

int (1 sign bit + 31 data bits) keyword in C

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How to return multiple values from a function in C or C++?

Double Pointer (Pointer to Pointer) in C

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

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

How to declare a pointer to pointer in C?

Declaring Pointer to Pointer is similar to declaring pointer in C. The difference is we have to place an additional '*' before the name of pointer.

Syntax:

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

Below diagram explains the concept of Double Pointers:

Commonly Asked C Programming Interview Questions | Set 3

Applications of Pointers in C/C++

Pre-increment and Post-increment in C/C++

"static const" vs "#define" vs "enum"

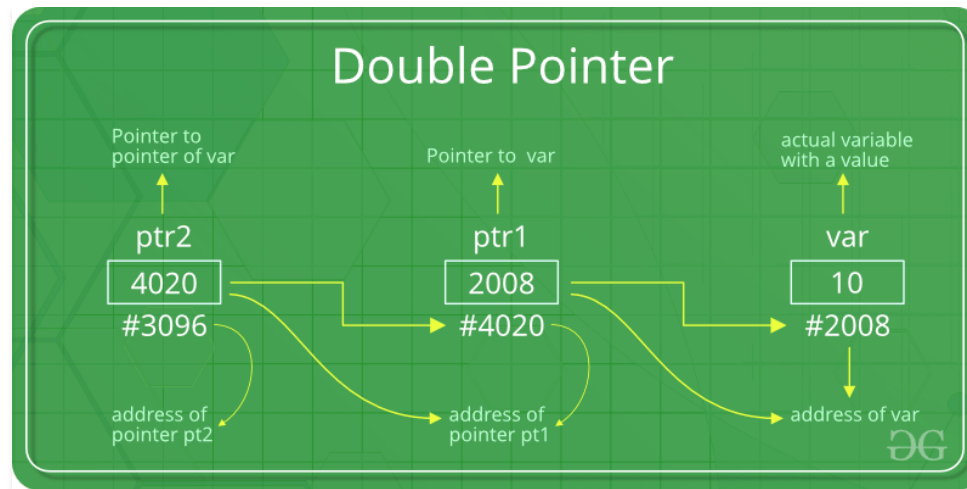
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Comments in C/C++

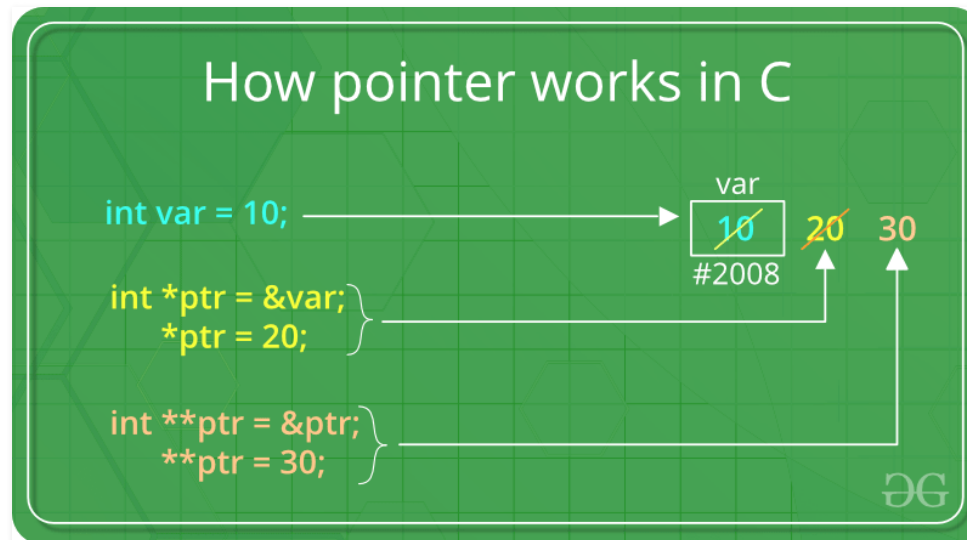
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time() function in C



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



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

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Loader in C/C++

GDB (Step by Step Introduction)

Communication between two process using signals in C

tolower() function in C

Passing Reference to a Pointer in C++

Difference between const int*, const int * const, and int const *

How does a C program executes?

Difference between Call by Value and Call by Reference

How to avoid Structure Padding in C?

strrev() function in C



```
// C program to demonstrate pointer to pointer
int main()
{
    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", *ptr2);
    printf("Value of var using double pointer = %d", **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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