15-213 Recitation 10 - 4/2/01

Outline

- Cacheing
  - Lab 4 Tips

Reminders

- HW 3 – Due 4/4, 11:59 PM
- Lab 4 – Due 4/11, 11:59 PM

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Cacheing

- One of the "big ideas" in Computer Science
- Store stuff that's going to be used again (or soon) closer to the processor
- Locality
  - Temporal Locality – Values recently used are used again (loops)
  - Spatial Locality – Values close to each other are used together (arrays, data structures, etc.)
- We will focus on hardware caches, although software caches are used as well

Hardware Caches

- Three types:
  - Direct Mapped – Values are hashed to specific places in the cache
  - Fully Associative – Values can go anywhere
  - Set Associative – Mix of the two. Values are hashed to sets, in which the value can go anywhere
- What difference does it make?
  - Performance

Lab 4 Tips

- You have one week
  - Start soon
- More theory than coding
  - Focus on algorithms first, then code
  - Think simple
  - There are two parts
    - Split the work between partners?