Take-home assignment four

- Submit source codes (.py or .ipynb file) and a screenshot of the output. The source codes should be properly documented such that they are readable.

Take-home assignment four

1. (30%) Please write a function that takes the following as input: (1) a list of integers, *lst*, (2) a positive integer named *length*, and (3) another integer named *avg*. The function counts and returns how many sub-lists of size *length* and average value greater than *avg*. For example,

- If *lst=[3,2,6,8,3]*, *length=3* and *avg=5*, the function should print 2, because sub-lists [2,6,8] and [6,8,3] have length of 3 and average greater than 5.
- If *lst=[2,2,2,2,2]*, *length=5* and *avg=2*, the function should print 0, because there are no sub-lists of size 5 and average greater than 2.

Take-home assignment four

2. (30%) Please write a function that takes a list of integers, *lst*, as input. For each element in the list, *lst[i],* the functions calculates the distance between *lst[i]* and its closest higher value, *lst[j],* where j > i, i.e., the distance is equal to *j - i*. The function stores the distance in a new list, *lst2*, and returns this list. You can imagine that the input list *lst* provides daily temperatures, and for each day in *lst*, the resulting list *lst2* counts how many days to get a higher temperature. If there is no higher temperature in the future, set the corresponding value to 0 in *lst2*. For example,

- If *lst=[20, 15, 30, 66, 36, 36, 51, 89, 92]*, then *lst2* should be *[2, 1, 1, 4, 2, 1, 1, 1, 0].*
- If *lst=[29, 30, 21, 28, 9, 12]*, then *lst2* should be *[1, 0, 1, 0, 1, 0].*

Take-home assignment four

3. (40%) Please write a function that takes the following as input: (1) a string, *my_string*, and (2) a positive integer, *lng*. The function needs to counts and returns how many substrings that have length of *lng* and no repeating characters. For example,

- If *my_string='qwedsedaf'* and *lng=5*, then the function should print 2, because *'qweds' and 'sedaf' have no repeating characters.*
- If *my_string='python'* and *lng=7*, then the function should print 0, because *there are no substrings of length 7 with no repeating characters.*