CompSci 6 Introduction to Computer Science



September 27, 2011

Prof. Rodger

CompSci 6 Fall 2011

• Take advantage of patterns, make a new list based on per element calculations of another list

List Comprehension review

• Format:

[<expression with variable> for <variable> in <old list>]

• Format with filtering:

[<expression with variable> for <variable> in <old list> if <filter with variable>]

Announcements

- No Reading for next time
- No Reading Quiz for next time
- Apt-02 due tonight, Assignment 3 due Thursday
- Exam next Tuesday
- Work the practice exam before Thursday's class. Will go over next class.

CompSci 6 Fall 2011

2

List Comprehensions from last time

[j+1 for j in range(20) if j%3==0]

CompSci 6 Fall 2011

4

List Comprehensions from last time

List Comprehensions from last time

[j+1 for j in range(20) if
$$j\%3==0$$
]

[0, 1, 2, ... 19]

[1, 2, 3, ..., 20] this is $j+1$

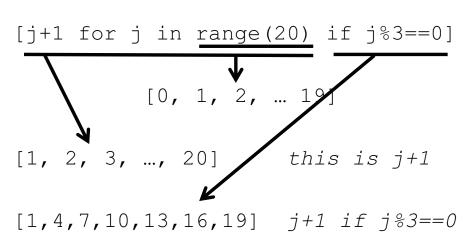
CompSci 6 Fall 2011

5

CompSci 6 Fall 2011

List Comprehensions from last time

List Comprehensions from last time



CompSci 6 Fall 2011

7

CompSci 6 Fall 2011

8

List Comprehensions from last time

[i*2 for i in [
$$j+1$$
 for j in range(20) if $j%3==0$] if i*i > 19]

$$[i*2 \text{ for i in } [1,4,7,10,...,19] \text{ if } i*i > 19]$$

CompSci 6 Fall 2011

List Comprehension examples

- List comprehension creates a new list. Use wherever you need a new list.
- Can use list comprehension to create a list to return
- From Uppity.py words is list of words def uppify list(words): return [w.upper() for w in words]
- Classwork problem 1
- Show additional examples

List Comprehensions from last time

Problem: complete program

- Problem:
- Given a file of words, for each line print out only those words that are longer than 4, thus removing all the "short" words.

Example:

11

Where are all the wild things? becomes

Where things?

CompSci 6 Fall 2011

CompSci 6 Fall 2011

12

10

Tasks in solving this problem

- First understand the code given
- Then fill in missing code (TODO)
 - In Eclipse, "Window", "Show view", "Tasks"
- Test it with data file you create
 - May need to create data folder
- Where is the fence post problem?
- Debugging what do you do when it doesn't work?

CompSci 6 Fall 2011

13

Fence post problem

• How many posts, how many supports between all those posts?



• Build fence:

```
for post in posts:
    fence = fence + post + supports
```

Passing Functions as Parameters

```
def upperWord(word):
    return word.upper()
def argWord(word):
    return word + "arg"
def transformWord(func, word):
    return func(word)
```

print transformWord(upperWord, "train")
print transformWord(argWord, "truck")

Assignment 3 Transform

- Look over assignment
- What parts are similar to what we just did?
- Passing functions as parameters
- What are the imports?
- Has file browser for you import InputGUI as Input
- To input from Console change line to: import InputConsole as Input

CompSci 6 Fall 2011 15 CompSci 6 Fall 2011 16