lec3

August 12, 2016

In [ ]:
```
#We are going to go over concepts from yesterday and things
#That people might be confused about.
#How to define a function and what it means
#Calling functions within functions
#Calling functions confused when to define functions
#and when to define variables
#Intuition behind functions
    #e.g. Def inches to centimeters x
#Make connection that x is input in a function
#The word return
#Go through lab 1
#Indentation, columns
#Different brackets
```

In [130]:
```
#Write a function called myMultiplier
#that takes in 3 variables and returns the
#multiplication of those 3 variables. And those
#Variables can be int, float, long,

def myMultiplier(a,b,c):
    return a*b*c

x=3
y=4
z=5
timnit= myMultiplier(x,y,z)
#timnit = myMultiplier(3,4,5)
print timnit
```

```
60
```

In [254]:
```
def timnit_multiplier(a,b,c,d,e,f):
    return myMultiplier(a,b,c)*myMultiplier(d,e,f)
#what does this return?
```

In [115]:
```
def passing_grade(h):
    if h>50:
```

```
                print 'good'#True
                return True
            else:
                print 'bad'#False
                return False
```

```
In [ ]: #One function can call another function. What does this function do?
        def candy_for_grade(g):
            if passing_grade(g):
                return 'candy'
            else:
                return 'no_candy'
```

```
In [119]: y=candy_for_grade(100)
          print 'y='+str(y)

good
y=no_candy
```

```
In [123]: #if x is None it is evaluated as False.
          x=None
          if x:
              print 'good'
          else:
              print 'bad'

bad
```

```
In [255]: candy_for_grade(51)

good


Out[255]: 'no_candy'
```

```
In [59]: y=timnit_multiplier(3,4,5,6,7,8)
         print x
```

```
In [ ]: #How to define a function (review from lab 1)
        def inchesToCentimeters(x):
            return x*2.54

        def doubleIt(x):
            return 2*x

        def timeFromSeconds(x):
            hour = x/60/60
```

```
            minutes = x/60%60
            seconds = x%60

            return str(hour) + ':' + str(minutes) + ':' + str(seconds)
```

```
In [241]: #for loops
          fruits=['orange', 'pineapple','banana','mango']
          x='timnit'
          x='meseret'
          for x in fruits:
              if x=='pineapple':
                  print x
                  #break
                  #continue
              print x
```

```
orange
pineapple
pineapple
banana
mango
```

```
In [217]: x=[]
          str='a b c d e'
          y=range(0,len(str)/2)
          for y in range(0,len(str)/2):
              x += [y]

          print x
```

```
[0, 1, 2, 3]
```

```
In [223]: y=range(0,len(str)/2)
          print y
          y[0]
          type(y[0])
          print [y[0]]
          print (type([y[0]]))
```

```
[0, 1, 2, 3]
[0]
<type 'list'>
```

```
In [195]: numbers=[1,2,3,4,5,6]
          for x in xrange(7):
              if x==3:
```

```
                continue
                #break
            print x
        print x
```

```
0
1
2
4
5
6
6
```

```
In [ ]: my_fruits=[]
        len(my_fruits)
        my_fruits += ['my_'+fruits[0]]
        my_fruits += ['my_'+fruits[1]]
        my_fruits += ['my_'+fruits[2]]
        my_fruits += ['my_'+fruits[3]]
        print my_fruits

        x=67
        x=([67])
        y=[]
        y += [x[0]]
        print y
```

```
In [253]: fruits=['orange', 'pineapple','banana','mango']
          #my_fruits=['my_orange', 'my_pineapple','my_banana','my_mango']
          #my_favorite_fruits=['pineapple','mango']
          #best_fruit = 'banana'
```

```
In [158]: #what does this print?
          fruits=['orange', 'pineapple','banana','mango']
          x='timnit'
          x='meseret'
          for x in fruits:
                  print x
          print x
```

```
orange
pineapple
```

```
In [ ]: #what does this print?
        fruits=['orange', 'pineapple','banana','mango']
        x='timnit'
        x='meseret'
```

```
        for y in fruits:
            if y=='pineapple':
                break
        print y
        print x
```

```
In [ ]: #what does this print?
        fruits=['orange', 'pineapple','banana','mango']
        x='timnit'
        x='meseret'
        for y in fruits:
            if y=='pineapple':
                break
        print y
        print x
```

```
In [156]: #what does this print?
          fruits=['orange', 'pineapple','banana','mango']
          x='timnit'
          x='meseret'
          for y in fruits:
              if y=='pineapple':
                  break
          print y
          print x
```

```
pineapple
meseret
```

```
In [256]: #what does this print?
          fruits=['orange', 'pineapple','banana','mango']
          my_fruits=[]
          for x in fruits:
              print my_fruits
```

```
[]
[]
[]
[]
```

```
In [257]: #Example of for loop
          fruits = ['orange', 'pineapple', 'banana', 'mango']
          my_fruits=[]
          for x in fruits:
              print x
              my_fruits += ['my_'+x]
          my_fruits
```

```
orange
pineapple
banana
mango
```

```
Out[257]: ['my_orange', 'my_pineapple', 'my_banana', 'my_mango']
```

```
In [258]: #Other useful functions:
          #It will be helpful for today's lab to know the
          #following functions.
          #len(x) returns the length of an iterable data
          #type (such as a str or list) as an int. For example,
          print len('abc')
          print len(['a', 'b', 'c'])
          print len(['a', ['b', 'c', 'd']])
```

```
3
3
2
```

```
In [259]: #range(x) returns a list of ints from 0 to x - 1.
          #example,
          print range(5)
          print range(2, 5) #Start at 2
          print range(0, 10, 2) #give every 2 values back
```

```
[0, 1, 2, 3, 4]
[2, 3, 4]
[0, 2, 4, 6, 8]
```

```
In [ ]: #What does this do
        # Example 1
        for x in range(1000):
           if x == 6:
              break
           print x
```

```
In [ ]: #Convert ints to strings
        #Say I have 3 variables
        hours=0
        minutes=1
        seconds=0

        #I want to output '0:1:0'
        #The code below does that
        str(hours)+':'+str(minutes)+':'+str(seconds)
        #str(x) converts x to string from int
```