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.

```python
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:

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

- Example:

  ```python
  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

ums = [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']