CompSci 6
Introduction to Computer Science

Dec 6, 2011

Prof. Rodger
CSED Week, Dec 4-10

Make the pledge – csedweek.org

Computer Science Education Week (CSEdWeek) – December 4-10, 2011 – is a call to action to share information and offer activities that will advocate for computing and elevate computer science education for students at all levels. Everyone can participate!

You too can pledge your support and participation or to host an event!

LEARN MORE
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/asssignup or by following the QR code.
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