

CompSci 6

Introduction to Computer Science

Dec 6, 2011

Prof. Rodger

CSED Week, Dec 4-10

Make the pledge – csedweek.org



The screenshot shows the CSED Week website. On the left, there is a large blue and red banner for "CSEd WEEK" with the dates "December 4 - 10, 2011". Below this is a section titled "SEE CUSTOMIZED MATERIAL" with a dropdown menu labeled "I am a... (Choose one)". To the right of the banner is a red ribbon graphic that says "PLEDGE for CSEdWeek" and shows a counter "2 4 6 0" with the text "PEOPLE HAVE PLEDGED" and a yellow button that says "SIGN THE PLEDGE". At the top right, there are navigation tabs for "ABOUT", "NEWSROOM", "PARTNERS", and "RESOURCES". Below these is a section titled "View CSEdWeek Events" which features a calendar icon and a list of events, including "Computer Science Fair at Between Avenida Barbosa and Ave. Ponce de León on 12/06/11" with a link "Find an event near you". On the far right, there are social media sharing options for Facebook (Like) and Twitter (Share). At the bottom right, there is a photograph of four diverse students (three young men and one young woman) smiling and looking at a computer screen.

CSEd WEEK
December 4 - 10, 2011

SEE CUSTOMIZED MATERIAL
I am a... (Choose one) ▼

PLEDGE for CSEdWeek
2 4 6 0
PEOPLE HAVE PLEDGED
[SIGN THE PLEDGE ▶](#)

[ABOUT](#) [NEWSROOM](#) [PARTNERS](#) [RESOURCES](#)

[View CSEdWeek Events](#)

 Computer Science Fair at Between Avenida Barbosa and Ave. Ponce de León on 12/06/11
[Find an event near you ▶](#)

[Spread the Word](#)
[f Like](#)
[Share to Twitter](#)

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/cssianup
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