the file should be closed and all the created student records should be displayed with proper formatting.

displayStuds: It should first sort the **studArray** based on the first name of the students and then display the student details so that the first names appear alphabetically sorted. Note: You may use any appropriate string library function.

searchStuds: This function should prompt for a string to be entered and then display the details of all the students whose either the first name or the last name matches with the entered string. The matching of the strings should be case insensitive.

editStudMarks: This function should first prompt for a mobile number (assume it is unique). It will then display the 5 current marks of the student with that mobile number and prompt to enter the updated marks. All the 5 marks will be re-entered including those that are not changing. The details of the student should be displayed in proper format after the update. The file **studs.txt** should be updated with these new values (Note: you may write the details of all the students back to the file if you find that easier to do). Also note that, once the file is updated, if again Choice 1 (createStuds) is used, the new data should be read from the file and displayed.

dispMeritList: This function should first sort the students in **studArray** in decreasing order of total marks obtained in the five subjects. When there is a tie, the corresponding student details should be maintained in alphabetic order of last name. Display the student details in merit order.

A sample **studs.txt** file is being shared with you. Your program will be tested with a file with the same name and in the same format but with different data.

Name your C program file as LD13_1_<roll_no>.c.

[50 Marks]

Submit your .c file in Moodle against the assignment submission link for Lab Day 13.