CMPSC-132: Programming and Computation II
Fall 2019

Lab #11

Due Date: 11/22/2019, 11:59PM

Read the instructions carefully before starting the assignment. Make sure your code follows the stated guidelines to ensure full credit for your work.

Instructions:

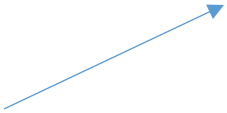
- The work in this lab must be completed alone and must be your own.
- **Download the starter code file from the LAB11 Assignment on Canvas. Do not change the function names on your script.**
- A doctest is provided as an example of code functionality. Getting the same result as the doctest does not guarantee full credit. You are responsible for debugging and testing your code with enough data, you can share ideas and testing code during your recitation class. As a reminder, Gradescope should not be used to debug and test code!
- Each function must return the output (Do not use print in your final submission, otherwise your submissions will receive a -1 point deduction)
- **Do not include test code outside any function in the upload. Printing unwanted or ill-formatted data to output will cause the test cases to fail. Remove all your testing code before uploading your file (You can also remove the doctest). Do not include the input() function in your submission.**

Goal:

[10 pts] As discussed in our video lecture, selection sort is a simple sorting algorithm that works by repeatedly finding the minimum element from unsorted part and putting it the sorted portion of the list, so in every pass of selection sort, we put the minimum element from the unsorted subarray in the proper place in the sorted portion of the list. Write the function *selectionSort*(*numList*) that takes an unsorted list of numbers and uses the selection sort algorithm to **return** the sorted list. The function also **returns** a dictionary with the state of the list after each complete pass.

- You are not allowed to use the sorted() method or the sort operator. Your code will not get credit if you use them
- You are not allowed to use the min() or max() built-in methods
- Function returns 2 values: return dictionary, sorted list (there is no need to add parentheses)
- Method should mutate the original list

```
>>> x=[9,3,5,4,1,67,78]
>>> selectionSort(x)
({1: [9, 3, 5, 4, 1, 67, 78], 2: [1, 3, 5, 4, 9, 67, 78], 3: [1, 3, 5,
4, 9, 67, 78], 4: [1, 3, 4, 5, 9, 67, 78], 5: [1, 3, 4, 5, 9, 67, 78],
6: [1, 3, 4, 5, 9, 67, 78], 7: [1, 3, 4, 5, 9, 67, 78]}, [1, 3, 4, 5,
9, 67, 78])
>>> x
[1, 3, 4, 5, 9, 67, 78]
```



Second returned value, the sorted list

Deliverables:

- Submit your code in a file name LAB11.py to the Lab11 GradeScope assignment before the due date