COMP 141

CS1: Programming Fundamentals
January 13, 2016

What is Computer Science?

What do you hope to learn in this class?

What is Computing?

Computing: Your Parent’s View

- Computing: internet, e-mail, network...
- Computing: Digital Photography
- Computing: Entertainment...

Cutting Edge Computer Science

Google’s Autonomous Car

2011 Jeopardy!

- In February 2011, Google released its first self-driving car. (apparent at show)
- Many people have been talking about the dangers of autonomous cars.
- Google is currently applying its current technology to medical diagnostics and legal research.
What is Computer Science?

Computer science is the study of solving problems using computation.
- Computers are part of it, but the emphasis is on the problem solving aspect.

A computer scientist is a problem-solver.

Computer Scientists work across disciplines

<table>
<thead>
<tr>
<th>Mathematics</th>
<th>Geoscience</th>
<th>Medicine/Surgery</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biology (bioinformatics)</td>
<td>Archeology</td>
<td>Engineering</td>
</tr>
<tr>
<td>Chemistry</td>
<td>Psychology</td>
<td>Linguistics</td>
</tr>
<tr>
<td>Physics</td>
<td>Sociology</td>
<td>Art</td>
</tr>
<tr>
<td>Geology</td>
<td>Cognitive Science</td>
<td></td>
</tr>
</tbody>
</table>

Areas in Computer Science

- Artificial Intelligence
- Robotics
- Human-Computer Interaction
- Computer Graphics
- Computer Vision
- Operating Systems
- Computer Networking
- Databases
- Computer Security
- Ubiquitous Computing

Why Study Computer Science?

- 1,000,000 more jobs than students by 2020
- 1.4 million computing jobs
- $500 billion opportunity
- Computer science is a top paying college degree and computer programming jobs are growing at 2X the national average.

http://code.org/promote

Computing is Consistently Ranked Among the Best Occupations

CS-Related Jobs Highlighted in Red

http://code.org/promote

- Job satisfaction
- Salary
- Work/life balance
- Growth potential
- Employment rate
- Work environment
Why Study CS at Rhodes?

“Everyone should learn how to program a computer, because it teaches you how to think. I view computer science as a liberal art, something everyone should learn to do.” - Steve Jobs

- Liberal arts background is great!
- Employers want to see:
  - Communication skills (written & verbal)
  - Strong work ethic
  - Teamwork skills (works well with others)
  - Initiative
  - Interpersonal skills (relates well to others)
  - Problem-solving skills

Things to Remember

1. Computers are dumb!
2. Computers only do what you tell them to do.
3. Computer do what you tell them to do really fast, so they appear smart (but they are not).
4. Computer don’t remember anything unless you tell them how to remember.
5. Computers take your instructions literally. If you tell them to do something dumb, they do it.
6. A computer only does what it is told and in exactly the order you tell it.

Syllabus

- [http://cs.rhodes.edu/welshc/COMP141_S16/syllabus.pdf](http://cs.rhodes.edu/welshc/COMP141_S16/syllabus.pdf)

Fun Activity

- Go to Start -> All Programs -> Computer Science-Math Programs -> Python 3.4.
- Open Python (command line)
- Type the following (use the exact capitalization as shown):
  >>> import turtle
  >>> turtle
  >>> sven = turtle.Turtle()
  >>> sven.forward(100)
  >>> sven.right(90)
  >>> sven.forward(50)
  >>>
- Try other commands
  - forward, backward, right, left
  - sven.color('blue')
  - sven.pensize(3)
Homework 0

• Tell me about yourself.
  – Fill out the “Getting to Know You” worksheet
• Make sure you’ve added this class to your course list on Moodle.
• Due Friday, 1/15 in class