C-115 ⇒ <u>Structures in C using typedf</u>

* How to define a structure using type def keyword?

* What is typedf keyword?

<u>Typedf</u>:-

    * It is used to create your own datatype (or) synonym of your original name.

      eg:- Jayanthi or Jesny.

        | typedf int integer; |

    ⟶ using typedf we have allotted the original datatype name 'int' to integer.

      Ex:- typedf int integer;
            main()
            {
               int a=10; ✓
              | integer b=15; |

correct using typedf

* This typedf we can also use this with structure.

In structure, every time we want to write the "struct student" for creating object/variable for structure datatype.

Ex:
```
struct student
{
    int rollno;
    char name[20];
    float marks;
};

void main()
{
    struct student s1={10,"Jenny",90};
    printf("%d %s %f", s1.rollno, s1.name,
                                s1.marks);

    struct student s2;
}
```

→ We can avoid writing struct student every time by using typedef.

Ex:
```
        datatype name
typedef [struct student]
{
    int rollno;
    char name[20];
    float marks;
} [student];
```

datatype name changed

instead of struct student datatype name we changed the datatype name to student

```
void main()
{
    [student] s={10,"Jenny",89};
    printf("%d %s %f", s.rollno, s.name, s.marks);
```

✻ This is only datatype; so it won't have memory space.

> Ex: typedef int integer;
>   ↓   ↓
>   original   altered
>   datatype   datatype
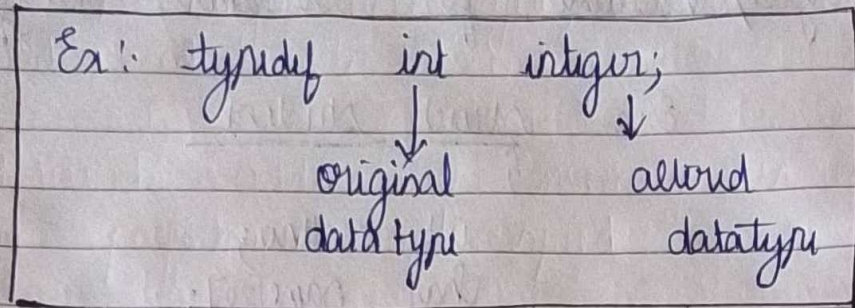
✱ Both are datatype only but we changed the name; and the changed name is not purmanent for all programs; scope of name change will exist only while it is used within the program.

✻ It also defined globally and locally inside the program.

Ex ① | typedef int integer; | → global declaration

main()
{
--- ; | use here |
}

void sum()
{
--- ; | use here | 2
}

Ex ② main()   void sum()
{   ✗   {
--- | Cannot use | typedef int integer;
integer a =10; } | here | integer a=10;
                                           }
                                           (can use here
                                           because local to sum)

```c
#include <stdio.h>
#include <stdlib.h>
/** 17-Structures in C using typedef **/
typedef struct student
{
  int rollno;
  char name[20];
  float marks;
}student;
int main()
{
  typedef int integer;
  integer a=6;
  printf("%d\n",a);
  student s;
  printf("Enter details of students\n");
  scanf("%d %s %f",&s.rollno,&s.name,&s.marks);
  printf("%d %s %0.2f",s.rollno,s.name,s.marks);
  getch();
}
```

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```
6
Enter details of students
1
Jenny
78
1 Jenny 78.00
```