CSC 4992
Section 002
Special Topics in Computer Science Python Programming
Winter Term 2018
Assignment 03
40 points
Due 03/23/2017 (11:55 P.M.)

Submit one source file (.py) for all the questions.

Problem 1 (20 points)

Write a program that asks the user to enter 10 (positive) numbers. The program should then print the numbers in sorted order, from biggest to smallest.
To do this, first write a function that takes a list and finds the largest element. It then 1) deletes that element from the list and 2) returns that element.

Hint: You will need to store two variables in this function: the biggest number you've seen so far (remember to initially set this to 0), and its position. Then iterate over the list, and for each element, check if it's bigger than the biggest number you've seen so far. If it is, change both variables (remember to change BOTH)!
So, in your main program, you'll have to keep calling this function (in a loop) until the list is empty and keep printing the number that is returned.

Problem 2 (30 points)

A. Solve this problem using reduce

```
sentences = ['Mary read a story to Sam and Isla.',
             'Isla cuddled Sam.',
             'Sam chortled.']
sam_count = 0
for sentence in sentences:
    sam_count += sentence.count('Sam')
print (sam_count)
```

B. Rewrite the following code using map

```
names = ['Mary', 'Isla', 'Sam']
for i in range(len(names)):
  names[i] = hash(names[i])
   print (names)
```

Extra Credit (10 points)

Write a program that lets the user enter in some English text, then converts the text to Pig-Latin. To review, Pig-Latin takes the first letter of a word, puts it at the en and appends “ay”. The only exception is if the first letter is a vowel, in which case we keep it as is and append “hay” to the end.
E.g. “hello” -> “ellohay”, and “image” -> “imagehay”
It will be useful to define a list or tupple at the top called VOWELS. This way you can check if a letter x is a vowel with the expression x in VOWELSIt’s tricky for us to deal with punctuation

and numbers with what we know so far, so instead, ask the user to enter only words and spaces. You can convert their input from a string to a list of strings by calling split on the string:

"My name is John Smith".split(" ")-> ["My", "name", "is", "John", "Smith"]

Using this list, you can go through each word and convert is to Pig-Latin. Also, to get a word except for the first letter, you can use word[1:].

Hints: It will make your life much easier – and your code much better – if you separate tasks into functions, e.g. have a function that converts one word to Pig-Latin rather than putting it into your main program code.