Welcome to this class!

CSE 305: Computer Architecture

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August 30, 2015

Computer Science Fictions

- computer in automobiles
- cell phones
- human genome project
- world wide web
- search engines

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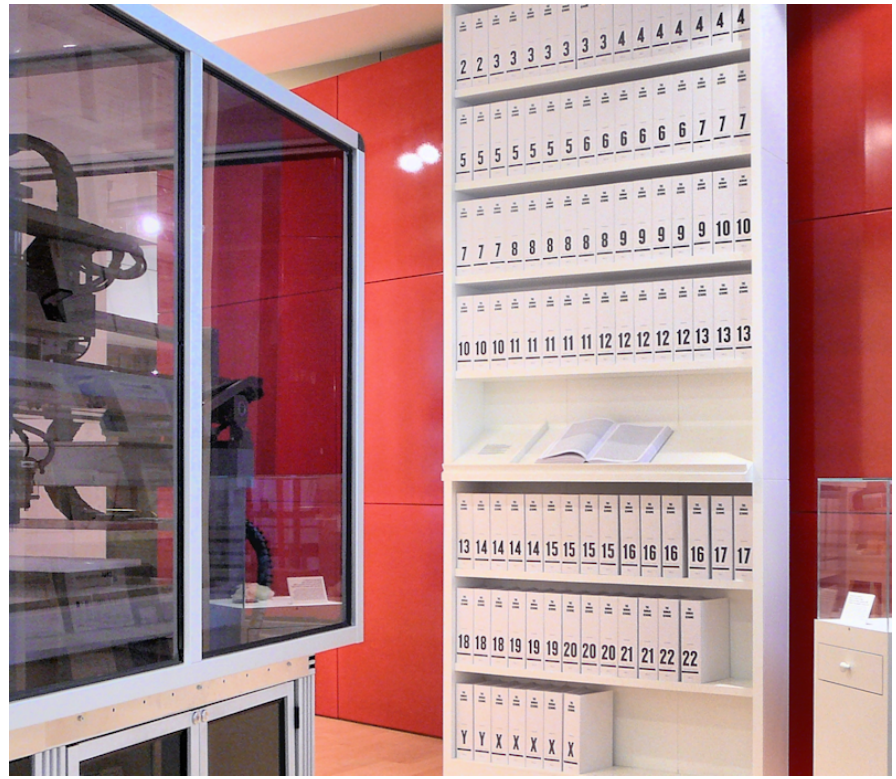

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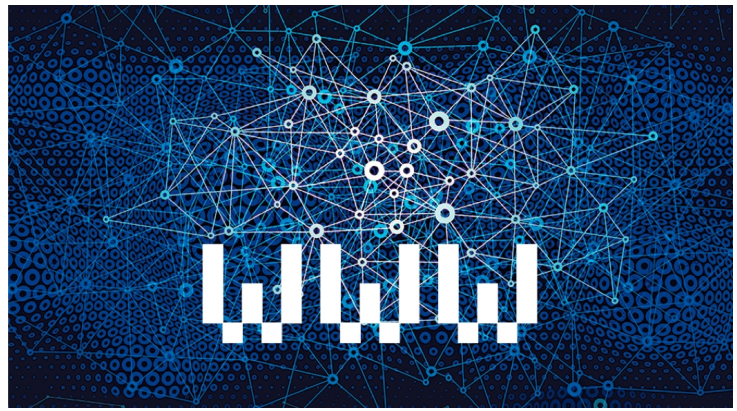

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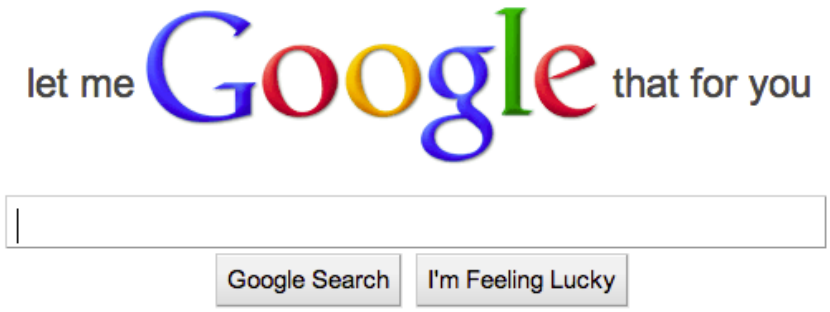

Classes of Computing Applications

- personal computers
- servers
- **embedded computers**

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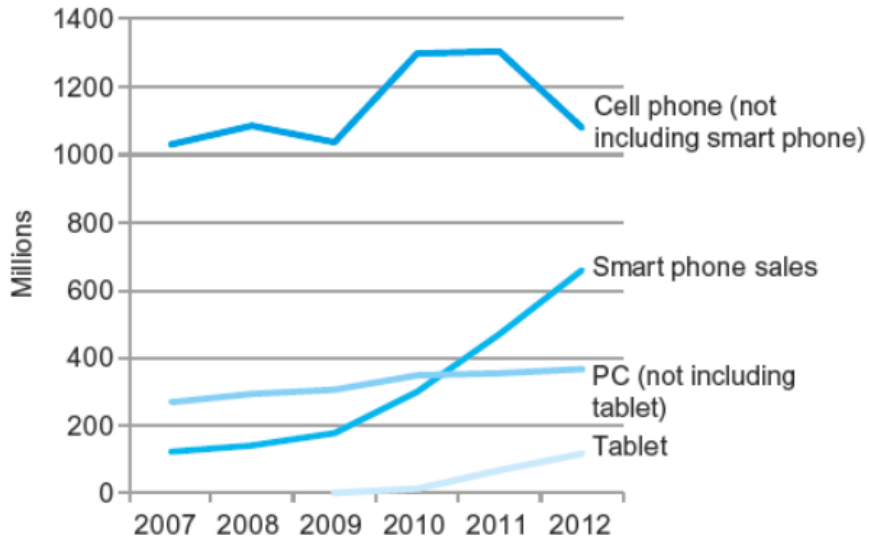
personal mobile device



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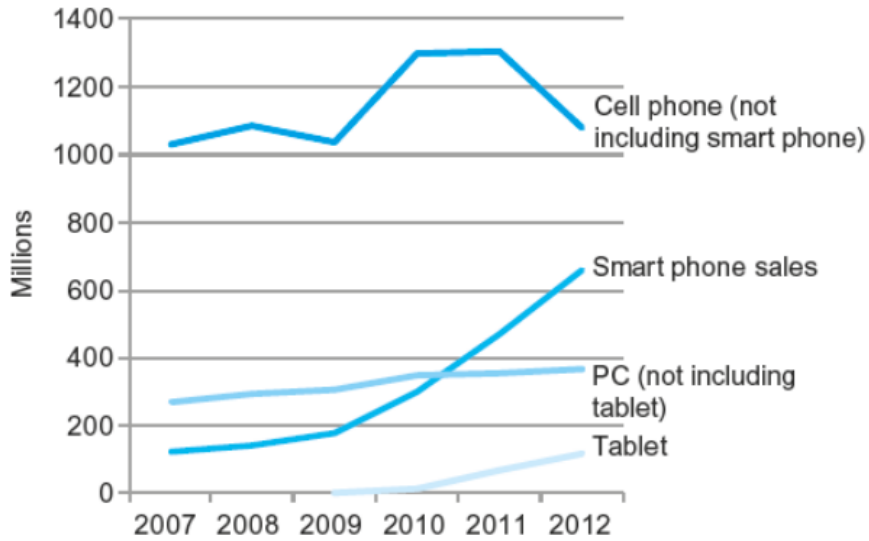
cloud computing



Why Care About Hardware?

- we are the coolest programmers
- why should we care about hardware?

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- we are the coolest programmers
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  - because our program's performance depends on it

Eight Great Ideas in Computer Architecture

1. **design for Moore's Law**
2. use abstraction to simplify design
3. make the common case faster
4. performance via parallelism
5. performance via pipelining
6. performance via prediction
7. hierarchy of memories
8. dependability via redundancy

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COMMON CASE FAST

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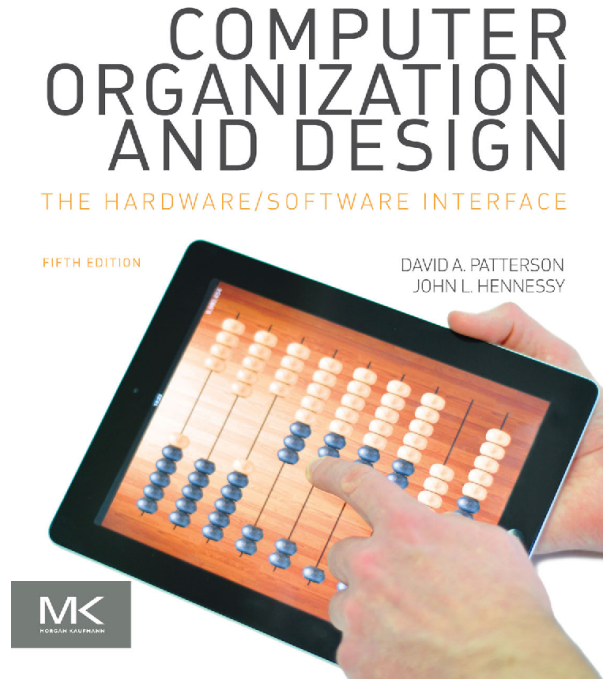
My Topics

- introduction to computer architecture
- measuring performance
- instructions
- arithmetic for computers
- datapath
- control unit design

Reference Books

- Computer Organization and Design: The Hardware/Software Interface, *Fifth Edition*
  - David A. Patterson
  - John L. Hennessy
- Computer Organization, *Fifth Edition*
  - Carl Hamacher
  - Zvonko Vranesic
  - Safwat Zaky



and other materials