COMP 125: Programming with Python, Fall 2021
Final – January 15, 2022

Question 1 (30 points): 18:30-19:05 (should be submitted by 19:10)

Implement the function **sort_tuples** that takes a list of tuples and an index value as its parameters, creates another list of the sorted tuples in the original list, and returns this newly created list. The tuples in the new list should be sorted according to the index value given as a parameter.

For simplicity, you may assume that the parameter list contains at least one tuple, all tuples have the same number of items, and the index value given as a parameter is always valid.

Please examine the examples below to understand how this function works. Note that these are just **examples**. Your function should work for different lists and index values passed to it. Suppose that the list given as a parameter is `L = [(7, 8, 3), (3, 7, 5), (9, 1, 4), (7, 6, 2)]`.

When `index = 0`, the function should return `[(3, 7, 5), (7, 8, 3), (7, 6, 2), (9, 1, 4)]`
When `index = 1`, the function should return `[(9, 1, 4), (7, 6, 2), (3, 7, 5), (7, 8, 3)]`
When `index = 2`, the function should return `[(7, 6, 2), (7, 8, 3), (9, 1, 4), (3, 7, 5)]`

To solve this question, use the following algorithm: In each step, select the tuple with the smallest item at a given index. This tuple should be the one that has not been selected by the previous steps. If the list has more than one tuple with the smallest item (check the case when index = 0), select just one of them (it does not matter which one you are selecting). Then, append this selected tuple at the end of the newly created list.

IMPORTANT: In this question,

- You CANNOT use slicing or any built-in function except the range(), len(), and append() functions. That is, you are not allowed to use other functions such as insert(), remove(), index(), etc. Additionally, you cannot use any sorting functions. Of course, you may use indexing; in, and, or operators; and if, for, and while statements.

- The definitions of the append(item)
  `append(item)` : Adds `item` to the end of the list

For this question, download the Q1.py file from Blackboard. Implement your code in this py file and then upload it to Blackboard before 19:10.