```
Void sort_nums(a,n)
    Int a[],n;
     {
            Int I, j, dummy;
            For(i=0;i<n;i++)
            {
                  For(j=0; j<n; j++)
                   {
                         If (a[i] > a[j])
                         {
                               Dummy = a[i];
                               a[i] = a[j];
                               a[j] = dummy;
                         }
                   }
            }
3.5 Recursion
```

One of the special features of C language is its support to recursion. Very few computer languages will support this feature.

Recursion can be defines as the process of a function by which it can call itself. The function which calls itself again and again either directly or indirectly is known as recursive function.

The normal function is usually called by the main () function, by mans of its name. But, the recursive function will be called by itself depending on the condition satisfaction.

```
For Example,
main()
{
```

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\_\_\_\_\_ Function called by main

} fl(); {		——— Function definition
}	fl();	——— Function called by itself

In the above, the main () function s calling a function named fl() by invoking it with its name. But, inside the function definition fl(), there is another invoking of function and it is the function fl() again.

## **Example programs on Recursion**

**Example 1** : Write a program to find the factorial of given non-negative integer using recursive function.

```
#include<stdio.h>
main()
{
    int result, n;
    printf("Enter any non-negative integer\n");
    scanf("%d", & n);
    result = fact(n);
    printf("The factorial of %d is %d \n", n, result);
}
```

}

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fl();

```
fact( n )
int n;
{
    int i;
    i = 1;
    if(i==1) return (i);
    else
    {
        i = i * fact (n - 1);
        return (i);
    }
}
```

}

**Example 2**: Write 'C' program to generate Fibonacci series up to a limit using recursion function.

```
#include<stdio.h>
#include<conio.h>
int Fibonacci (int);
void main ()
{
    int i, n;
    clrscr ();
    printf("Enter no. of Elements to be generated" \n)
    scanf("%d", &n);
    for (i=1; i<n; i++)
    printf("%d", Fibonacci (i));
    getch();
}</pre>
```

}

```
int Fibonacci (int n)
{
    int fno;
    if (n==1)
    return 1;
    else
        if (n==2);
        return 1;
    else
        fno=Fibonacci (n-1) + Fibonacci (n-2);
    return fno;
```

- 04. Write differences between Global and Local variables.
- 05. List categories of functions
- 06. What is storage class?
- 07. What is Iteration
- 08. What is recursion?

## Long Answer Type Question - 6 Marks

- 01. What is Function? Explain in detail
- 02. Explain different types of functions with an example.
- 03. Explain about I/O functions.
- 04. Discuss about Global and Local variables.