CompSci 6
Introduction to Computer Science

Dec 6, 2011

Prof. Rodger

CSED Week, Dec 4-10
Make the pledge – csedweek.org

Dec 7, 6:15pm, LSRC D106

Computer science is changing our world and our lives. New medicines are enabled by computational biology and chemistry; flu trends can be predicated by geolocating search queries; cardiac defibrillators are made more safe using state-of-the-art software safety; cybersecurity can be used offensively and defensively; social networks transform our lives. Computer Science is a rich intellectual discipline that drives innovation and fuels job growth throughout the world.

Computer science education provides a platform for students in every discipline to think critically and computationally about the problems that interest them.

Join us Wednesday, December 7 at 6.15pm in D106 to find out more about the new computer science major, learn about CS@Duke, and hear from current majors and faculty. Pizza will be provided, and the men's basketball game against CSU will be streaming live starting at 7pm.

RSVP at bit.ly/cssignup
or by following the QR code.

cutting edge research

growing job market

hands-on, interdisciplinary learning

community service and outreach

Join us in celebrating CS Education week, December 4-10, 2011

Announcements

- No Reading for next time
- No Reading quiz
- What's due?
  - Assignment 7 due today, Dec 6, late by Dec 8
  - Apt-06 due Thursday, Dec 8, late by Dec 10
  - Cannot turn in anything late after Dec 10
- Assignments are being graded! Really!

Insertion Sort

- Maintain a sublist of sorted elements.
- For each item one at a time, insert it into the sorted sublist.

- N elements total
- How long does insertion sort take?

Insertion Sort

- 11 8 3 17 22 12 9 5

InsertionSort vs SelectionSort

- How do these compare?

Bubblesort

- N passes over the list
  - With each pass compare adjacent pairs and swap if out of order.
  - Can examine one less element with each pass
  - “bubble up” the next largest element in sorted order.

Bubble Sort

- 11 8 3 17 22 12 9 5

Mergesort

- Start with small lists of size 1 each
- Merge 2 lists of size 1 into list of size 2
- Merge 2 lists of size 2 into list of size 4
- Merge 2 lists of size 4 into lists of size 8
- Etc.

Mergesort

- 11 8 3 17 22 12 9 5

Compare the sorts

- Compare with sizes of data, what happens with each sort as the size of the input doubles?
- Compare with different types of data
  - Random data
  - Reverse order
  - Almost sorted