

# Heap Memory Allocator

## **What the memory allocator must do?**

- ➔ Track which parts of memory in use, which parts are free  
ideally no wasted space, no time overhead

## **What the memory allocator cannot do?**

- Control order of the number and size of requested blocks
- Know the number, size, & lifetime of future allocations

## **What makes a good memory allocator?**

- ➔ The one that avoid compaction (time consuming)
- ➔ The one that minimize fragmentation

# Tracking memory allocation with **bitmaps**

**Bitmap** : 1 bit per allocation unit

- 0 means free
- 1 means allocated

➔ Allocating a N-unit chunk requires scanning bitmap for sequence of N zero's

⦿ Slow

