C_110 ⇒ Structure in C - Part 2

Declaring Structure variables / objects

```
int a;
```
↓
primitive datatype

```
struct student
{
    int rollno;
    char name[20];
    float marks;
};
```
↓
user defined datatype
(i.e) this is not declaration
just only datatype.

* Find whether below things of declaration of structure is valid or invalid.

✗ Invalid ①
```
struct student
{
    int rollno;
    float marks = 60.15;
    char name[20];
    char address[50];
};
```

✗ Invalid ②
```
struct abc
{
    int x;
    int y;
    int z;
}
```
(;) missing (;)

③
```
struct xyz
{
    int x;
    float y;
    char z[10];
};
```

④
```
struct Emp
{
    char *empname;
    int empid;
};
```

* struct is always keyword and we have structure name/tag which is user defined and inside that we have members of structure.

Declaring structure Method I

struct student → This is only user defined data type

{
int rollno; 2 bytes
float marks; 4 bytes
char name[20]; 20 bytes
} → Members of structure

void main()
{
int a;
struct student S; → object of structure student.
}

Declaration of structure: 28 bytes

* For this structure student datatype having or declared with object/variable S will be allocated 28 bytes of memory storage.

Declaring structure Method II

* Another way of declaring structure is,

```
struct student
{
  int rollno;
  float marks;
  char name[20];
} S; → here we declare variable for student structure user define data type
void main()
{
  int a;
}
```

Date:

* If we want to declare two or more variable for this user defined datatype structure student; then it is given below.

```
struct student
{
    int rollno;
    char name[20];
    float marks;
} S1, S2;
```

→ declaring more than one variable for structure student user defined datatype

* S1, S2 is used to store information of 2 students; but if you need to store information of 60 students; then don't take S1, S2, ---- S60 (It is not good approach); instead we go for array of structure variables.

* → Tag/name of structure is optional; but we have drawback. because; when we want to declare variables for more than one or two for the structure; then we can't do that in main function.
→ Since we don't have tag/structure name.

```
Eg: struct
    {
        int rollno;
        float marks;
        char name[20];
    } S1, S2;
```

```
void main()
{
    int a;
    struct
```

✗ not possible

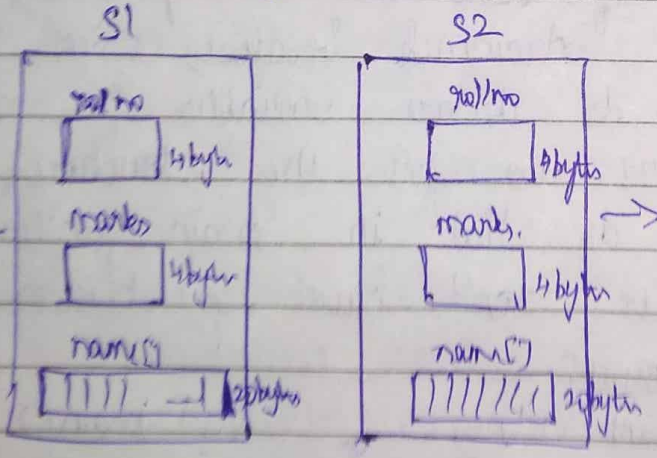
Eg:

```
struct student {
    int rollno;
    float marks;
    char name[20];
} S1, S2;
void main()
{
    int a;
    struct student S3;
}
```

possible

Eg:-

```
struct student {
    int rollno;
    float marks;
    char name[20];
};
void main()
{
    int a;
    struct student S1, S2;
}
```



How to store and access values (or) how to initialize the members of structure and how to access it will be seen in next lecture.

Note:

```
struct student {
    int rollno = 1;
    float marks;
    char name[20];
};
void main()
{
    int a;
    struct student S1;
}
```

- int rollno = 1; → We can't initialize here; because this is only data type (user defined datatype with structure name student).
- float marks; char name[20]; ← members of structure
- S1 → object of structure