CompSci 6
Introduction to Computer Science

September 22, 2011

Prof. Rodger

Announcements

- Read for next time Chap. 12
- Reading Quiz on Blackboard
  - Due before class next time
- Assignment 3 out today
- Lab 4
  - More on making decisions, using parameters

Creating a list

- Given a list of numbers, create a second list of every number squared.

```
nums = [8, 3, 5, 4, 1]
sqnums = []
for v in nums:
    sqnums.append(v*v)
print sqnums
```

[64, 9, 25, 16, 1]

List Comprehension

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

- Format:

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

- Example:

```
nums = [8, 3, 5, 4, 1]
sqnums =  [v*v  for v in nums]
```

Examples of List Comprehensions

```
[v for v in nums]
[2 for v in nums]
[v*2 for v in nums]
```

Creating a list with just the even numbers

```
nums = [8, 3, 5, 4, 1]
evennums = []
for v in nums:
    if v % 2 == 0:
        evennums.append(v)
print evennums
```

[8, 4]

List Comprehension with Filtering

- Create list and use “if” to filter out elements to the list
- Format:
- [<expression with variable> for <variable> in <old list> if <filter with variable>]

- Example:

```
nums = [8, 3, 5, 4, 1]
evennums =  [v for v in nums if v%2==0]
```

More on List Comprehensions

- Do examples of list comprehensions

- Problem:
- Given a list of strings, return the longest string. If there are more than one of that length, return the first such one.
- [‘kiwi’, ‘plum’,‘orange’, ‘lemon’, ‘banana’]