CompSci 101
Introduction to Computer Science

Nov 14, 2017

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Announcements

• Exam 2 Thursday
• Reading and RQ start after Thanksgiving Break
• APT 7 due tonight
• No Lab this week!
• No Consulting hours Thursday night
• Yes we have class on Tuesday, Nov 21!

• Today:
  – Reviewing for the exam

Exam logistics

• Only need a pen or pencil
• No scratch paper
• See the reference sheet of Python information you will get with the test (see resources page)
• Closed book, closed notes, closed neighbor
• Covers lecture, lab and assigned reading
• Have put old RQ quizzes back up as quiz review
  – This is NOT for a grade, for studying only

Understand old and new topics

• Old topics: if, for, while, lists, strings
• list comprehension, enumerate
• Files – write code - Will give you a file already opened and ready for reading
• Sets, Dictionaries – write code – create and use
• Understand items on Python review sheet on resources page
• HAVE NOT COVERED TOPICS – regular expressions or recursion
The best way to study

- Write code on paper!
- Resources page has old tests and solutions  
  - Try writing code, then look at solutions
- Rewrite an APT
- Rewrite code we did in lecture
- Rewrite code we did in classwork or lab

Looping by index or by element

- Strings and lists: use either  
  - `range(len(x))` for index, can get element  
  - `enumerate(somelist)`
- Sets and Dictionaries: element only  
  - Loop over `d` or `d.keys()` for dictionary  
  - The keys are a set, so similar to set loop
- Which is best when choice? It depends!  
  - Can you get element from index?  
  - Can you get index from element?

Questions

bit.ly/101f17-1114-1

Unpacking a list comprehension

```
[f(x) for x in foo if condition with x]
[w for w in words if w.endswith('e')]
[(w,words.count(w)) for w in set(words)]
```

- Always possible to use a loop

```
build = []
for x in foo:
    if condition with x:
        build.append(f(x))

build = []
for w in set(words):
    build.append((w,words.count(w)))
```
Set Concepts

- Set union, intersection, difference
  - s.intersection(t) is the same as s&t
  - s.union(t) is the same as s|t
  - s.difference(t) is the same as s-t

- Sets aren't in order during iteration
  - Convert to list, create from list
  - Sets are really, really efficient for add/search

Dictionaries

- Build a dictionary
  - Counting dictionary
    - string to number
  - Grouping dictionary
    - string to list of items related

- Use a dictionary
  - Get values
  - Get keys
  - Get key,value pair

Questions
bit.ly/101f17-1114-2

Now go over Test Practice problems