

Lab 7

Theory:

Structure:

A structure is a key word that create user defined data type in C/C++. A structure creates a data type that can be used to group items of possibly different types into a single type. “struct” keyword is used to create a structure. Structure members are accessed using dot operator. Like other primitive data types, we can create an array of structure.

Methodology:

Fundamentally the program which we did in the lab error free code. The fundamental goal of the present lab was to get the essential idea of structure.

Objectives:

1. To be familiar with syntax and structure of C-programming.
2. To learn problem solving techniques using C.
3. To learn the basics of concept of structure.

Programs:

- Find the output of the following programs.

Code:

// Following codes are written and compiled in DevC++

Program 1:

```
#include<stdio.h>
#include<string.h>
struct employee
{
    int id;
    char name[50];
    float salary;
}e1;
int main()
{
    e1.id=101;
    strcpy(e1.name,"Hari");
    e1.salary=50000;
    printf("employee 1 id:%d\n",e1.id);
    printf("employee 1
name:%s\n",e1.name);
    printf("employee 1
salary:%.2f",e1.salary);return 0;
}
```

Output:

C:\Users\Dell\Desktop\c programmings\programming lab\lab 7.1.exe

```
employee 1 id:101
employee 1 name :Hari
employee 1 salary:50000.00
-----
Process exited after 0.1199 seconds with return value 0
Press any key to continue . . .
```

Program No. 2

```
#include<stdio.h>
#include<string.h>
struct employee
{
    int id;
    char name [50];
    float salary;
}e1,e2;
int main(){
    e1.id=101;
    strcpy(e1.name,"James");
    e1.salary=56000;
    e2.id=102;
    strcpy(e2.name,"John");
    e2.salary=126000;
    printf("employee 1 id:%d\n",e1.id);
    printf("employee 1
name:%s\n",e1.name);
    printf("employee 1
salary:%f\n",e1.salary);
    printf("employee 2 id:%d\n",e2.id);
    printf("employee 2
name:%s\n",e2.name);
    printf("employee 2
salary:%f\n",e2.salary);return 0;
```

}

Output:

C:\Users\Dell\Desktop\c programmings\prc

```
employee 1 id:101
employee 1 name:James
employee 1 salary:56000.000000
employee 2 id:102
employee 2 name:John
employee 2 salary:126000.000000
-----
```

Program No. 3

```
#include<stdio.h>
#include<conio.h>
struct student{
    char name[30];
    int age;
    int rollno; float
marks[6];
};
int main(){
    struct student s;
    int i;
    float avg,sum=0;
    printf("Enter name\n");
    scanf("%s",&s.name);
    printf("Enter age\n");
    scanf("%d",&s.age);
    printf("Enter rollno\n");
    scanf("%d",&s.rollno);
    printf("Enter 6 subjects marks\n");
    for(i=0;i<6;i++){
        scanf("%f",&s.marks[i]);
        sum=sum+s.marks[i];
        avg=sum/6.0;
```

```

    }
    printf("The details are\n");
    printf("%s\n%d\n%d\n%f",s.name,s.
age,s.rollno,avg);
    getch();
}

```

Output:

```

Enter name
ANIKESH
Enter age
20
Enter rollno
2
Enter 6 subjects marks
100
100
100
100
100
100
The details are
ANIKESH
20
2
100.000000
-----
Process exited after 31.07 seconds with return value 0
Press any key to continue . . .

```

Program No. 4

```

#include<stdio.h>
struct student{
    char name[20];
    int rollno;
    int submarks[4];
};
int main(){
    int i,j;

```

```

        printf("Enter data for
student%d\n",i+1);
        printf("Enter name:\n");
        scanf("%s",stuarr[i].name);
        printf("Enter roll
number:\n");

        scanf("%d",&stuarr[i].rollno);
        for(j=0;j<4;j++){
            printf("Enter marks
for subject %d:\n",j+1);

            scanf("%d",&stuarr[i].submarks[j]);
        }

```

```

    }
    for(i=0;i<3;i++){
        printf("Data of student
%d\n",i+1);
        printf("Name:%s\n Roll
struct student stuarr[3];
for(i=0;i<3;i++){

```

```

number:%d\n",stuarr[i].name,stuarr[i].rollno);

        for(j=0;j<4;j++)

            printf("%d\n",stuarr[i].submarks[j])

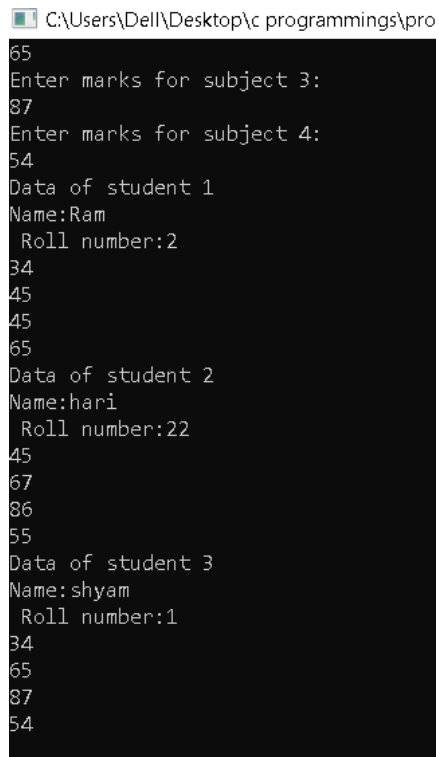
;

    }

}

```

Output:



```

C:\Users\Dell\Desktop\c programmings\pro
65
Enter marks for subject 3:
87
Enter marks for subject 4:
54
Data of student 1
Name:Ram
Roll number:2
34
45
45
65
Data of student 2
Name:hari
Roll number:22
45
67
86
55
Data of student 3
Name:shyam
Roll number:1
34
65
87
54

```

Discussion and conclusion:

From this lab we learned about structure and its uses. It was clear how to use structure and when to use it.

