

CompSci 101

Introduction to Computer Science



Sept 1, 2016

Prof. Rodger

Announcements

- Reading for next time on calendar page
 - RQ 2 due Thursday
- Assignment 1 due Tuesday
 - Have fun with Blockly
- Install your environment! Get Help!
- Lab 1 this week!
- Plan for Today:
 - Problem Solving and Python

Software Failure

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Error

An unexpected error has occurred.

Send a bug report

To send a bug report, describe what you were doing when the problem occurred, in the space below, and press the submit button.

Submit Report

Recovery

To recover from this error without sending in a bug report, please do the following:

- Press the Logout button above to logout.
- Close your browser to assure a clean start.
- Re-open your browser and start again.

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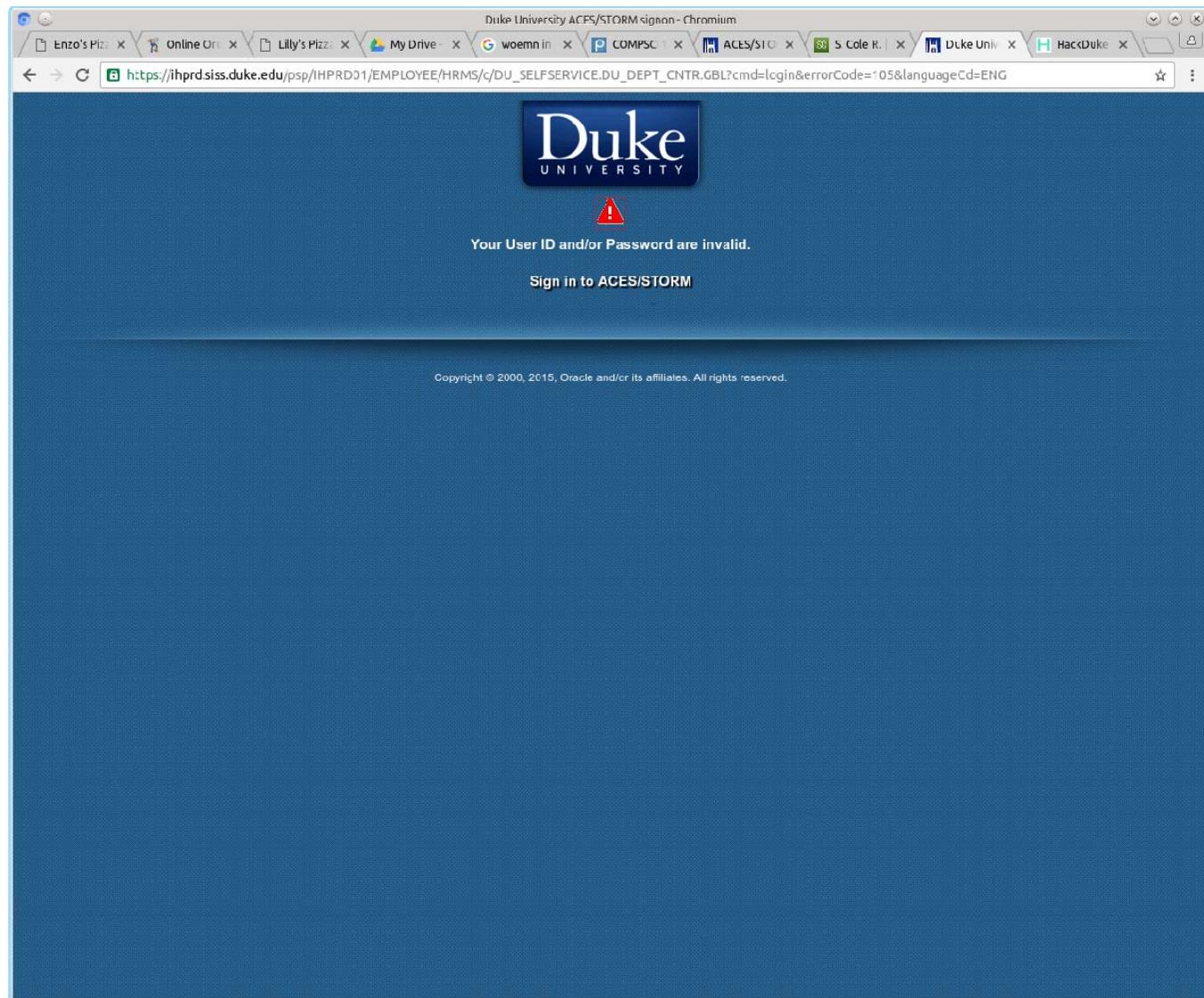
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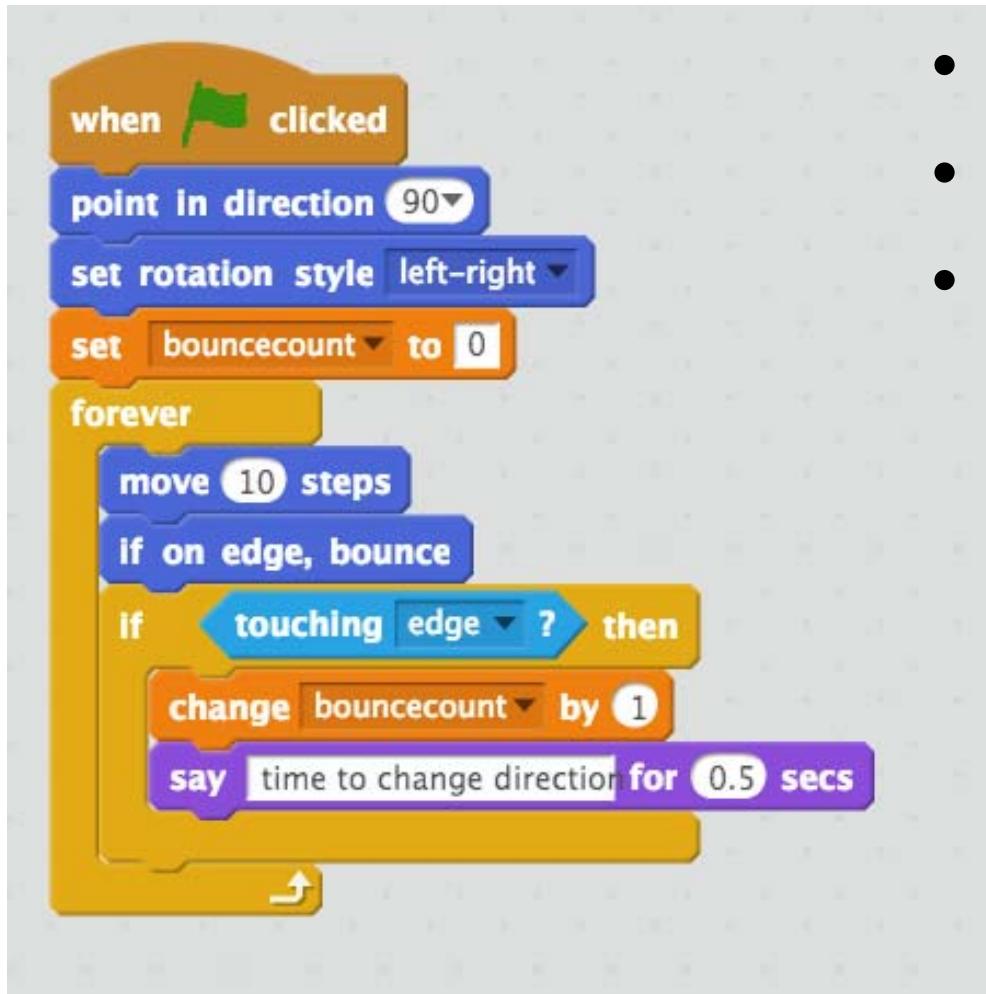
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Review Scratch program



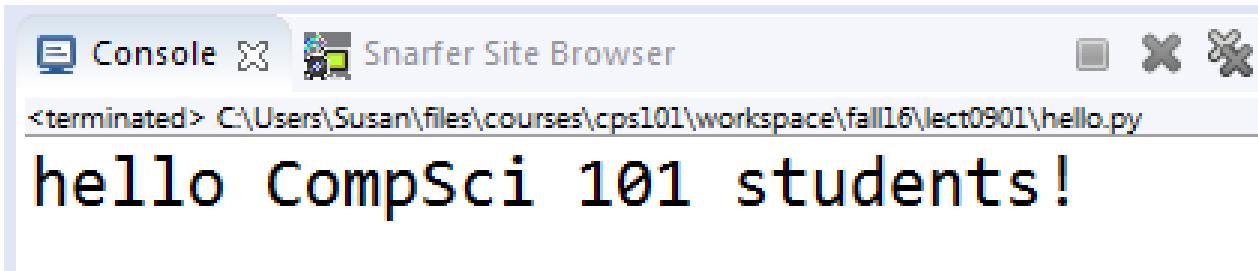
- "Hello World"
- Scratch Program
- Colors
 - Duke blue: motion
 - Mustard: control
 - Light blue: sensing
 - Orange: data
 - Purple: looks

Python code: hello.py

```
1  """
2 Created on Aug 31, 2016
3
4 @author: Susan
5 """
6 print "hello CompSci 101 students!"
```

Run hello.py

```
1  """
2 Created on Aug 31, 2016
3
4 @author: Susan
5 """
6 print "hello CompSci 101 students!"
```



A screenshot of a terminal window. The window title is 'Console' and the tab bar includes 'Snarfer Site Browser'. The command line shows the path: '<terminated> C:\Users\Susan\files\courses\cps101\workspace\fall16\lect0901\hello.py'. The output of the script, 'hello CompSci 101 students!', is displayed in the terminal window.

Python data reading code

```
f = open("kjv10.txt")
st = f.read()
total = len(st)
zc = st.count('z')
print "total # chars = ", total
print "number of z's", zc
for ch in 'aeiou':
    print ch, st.count(ch)
```

Woa!!!

Am I suppose to understand
all that code right now!!!!

No!!!

We will learn all that over
The next month!

Explaining Python code?

<http://bit.ly/101f16-0901-1>

Duke Connection: Fred Brooks

'53

- What Would FB Say?

"The most important single decision I ever made was to change the IBM 360 series from a 6-bit byte to an 8-bit byte, thereby enabling the use of lowercase letters. That change propagated everywhere."

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Why is programming fun?

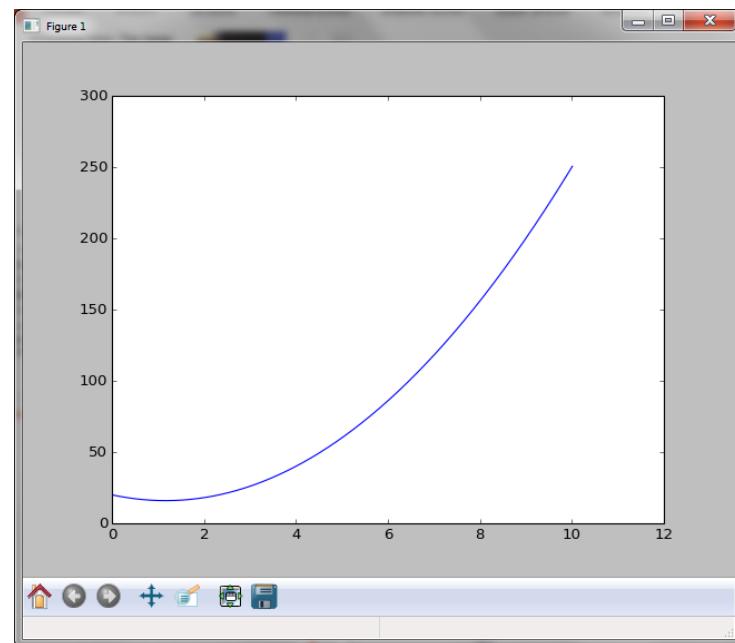
Fred Brooks

- 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 thought-stuff.



Lab 1 This Week

- Install Before attending if can
- Modify Python program
- Scratch program



Our Programming Environment

- Install 5 items

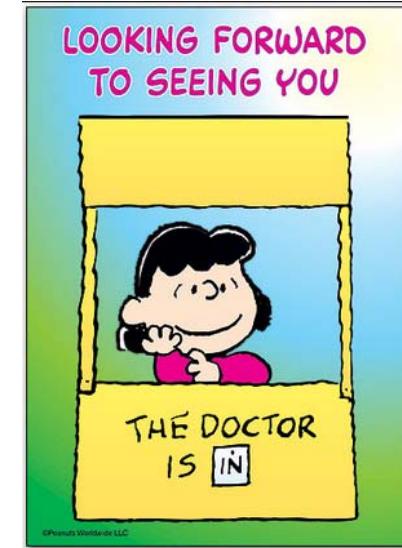


- Why Java? – not using
- Eclipse – platform for development
- Python – programming language
 - Pydev – Python IDE for Eclipse
- Canopy – python libraries
- Ambient – turnin/snarf files to/from Duke



How does one get help in CompSci 101?

- Consulting hours
 - Sunday-Thursday 7:30-11:30pm
- Office hours (prof, TAs)
- Collaborate with other students
- Piazza
 - Ask questions
 - Do not post your code and ask what is wrong!
 - Post error message and line of code for error message
 - If added class late, may need to add yourself



How to succeed in CompSci 101

- Start assignments early, they'll take longer than you think
- Read the book, we'll build on it in class
- Collaborate well, but be sure you can do work on your own!
- Be curious, work hard at beginning, think carefully

Your goal is to ...

- Get all assignments completed and turned in on time.

AND...

Your goal is to ...

- Get all assignments completed and turned in on time.

AND...

- Understand the code you turn in.
- Be able to explain the code you turn in.

Algorithm

- Recipe
- Sequence of steps that constitute instructions
- Step-by-step procedure for calculations

What does Nate Silver do?

<http://53eig.ht/1tZy909>



How do Netflix and Amazon know me?

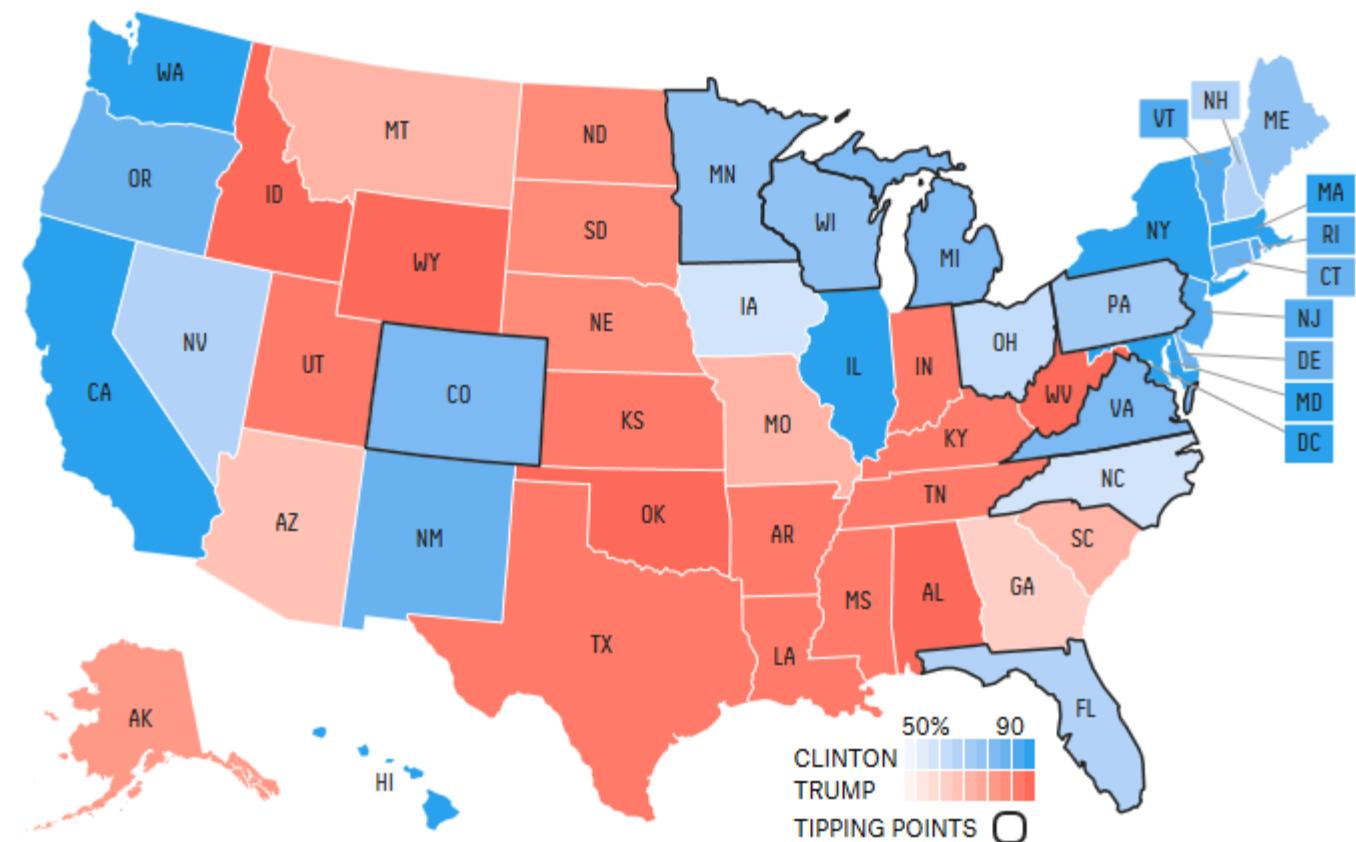
- CompSci101 project: capable of implementation as a program, but much more basic

<http://moreintelligentlife.com/content/features/anonymous/slaves-algorithm>

Who will win the presidency?



Chance of winning



Google “algorithm”

Google algorithm 

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Simple diagnostic algorithm to assess pulmonary embolism risk can ...
News-Medical.net - 22 hours ago
Now, new findings presented at ESC Congress 2016, suggest a simple diagnostic algorithm can be used to rule out PE in a significant number ...

 **AI Algorithm chooses most attractive selfies from 6000 submissions**
Daily Mail - Aug 30, 2016
AI beauty contest used five **algorithms** to evaluate youthfulness, face symmetry, skin and other parameters, and then compare them to models ...

 **New Algorithm Manages Bitcoin Price Volatility for Everyday Users**
Bitcoin Magazine - Aug 29, 2016
The newly launched **algorithm** for Bitcoin trading, TWAP (Time Weighted Average Price), could save both money and headaches for people ...
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Live Bitcoin News - Aug 30, 2016
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Wall Street Journal - 11 hours ago
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