

# Implementation Issues

- How do we know how much memory to free given just a pointer?
- How do we keep track of the free blocks?  
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- What do we do with the extra space when allocating a structure that is smaller than the free block it is placed in?
- How do we pick a block to use for allocation -- many might fit?
- How do we reinsert freed block?

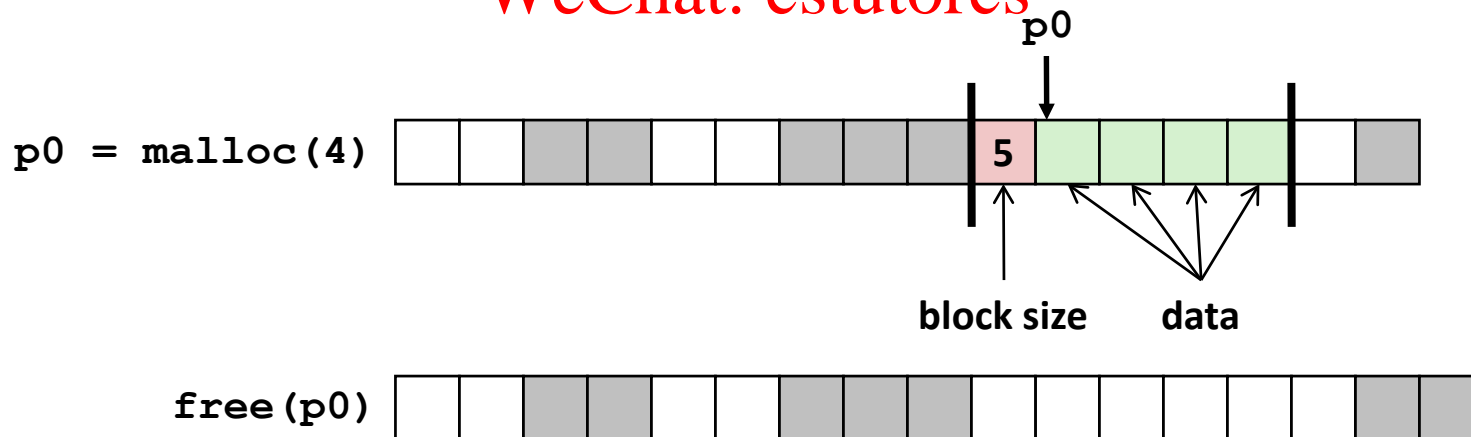
# Knowing How Much to Free

## ■ Standard method

- Keep the length of a block in the word preceding the block.
  - This word is often called the *header field* or *header*
- Requires an extra word for every allocated block

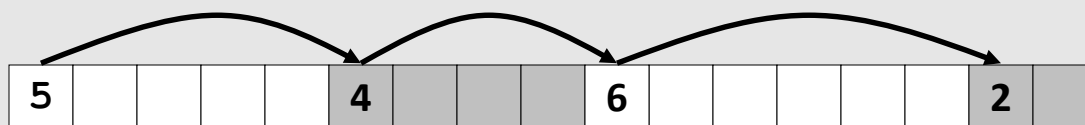


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# Keeping Track of Free Blocks

- Method 1: **Implicit list** using length—links all blocks



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- Method 2: **Explicit list** among the free blocks using pointers



- Method 3: **Segregated free list**

- Different free lists for different size classes

- Method 4: **Blocks sorted by size**

- Can use a balanced tree (e.g. Red-Black tree) with pointers within each free block, and the length used as a key