Announcements

- HW is due tomorrow

- HW3 is posted
due Monday the 13th
may work w/ a partner
Last time: for loops

Example:

groceries = ['milk', 'eggs', 'cheese', 'bread']
count = 1
for item in groceries:
    print str(count) + '. ' + item
    count = count + 1

for num in range(10):
    sleep(.5)
    animal.move(10, 0)
Caution:

- Spaces and tabs are not the same as in Python.

- Remember that the variable gets a copy of the item in the list/tuple/str.

Ex: for person in guests:
    person = person.lower()
    print(guests)

Output? (or how to fix?)
Case Study: Converting DNA to RNA

\[
\begin{align*}
\text{DNA} & \quad \rightarrow \quad \text{RNA} \\
A & \quad \rightarrow \quad U \\
C & \quad \rightarrow \quad G \\
G & \quad \rightarrow \quad C \\
T & \quad \rightarrow \quad A
\end{align*}
\]

Ex: AGGCTA CGT (DNA)

\downarrow \downarrow \downarrow

UCGGAUUGCA (RNA)
Write a program to take a DNA sequence and convert it to an RNA sequence.

How?
- raw_input
- for loop over letters
- keep an output RNA
Performance issues

- Used a list (rmlist)
- Use string: rna = rna + rnaCodes[index]
  \[5\%\] faster
- Use a list, but no "temp" variables
  gets \[18\%\] faster
Conditionals (if statements) 4.4 (?)

Execute some code only if a boolean evaluates to true.

Allows program to vary depending on (unknown) input.

Syntax:

```
if condition:
    code
else:
    code
```

$(S < x)$ and $(x < 8)$

$(x < y)$
Examples:

```python
number = int(input('Enter a number: '))
if number > 0:
    print('Your number is positive')

if number % 2 == 0:
    print('Your number is even')
else:
    print('Your number is odd')
print('I hate odds')
print('All done now')
```
More complicated examples

if len(groceries) > 15 or 'milk' in groceries:
    print 'Go to the grocery store!'

balance = 0
for entry in transactions:
    balance += entry
if balance < 0:
    print 'Overdraft warning'
    $ balance = balance + entry
Elif:

Ways to combine multiple if/elses:

if len(groceries) > 15:
    print 'Go to the grocery store'
else:
    if 'milk' in groceries:
        print 'Go to the convenience store'
    (shorten!)

if len(groceries) > 15:
    print
elif 'milk' in groceries:
    print
Practice:

4.21 in book: