

[illegible]

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

Sakai: COMPSCL101L.001.F16 : Tests & Quizzes - Mozilla Firefox

File Edit View History Bookmarks Tools Help

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https://sakai.duke.edu/portal/site/36458594-ece1-4384-b091-494913705119/tool/9f796b2

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LINK ? HELP

### 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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LINK ? HELP

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Tests & Quizzes

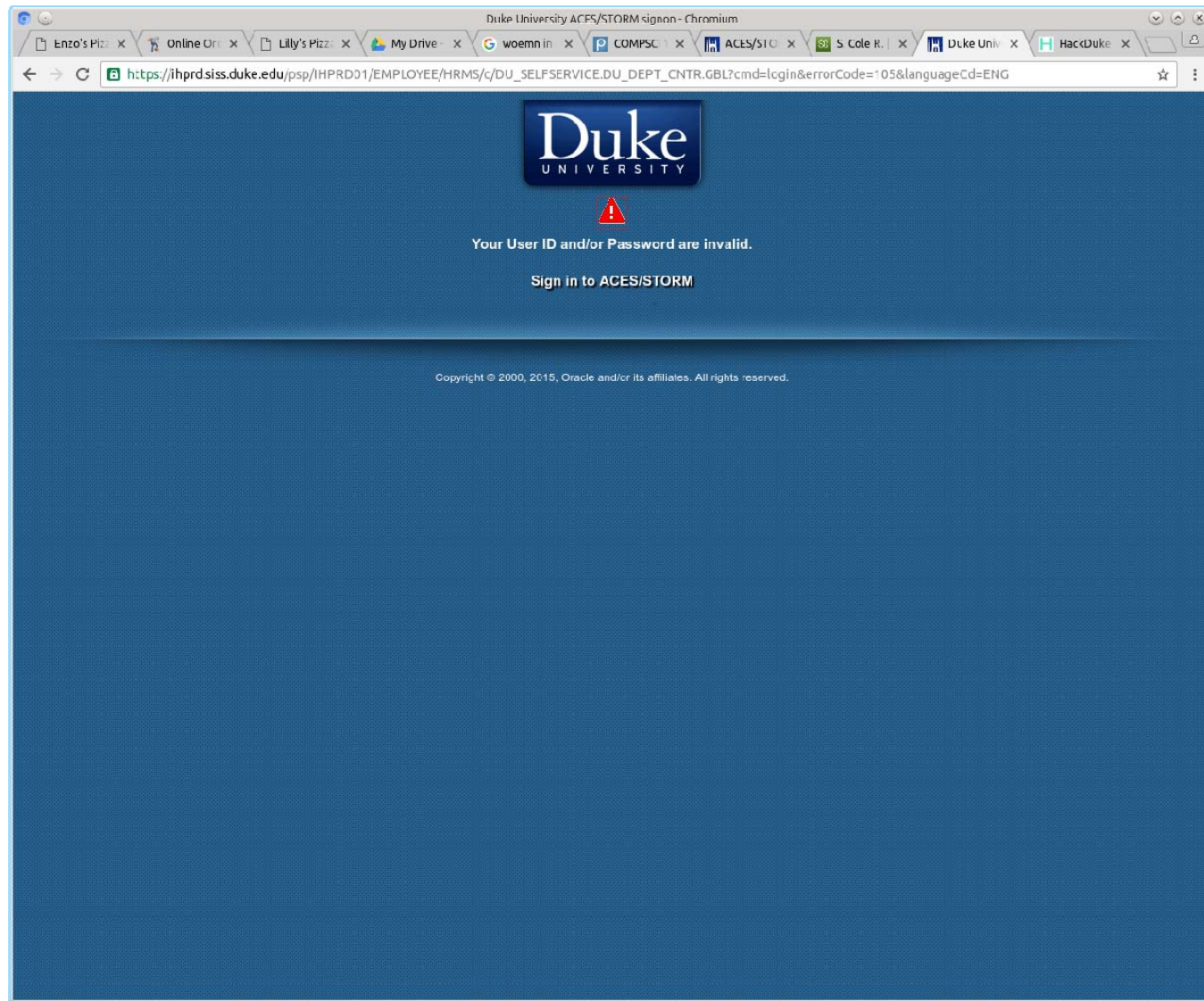
Gradebook

Statistics

Site Info

Help

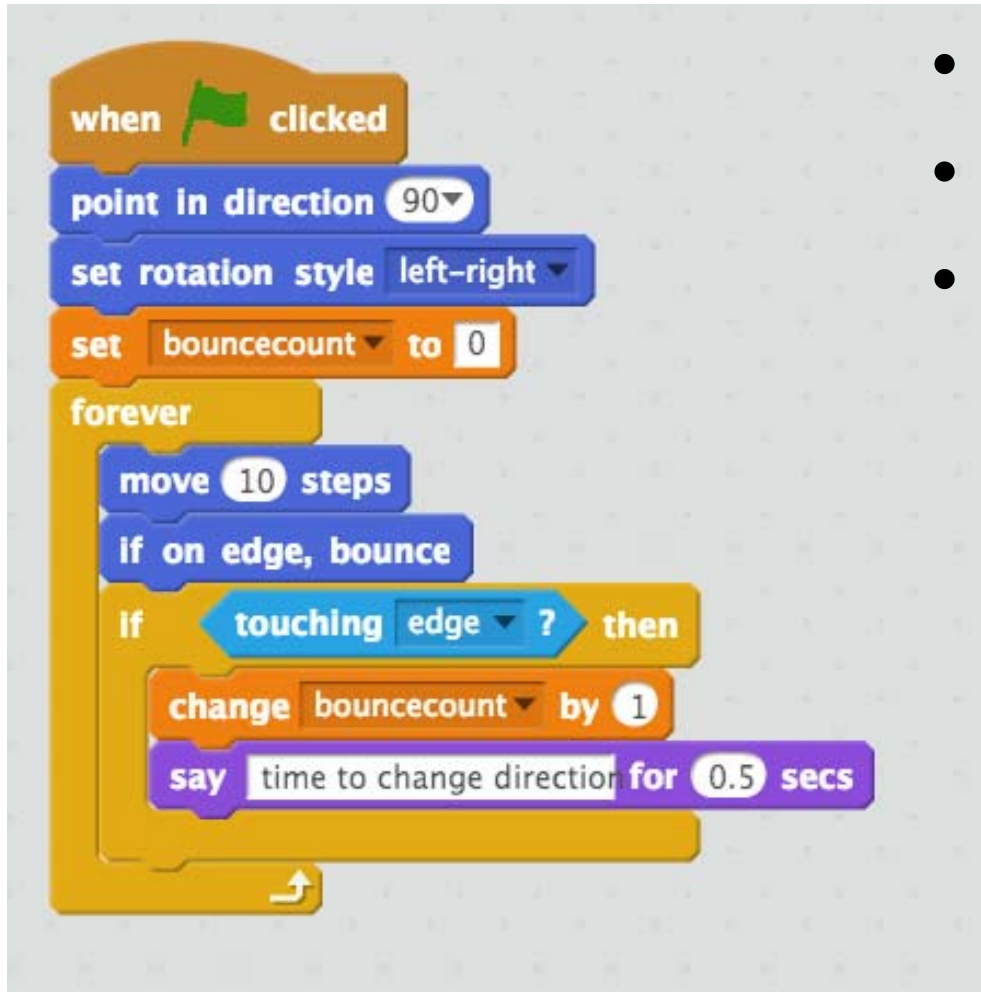
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# Review Scratch program



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

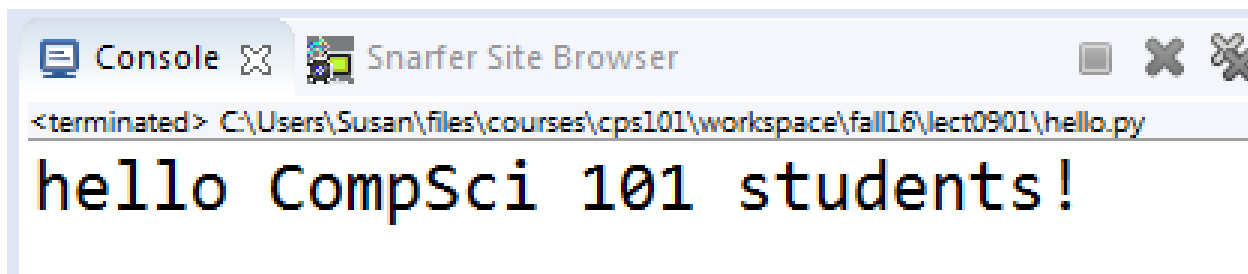


# Python code: hello.py

```
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!"
```



The screenshot shows a console window titled "Console" with a "Snarfer Site Browser" icon. The command prompt shows the execution of a Python script: `<terminated> C:\Users\Susan\files\courses\cps101\workspace\fall16\lect0901\hello.py`. The output of the script is displayed as `hello CompSci 101 students!`.

# Python data reading code

```
f = open("kjbv10.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?

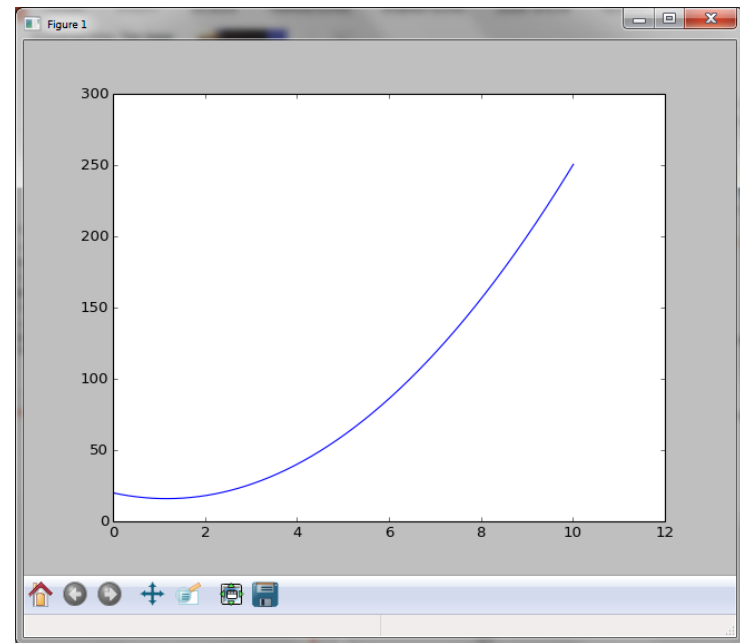
Fred Brooks

- 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



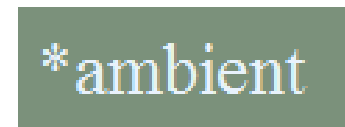
- Python – programming language
  - Pydev – Python IDE for Eclipse



- Canopy – python libraries

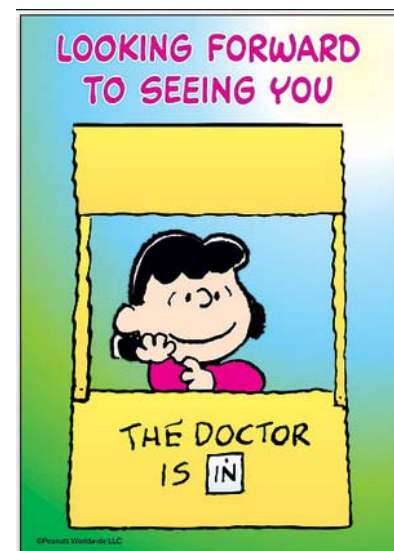


- Ambient – turnin/snarf files to/from Duke



# 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

# Who will win the presidency?



## Chance of winning

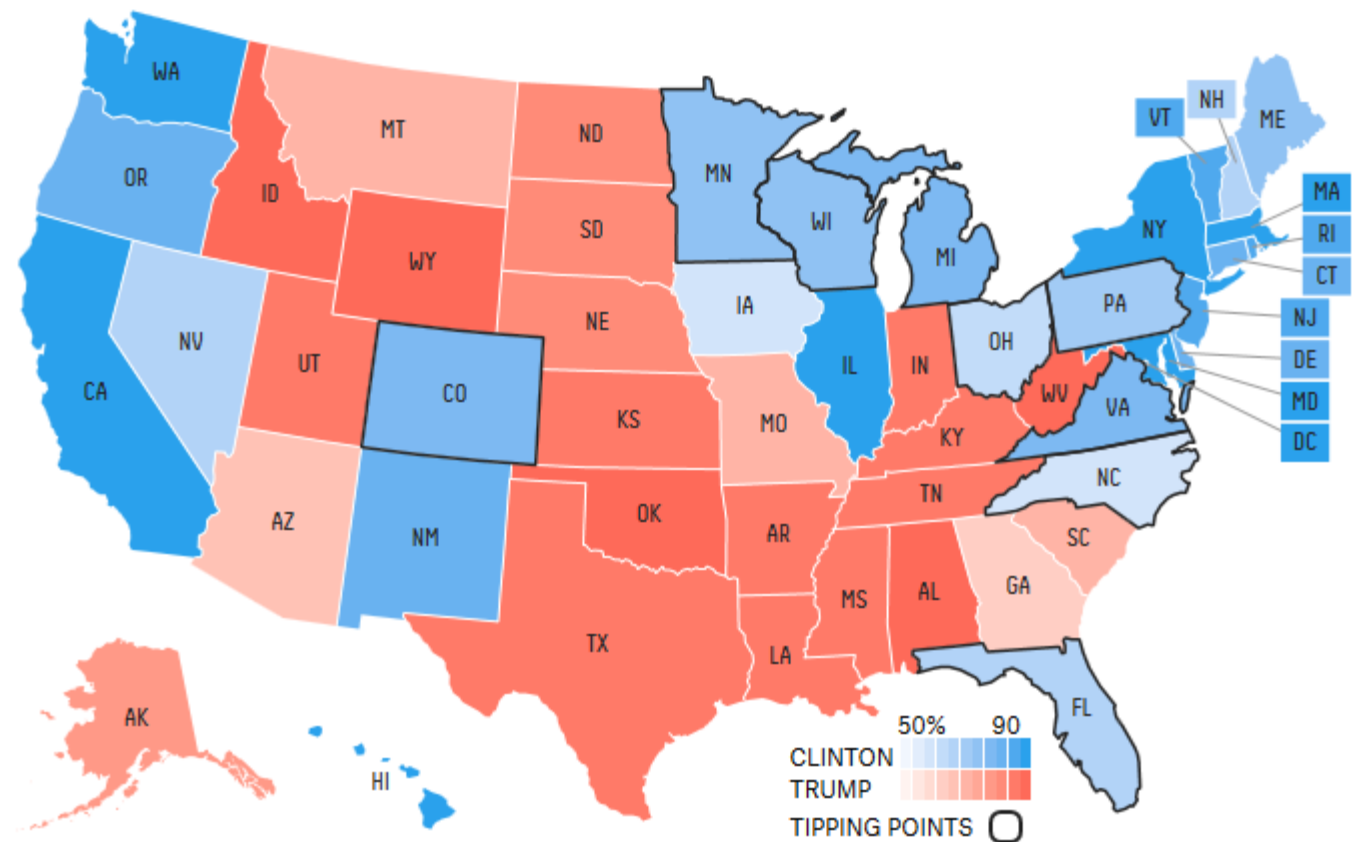


Hillary Clinton

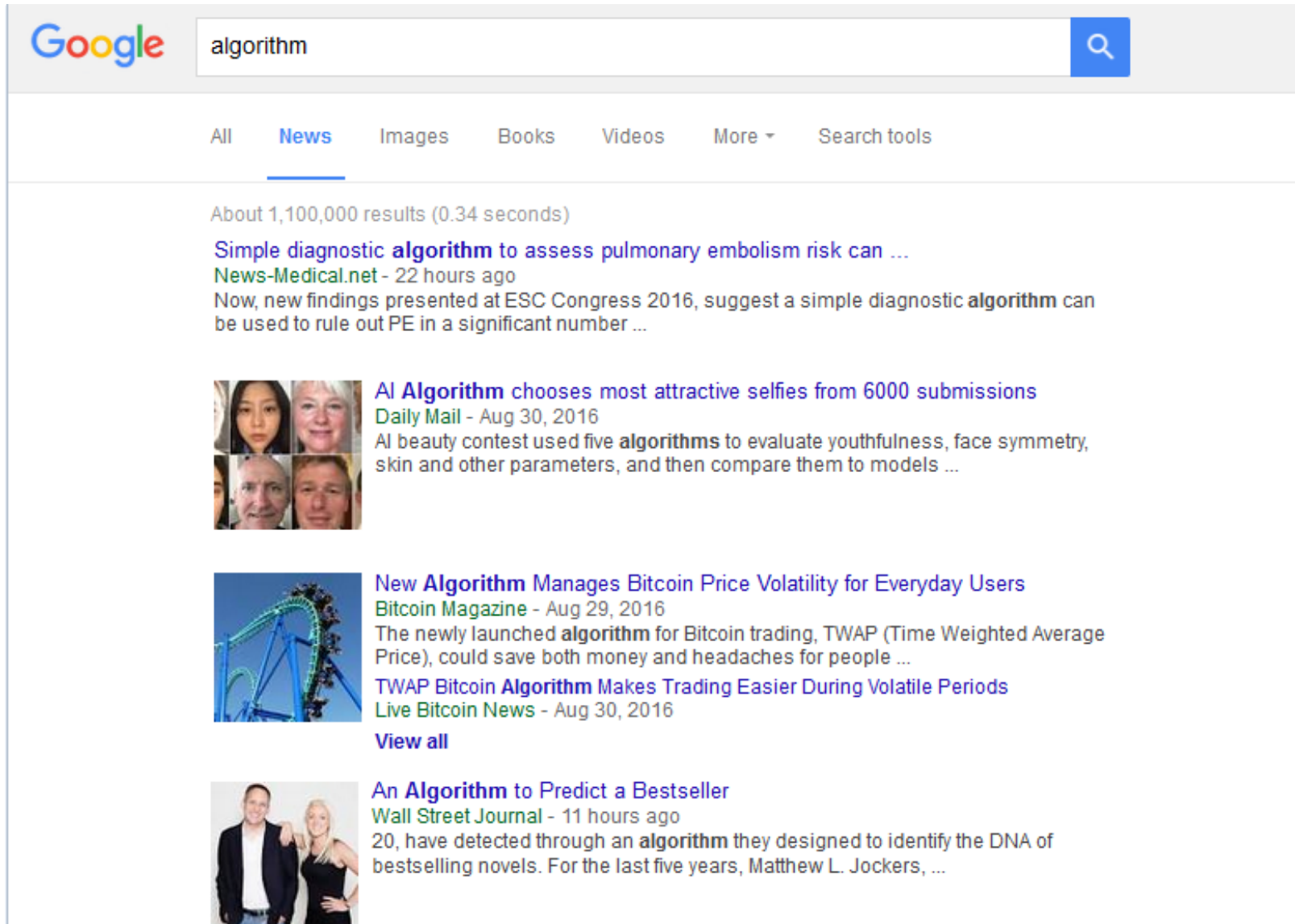
**73.8%**

Donald Trump

**26.1%**



# Google “algorithm”



The image is a screenshot of a Google search results page for the query "algorithm". The Google logo is in the top left, and the search bar contains the word "algorithm" with a magnifying glass icon to its right. Below the search bar, navigation tabs include "All", "News" (which is selected and underlined), "Images", "Books", "Videos", "More", and "Search tools". The search results indicate "About 1,100,000 results (0.34 seconds)".

The first result is titled "Simple diagnostic **algorithm** to assess pulmonary embolism risk can ..." from "News-Medical.net" dated "22 hours ago". The snippet reads: "Now, new findings presented at ESC Congress 2016, suggest a simple diagnostic **algorithm** can be used to rule out PE in a significant number ...".

The second result features a 2x2 grid of four selfie images of people. The title is "AI **Algorithm** chooses most attractive selfies from 6000 submissions" from "Daily Mail" dated "Aug 30, 2016". The snippet states: "AI beauty contest used five **algorithms** to evaluate youthfulness, face symmetry, skin and other parameters, and then compare them to models ...".

The third result includes an image of a roller coaster. The title is "New **Algorithm** Manages Bitcoin Price Volatility for Everyday Users" from "Bitcoin Magazine" dated "Aug 29, 2016". The snippet says: "The newly launched **algorithm** for Bitcoin trading, TWAP (Time Weighted Average Price), could save both money and headaches for people ...". Below this is a sub-headline "TWAP Bitcoin **Algorithm** Makes Trading Easier During Volatile Periods" from "Live Bitcoin News" dated "Aug 30, 2016", followed by a "View all" link.

The fourth result shows a photo of a man and a woman. The title is "An **Algorithm** to Predict a Bestseller" from "Wall Street Journal" dated "11 hours ago". The snippet mentions: "20, have detected through an **algorithm** they designed to identify the DNA of bestselling novels. For the last five years, Matthew L. Jockers, ...".