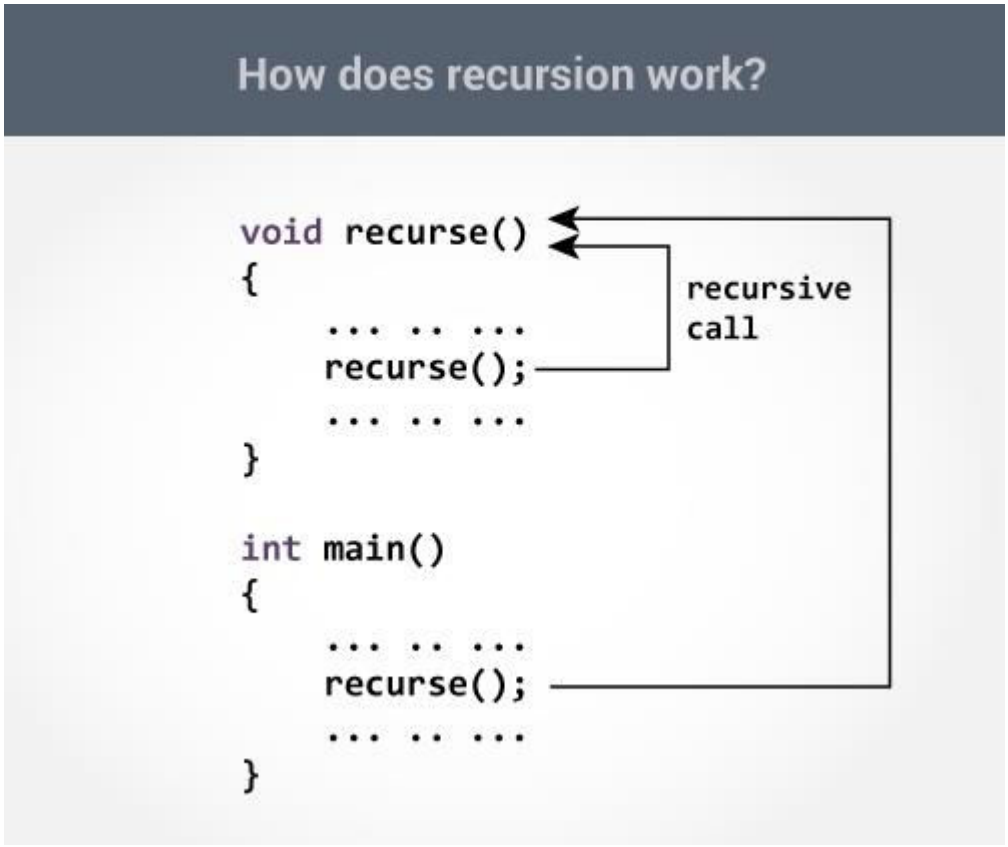
RECURSIVE FUNCTIONS

A function that calls itself is known as a recursive function. And, this technique is known as recursion. In programming languages, if a program allows you to call a function inside the same function, then it is called a recursive call of the function. Recursive functions are very useful to solve many mathematical problems, such as calculating the factorial of a number, generating Fibonacci series, etc.



Example: Sum of Natural Numbers Using Recursion

```
#include <stdio.h>
int sum(int n);
int main()
{
   int number, result;
   printf("Enter a positive integer: ");
   scanf("%d", &number);
   result = sum(number);

   printf("sum=%d", result);
```

```
}
   int sum(int num)
{
   if (num!=0)
      return num + sum(num-1); // sum() function calls itself
   else
      return num;
}
```

Initially, the sum() is called from the main() function with number passed as an argument.

Suppose, the value of num is 3 initially. During next function call, 2 is passed to the sum()function. This process continues until num is equal to 0.

When num is equal to 0, the if condition fails and the else part is executed returning the sum of integers to the main() function.