

CompSci 101

Introduction to Computer Science

Nov 14, 2017

*Review
for
exam*

Prof. Rodger

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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

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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

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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

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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

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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

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Questions
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Now go over Test Practice
problems

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