



## Double Pointer (Pointer to Pointer) in C

Program to  
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Bill

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with  
Examples

Speed up  
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Modulo  
Operator (%)  
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Examples

C  
Programming  
For  
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combinations  
of the string  
by replacing  
'\$' with any  
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SemiColon  
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## Examples

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Set 66  
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C program  
to find  
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Difference  
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Header files  
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Chain of  
Pointers in C  
with  
Examples

.....



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Draw a  
Chess Board  
using  
Graphics  
Programming  
in C

what  
happens  
when you  
don't free  
memory  
after using  
malloc()

How to call  
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function in C  
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to display  
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calendar for  
a given year

How to use  
make utility  
to build C  
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tgamma()  
method in  
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Examples



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reference  
variables if  
we have  
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<complex.h>  
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C with  
Examples

Pointer  
Arithmetics  
in C with  
Examples

std::string::crbegin()  
and  
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in C++ with  
Examples



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# Double Pointer (Pointer to Pointer) in C

Last Updated: 05-12-2019

Prerequisite : [Pointers in C and C++](#)

We already know that a pointer points to a location in memory and thus used to store the address of variables. So, when we define a pointer to pointer. The first pointer is used to store the address of the variable. And the second pointer is used to store the address of the first pointer. That is why they are also known as double pointers.

## How to declare a pointer to pointer in C?

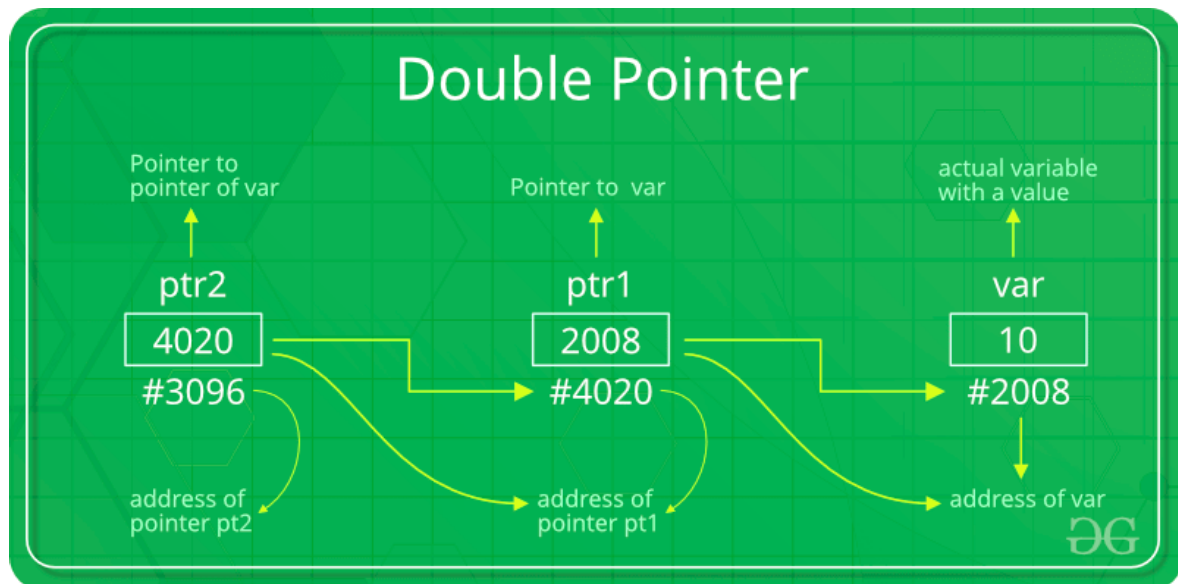


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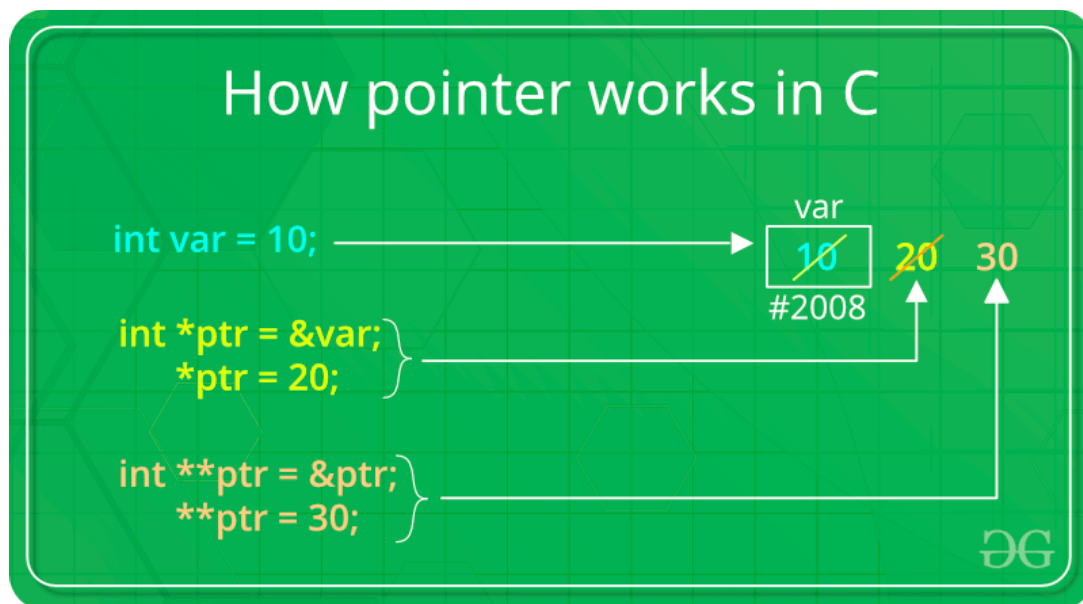
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```
int **ptr;    // declaring double pointers
```

Below diagram explains the concept of Double Pointers:





The above diagram shows the memory representation of a pointer to pointer. The first pointer ptr1 stores the address of the variable and the second pointer ptr2 stores the address of the first pointer.



Let us understand this more clearly with the help of the below program:

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```
 {  
    int var = 789;  
  
    // pointer for var  
    int *ptr2;  
  
    // double pointer for ptr2  
    int **ptr1;  
  
    // storing address of var in ptr2  
    ptr2 = &var;  
  
    // Storing address of ptr2 in ptr1  
    ptr1 = &ptr2;  
  
    // Displaying value of var using  
    // both single and double pointers  
    printf("Value of var = %d\n", var );  
    printf("Value of var using single pointer = %d\n", *ptr2);  
    printf("Value of var using double pointer = %d\n", **ptr1);  
  
    return 0;  
}
```

Output:

```
Value of var = 789  
Value of var using single pointer = 789  
Value of var using double pointer = 789
```

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