# Array and Structure in C

- We can use structure and array as :
  - Array of Structure
  - Array within Structure

- Syntax for declaring structure array
  - Structure is collection of different data type.
  - An object of structure represents a single record in memory, if we want more than one record of structure type, we have to create an array of structure or object.

- As we know, an array is a collection of similar type, therefore an array can be of structure type.

```
struct struct-name
{
        datatype var1;

        datatype var2;

        datatype varn;
};
struct struct-name obj [ size ];
```

# Example 1 for Array Of Structures

```c
struct student
 {
     int age;
     char c[10];
} s1[2];

void main()
{
int i;
for(i=0;i<2;i++)
{
    scanf("%s",s1[i].c);
    scanf("%d",&s1[i].age);
}
for(i=0;i<2;i++)
{
    printf("%s\n",s1[i].c);
    printf("%d\n",s1[i].age);
}
}
```

# Example 2

```c
#include<stdio.h>
struct Employee
{
int Id;
char Name[25];
int Age;
long Salary;
};
void main() {
int i;
struct Employee Emp[ 3 ];
for(i=0;i<3;i++) {
printf("\nEnter details of %d Employee",i+1);
printf("\n\tEnter Employee Id : ");
scanf("%d",&Emp[i].Id);
```

```c
printf("\n\tEnter Employee Name : ");
scanf("%s",&Emp[i].Name);
printf("\n\tEnter Employee Age : ");
scanf("%d",&Emp[i].Age);
printf("\n\tEnter Employee Salary : ");
scanf("%ld",&Emp[i].Salary);
}
for(i=0;i<3;i++) {
printf("\nDetails of Employees %d=",i);
printf("\n%d\t%s\t%d\t%ld",Emp[i].Id,Emp[i].Name,Emp[i].Age,Emp[i].Salary);
}
}
```

# Structures and Pointers

- Pointer Variable which stores the address of Structure must be declared as Pointer to Structure .

- Syntax

**struct struct_tag**

**{**

    **data type member1;**

    **data type member2;**

**}variable1, *ptrvariable1;** //Pointer to structure declaration

- The address of structure variable can be obtained by using the '&' operator.
- All structure members inside the structure can be accessed using pointer, by assigning the structure variable address to the pointer.

```
struct student_database
{
    char name[10];
    int roll;
    int marks;
}stud1;
void main()
{
    struct student_database *ptr;
    ptr = &stud1;
}
```