

## Structure Basics assignments

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### **Mandatory**

1. WAP to define read and store the following details together in a structure and display the structure details

name – char\* [input could of maximum length 50 char]

age – uint

designation – enum [use the enum values used in enum exercise]

void read (EMP \*emp)

void display (EMP emp);

Implement additional function below.

//read and update the employee record

int update(EMP \*emp);

//copy the emp to a new employee and return

EMP copy(EMP emp);

2. Extend the above program and create and initialize an array of 3 structures. Reuse the read() and display() functions to read, initialize and display structures

```
1 #include <stdio.h>
2 #include <stdlib.h>
3 #include <string.h>
4 #define MAX_NAME_LENGTH 50
5 enum designation {
6     MANAGER,
7     ENGINEER,
8     CLERK,
9     HR,
10    SALES
11 };
12 struct employee {
13     char name[MAX_NAME_LENGTH];
14     unsigned int age;
15     enum designation job_title;
16 };
17 void read(struct employee *emp) {
18     int choice;
19     printf("Enter name (max 50 characters): ");
20     fgets(emp->name, MAX_NAME_LENGTH, stdin);
21     emp->name[strcspn(emp->name, "\n")] = 0;
22     printf("Enter age: ");
23     scanf("%u", &emp->age);
24     getchar();
25     printf("Enter job title (0: Manager, 1: Engineer, 2: Clerk, 3: HR, 4: Sales): ");
26     scanf("%d", &choice);
27     getchar();
28     emp->job_title = (enum designation)choice;
29 }
30 void display(struct employee emp) {
31     printf("\nEmployee Details:\n");
32     printf("Name: %s\n", emp.name);
33     printf("Age: %u\n", emp.age);
34     switch (emp.job_title) {
35         case MANAGER:
36             printf("Designation: Manager\n");
37             break;
38         case ENGINEER:
39             printf("Designation: Engineer\n");
40             break;
41         case CLERK:
42             printf("Designation: Clerk\n");
43             break;
44         case HR:
45             printf("Designation: HR\n");
46             break;
47         case SALES:
48             printf("Designation: Sales\n");
```

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49         break;
50     default:
51         printf("Designation: Unknown\n");
52     }
53 }
54 int update(struct employee *emp) {
55     printf("Update employee details:\n");
56     printf("Enter new name (max 50 characters): ");
57     fgets(emp->name, MAX_NAME_LENGTH, stdin);
58     emp->name[strcspn(emp->name, "\n")] = 0;
59     printf("Enter new age: ");
60     scanf("%u", &emp->age);
61     getchar();
62     int choice;
63     printf("Enter new job title (0: Manager, 1: Engineer, 2: Clerk, 3: HR, 4: Sales): ");
64     scanf("%d", &choice);
65     getchar();
66     emp->job_title = (enum designation)choice;
67     return 1;
68 }
69 struct employee copy(struct employee emp) {
70     struct employee new_emp;
71     strcpy(new_emp.name, emp.name);
72     new_emp.age = emp.age;
73     new_emp.job_title = emp.job_title;
74     return new_emp;
75 }
76 int main() {
77     struct employee employees[3];
78     for (int i = 0; i < 3; i++) {
79         printf("\nEnter details for Employee %d:\n", i + 1);
80         read(&employees[i]);
81         display(employees[i]);
82     }
83     printf("\nUpdating Employee 1 details:\n");
84     update(&employees[0]);
85     display(employees[0]);
86     printf("\nCopying Employee 2 details:\n");
87     struct employee copied_emp = copy(employees[1]);
88     display(copied_emp);
89     return 0;
90 }

```

```
Enter details for Employee 1:
Enter name (max 50 characters): Chaithra
Enter age: 22
Enter job title (0: Manager, 1: Engineer, 2: Clerk, 3: HR, 4: Sales): 2

Employee Details:
Name: Chaithra
Age: 22
Designation: Clerk

Enter details for Employee 2:
Enter name (max 50 characters): ash
Enter age: 25
Enter job title (0: Manager, 1: Engineer, 2: Clerk, 3: HR, 4: Sales): 0

Employee Details:
Name: ash
Age: 25
Designation: Manager

Enter details for Employee 3:
Enter name (max 50 characters): Nayana
Enter age: 24
Enter job title (0: Manager, 1: Engineer, 2: Clerk, 3: HR, 4: Sales): 1

Employee Details:
Name: Nayana
Age: 24
Designation: Engineer

Updating Employee 1 details:
Update employee details:
Enter new name (max 50 characters): Sam
Enter new age: 22
Enter new job title (0: Manager, 1: Engineer, 2: Clerk, 3: HR, 4: Sales): 3

Employee Details:
Name: Sam
Age: 22
Designation: HR

Copying Employee 2 details:

Employee Details:
Name: ash
Age: 25
Designation: Manager
```