

Difference Between Malloc and Calloc

There are several differences between malloc and calloc. Malloc() and calloc() in the programming language C are the memory allocation done dynamically. Dynamic allocation is done while run time. Malloc allocates a large block of memory with a specific size, whereas Calloc allocates a specific amount of memory.

The malloc() function and calloc() function differ according to the use of the function while assigning the memory while run time. The major differences between the two are explained in the table provided below:

| Malloc() | Calloc() |
|----------------------------------------------------|-------------------------------------------------|
| This function only carries unuseful/garbage values | Carries important values. |
| Faster allocation time than calloc() | Slower allocation time wrt malloc(). |
| Do not initialize the memory. | Initializes the memory. |
| Less secure than calloc() | Secure than malloc() |
| More time-efficient. | Less time efficient. |
| Returns the starting address. | It makes the return, along with making it zero. |
| Creates and assigns only a single block of memory | Can create or assign multiple memory blocks. |

What is Malloc()?

The malloc stands for memory allocation. Malloc() is a type of library routine. There are four types of library routines. It is used to save the block of memory. The saving of the memory in malloc() occurs dynamically. The malloc will reserve the memory space in it as well.

The syntax of malloc() is: **ptr = (cast_type *) malloc (byte_size);**

The malloc function can be assigned to any pointer. The main function of the malloc() is that it returns the null pointer pointing to the memory location. It will be a type of void. Knowing about malloc() will help understand the difference

between malloc() and calloc(). Check here the **difference between function and procedure** to understand the functions properly.

What is Calloc()?

The calloc() is another type of library routine. It stands for contiguous allocation. It is also used for memory allocation. The calloc is used where memory allocation is required in complex data structures. Calloc() returns the null pointer on failing to allocate the specific space.

The syntax of calloc() is: **ptr = (cast_type *) calloc (n, size);**

Malloc vs Calloc

There are four types of libraries to allocate memory and free it up during the program execution. They are routines, calloc(), free(), realloc(), and malloc(). All of them are different from each other. The comparison of malloc vs. calloc is given below.

Malloc()

- It reserves memory space of a specified size.
- It is used to allocate objects which must exist beyond the execution of the current memory block.
- In this, developers can allocate memory as per the requirement.

Calloc ()

- It initializes the elements to zero to return a pointer to the memory.
- It is used to request a page known to already be zeroed.
- All the bytes are initialized to zero after the memory space is allocated.