struct practice + OS overview
HW due tonight!

Use code from last time
Remove the newline
Remember to terminate your strings
Announcements

• No class Friday (10/2)

• Midterm
  – Take-home, likely Thursday-Monday or Tuesday
  – Covering C: Basic features (loops, conditions, etc), pointers (e.g. mystery functions), strings (including terse functions), dynamic memory allocation, structs (e.g. linked lists)
Write some linked list code

and prepare for the lab...
History and OS overview
Computers in 4 generations
(Classification from Tanenbaum’s “Modern Operating Systems”)

• First: Early computers  (Pre 1955)
• Second: Transistors    (1955-1965)
• Third: Integrated circuits (1965-1980)
• Fourth: VLSI and PCs   (1980+)
1st generation (Pre 1955)

- Mechanical relays and vacuum tubes
- “Program” by making mechanical changes (e.g. switches and plugboards)
- Output by flashing lights
- Computer time scheduled beforehand
2\textsuperscript{nd} Generation (1955-1965)

- Enabled by transistors
- Beginning of commercial computers
- Program by punch cards
  - transferred to tape
- Printed output (from tape)
- Now need OS to load jobs
3rd generation (1965-1980)

- Integrated circuits
- Beginning of non-scientific (business) use
- Advent of multiprogramming
  - could load data for next program while finishing last one
  - led to terminals
4th generation (1980+)

- Introduction of personal computers
  - smaller, cheaper, more applications
- Initially simpler OSes, but gained high-end features
- Development of GUIs and user-friendliness
When did OSes first need to provide security features?

A. 1\textsuperscript{st} generation
B. 2\textsuperscript{nd} generation
C. 3\textsuperscript{rd} generation
D. 4\textsuperscript{th} generation
E. We don’t need that silly security stuff
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