RECITATION 9: MALLOC

15-213 M12
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Midterm Exam

- Grades will be released this week
  - Viewable on Autolab
Malloc Lab

- Out now!
- Due next Tuesday
- Get started now
Malloc Lab: Getting Started

- Textbook website
  - [http://csapp.cs.cmu.edu/public/ics2/code/vm/malloc/mm.c](http://csapp.cs.cmu.edu/public/ics2/code/vm/malloc/mm.c)
  - Implicit List allocator
- K&R
Malloc Lab - Grading

• Correctness
  • Does it work?
  • Driver writes over memory and ensures it isn’t modified

• Throughput
  • How fast your code can perform allocations / frees
  • Linear time operations (e.g. searching an implicit list) are a big hit here

• (Peak) Utilization
  • How much memory is wasted or used for malloc’s data
  • Measured by how much `mem_sbrk()` is called
Malloc Lab – Grading

• 0 if incorrect / doesn’t compile
• 60-100 based on utilization / throughput
• 0 if <60 (so you can’t just hand in the textbook’s implementation)
• Getting >= 95 on this lab is very hard.
Malloc Lab – Hints

• Start with the textbook’s code and expand on it
• Make incremental optimizations
  • Explicit free list
  • Explicit free list w/ constant time coalescing
  • Segmented free list
• Use structures to view memory