# **Notes on Structures:**

A structure is a user-defined data type in C language that allows us to combine different types. Structure helps to construct a complex data type that is more meaningful.

Defining a structure:

struct [structure\_tag]

{

//member variable 1

//member variable 2

//member variable 3

...

}[structure\_variables];

struct Employee{

char name[50];

int empID;

float salary;

};

#### **Declaring Structure variables: separately or with structure definition**

E.g. I need to store employee details (name, empID and salary) of 2 employees (I have only two employees in my organization, but this may grow).

struct Employee{

char name[50];

int empID;

float salary;

}emp1, emp2;

struct Employee{

char name[50];

int empID;

float salary;

}

struct Employee emp1, emp2;

#include<stdio.h>

#include<string.h>

struct Employee{

int empID;

float salary;

char name[50];

};

struct Employee emp1,emp2;

int main(){

emp1.empID=1290;

strcpy(emp1.name, "John");

emp1.salary=345.67;

printf("EmpID of emp1 is %d\n", emp1.empID);

printf("Emp Name of emp1 is %s\n", emp1.name);

printf("Emp Salary of emp1 is %f\n", emp1.salary);

return 0;

}

### **Structure Initialization**

struct Patient

{

float height;

int weight;

int age;

};

struct Patient p1 = { 180.75 , 73, 23 }; //initialization

struct Patient p1;

p1.height = 180.75; //initialization of each member separately

p1.weight = 73;

p1.age = 23;

### **Array of Structure**

We can also declare an array of **structure** variables. in which each element of the [array](https://www.studytonight.com/c/arrays-in-c.php) will represent a **structure** variable. **Example :** struct employee emp[5];

The below program defines an array emp of size 5. Each element of the array emp is of type Employee.

#include<stdio.h>

struct Employee

{

char ename[10];

int sal;

};

struct Employee emp[5];

int i, j;

void ask()

{

for(i = 0; i < 3; i++)

{

printf("\nEnter %dst Employee record:\n", i+1);

printf("\nEmployee name:\t");

scanf("%s", emp[i].ename);

printf("\nEnter Salary:\t");

scanf("%d", &emp[i].sal);

}

printf("\nDisplaying Employee record:\n");

for(i = 0; i < 3; i++)

{

printf("\nEmployee name is %s", emp[i].ename);

printf("\nSlary is %d", emp[i].sal);

}

}

void main()

{

ask();

}

#include<stdio.h>

struct Employee{

int empID;

float salary;

char name[50];

};

//struct Employee emp1 ={1290,345.67,"John"};

struct Employee emp[5];

int i;

void in(){

for (i=1;i<=3;i++){

printf("Enter emp%d ID ",i);

scanf("%d",&emp[i].empID);

printf("Enter emp%d name ",i);

scanf("%s",&emp[i].name);

printf("Enter emp%d salary ",i);

scanf("%f",&emp[i].salary);

}

}

void out(){

printf("Printing Employee Details\n");

for(i=1;i<=3;i++){

printf("employee %d ID is %d name %s and salary is %f\n",i,emp[i].empID, emp[i].name, emp[i].salary);

}

}

int main(){

in();

out();

return 0;

}

*References:*

*Tutorialspoint.com*