Announcements

• Reading and RQ 11 due next time
• APT 4 is due on Tuesday

• Today:
  – A different way to process elements
  • List comprehension
  – Coming – more ways to process data
  – Exam 1 back
  – Rodger extra office hours today 3-5:30pm

Giving Back Exam 1…

on Gradescope

• Solutions posted – regrades til Oct 21.
  – Ask for regrade on gradescope
• Try working problem you missed first
  – Then look at solution

• Once you think you understand
  – Get blank sheet of paper – try again
• Understand all solutions

Exam 1 scores
Exam 1 scores

} Wow

} Yes

} ok

Get a tutor - Understand when you get help

Alice programming language
alice.org, Alice version 2.4

Nested Loop
Problem:
Find the first duplicate adjacent words in a phrase

• “Did I make make a mistake in in this?”

• Convert to list
• Answer is 2, (start counting at 0)
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
```

```python
[64, 9, 25, 16, 1]
```

More on List operations

- Previous page
  - nameOfList “dot” function (parameter)
    ```python
    sqnums.append(v*v)
    ```

- See list operations on next page
- Mutator vs hybrid vs return
  - Mutator changes the list (no return value)
  - Hybrid changes list and returns value
  - Return – returns value, no change to list
Problem

• Remove all negative numbers from list
  \([4, -2, 5, 6, -3] \rightarrow [4, 5, 6]\)

• Two ways
  1) return a new list with all negative numbers removed
  2) Modify a list to remove negative numbers

```python
def removeNegatives(numberlist):
    answer = []
    for num in numberlist:
        if num >= 0:
            answer.append(num)
    return answer

somenums = [3, -1, 8, -5, -2, 6, 7]
onegs = removeNegatives(somenums)
```

```python
def removeNegatives2(numberlist):
    for x in range(len(numberlist)):
        value = numberlist[x]
        if value < 0:
            numberlist.pop(x)

somenums = [3, -1, 8, -5, -2, 6, 7]
removeNegatives2(somenums)
```
```python
def removeNegatives3(numberlist):
    pos = 0;
    while (True):
        if pos >= len(numberlist):
            break
        value = numberlist[pos]
        if value < 0:
            numberlist.pop(pos)
        pos = pos + 1

somenums = [3, -1, 8, -5, -2, 6, 7]
removeNegatives3(somenums)
```