

STRUCTURES

c supports a constructed data type known as structures, a mechanism for packing data of different types. A structure is convenient tool for handling a group of logically related data items for it can be used to represent a set of attributes such as student, name, roll number & mark.

Structures help to organize data in more meaningful way.

Defining a structure

Structures must be defined first for their format that may be used later to declare structure variables.

Eg:

Consider a book database consisting of book name, author, number of pages and price.

```
struct book_bank
```

```
{  
    char title [20];  
    char author [15];  
    int Pages;  
    float Price;  
};
```

The keyword `struct` defines declares a structure to hold the details of four data fields, namely, `title`, `author`, `Pages`, & `Price`. These fields are called structure elements or members. Each member may belong to a different type of data. `book_bank` is the name of the structure and is called the structure tag. The tag name may be used subsequently to declare variables that have the tag's structure.

The general format of a structure definition:

struct tag-name

{

data-type member 1;

data-type member 2;

}

In defining a structure you may note the following

Syntax:

1) the template is terminated with a Semicolon

2) while the entire definition is considered as a statement each member is declared independently for its name and type in a separate statement inside the template

3) The tag name such as book-bank

can be used to declare structure variables for its type, later in the program.

Declaring Structure Variables

After defining a structure format we can declare variables of that type. A structure variable declaration is similar to the declaration of variables of any other datatype. It includes the following elements:

- 1 The keyword **struct**
- 2 The structure tag name.
- 3 List of variable names separated by commas.
- 4 A terminating semicolon.

Eg: The statement

```
struct book_bank, book1, book2, book3;
```

declares book1, book2, book3 as variables
of type struct book_bank.

3 ways of declaration:-

① struct book

{
int pages;

char author[30];

float price;

} b;

② struct

{
int pages;

char author[30];

float price;

} b;

③ struct book

{
int pages;

char author[30];

float price;

} ;

Struct book b;