Week 03-2

CSC209 Fall 2023

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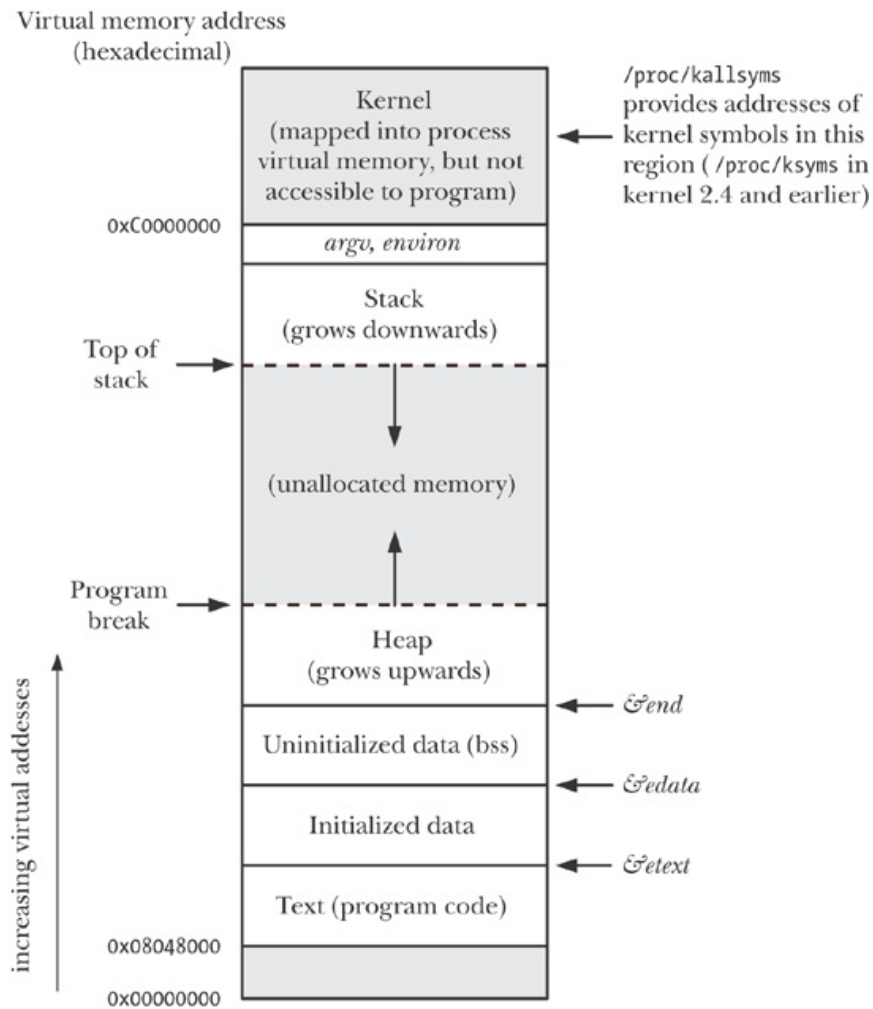
October 2, 2023

Announcements

- A1 is over
  - unless you have an extension
- Lab 3 is tomorrow
  - BA2200 will not have a TA
    * intentionally

Remembering

Visual Layout

Virtual memory address
(hexadecimal)

Kernel (mapped into process virtual memory, but not accessible to program)	/proc/kallsyms provides addresses of kernel symbols in this region (/proc/ksyms in kernel 2.4 and earlier)

0xC0000000

argv, environ

Stack
(grows downwards)

Top of stack →

(unallocated memory)

Program break →

Heap
(grows upwards)

← *&end*

Uninitialized data (bss)

← *&edata*

Initialized data

← *&etext*

Text (program code)

0x08048000

0x00000000

increasing virtual addesses

Kerrisk 2010 – Figure 6-1

We were focused on the heap

- `malloc`

  – exact number of bytes
  – returns a `void *`

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- `free`

  - de-allocates previously malloc'd

`stack_vs_heap.pdf`