- Places?
- Complicated declarations in C
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- How to deallocate memory without using free()

in C?

calloc() versus malloc()

How does free() know the size of memory to be deallocated?

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

Program error signals

Why array index starts from zero ?

Dynamic Memory Allocation in C using malloc(), calloc(), free() and realloc()

TCP Server-Client implementation in C

How to return

> multiple values from a function in C or C++?

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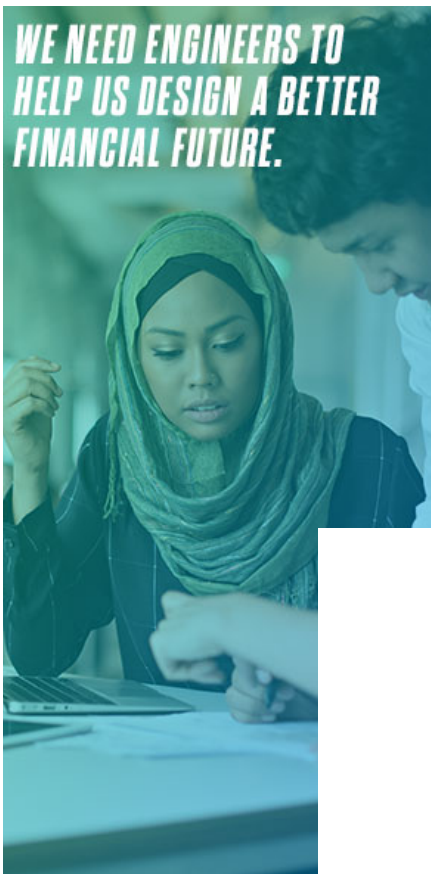

Use of realloc()

Size of dynamically allocated memory can be changed by using realloc().

As per the C99 standard:

```
void *realloc(void *ptr, size_t size);
```

realloc deallocates the old object pointed to by ptr and returns a pointer to a new object that has the size specified by size. The contents of the new object is identical to that of the old object prior to deallocation, up to the lesser of the new and old sizes. Any bytes in the new object beyond the size of the old object have indeterminate values.

The point to note is that **realloc() should only be used for dynamically allocated memory**. If the memory is not dynamically allocated, then behavior is undefined.
For example, program 1 demonstrates incorrect use of realloc() and program 2 demonstrates correct use of realloc().

Program 1:

```c
#include <stdio.h>
#include <stdlib.h>
int main()
{
   int arr[2], i;
   int *ptr = arr;
   int *ptr_new;

   arr[0] = 10;
   arr[1] = 20;

   // incorrect use of new_ptr: undefined behaviour
   ptr_new = (int *)realloc(ptr, sizeof(int)*3);
   *(ptr_new + 2) = 30;

   for(i = 0; i < 3; i++)
     printf("%d ", *(ptr_new + i));

   getchar();
   return 0;
}
```

Output:

Undefined Behavior

Program 2:

```c
#include <stdio.h>
#include <stdlib.h>
int main()
{
   int *ptr = (int *)malloc(sizeof(int)*2);
   int i;
   int *ptr_new;

   *ptr = 10;
   *(ptr + 1) = 20;

   ptr_new = (int *)realloc(ptr, sizeof(int)*3);
   *(ptr_new + 2) = 30;
   for(i = 0; i < 3; i++)
       printf("%d ", *(ptr_new + i));

   getchar();
   return 0;
}
```

Output:

10 20 30

Please write comments if you find anything incorrect, or you want to share more information about the topic discussed above.

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```
#include<stdio.h>
#include<malloc.h>
int main()
{
int *ptr = (int *)malloc(sizeof(int)*2);
int i;
int *ptr_new;

*ptr = 10;
*(ptr + 1) = 20;

ptr_new = (int *)realloc(ptr, sizeof(int)*3);
//ptr_new = (int *)realloc(ptr, sizeof(int)*1);
*(ptr_new + 2) = 30;
for(i = 0; i < 3; i++)
printf("%d ", *(ptr_new + i));

getchar();
return 0;
}
```

on using any of the both statements including realloc() function in the above program,it generates the same result.
can anyone tell me how is this happeing??

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```
int main()
{

int *ptr = (int *)malloc(sizeof(int) * 3);
int i;
int *ptr_new;

*ptr = 10;
*(ptr + 1) = 11;
```