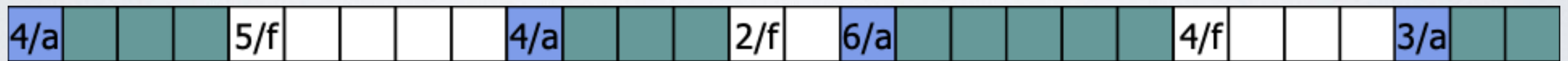# Tracking memory allocation with **lists**

Free lists

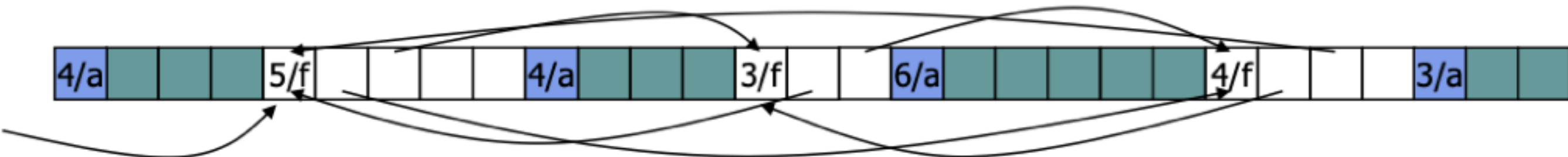Maintain linked list of allocated and free segments

Implicit list

- Each block has header that records size
  and status (allocated or free)

- Searching for free block is linear in total number of blocks

| 4/a | | | | | 5/f | | | | | 4/a | | | | 2/f | 6/a | | | | | | | 4/f | | | | 3/a | | |

Explicit list

Store pointers in free blocks to create doubly-linked list

| 4/a | | | | 5/f | | | | | 4/a | | | | 3/f | | 6/a | | | | | | | 4/f | | | | 3/a | | |

Freeing Blocks

➡ Adjacent free blocks can be coalesced (merged)


```
p = malloc(3);
. . .
free(p);
```