CompSci 101
Introduction to Computer Science

January 8, 2015
Prof. Rodger

Announcements

• See assigned reading on course web page
  – Reading Quiz 1 (RQ1) online on Sakai
  – due by 10am Tues, Jan 13.
• Labs start next week!
• Install course software
  – Try to install before going to lab
  – Can get help (see course web pages)
  – If you get frustrated, get help!
• Today: Introduce Computer Science

Who are the people in this course?

• Check out survey

What is Computer Science?
bit.ly/101S15-0108-01
Who are all these people?

bit.ly/101S15-0108-02

“In fifteen years we’ll be teaching programming just like reading and writing…and wondering why we didn’t do it sooner.”

— Mark Zuckerberg

“Computer science belongs in every public school, right next to biology, chemistry, or algebra.”

— Ashton Kutcher

“I always did something I was a little not ready to do. I think that’s how you grow.”

— Marissa Mayer, CEO, Yahoo!
“When you think about the future… I think it’s very important to be able to learn the language of coding and programming.”

— Chris Bosh

“From phones to cars to medicine, technology touches every part of our lives. If you can create technology, you can change the world.”

— Susan Wojcicki, CEO, YouTube

“Don’t just play on your phone, program it.”

— President Barack Obama

Those quotes are all from Code.org
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

What is Computer Science?

• Artificial Intelligence

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

Roomba

Spirit, Mars Rover

CMU’s Sandstorm
What is Computer Science?

- Animation

- The Organization of Data, and Searching

- Medicine, Genomics

- Devices
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

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What do Computer Scientists look like?

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Computer Science Duke Alums

Go over Course Syllabus - Who is Prof. Rodger?

www.cs.duke.edu/courses/spring15/compsci101

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What language will we learn?

- [http://www.python.org/](http://www.python.org/)
- Python is a *multi-paradigm* language
  - Procedural
  - Functional
  - Object-Oriented
- Simple, huge libraries, widely used
- Guido is BDFL

Why is it called Python?

Why is it called Python?

A  

B

Monty Python's Personal Best

C

9.8 m/sec²

What are these logos?

bit.ly/101S15-0108-03

Python code

```python
...  
Created on Jan 7, 2015
@author: Susan
...
```

print "hello world"
Python code

```python
def main():
    filename = "romeo.txt"
    fileToProcess = open(filename)

    count = 0
    for line in fileToProcess:
        words = line.strip().split()
        for word in words:
            if len(word) == 4:
                count = count + 1
        print "count is", count

if __name__ == "__main__":
    main()
```