Dynamic Memory

`brk, sbrk`

- When a program is executed, the system allocates memory for storing the program's code and data.
- A large portion of the memory made available to a program is for dynamically allocated memory. This section of memory is known as the heap.
- The heap lies just above global and static data and below the stack, as well as the code for shared libraries. (See 09-machine-advanced.pdf, slide 3)
- The size of the heap is adjustable; the top end is known as the break.
- The break may be set by two system functions:

```
#include <unistd.h>
int brk(void *addr);
    Sets the break to the new addr
    return: 0 if OK, -1 on error
void *sbrk(intptr_t increment);
    Increases the break by increment.
    return: if OK, the address of the previous
     break; otherwise, -1 on error
```

- Even systems programmers rarely use **`brk`** or **`sbrk`**. Instead, programmers use a C library that manages the heap. Such a library is known as an allocator.