

# KNIGHT HACKS



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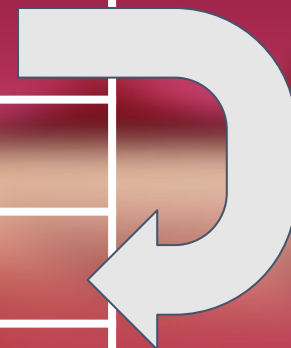
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# What is a pointer?

A pointer is nothing more than an *address* to another variable.

Address	Value
0	pointer: 2
1	NULL
2	5
3	NULL
4	NULL



# What is dynamic memory allocation?

- Reserving some amount of computer memory

Address 0 = malloc(3)

Address	Value
Address	Value
0	Allocated
0	Vacant
1	Allocated
1	Vacant
2	Allocated
2	Vacant
3	In use
3	In use
4	Vacant
4	Vacant

# malloc is great!

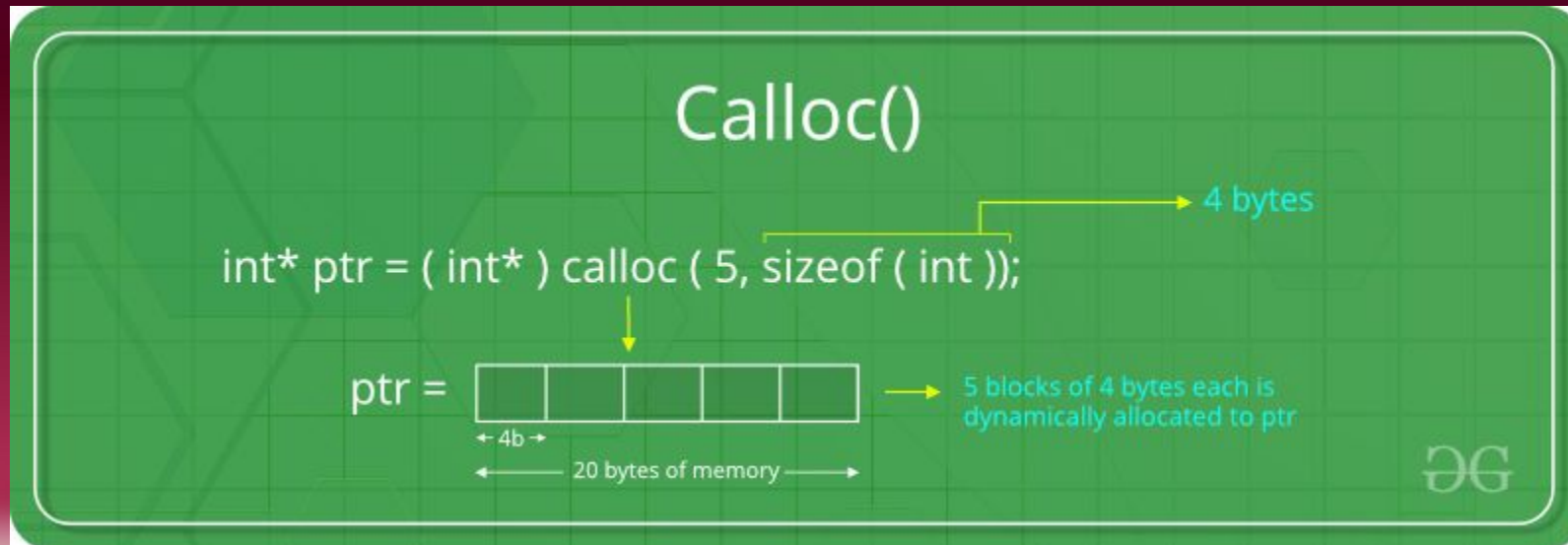
- You don't need to request specific memory addresses
- You don't need to worry about what memory is available and what is being used by other programs

# What are the tools?

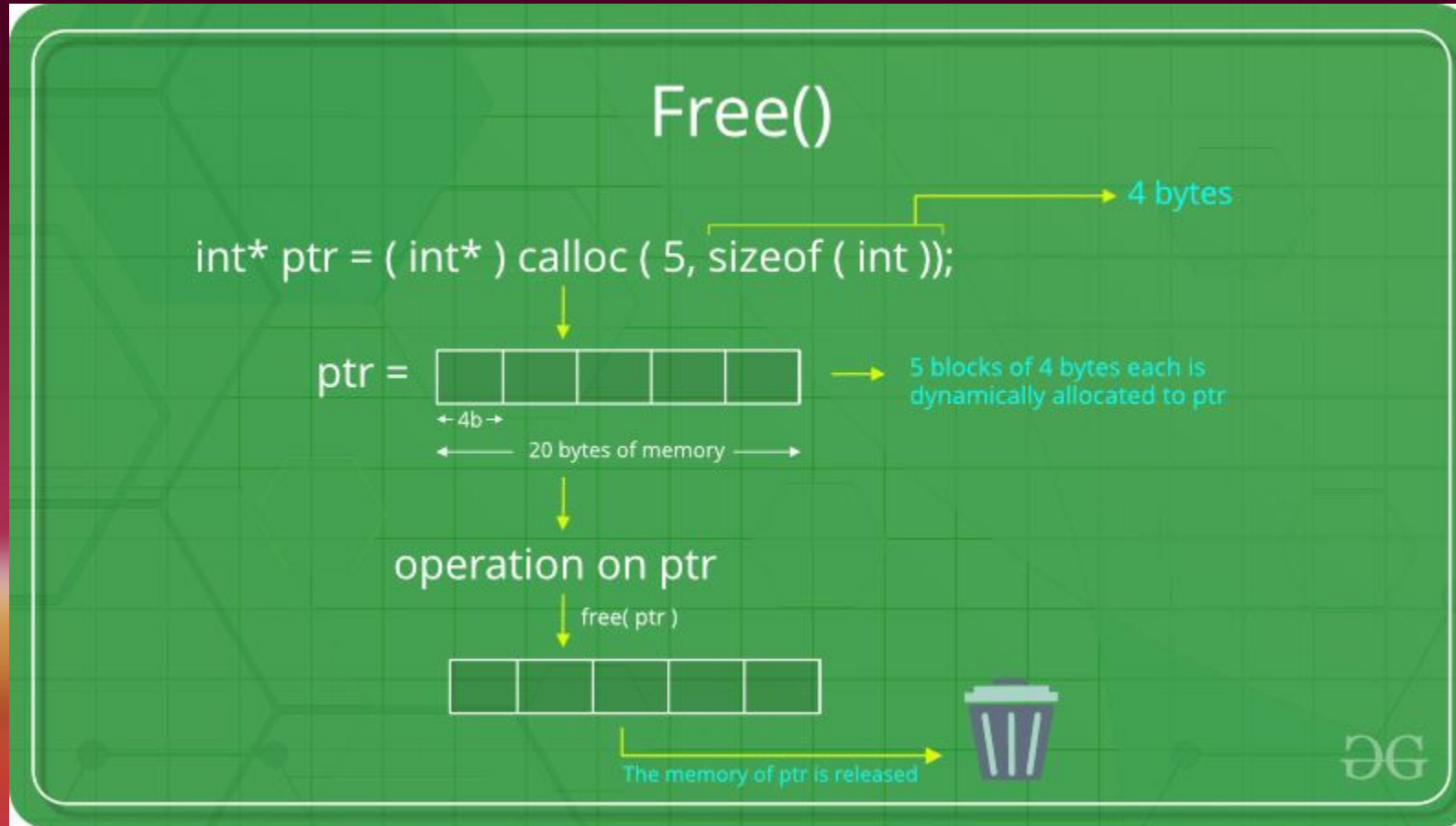
- *\* malloc(size\_t size)*: Given a size, allocates some memory and gives you the address to that memory
- *\* calloc(number of items, size of each item)*: Allocates space for many items of a given size, and sets the value of the memory to 0.
- *\* realloc(pointer, size)*: Resizes an already allocated memory block
- *free(pointer)*: Release memory back to the system



# An example



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