Python course materials

# Iterators and Generators Homework

### Problem 1

Create a generator that generates the squares of numbers up to some number N.

def gensquares(N):  
  
 pass

for x in gensquares(10):  
 print(x)

0  
1  
4  
9  
16  
25  
36  
49  
64  
81

### Problem 2

Create a generator that yields “n” random numbers between a low and high number (that are inputs). Note: Use the random library. For example:

import random  
  
random.randint(1,10)

9

def rand\_num(low,high,n):  
  
 pass

for num in rand\_num(1,10,12):  
 print(num)

6  
1  
10  
5  
8  
2  
8  
5  
4  
5  
1  
4

### Problem 3

Use the iter() function to convert the string below into an iterator:

s = 'hello'  
  
#code here

### Problem 4

Explain a use case for a generator using a yield statement where you would not want to use a normal function with a return statement.

### Extra Credit!

Can you explain what *gencomp* is in the code below? (Note: We never covered this in lecture! You will have to do some Googling/Stack Overflowing!)

my\_list = [1,2,3,4,5]  
  
gencomp = (item for item in my\_list if item > 3)  
  
for item in gencomp:  
 print(item)

4  
5

Hint: Google *generator comprehension*!

# Great Job!