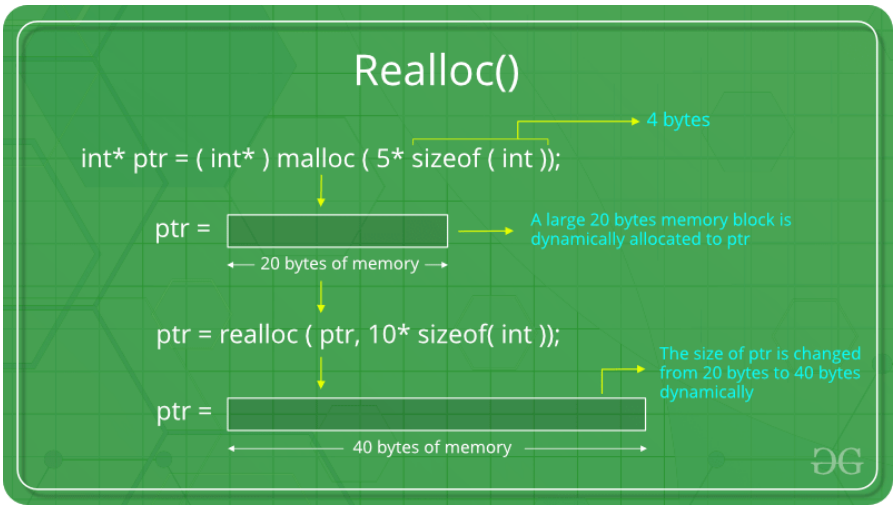
How can you extend memory allocation during execution of a program?

Answer:
C realloc() method
“realloc” or “re-allocation” method in C is used to dynamically change the memory allocation of a previously allocated memory. In other words, if the memory previously allocated with the help of malloc or calloc is insufficient, realloc can be used to dynamically re-allocate memory. re-allocation of memory maintains the already present value and new blocks will be initialized with the default garbage value.
Syntax:

ptr = realloc(ptr, newSize);

where ptr is reallocated with new size 'newSize'.



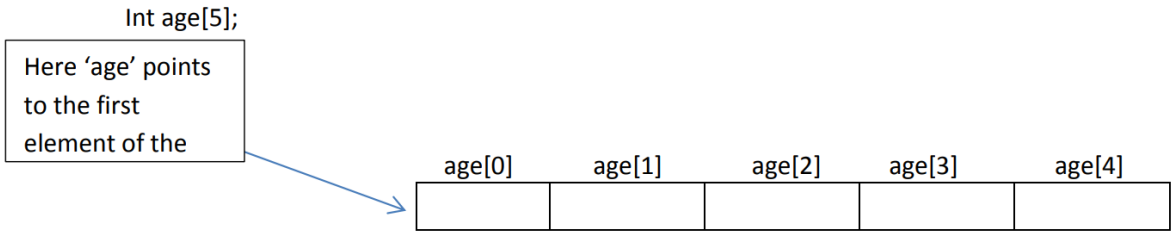
https://www.geeksforgeeks.org/dynamic-memory-allocation-in-c-using-malloc-calloc-free-and-realloc/#:~:text=C%20realloc()%20method,to%20dynamically%20re%2Dallocate%20memory.

https://www.guru99.com/c-dynamic-memory-allocation.html

What is the relation between pointer and single-dimension array?
Answer:

Arrays and pointers are synonymous in terms of how they use to access memory. But, the important difference between them is that, a pointer variable can take different addresses as value whereas, in case of array it is fixed.

Consider the following array:



In C , name of the array always points to the first element of an array. Here, address of first element of an array is &age[0]. Also, age represents the address of the pointer where it is pointing. Hence, &age[0] is equivalent to age. Note, value inside the address &age[0] and address age are equal. Value in address &age[0] is age[0] and value in address age is *age. Hence, age[0] is equivalent to *age.

C arrays can be of any type. We define array of ints, chars, doubles etc. We can also define an array of pointers as follows. Here is the code to define an array of n char pointers or an array of strings.

char* A[n];

each cell in the array A[i] is a char* and so it can point to a character. Now if you would like to assign a string to each A[i] you can do something like this.

A[i] = malloc(length_of_string + 1);

Again this only allocates memory for a string and you still need to copy the characters into this string. So if you are building a dynamic dictionary (n words) you need to allocate memory for n char*'s and then allocate just the right amount of memory for each string.

In C, you can declare an array and can use pointer to alter the data of an array. This program declares the array of six element and the elements of that array are accessed using pointer, and returns the sum.

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