# Structures

Structure in c is a user-defined data type that enables us to store the collection of different data types. Each element of a structure is called a member. Structures ca; simulate the use of classes and templates as it can store various information’s.

The **struct** keyword is used to define the structure. Let's see the syntax to define the structure in c.

## Syntax

```
struct structure_name
{
    data_type member1;
    data_type member2;
    .
    .
    data_type memeberN;
};
```

## Declaring structure variable

We can declare a variable for the structure so that we can access the member of the structure easily. There are two ways to declare structure variable:

1. By struct keyword within main() function
2. By declaring a variable at the time of defining the structure.

### 1st way:

Let's see the example to declare the structure variable by struct keyword. It should be declared within the main function.

```
struct employee
{   int id;
```

```
   char name[50];
   float salary;
};
```

Now write given code inside the main() function.

```
struct employee e1, e2;
```

The variables e1 and e2 can be used to access the values stored in the structure. Here, e1 and e2 can be treated in the same way as the objects in C++ and Java.

**2nd way:**

Let's see another way to declare variable at the time of defining the structure.

```
struct employee
{   int id;
   char name[50];
   float salary;
}e1,e2;
```

## Accessing members of the structure

There are two ways to access structure members:

1. By . (member or dot operator)
2. By -> (structure pointer operator)

Let's see the code to access the *id* member of *p1* variable by. (member) operator.

```
#include<stdio.h>
#include <string.h>
struct employee
{   int id;
   char name[50];
   float salary;
}e1,e2;  //declaring e1 and e2 variables for structure
int main( )
{
  //store first employee information
  e1.id=101;
  strcpy(e1.name, "Sonoo Jaiswal");//copying string into char array
  e1.salary=56000;

 //store second employee information
  e2.id=102;
  strcpy(e2.name, "James Bond");
  e2.salary=126000;

  //printing first employee information
  printf( "employee 1 id : %d\n", e1.id);
  printf( "employee 1 name : %s\n", e1.name);
  printf( "employee 1 salary : %f\n", e1.salary);

  //printing second employee information
  printf( "employee 2 id : %d\n", e2.id);
  printf( "employee 2 name : %s\n", e2.name);
  printf( "employee 2 salary : %f\n", e2.salary);
  return 0;
}
```

**Output:**

```
employee 1 id : 101
employee 1 name : Sonoo Jaiswal
employee 1 salary : 56000.000000
employee 2 id : 102
employee 2 name : James Bond
employee 2 salary : 126000.000000
```

**PROGRAM:**

```
structstudentdata{
char*stu_name;
intstu_id;
intstu_age;
};
int main()
{
structstudentdata student;
student.stu_name =”steve”;
student.stu_id =1234;
student.stu_age =30;

printf(“student name is: %s”, student.stu_name);
printf(“\nstudent id is: %d”, student.stu_id);
printf(“\nstudent age is: %d”, student.stu_age);
return0;
}
```

**OUTPUT:**

```
        StudentNameis: Steve
        StudentIdis: 1234
        StudentAgeis: 30
```