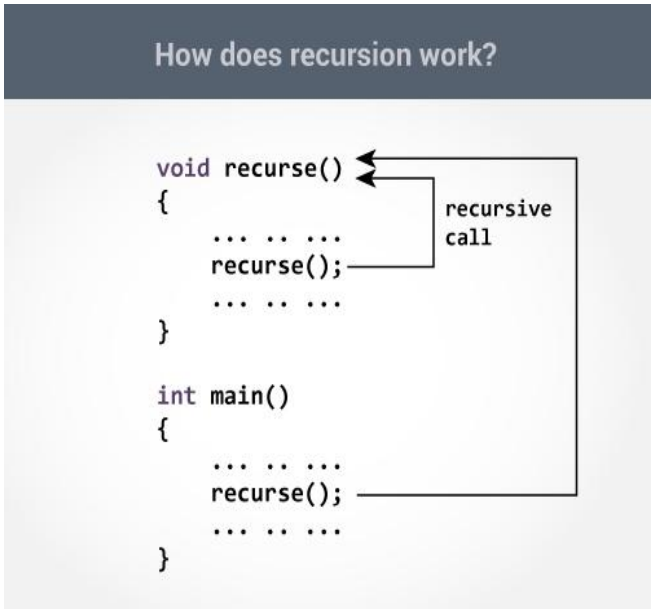
RECURSIVE FUNCTIONS

A function is said to be ‘recursive’ if a statement within the body of a function calls the same function. Sometimes it is also called as ‘**circular definition**’.



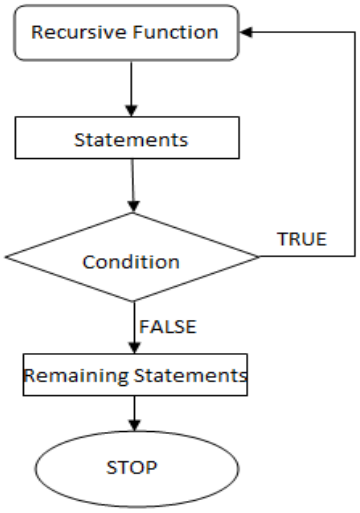


Fig: Flowchart showing recursion

Consider the example of finding the Fibonacci series for a given integer value 10 as shown below. Here, the function ‘fibonacci’ is called by a statement inside itself.

Below is also shown an example of a ‘recursive factorial function’ used to find the factorial of an integer value 15.

```c
#include <stdio.h>

int fibonacci(int i) {

   if(i == 0) {
      return 0;
   }

   if(i == 1) {
      return 1;
   }
   return fibonacci(i-1) + fibonacci(i-2);
}

int  main() {

   int i;

   for (i = 0; i < 10; i++) {
      printf("%d\t\n", fibonacci(i));
   }

   return 0;
}
```

```c
#include <stdio.h>

int factorial(unsigned int i) {

   if(i <= 1) {
      return 1;
   }
   return i * factorial(i - 1);
}

int  main() {
   int i = 15;
   printf("Factorial of %d is %d\n", i, fact
   return 0;
}
```