

Laboratory 4

1. Questions

1. Create a structure named company which has name, address, phone and nonemployee as member variables. Read name of company, its address, phone and nonemployee. Finally display these members' value
2. Create a structure TIME with members hours, minutes and seconds. Write a C program to add two time objects by passing structure variables to function and display result in H: M: S format.
3. Write a program to read Roll No, Name, Address, Age & average-marks of 'n' students in a class. Print the list of students and the youngest and eldest student in the class.

2. Algorithm

1.Algorithm to display details of company using structure

Step 1: Start

Step 2:include all the required libraries

Step 3: define structure in the name company

Step4:define char name,char add(means address),int ph(means phone number, int noe(means number of employees)

Step 5:input company name ,adreess ,phonenummer and number of employee from user in the name of structure elements.

Step 6:display company name ,adreess ,phonenummer and number of employee which are inputed using the name of structure elements.

Step 7:stop

2.Algorithm to add two times

Step 1:start

Step 2: include all required libraries

step 3:define struct time

step 4:declare int hours;int minutes;int seconds;;

step 5:declare struct time p,q,r;

step 6:assign int day=0;

step 7:read hours ,minutes,seconds of both first time and second time

Step 8:assign r.hours=p.hours+q.hours;

step 9:assign r.minutes=p.minutes+q.minutes;

step 10:assign r.seconds=p.seconds+q.seconds;

step 11: if(r.seconds>60)

 r.minutes=r.minutes+r.seconds/60;

 r.seconds=r.seconds%60;

step 12: if(r.minutes>60)

```

r.hours+=r.minutes/60;
r.minutes=r.minutes%60;
step 13:if(r.hours>24)
day=r.hours/24;
    r.hours=r.hours%24;
step 14:write total day,total hours,total minutes ,total seconds.
Step 15:stop

```

3.Algorithm for program to read Roll No, Name, Address, Age & average-marks of 'n' students in a class.

Step 1:start

Step 2:include all required libraries

Step 3:define structure as student .inside that define structural elements like int roll(means rollnumber),char add(means address)

Char name,int age,int avgmarks.

Step 4:define int i,n,highest,lowest

Step 5: read name,age,adrees and average marks of students using structural elements.

Step 6:compare age of both student and display the age of student with lowest and highest age.

Step 7:stop

3. Program

```

1  #include <stdio.h>
2  #include <stdlib.h>
3  struct company
4  {
5      char name[50];
6      char add[50];
7      int ph;
8      int noe;
9  }s;
10 int main(int argc, char** argv)
11 {
12     printf("Enter Information -\n");
13     printf("Enter Company name :");
14     scanf("%s",s.name);
15     printf("Enter Address :");
16     scanf("%s",&s.add);
17     printf("Enter Phone number :");
18     scanf("%d",&s.ph);
19     printf("Enter the number of Employee :");
20     scanf("%d",&s.noe);
21
22     printf("Displaying Information :\n");
23     printf("Name :");
24     puts(s.name);
25     printf("Address :");
26     puts(s.add);
27     printf("Phone number : %d\n",s.ph);
28     printf("Number of Employees : %d\n",s.noe);
29     return (EXIT_SUCCESS);
30 }

```

Fig 1 program to display details of company

```
1  #include<stdio.h>
2  struct time
3  {   int hours;
4      int minutes;
5      int seconds;
6  };
7  void main()
8  {   struct time p,q,r;
9      int day=0;
10     printf("Enter First Time:\n");
11     printf("Hours:");scanf("%d",&p.hours);
12     printf("\nMinutes:");scanf("%d",&p.minutes);
13     printf("\nSecond:");scanf("%d",&p.seconds);
14     printf("\n\nEnter Seconnd Time:");
15     printf("\nHours:");scanf("%d",&q.hours);
16     printf("\nMinutes:");scanf("%d",&q.minutes);
17     printf("\nSeconds:");scanf("%d",&q.seconds);
18     r.hours=p.hours+q.hours;
19     r.minutes=p.minutes+q.minutes;
20     r.seconds=p.seconds+q.seconds;
21     if(r.seconds>60)
22     {   r.minutes=r.minutes+r.seconds/60;
23         r.seconds=r.seconds%60;
24     }
25     if(r.minutes>60)
26     {   r.hours+=r.minutes/60;
27         r.minutes=r.minutes%60;
28     }
29     if(r.hours>24)
30     {   day=r.hours/24;
31         r.hours=r.hours%24;
32     }
33     printf("\n\nTotal Time:\n");
34     printf("\n Total Day=%d",day);
35     printf("\n Total Hours %d",r.hours);
36     printf("\n Total Minutes %d",r.minutes);
37     printf("\n Total Seconds %d",r.seconds);
38 }
```

Fig 2 program to add two given time and display it

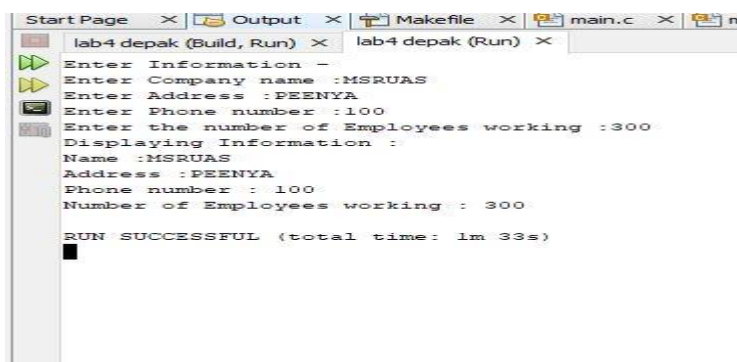
```

2  #include <stdio.h>
3  #include <stdlib.h>
4  struct student
5  {
6      int roll;
7      char name[20];
8      char add[50];
9      int age;
10     float avgmarks;
11 }s[20];
12 int main(int argc, char** argv)
13 {
14     int i,n,highest,lowest;
15     printf("Enter details of student \n ");
16     printf("Enter the number of students ");
17     scanf("%d",&n);
18     for(i=0;i<n;++i)
19     {
20         s[i].roll = i+1;
21         printf("For roll number:%d\n",s[i].roll);
22         printf("Enter name :");
23         scanf("%s",s[i].name);
24         printf("Enter Address :");
25         scanf("%s",&s[i].add);
26         printf("Enter Age :");
27         scanf("%d",&s[i].age);
28         printf("Enter average Marks :");
29         scanf("%f",&s[i].avgmarks);
30         printf("\n");
31     }
32     highest = s[0].age;
33     lowest = s[0].age;
34     for(int i=1;i<n;i++)
35     {
36         if(s[i].age>highest)
37             highest = s[i].age;
38         else
39             lowest = s[i].age;
40     }
41     printf("Eldest student is who has age %d\n",highest);
42     printf("Youngest student is who has age %d",lowest);
43     return (EXIT_SUCCESS);

```

Fig 4 a program to read Roll No, Name, Address, Age & average-marks of 'n' students in a class.

4. Presentation of Results



```

Start Page x Output x Makefile x main.c x
lab4 depak (Build, Run) x lab4 depak (Run) x
Enter Information -
Enter Company name :MSRUAS
Enter Address :PEENYA
Enter Phone number :100
Enter the number of Employees working :300
Displaying Information :
Name :MSRUAS
Address :PEENYA
Phone number : 100
Number of Employees working : 300
RUN SUCCESSFUL (total time: 1m 33s)

```

Fig 5 Result of program to display details of company

```

C:\Users\HP\CLionProjects\untitled3\cmake-build-debug\untitled3.exe
Enter First Time:
Hours:4
Minutes:60
Second:4

Enter Second Time:
Hours:4
Minutes:5
Seconds:3

Total Time:
Total Day=0
Total Hours 9
Total Minutes 5
Total Seconds 7
Process finished with exit code 17

```

Fig 6 result of program to add two given time and display it

```

Enter information of student
Enter the number of students - 2

For roll number1,
Enter name :Vishnu
Enter Address :Mangalore
Enter Age :19
Enter Marks :25

For roll number2,
Enter name :Charith
Enter Address :Malleshwaram
Enter Age :18
Enter Marks :25

Youngest student is 18
Eldest student is 19
RUN SUCCESSFUL (total time: 27s)

```

Fig 7 result of a program to read Roll No, Name, Address, Age & average-marks of 'n' students in a class.

5. Conclusions

We learnt to Create a structure named company which has name, address, phone and nonemployee as member variables. Read name of company, its address, phone and nonemployee. Finally display these members' value and in second program we learnt to Create a structure TIME with members hours, minutes and seconds. Write a C program to add two time objects by passing structure variables to function and display result in H: M: S format. In third program we learnt to Write a program to read Roll No, Name, Address, Age & average-marks of 'n' students in a class. Print the list of students and the youngest and eldest student in the class.