Koneru Lakshmaiah Education Foundation
(Deemed to be University)

FRESHMAN ENGINEERING DEPARTMENT

A Project Based Lab Report

On

STUDENT INFORMATION SYSTEM

SUBMITTED BY:

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CERTIFICATE

This is to certify that the project based laboratory report entitled "STUDENT INFORMATION SYSTEM" submitted by Mr. **AARYAN KULKARNI** bearing Regd. No. **2200040220** to the **Department of Basic Engineering Sciences-1, KL University** in partial fulfillment of the requirements for the completion of a project based Laboratory in "**DATA STRUCTURES**" course in I B Tech I Semester, is a bonafide record of the work carried out by him/her under my supervision during the academic year 2022 – 2023.

PROJECT SUPERVISOR HEAD OF THE DEPARTMENT

Amara S A L G Gopala Gupta Dr.D.Haritha

Assistant professor

ACKNOWLEDGEMENTS

It is great pleasure for me to express my gratitude to our honorable President **Sri. Koneru Satyanarayana**, for giving the opportunity and platform with facilities in accomplishing the project based laboratory report.

I express the sincere gratitude to our principal **Dr. A. Jagadeesh** for his administration towards our academic growth.

I express sincere gratitude to HOD-BES-1 **Dr. D. Haritha** for her leadership and constant motivation provided in successful completion of our academic semester. I record it as my privilege to deeply thank for providing us the efficient faculty and facilities to make our ideas into reality.

I express my sincere thanks to our project supervisor **Amara S A L G Gopala Gupta** for his novel association of ideas, encouragement, appreciation and intellectual zeal which motivated us to venture this project successfully.

Finally, it is pleased to acknowledge the indebtedness to all those who devoted themselves directly or indirectly to make this project report success.

AARYAN KULKARNI

2200040220

ABSTRACT

'C' is a general-purpose, procedural computer programming language supporting structured programming, lexical variable scope, and recursion, while a static type system prevents unintended operations. By design, C provides constructs that map efficiently to typical machine instructions and has found lasting use in applications previously coded in assembly language. Such applications include operating systems and various application software for computers, from supercomputers to embedded systems.

C was originally developed at Bell Labs by Dennis Ritchie between 1972 and 1973 to make utilities running on Unix. C is an imperative procedural language. It was designed to be compiled using a relatively straightforward compiler to provide low-level access to memory and language constructs that map efficiently to machine instructions, all with minimal runtime support. Despite its low-level capabilities, the language was designed to encourage cross-platform programming. A standards-compliant C program written with portability in mind can be compiled for a wide variety of computer platforms and operating systems with few changes to its source code. The language is available on various platforms, from embedded microcontrollers to supercomputers.

The Project which we are doing i.e. ‘STUDENT INFORMATION SYESTEM’ , works on the concepts of linked lists, which dynamically allocates memory and the string functions which are used to access different data such as name, grade and course code for this project.

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INTRODUCTION

The Project which we are doing i.e. 'STUDENT INFORMATION SYSTEM' is mainly based on basic concepts in for storing and accessing data in C language, which are linked lists and string functions.

This project is a C program which will store data as given by the user to store various academic information of the students like the name of the courses in which they are registered and the grades in respective courses.

This project takes input the name of the student then the name of the courses registered and the respective grades in the registered course. Then this menu driven program has some other functions like:-

- Adding a student with their respective courses and grades.
- Search a particular student.
- Updation of student details.
- Deletion of student details.
- Display all the students.

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AIM:-

The Project Aim is to develop a C program which will dynamically allocate memory to store basic student information like name , courses for which student is registered and to use different modules to edit the stored data and to display the list of all the students.

Advantages:-

• This code can also be used to find the total number of students registered.

• When the Code is applied properly can be used for several various purposes.

•It can be very vital in our day to day life, especially for colleges and schools to store data of students without using much storage space and the same stored data can be accessed quickly.

Disadvantages:-

- This code has a limitation that it can store the data for a fixed number of courses only which is predefined.

Future enhancements:-

- If we are able to introduce file concepts then we could store the data directly to the files.
- If we use some proper syntax in C to link this code to directly update the data on the website of the institution will further reduce the task to update the details on the website.

SYSTEM REQUIREMENTS

- **SOFTWARE REQUIREMENTS:**

The major software requirements of the project are as follows:

Language : Turbo-C

Operating system**:** Windows Xp or later.

- **HARDWARE REQUIREMENTS:**

The hardware requirements that map towards the software are as follows:

RAM : 4 gb or more

Processor : i3 or above

ALGORITHM:-

STEP 1: Start

STEP 2: Declare a structure named node define the structure members. Also a pointer for the self refrential structure.

STEP 3: Declare all the functions which are to be used.

STEP 4: In the main function, iterate a while loop until and unless user exits the program.

By using switch case statements go to a particular function as instructed by the user.

STEP 5: In function add_a_student()

First we dynamically allocate memory of a particular node then with scanf() statements we input the data from the user then we check if linked is empty or not if it is empty then we insert at begin else we insert at the end.

STEP 6: In function search_a_student()

First we check whether any student are present or not if student details are not present the function will end else user would enter the name and search algorithm will work and if student details are found the details are found then the data would be displayed else function will end.

STEP 7: In function update_student_details()

We call search_a_student() function then

If student is present then delete_a_student() function will run

Then add_a_student() function will run and then function will end.

STEP 8: In function delete_a_sudent()

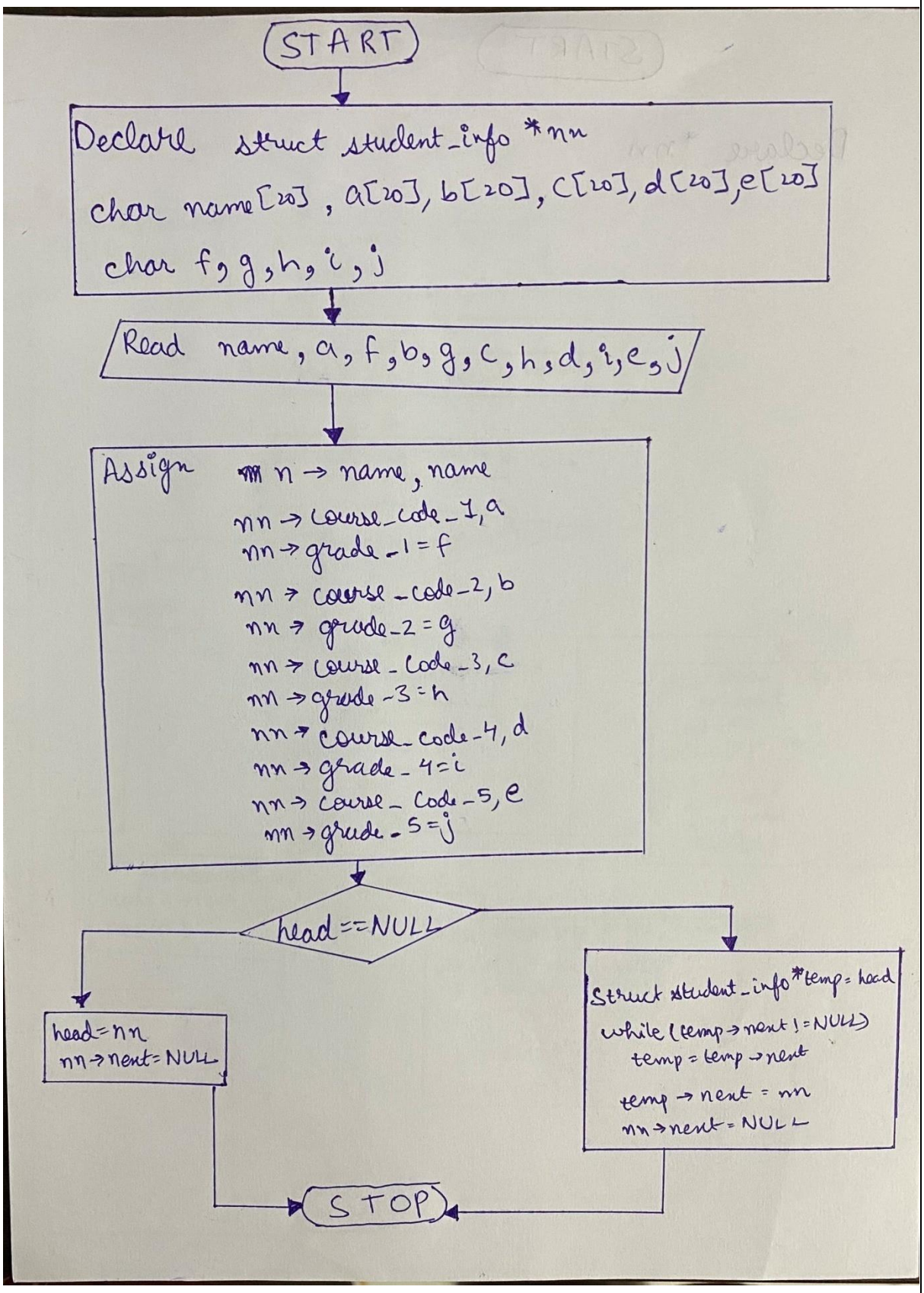
First we search the student and if student details are found we delete the student details by delete at index algorithm.

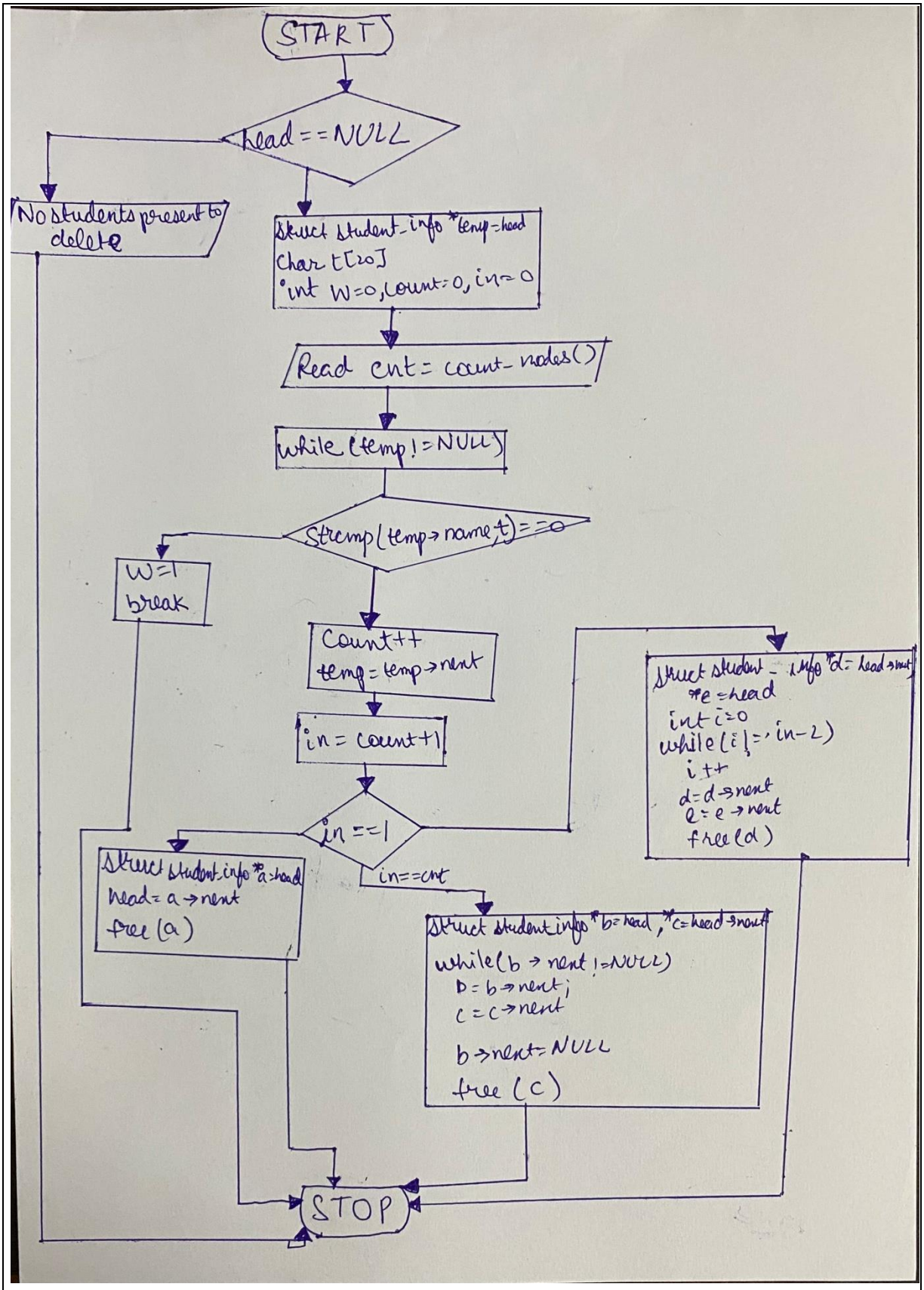
Step 9: In function display_a_student()

First we check if any student are present or not if data is present then we access the structure with its members to print the data with proper updation of the while loop. Else the function will end.

STEP 10: STOP

FLOWCHART:-


START
Declare struct student_info *nn
char name[20], a[20], b[20], c[20], d[20], e[20]
char f, g, h, i, j
Read name, a, f, b, g, c, h, d, i, e, j
Assign nn → name, name
nn → course_code_1, a
nn → grade_1 = f
nn → course_code_2, b
nn → grade_2 = g
nn → course_code_3, c
nn → grade_3 = h
nn → course_code_4, d
nn → grade_4 = i
nn → course_code_5, e
nn → grade_5 = j
head == NULL
head = nn
nn → next = NULL
Struct student_info *temp = head
while (temp → next != NULL)
temp = temp → next
temp → next = nn
nn → next = NULL
STOP


START
head==NULL
No students present to delete
Struct student_info *temp=head
Char t[20]
int w=0, count=0, in=0
Read cnt=count_nodes()
while(temp!=NULL)
Strcmp(temp->name,t)==0
w=1
break
Count++
temp=temp->next
in=count+1
in==1
Struct student_info *a=head
head=a->next
free(a)
in==cnt
Struct student_info *b=head, *c=head->next
while(b->next!=NULL)
b=b->next;
c=c->next
b->next=NULL
free(c)
Struct student_info *d=head->next
*e=head
int i=0
while(i!=in-2)
i++
d=d->next
e=e->next
free(d)
STOP

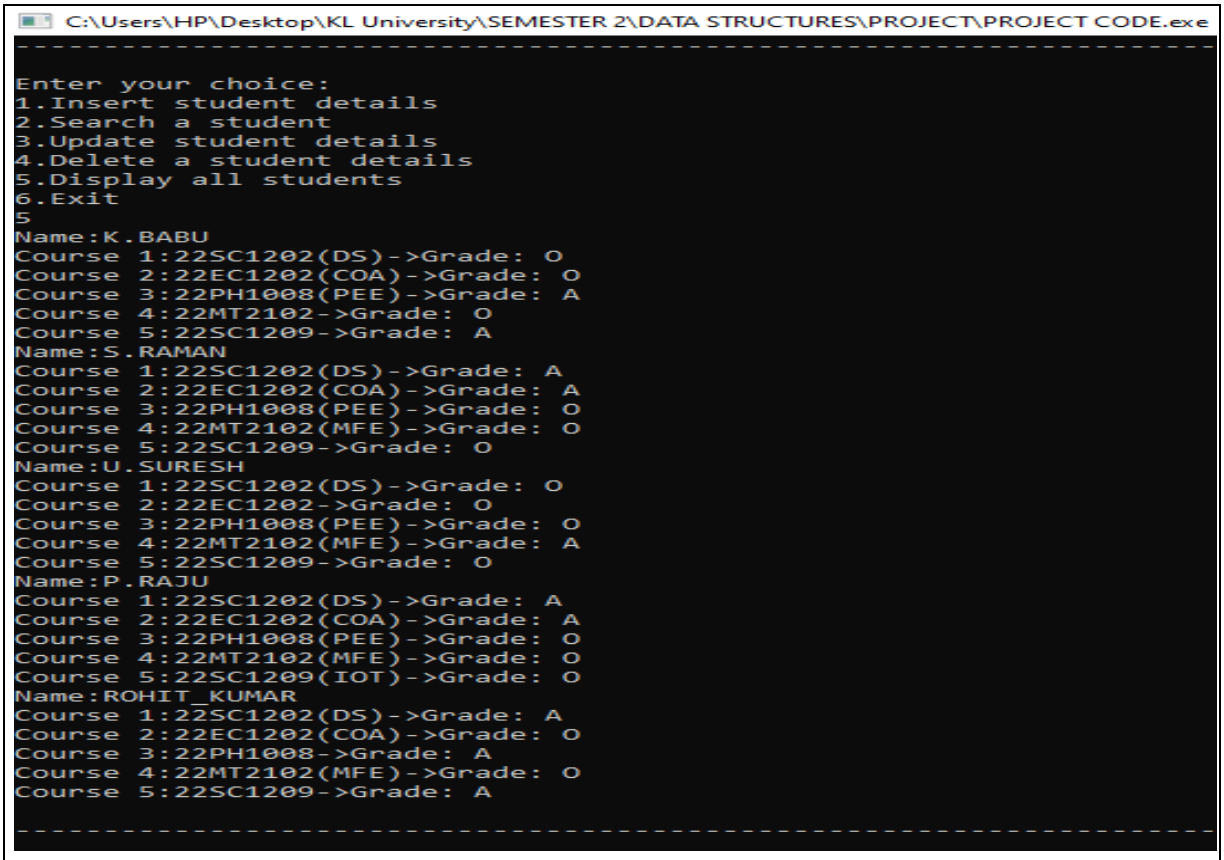
RESULTS AND SCREENSHOTS

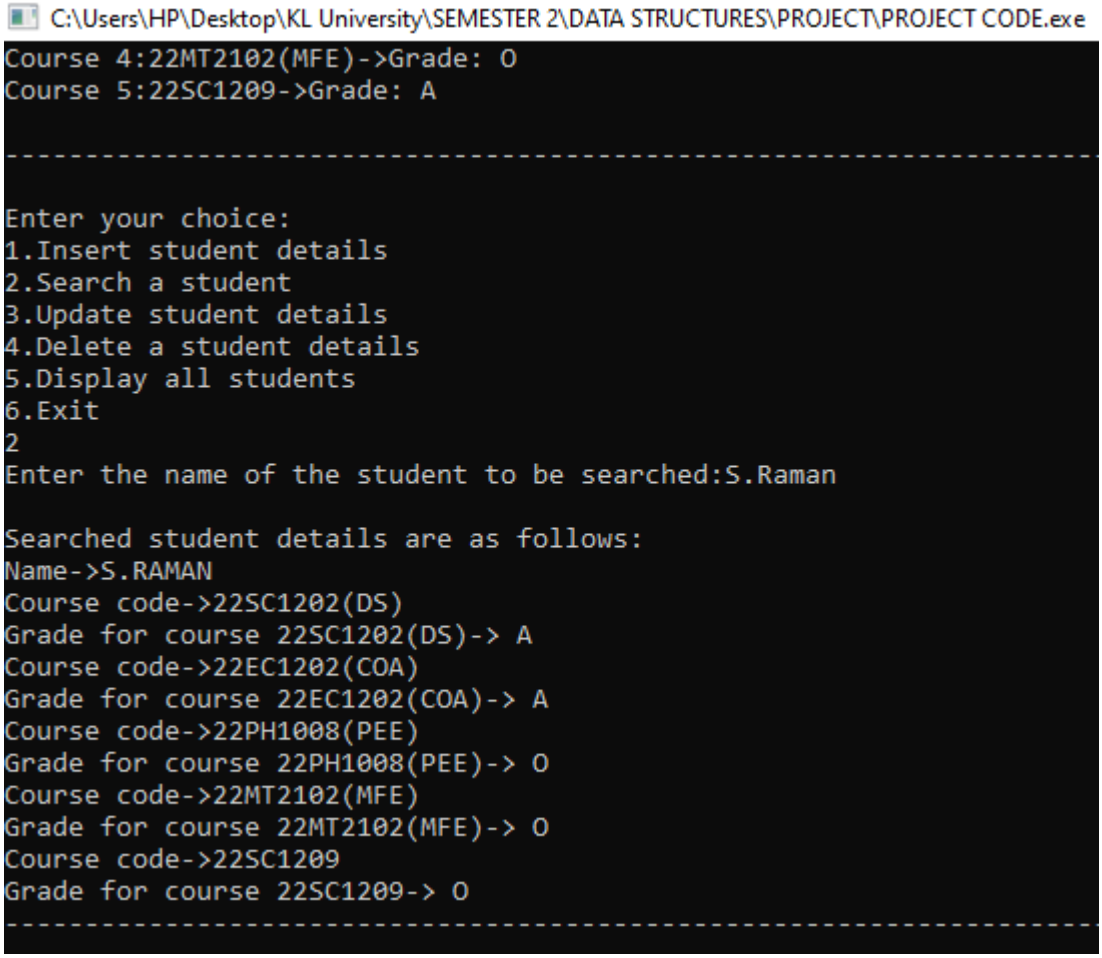
OUTPUTS

Screen Shots:

C:\Users\HP\Desktop\KL University\SEMESTER 2\DATA STRUCTURES\PROJECT\PROJECT CODE.exe

```
Enter your choice:
1.Insert student details
2.Search a student
3.Update student details
4.Delete a student details
5.Display all students
6.Exit
1
Enter the name of the student:K.BABU
Enter the course code for course 1:22SC1202(DS)
Enter the grade for the course 22SC1202(DS):O
Enter the course code for course 2:22EC1202(COA)
Enter the grade for the course 22EC1202(COA):O
Enter the course code for course 3:22PH1008(PEE)
Enter the grade for the course 22PH1008(PEE):A
Enter the course code for course 4:22MT2102
Enter the grade for the course 22MT2102:O
Enter the course code for course 5:22SC1209
Enter the grade for the course 22SC1209:A
Student details added sucessfully!!
--------------------------------------------------------------------------------

Enter your choice:
1.Insert student details
2.Search a student
3.Update student details
4.Delete a student details
5.Display all students
6.Exit
1
Enter the name of the student:S.RAMAN
Enter the course code for course 1:22SC1202(DS)
Enter the grade for the course 22SC1202(DS):A
Enter the course code for course 2:22EC1202(COA)
Enter the grade for the course 22EC1202(COA):A
Enter the course code for course 3:22PH1008(PEE)
Enter the grade for the course 22PH1008(PEE):O
Enter the course code for course 4:22MT2102(MFE)
Enter the grade for the course 22MT2102(MFE):O
Enter the course code for course 5:22SC1209
Enter the grade for the course 22SC1209:O
Student details added sucessfully!!
```

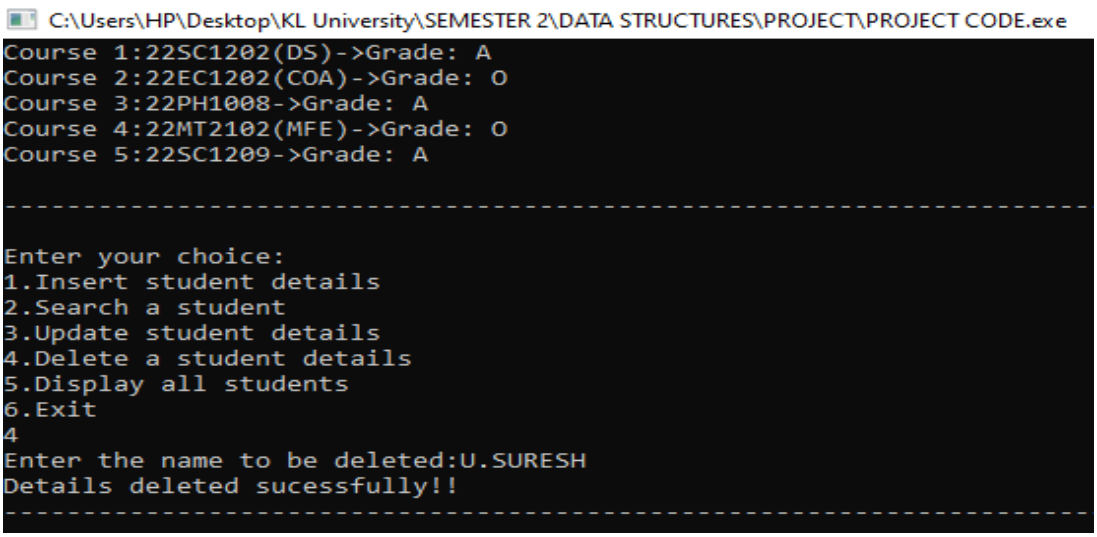

C:\Users\HP\Desktop\KL University\SEMESTER 2\DATA STRUCTURES\PROJECT\PROJECT CODE.exe
Enter your choice:
1.Insert student details
2.Search a student
3.Update student details
4.Delete a student details
5.Display all students
6.Exit
5
Name:K.BABU
Course 1:22SC1202(DS)->Grade: O
Course 2:22EC1202(COA)->Grade: O
Course 3:22PH1008(PEE)->Grade: A
Course 4:22MT2102->Grade: O
Course 5:22SC1209->Grade: A
Name:S.RAMAN
Course 1:22SC1202(DS)->Grade: A
Course 2:22EC1202(COA)->Grade: A
Course 3:22PH1008(PEE)->Grade: O
Course 4:22MT2102(MFE)->Grade: O
Course 5:22SC1209->Grade: O
Name:U.SURESH
Course 1:22SC1202(DS)->Grade: O
Course 2:22EC1202->Grade: O
Course 3:22PH1008(PEE)->Grade: O
Course 4:22MT2102(MFE)->Grade: A
Course 5:22SC1209->Grade: O
Name:P.RAJU
Course 1:22SC1202(DS)->Grade: A
Course 2:22EC1202(COA)->Grade: A
Course 3:22PH1008(PEE)->Grade: O
Course 4:22MT2102(MFE)->Grade: O
Course 5:22SC1209(IOT)->Grade: O
Name:ROHIT_KUMAR
Course 1:22SC1202(DS)->Grade: A
Course 2:22EC1202(COA)->Grade: O
Course 3:22PH1008->Grade: A
Course 4:22MT2102(MFE)->Grade: O
Course 5:22SC1209->Grade: A

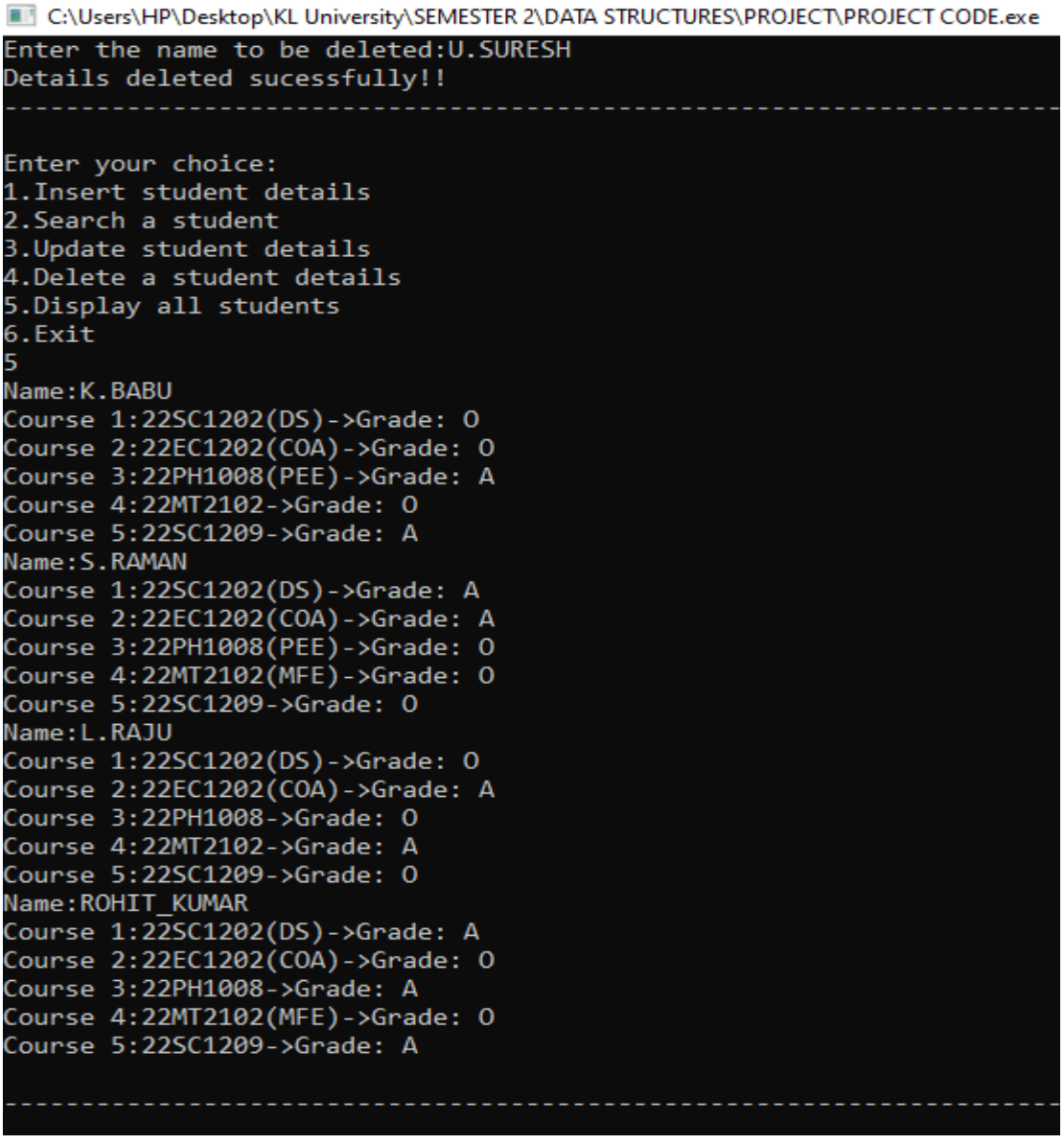

C:\Users\HP\Desktop\KL University\SEMESTER 2\DATA STRUCTURES\PROJECT\PROJECT CODE.exe
Course 4:22MT2102(MFE)->Grade: O
Course 5:22SC1209->Grade: A
Enter your choice:
1.Insert student details
2.Search a student
3.Update student details
4.Delete a student details
5.Display all students
6.Exit
2
Enter the name of the student to be searched:S.Raman
Searched student details are as follows:
Name->S.RAMAN
Course code->22SC1202(DS)
Grade for course 22SC1202(DS)-> A
Course code->22EC1202(COA)
Grade for course 22EC1202(COA)-> A
Course code->22PH1008(PEE)
Grade for course 22PH1008(PEE)-> O
Course code->22MT2102(MFE)
Grade for course 22MT2102(MFE)-> O
Course code->22SC1209
Grade for course 22SC1209-> O

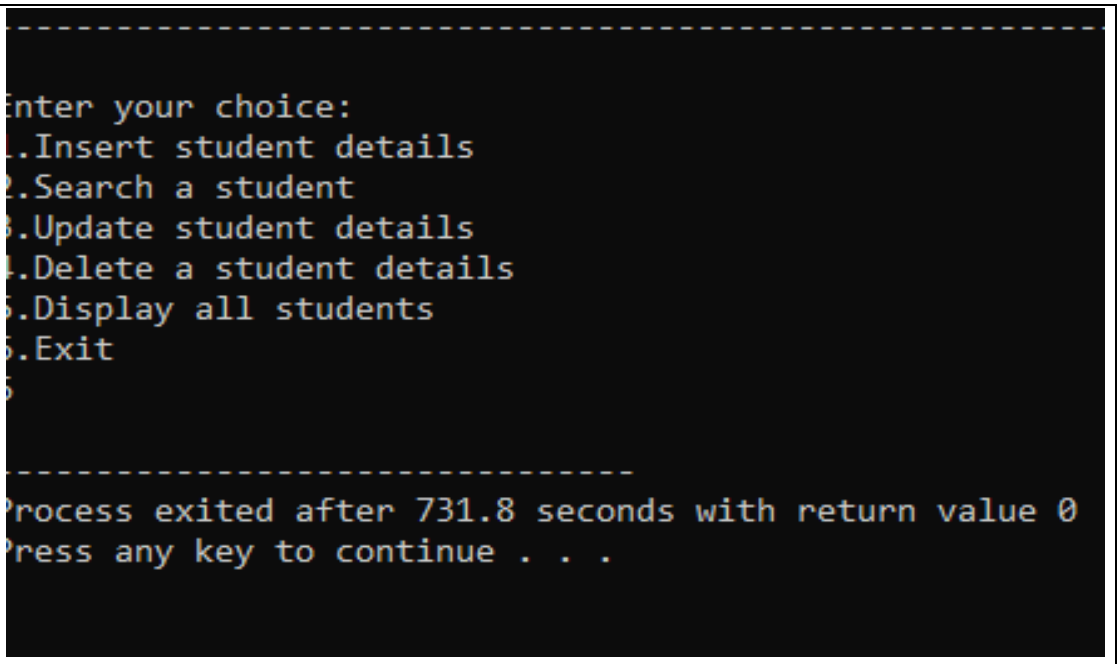
```
Grade for course 22SC1209-> O
--------------------------------------------------------------------------------

Enter your choice:
1.Insert student details
2.Search a student
3.Update student details
4.Delete a student details
5.Display all students
6.Exit
3
Enter the name of the student whose details need to be updated:P.Raju
Enter the name of the student:L.RAJU
Enter the course code for course 1:22SC1202(DS)
Enter the grade for the course 22SC1202(DS):O
Enter the course code for course 2:22EC1202(COA)
Enter the grade for the course 22EC1202(COA):A
Enter the course code for course 3:22PH1008
Enter the grade for the course 22PH1008:O
Enter the course code for course 4:22MT2102
Enter the grade for the course 22MT2102:A
Enter the course code for course 5:22SC1209
Enter the grade for the course 22SC1209:O
Student details updated sucessfully
--------------------------------------------------------------------------------
```

C:\Users\HP\Desktop\KL University\SEMESTER 2\DATA STRUCTURES\PROJECT\PROJECT CODE.exe

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

Enter your choice:
1.Insert student details
2.Search a student
3.Update student details
4.Delete a student details
5.Display all students
6.Exit
5
Name:K.BABU
Course 1:22SC1202(DS)->Grade: O
Course 2:22EC1202(COA)->Grade: O
Course 3:22PH1008(PEE)->Grade: A
Course 4:22MT2102->Grade: O
Course 5:22SC1209->Grade: A
Name:S.RAMAN
Course 1:22SC1202(DS)->Grade: A
Course 2:22EC1202(COA)->Grade: A
Course 3:22PH1008(PEE)->Grade: O
Course 4:22MT2102(MFE)->Grade: O
Course 5:22SC1209->Grade: O
Name:U.SURESH
Course 1:22SC1202(DS)->Grade: O
Course 2:22EC1202->Grade: O
Course 3:22PH1008(PEE)->Grade: O
Course 4:22MT2102(MFE)->Grade: A
Course 5:22SC1209->Grade: O
Name:L.RAJU
Course 1:22SC1202(DS)->Grade: O
Course 2:22EC1202(COA)->Grade: A
Course 3:22PH1008->Grade: O
Course 4:22MT2102->Grade: A
Course 5:22SC1209->Grade: O
Name:ROHIT_KUMAR
Course 1:22SC1202(DS)->Grade: A
Course 2:22EC1202(COA)->Grade: O
Course 3:22PH1008->Grade: A
Course 4:22MT2102(MFE)->Grade: O
Course 5:22SC1209->Grade: A

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


C:\Users\HP\Desktop\KL University\SEMESTER 2\DATA STRUCTURES\PROJECT\PROJECT CODE.exe
Course 1:22SC1202(DS)->Grade: A
Course 2:22EC1202(COA)->Grade: O
Course 3:22PH1008->Grade: A
Course 4:22MT2102(MFE)->Grade: O
Course 5:22SC1209->Grade: A
Enter your choice:
1.Insert student details
2.Search a student
3.Update student details
4.Delete a student details
5.Display all students
6.Exit
4
Enter the name to be deleted:U.SURESH
Details deleted sucessfully!!


C:\Users\HP\Desktop\KL University\SEMESTER 2\DATA STRUCTURES\PROJECT\PROJECT CODE.exe
Enter the name to be deleted:U.SURESH
Details deleted sucessfully!!
Enter your choice:
1.Insert student details
2.Search a student
3.Update student details
4.Delete a student details
5.Display all students
6.Exit
5
Name:K.BABU
Course 1:22SC1202(DS)->Grade: O
Course 2:22EC1202(COA)->Grade: O
Course 3:22PH1008(PEE)->Grade: A
Course 4:22MT2102->Grade: O
Course 5:22SC1209->Grade: A
Name:S.RAMAN
Course 1:22SC1202(DS)->Grade: A
Course 2:22EC1202(COA)->Grade: A
Course 3:22PH1008(PEE)->Grade: O
Course 4:22MT2102(MFE)->Grade: O
Course 5:22SC1209->Grade: O
Name:L.RAJU
Course 1:22SC1202(DS)->Grade: O
Course 2:22EC1202(COA)->Grade: A
Course 3:22PH1008->Grade: O
Course 4:22MT2102->Grade: A
Course 5:22SC1209->Grade: O
Name:ROHIT_KUMAR
Course 1:22SC1202(DS)->Grade: A
Course 2:22EC1202(COA)->Grade: O
Course 3:22PH1008->Grade: A
Course 4:22MT2102(MFE)->Grade: O
Course 5:22SC1209->Grade: A


nter your choice:
.Insert student details
.Search a student
.Update student details
.Delete a student details
.Display all students
.Exit
rocess exited after 731.8 seconds with return value 0
ress any key to continue . . .

CONCLUSION

We successfully compiled the C program and we were able to add student details, search a student by student name, update the student details, delete a student and display all the student details.