CompSci 101
Introduction to Computer Science

September 11, 2014

Prof. Rodger

National September 11 Memorial

DO NOT SIT IN THE LAST FOUR ROWS! (sec 01) THREE ROWS! (sec 02)

Come forward and sit beside someone you haven't met

Announcements

- Read for next time on the calendar page
  - RQ will be available soon
- Assignment 2 due today
  - Assignment 3 is out and due Sept 18
- APT Problem set 2 is due Tuesday, Sept 16
- New way to test APTs – via the web
  - Slower, but if can't snarf, do it this way

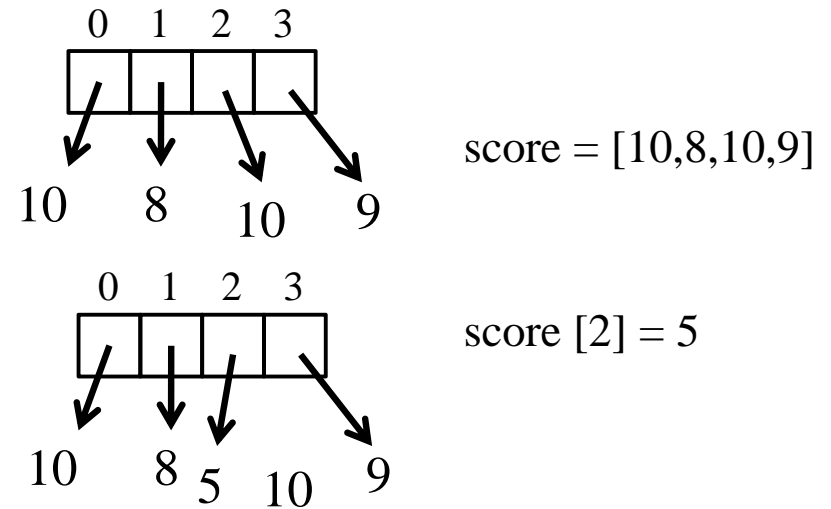- Finish lecture notes from last time first!
- Solve an APT

Lists

- A list is a collection of objects

```
scores = [99, 78, 91, 84]
allAboutMe = ["Mo",25, "934-1234"]
club=['Mo','Jo','Po', 'Flo', 'Bo']
```

- Lists are *mutable* – use [num] to change a value
- Lists are indexed starting at 0, or -1 from the end
- Functions: max, min, len, sum
- Slice lists [:]

List Examples

```
scores = [10, 8, 10, 9]
print scores
scores[2] = 5
print scores
print max(scores)
print len(scores)
print sum(scores)
print scores[1:]
print scores[1]
```
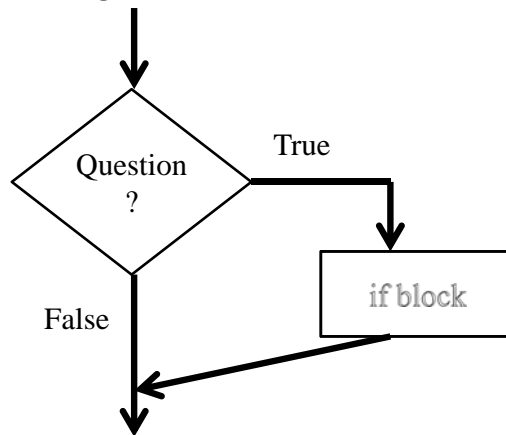
List before/after modification

score = [10,8,10,9]

score [2] = 5

Processing List Items

- Process all the items in a list, one item at a time
- Format:　　　for variable in list:
　　　　　　　　block
- Example:

```
sum = 0
nums = [6, 7, 3, 1, 2]
for value in nums:
    sum = sum + value
print sum
```

Copying vs aliasing

```
names = ['jo', 'mo', 'bo']
club = names
team = names[:]
names[1] = 'flo'
print names
print club
print team
```

Making Decisions

Making Decisions in Python

if *condition1*:

Block of code to do if condition is true

elif *condition2*:

Block of code to do if condition1 false, condition2 is true

else:

Block of code to do if other conditions false

• Can have many elifs, leave out elif, leave out else

Making Decisions tools

• Boolean values: True, False
• Boolean operators: and, or, not

X	Y	X and Y	X or Y
True	True	True	True
True	False	False	True
False	True	False	True
False	False	False	False

• Relational operators: <, <=, >, >=
• Equality operators: ==, !=
• Look at if examples: miscIf.py

More on lists

• range (1,11)
  – Generates a list of numbers from 1 to 10

• Example:
```
for num in range(1,11):
    print num
```

Example

```
answer = 0
for num in range(1,10):
    if num % 3 == 0:
        answer = answer + num
    else:
        answer = answer + 1
```

Computer Science Duke Alum

The 21 Most Important Googlers You've Never Heard Of

JAY YAROW
MAY 5, 2011, 2:38 PM | 115,790 | 5

Georges Harik and Noam Shazeer created the underlying data that led to AdSense

Harik and Shazeer spent years analyzing data on webpages, trying to understand clusters of words and how they worked together. The data they gather wound up being used by Google for its AdSense product, which analyzed webpages for words, and then stuck ads on them.