CSC207.01 2013F, Class 35: Implementing Queues with Arrays

Overview

- Preliminaries
  - Admin.
  - Questions on HW 8.
- Ideas from last class.
- Lab.

Prelim

Admin

- Tomorrow’s reading is not yet ready.
  (I also have essentially no free time between now and 9:30 pm tonight.) I may just lecture on it tomorrow and give you a short lab.
- SHACS tells me that "there have been many students who have been seen or reported having the stomach flu which include the following symptoms: Fever, Nausea, Vomiting, Diarrhea, Headaches, Fatigue, Body Aches".
  - If you have these symptoms, "It is important to get plenty of rest and notify your faculty that you will not be attending classes until you are 24 hours without a fever."
  - If you have these symptoms and cannot manage them, go to SHACS.
  - If you need extra time on the homework because of the stomach flu, let me know.
- I brought food-like substances!
- Lea tells me that the infrastructure for the project won’t be ready for prime time. (Thank you Lea, Spencer, and Daniel for lots of hard work on that infrastructure!) So ... I’m declaring the project a failure for the semester. I’ll be working on a new schedule for the course.
- We will visit the roundtable on the digital commons at 10 a.m. on Tuesday, 19 November.
- No mentor session Wednesday!
- Upcoming extra credit opportunities:
  - One Grinnell Prize Event this week
  - Learning from Alumni, Thursday: Shitanshu Aggarwal ’11
  - CS Extra, Thursday: Internships (I think)
  - Town Hall, Wednesday, November 13, noon or 7:30 p.m.
  - Digital Commons talk Monday, November 19, 7:00 p.m. or so
- You may also want to visit the NASA talks today and tomorrow (no EC).
HW 8

_Why can’t I write?_

T[] vals = new T[size];

    Short answer: Java has design issues.

    Medium answer: Lots of subtleties in Java’s parameterized classes. More precisely, it can’t know at
compile time what T is, which makes it hard to generate the code to build the array.

    Hack answer:

@SuppressWarnings("unchecked")
void myproc() {
    T[] vals = (T[]) new Object[size];
} // myproc()

_Can I merge in place in O(n) time?_

    No. Well, maybe, but it’s not worth the time to figure it out.

_Does iterative mergesort have to run in O(nlogn) time?_

    Yes, your implementation does.

Ideas from last class

- Look at ReportingLinearStructure
- Two important ideas:
  - Sometimes you delegate work to another class ("the Delegation Pattern")
  - Sometimes you add facilities by having methods wrap another method (and a whole class of
    doing so wraps another class)
- When else have you seen delegation?
  - SorterBridge did something similar: Each method called another method (although implicitly in
    a subclass)
  - AlphabeticComparator boolean compare(String s1, String s2) { return s1.compareTo(s2); }

Lab

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