



PYTHON

PHP

BOOTSTRAP

Pro

HOW TO

W3.CSS

**Get Certified** 

**Create Website** 

Next >



Start

DEVELOPING

Without Installations

Try Now

Support Included

COLOR PICKER

Get certified

by completing

a course today!

Get started

W3SCHOOLS SPACES

NEW SUBSCRIBER DEAL

50% OFF

FOR A YEAR

**USE THE PROMOCODE: SPACESSO** 

DEAL EXPIRING 14/02

C For Loop C Break/Continue C Arrays C Strings C User Input C Memory Address C Pointers

#### C Functions

C Functions C Function Parameters C Function Declaration

C Recursion

C Math Functions

C Files

C Create Files

C Writa To Filac

# Recursion

**C** Previous

JAVA

# Recursion

Recursion is the technique of making a function call itself. This technique provides a way to break complicated problems down into simple problems which are easier to solve.

Recursion may be a bit difficult to understand. The best way to figure out how it works is to experiment with it.

# Recursion Example

the following example, recursion is used to add a range of numbers together by breaking it down into the simple task of adding two numbers:

Adding two numbers together is easy to do, but adding a range of numbers is more complicated. In

```
Example
 int sum(int k);
 int main() {
   int result = sum(10);
   printf("%d", result);
   return 0;
 int sum(int k) {
   if (k > 0) {
     return k + sum(k - 1);
    } else {
     return 0;
  Try it Yourself »
```

### When the sum() function is called, it adds parameter k to the sum of all numbers smaller than k

Example Explained

and returns the result. When k becomes 0, the function just returns 0. When running, the program follows these steps:

```
10 + sum(9)
10 + (9 + sum(8))
10 + (9 + (8 + sum(7)))
10 + 9 + 8 + 7 + 6 + 5 + 4 + 3 + 2 + 1 + sum(0)
10 + 9 + 8 + 7 + 6 + 5 + 4 + 3 + 2 + 1 + 0
Since the function does not call itself when k is 0, the program stops there and returns the result.
```

The developer should be very careful with recursion as it can be quite easy to slip into writing a

function which never terminates, or one that uses excess amounts of memory or processor power. However, when written correctly recursion can be a very efficient and mathematically-elegant approach to programming.

Next >

Upgrade

### **Top Tutorials**

Report Error

Previous

HTML Tutorial CSS Tutorial JavaScript Tutorial How To Tutorial SQL Tutorial Python Tutorial W3.CSS Tutorial Bootstrap Tutorial PHP Tutorial Java Tutorial

C++ Tutorial

jQuery Tutorial

### HTML Reference

**Top References** 

Spaces

CSS Reference JavaScript Reference SQL Reference Python Reference W3.CSS Reference Bootstrap Reference PHP Reference HTML Colors Java Reference Angular Reference

jQuery Reference

## Top Examples

Newsletter

HTML Examples CSS Examples JavaScript Examples How To Examples SQL Examples Python Examples W3.CSS Examples Bootstrap Examples PHP Examples Java Examples XML Examples jQuery Examples

## **Get Certified**

**Get Certified** 

HTML Certificate CSS Certificate JavaScript Certificate Front End Certificate SQL Certificate Python Certificate PHP Certificate jQuery Certificate Java Certificate C++ Certificate C# Certificate XML Certificate

FORUM | ABOUT

constantly reviewed to avoid errors, but we cannot warrant full correctness of all content. While using W3Schools, you agree to have read and accepted our terms of use, cookie and privacy policy.

W3Schools is optimized for learning and training. Examples might be simplified to improve reading and learning. Tutorials, references, and examples are





Copyright 1999-2023 by Refsnes Data. All Rights Reserved.