

# CS 150 - For loops & if statements

Note Title

2/3/2012

## Announcements

- HW<sup>0</sup> is due tomorrow
- HW<sup>3</sup> is posted  
due Monday the 13<sup>th</sup>  
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
```

variable

any "container"

lists,  
tuples,  
string

```
for num in range(10):  
    step(.5)  
    animal.move(10, 0)
```

## Caution:

person  
~~Kim~~  
kim

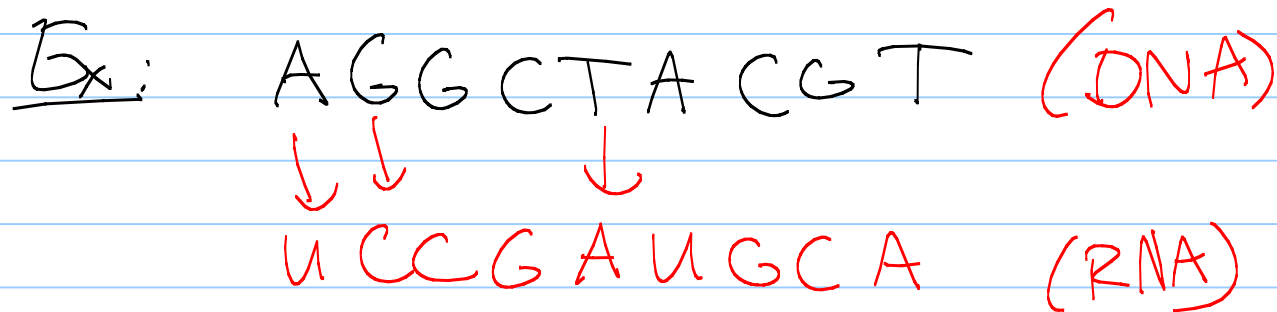
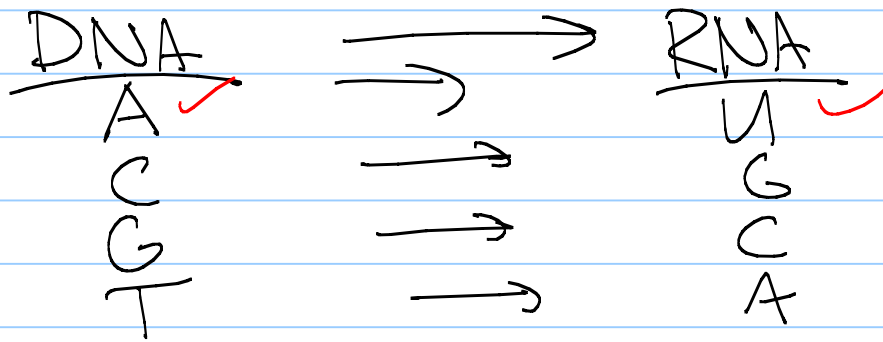
list-guest  
[ ]

- Spaces and tabs are not the same to 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? (\* how to fix?)

## Case Study: Converting DNA to RNA



Write a program to take a DNA sequence + convert it to an RNA sequence.

How?

- raw\_input

- for loop over letters

- keep an output RNA

## Performance issues

- Used a list (rna list)

- 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  
optional [ else:  
    [ code

*(5 < x) and (x < 8)*  
*(x < y)*

## Examples:

```
number = int(raw_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'
```

(shorter!)

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

Practice:

4.21 in book: