Programming Fundamentals

Lab Report

Lab 12

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Class	Programming Fundamentals CSC103 (**BCE-2B**)
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In Lab Tasks

Question no: 1

Write a C Program that does the following:

1. Declares a C-Structure called '**car**'.

2. It should contain the following elements

a) A char array of size 20 to hold the **make** of the car e.g. Suzuki.

b) A char array of size 20 to hold the **model** of the car e.g. Alto

c) An integer **capacity** to store the seating capacity.

d) A floating-point number to hold the **weight** of the empty vehicle.

3. Then declare 3 variables of this type of structure.

4. Let the user populate the elements of these variables.

5. Print these structures

Solution:

The Code for the following code is attached below,

```c
#include <stdio.h>
#include <stdlib.h>
 struct car
    {
            char make[20];
            char model[20];
            int capacity;
            float weight;

        }c1,c2,c3;

int main()
{

int car=1;


char m1[20];
char m2[20];
int cap;
float wei;

c1:

printf("\nEnter the make?");
scanf("%s",&m1);
printf("Enter the model?");
scanf("%s",&m2);
printf("Enter the capacity?");
scanf("%d",&cap);
printf("Enter the Weight?");
scanf("%f",&wei);


        if(car==1)
        {

        strcpy(c1.make, m1);
        strcpy(c1.model, m2);


        c1.capacity=cap;
        c1.weight=wei;

printf("\nCar: %d\n Name :%s \n Model: %s \n Capacity: %d\n Weight: %f",car,c1.make,c1.model,c1.capacity,c1.weight);
car++;
goto c1;
        }



         if(car==2)
        {

        strcpy(c2.make, m1);
        strcpy(c2.model, m2);


        c2.capacity=cap;
        c2.weight=wei;

printf("\nCar: %d\n Name :%s \n Model: %s \n Capacity: %d\n Weight: %f",car,c2.make,c2.model,c2.capacity,c2.weight);
 car++;
            goto c1;


        }

         if(car==3)
        {

        strcpy(c3.make, m1);
        strcpy(c3.model, m2);


        c3.capacity=cap;
        c3.weight=wei;

printf("\nCar: %d\n Name :%s \n Model: %s \n Capacity: %d\n Weight: %f",car,c3.make,c3.model,c3.capacity,c3.weight);


        }


    }
```
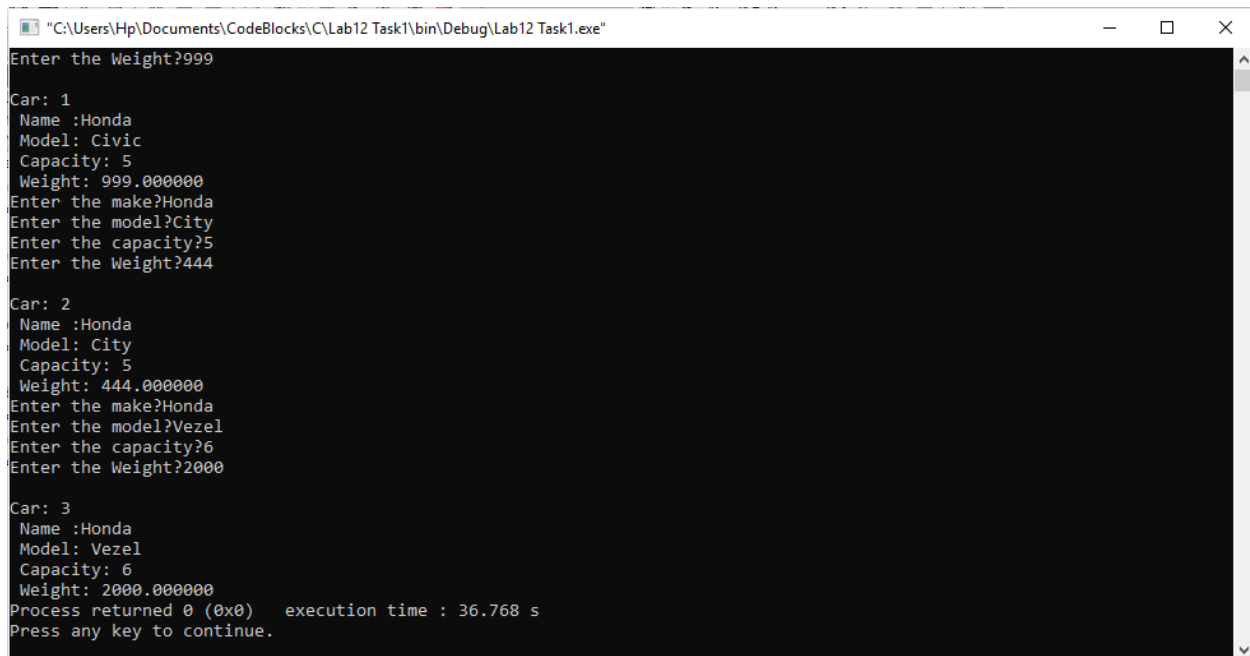
The Result of the following code is attached below:


```
"C:\Users\Hp\Documents\CodeBlocks\C\Lab12 Task1\bin\Debug\Lab12 Task1.exe"                    —    □    ×
Enter the Weight?999

Car: 1
 Name :Honda
 Model: Civic
 Capacity: 5
 Weight: 999.000000
Enter the make?Honda
Enter the model?City
Enter the capacity?5
Enter the Weight?444

Car: 2
 Name :Honda
 Model: City
 Capacity: 5
 Weight: 444.000000
Enter the make?Honda
Enter the model?Vezel
Enter the capacity?6
Enter the Weight?2000

Car: 3
 Name :Honda
 Model: Vezel
 Capacity: 6
 Weight: 2000.000000
Process returned 0 (0x0)   execution time : 36.768 s
Press any key to continue.
```

Question no: 2(A)

Write a C program that declares an array of structures of type 'car' from previous example, and asks the user to fill in the elements. Once all the structures have been initialized, the program should present a menu to the user so that he can print a certain structure, or modify its elements.

Solution

The code is shown below for the given program,

```c
1    #include <stdio.h>
2    #include <stdlib.h>
3
4    int main()
5    {
6        struct car
7            {
8                char make[20];
9                char model[20];
10               int capacity;
11               float weight;
12
13            };
14
15           struct car c[3];
16           int i, choice;
17           char m1[20];
18           char m2[20];
19
20
21
22
23           for(i=1;i<=3;i++)
24               {
25
26                   printf("Enter Make for car %d?",i);
27                   scanf("%s",&m1);
28                   strcpy(&c[i].make, m1);
29                   printf("Enter Model for car %d?",i);
30                   scanf("%s",&m2);
```

```c
29                   printf("Enter Model for car %d?",i);
30                   scanf("%s",&m2);
31                   strcpy(&c[i].model, m2);
32                   printf("Enter Capacity for car %d?",i);
33                   scanf("%d",&c[i].capacity);
34                   printf("Enter Weight for car %d?",i);
35                   scanf("%f",&c[i].weight);
36                   printf("\n");
37               }
38       me:
39
40           printf(".....................\n");
41
42           printf("......MENU......\n");
43
44           printf("Press 1 to Print\n");
45
46           printf("Press 2 Modify\n");
47
48           printf("Press 3 to Exit\n");
49
50
51           scanf("%d",&choice);
52
53         if(choice ==1)
54             {
55                 printf("Enter the Car Data you want to print?");
56                 scanf("%d",&i);
57
58                 printf(".....................\n");
```

```c
58                 printf(".....................\n");
59                 printf(".....................\n");
60                 printf("\nCar %d",i);
61                 printf("\nCar Make %s",c[i].make);
62                 printf("\nCar Model %s",c[i].model);
63                 printf("\nCar Capacity %d",c[i].capacity);
64                 printf("\nCar Weight %f\n",c[i].weight);
65                 printf(".....................\n");
66
67         goto me;
68         }
69         if(choice==2)
70             {
71
72                 printf("Enter the Car Data you want to Modify?");
73                 scanf("%d",&i);
74
75                  printf("Enter Modified Make?");
76                 scanf("%s",&m1);
77                 strcpy(&c[i].make, m1);
78                 printf("Enter Modified Model?");
79                 scanf("%s",&m2);
80                 strcpy(&c[i].model, m2);
81                 printf("Enter Modified Capacity?");
82                 scanf("%d",&c[i].capacity);
83                 printf("Enter Modified Weight?");
84                 scanf("%f",&c[i].weight);
85                 goto me;
86             }
87
88         if(choice==3)
89             {
90                 exit(0);
91             }
```

The Result of the following code is attached below:

"C:\Users\Hp\Documents\CodeBlocks\C\lab12 task2\bin\Debug\lab12 task2.exe"

```
Enter Make for car 1?Honda
Enter Model for car 1?Civic
Enter Capacity for car 1?2
Enter Weight for car 1?2.2

Enter Make for car 2?Honda
Enter Model for car 2?City
Enter Capacity for car 2?5
Enter Weight for car 2?22.2

Enter Make for car 3?Kia
Enter Model for car 3?Classic
Enter Capacity for car 3?3
Enter Weight for car 3?2.2

...................
......MENU......
Press 1 to Print
Press 2 Modify
Press 3 to Exit
```


"C:\Users\Hp\Documents\CodeBlocks\C\lab12 task2\bin\Debug\lab12 task2.exe"

```
Enter Capacity for car 2?5
Enter Weight for car 2?22.2

Enter Make for car 3?Kia
Enter Model for car 3?Classic
Enter Capacity for car 3?3
Enter Weight for car 3?2.2

...................
......MENU......
Press 1 to Print
Press 2 Modify
Press 3 to Exit
1
Enter the Car Data you want to print?1
...................
...................

Car 1
Car Make Honda
Car Model Civic
Car Capacity 2
Car Weight 2.200000
...................
...................
......MENU......
Press 1 to Print
Press 2 Modify
Press 3 to Exit
```

```
Press 2 Modify
Press 3 to Exit
2
Enter the Car Data you want to Modify?2
Enter Modified Make?Kia
Enter Modified Model?sportage
Enter Modified Capacity?5
Enter Modified Weight?2
...................
......MENU......
Press 1 to Print
Press 2 Modify
Press 3 to Exit
1
Enter the Car Data you want to print?2
...................
...................

Car 2
Car Make Kia
Car Model sportage
Car Capacity 5
Car Weight 2.000000
...................
...................
......MENU......
Press 1 to Print
Press 2 Modify
Press 3 to Exit
```

```
Enter Modified Make?Kia
Enter Modified Model?sportage
Enter Modified Capacity?5
Enter Modified Weight?2
...................
......MENU......
Press 1 to Print
Press 2 Modify
Press 3 to Exit
1
Enter the Car Data you want to print?2
...................
...................

Car 2
Car Make Kia
Car Model sportage
Car Capacity 5
Car Weight 2.000000
...................
...................
......MENU......
Press 1 to Print
Press 2 Modify
Press 3 to Exit
3

Process returned 0 (0x0)   execution time : 100.365 s
Press any key to continue.
```
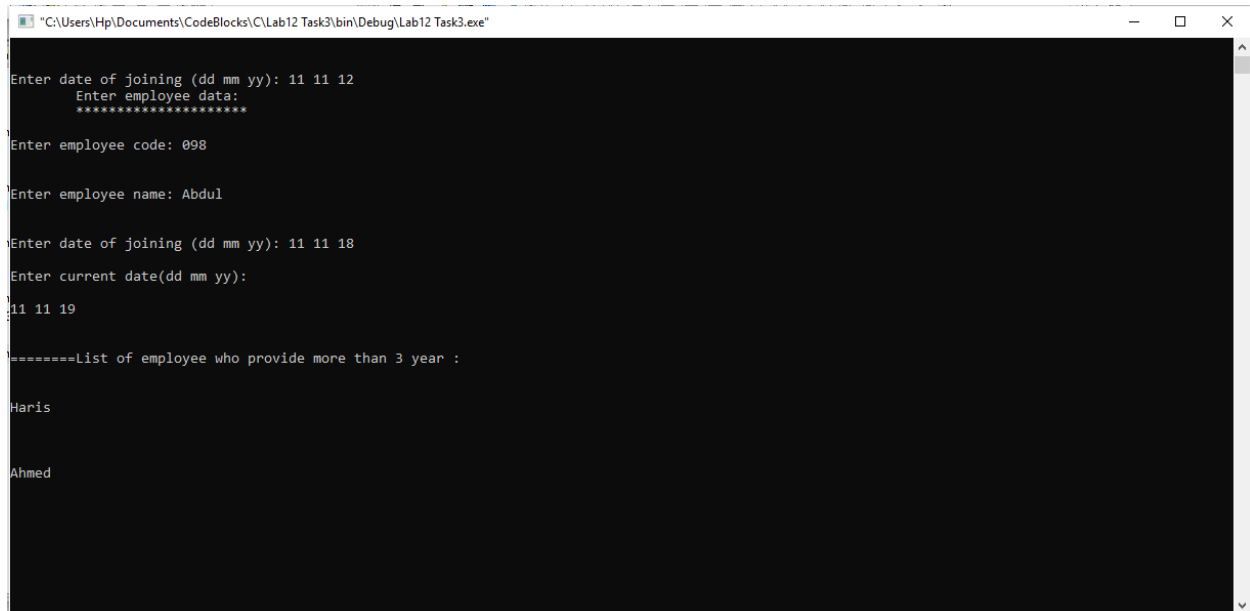
Question no: 2(B)

There is a structure called employee that holds information like employee code, name, date of joining. Write a program to create an array of the structure and enter some data into it. Then ask the user to enter current date. Display the names of those employees whose tenure is 3 or more than 3 years according to the given current date.

Solution

The code is shown below for the given program**,**

```c
{
    struct emp
    {
        int code;
        char name[20];
        int dd, mm, yy;
    } e[3];
    int d, m, y, i;
    for(i=0; i<3; i++)
    {
        printf("\tEnter employee data:\n");
        printf("\t*********************\n");
        printf("\nEnter employee code: ");
        scanf("%d", &e[i].code);
        printf("\n\nEnter employee name: ");
        scanf("%s", &e[i].name);
        printf("\n\nEnter date of joining (dd mm yy): ");
        scanf("%d%d%d", &e[i].dd, &e[i].mm, &e[i].yy);
    }
    printf("\nEnter current date(dd mm yy): \n\n");
    scanf("%d%d%d", &d, &m, &y);
    printf("\n\n========List of employee who provide more than 3 year : \n");
    for(i=0; i<3; i++)
    {
        if((y-(e[i].yy))>=3)
        {
            printf("\n\n%s\n\n", e[i].name);
        }
    }
    getch();
```

The Result of the following code is attached below:


```
"C:\Users\Hp\Documents\CodeBlocks\C\Lab12 Task3\bin\Debug\Lab12 Task3.exe"

Enter date of joining (dd mm yy): 11 11 12
        Enter employee data:
        *********************

Enter employee code: 098

Enter employee name: Abdul

Enter date of joining (dd mm yy): 11 11 18

Enter current date(dd mm yy):

11 11 19

========List of employee who provide more than 3 year :

Haris


Ahmed
```
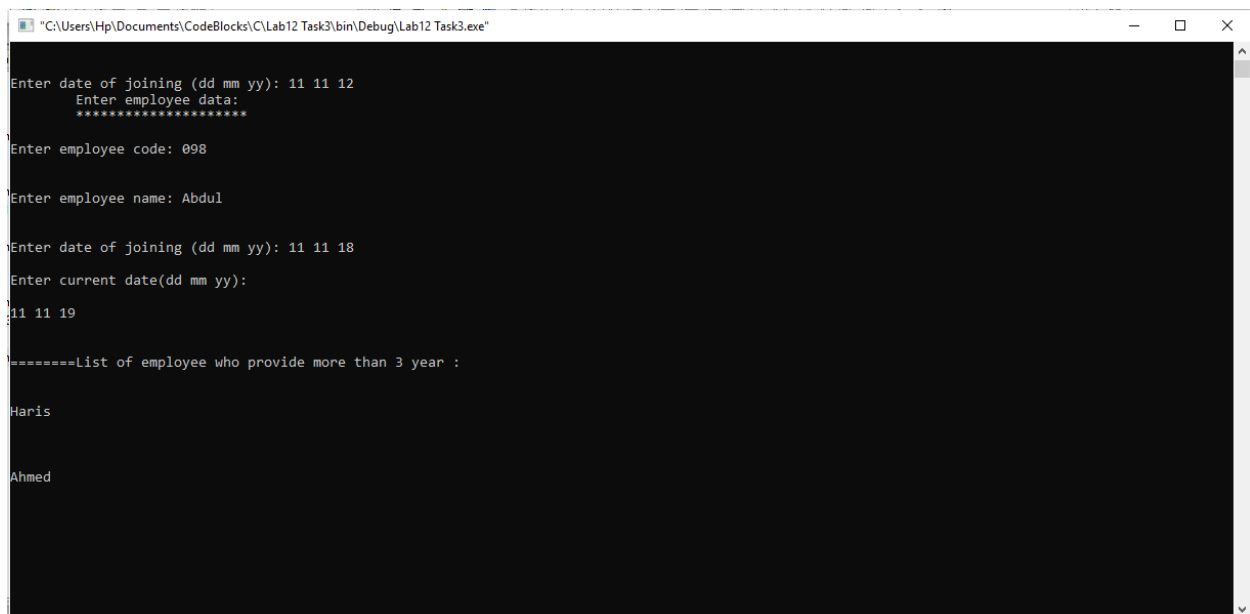


```
"C:\Users\Hp\Documents\CodeBlocks\C\Lab12 Task3\bin\Debug\Lab12 Task3.exe"

Enter date of joining (dd mm yy): 11 11 12
        Enter employee data:
        *********************

Enter employee code: 098

Enter employee name: Abdul

Enter date of joining (dd mm yy): 11 11 18

Enter current date(dd mm yy):

11 11 19

========List of employee who provide more than 3 year :

Haris


Ahmed
```

THE END

*there was no post lab for this lab.