Announcements

- Reading and RQ5 due next time
- Assignment 2 due Tuesday
- APT 1 is due today, APT 2 out today
- Catch up Schedule on main web page

Today –
- Solving problems – 7 Step process
- Decisions - if, Boolean

Assignment 2

- Questions?

Submitting Assignment 2

- Use Ambient/eclipse
  - Check if submitted with Submit History – files submitted should be listed!
  - Alternative submit – use websubmit – on assign tab
  - What time is it due? Tuesday 11:59pm
  - If you can’t submit on your computer, copy your file to another computer (Link?) and submit with websubmit on that computer
Why is this person so important to this course?

Names, Types and Values

- bit.ly/101s17-0126-1

Review Functions


```python
def duplicate(word, num):
    answer = word * num
    return answer

def duplicate2(word, num):
    answer = word * num
    print answer

def duplicate3(word, num):
    answer = word * num

1. print duplicate("Go", 3)
2. print duplicate2("Go", 5)
3. print duplicate3("Go", 2)
4. duplicate("Go", 5)
5. duplicate2("Go", 4)
6. duplicate3("Go", 2)
```

How many ways can I run Python in this course?

- Eclipse
  - Complete program
  - Interactive Console
  - APT
- Online textbook
  - We are using Python 2.7
  
  ‘/’ (2.7) vs ‘//' (3)
- Python Tutor
Use Python Tutor

• Debug/trace your code
• Doesn’t work with input files

Grace Murray Hopper (1906-1992)

• “third programmer on world's first large-scale digital computer”
  – US Navy: Admiral
  “It’s better to show that something can be done and apologize for not asking permission, than to try to persuade the powers that be at the beginning”

https://www.youtube.com/watch?v=1-vcErOPofQ

❖ ACM Hopper award given for contributions before 35
2010: Craig Gentry: http://www.youtube.com/watch?v=qe-zmHoPW30
2011: Luis von Ahn
2013: Pedro Felzenszwab
2014: Sylvia Ratnasamy
2015: Brent Waters

APT Pancake:

• How do you solve this problem?
  – First steps: are there simple cases that can be solved immediately?
    • What are these for the pancake problem?
  – Sometimes it helps to know if you are on track, should you use Python to check your paper and pencil work?
• Get specific, solve for 5, not N
  – Fix one parameter, vary the other
  – Identify the cases and continue

Solve an APT - Pancakes
bit.ly/101s17-0126-3
Problem Solving to Code

7 Step Process

1. Work small examples by hand
2. Write down what you did in words (algorithm)
3. Find Patterns (generalize algorithm)
4. Work another example by hand (does your algorithm work? If not, go back to 2)
5. Translate to code
6. Test several cases
7. Debug failed test cases

How to solve problems with different cases?

• Keep score in a video game?
  – Different points for different tasks?
• Translate a book from English to Spanish?
  – Different words, different rules
• Identify proteins in strands of DNA?
  – Start codon: atg Stop Codon: tag
• Different cases with Pancake APT?

• In Python use: if, else, elif