CompSci 6
Introduction to Computer Science

August 30, 2011
Prof. Rodger

Announcements

• Get the book, no reading yet.
• Lab 1 starts Sept 1
• Bring laptop to class/lab
• Before lab try to install Java, Eclipse and Python, and two plug-ins PyDev & Ambient
  – See Resources page
  – If you have trouble, just download the files for onto your laptop before coming to lab and we will help you in lab with the installation

Introduction

• Professor Rodger

What is Computer Science?

• Computer science is no more about computers than astronomy is about telescopes. - Edsger Dijkstra

• Computer science is not as old as physics; it lags by a couple hundred years. However this does not mean that there is significantly less on the computer scientist’s plate than on the physicist’s: younger it may be, but it has had a far more intense upbringing! - Richard Feynman
Computer Science is a young discipline

- First computer science department formed in 1962

Scientists and Engineers

- Scientists build to learn, engineers learn to build. - Fred Brooks

- Duke alum
- Chair of UNC’s Computer Science Department
- Turing Award Winner

Computer Science and Programming

- Computer Science is more than programming
  - Called Informatics in many countries
  - Elements of both science and engineering
  - Elements of math, physics, cognitive science, music, art, and many other fields

- To some programming is an art, to others a science, to others an engineering discipline.

What Is Computer Science?

- What is it that distinguishes it from the separate subjects with which it is related? What is the linking thread which gathers these disparate branches into a single discipline? My answer to these questions is simple --- *it is the art of programming a computer*. It is the art of designing efficient and elegant methods of getting a computer to solve problems, theoretical or practical, small or large, simple or complex.
C.A.R. (Tony) Hoare

- Turing Award Winner
- Knighted by Queen Elizabeth

What is Computer Science?

- Artificial Intelligence
  - Roomba
  - Spirit, Mars Rover

What is Computer Science?

- Animation

What is Computer Science?

- The Organization of Data, and Searching
  - Google
  - Facebook
  - eBay
  - Amazon
What is Computer Science?

- Medicine, Genomics

Why is Programming Fun?

- What delights may its practitioner expect as a reward
  - First is the sheer joy of making things.
  - Second is the pleasure of making things that are useful.
  - Third is the fascination of fashioning complex puzzle-like objects of interlocking moving parts.
  - Fourth is the joy of always learning.
  - Finally, there is the delight of working in such a tractable medium. The programmer, like the poet, works only slightly removed from pure thoughtstuff.

  Fred Brooks
What will we learn in CompSci 6?

- Algorithms – solving problems
  - Organizing data to search
- Programming language Python
  - www.python.org
  - 1991, Guido von Rossum

Classwork 1: Word Cloud

- Number of occurrences/emphasis indicated by size of word
- Let’s create a word cloud from the survey
- Discuss how to make a word cloud