**Trial Lab Test 2 v2 [15 minutes, in-class]**

**Q1: [\*\*]**

Define a function called max\_age() that takes in the following parameters:

* student\_dict (type: dict). In this dictionary, the keys are students’ name (type: str) and the values are tuples consisting of two elements: gender (type: str, either 'M' or 'F') and age (type: int) of the respective student
* gender (type: str, either 'M' or 'F')

The function returns a tuple (a, b) where a (type: str) is the name of the student whose gender matches the gender parameter and who has the maximum age among students of similar gender, and b (type: int) is the age of student a.

The function returns None if no student in the dictionary matches the given gender, or when the dictionary is empty.

For example:

* max\_age({'John': ('M', 21), 'Kate': ('F', 19), 'Eric': ('M', 23)}, 'M') returns ('Eric', 23) because Eric’s gender is 'M' and he has the maximum age among the male students.
* max\_age({'Kate': ('F', 22), 'John': ('M', 23), 'Susan': ('F', 18)}, 'F') returns ('Kate', 22) because Kate’s gender is 'F' and she has the maximum age among the female students.
* max\_age({'Kate': ('F', 24), 'Mary': ('F', 22), 'Susan': ('F', 19)}, 'M') returns None because none of the student’s gender is 'M'.
* max\_age({}, '') returns None because the dictionary is empty.

You can assume that no two students in the dictionary has the same age.

**Q2: [ \*\* ]**

Define a function called reverse\_segments that takes in a string parameter called text. The text parameter contains segments of texts separated by one of the following characters: |-=.

You can assume that text doesn't start with or end with one of these separators, e.g., you will not have '|abc=' as text.

For example, text may be 'a b c|def-123 aaa=|(abc)'. The segments inside the string are:

'a b c' , 'def' , '123 aaa' , '' , '(abc)'

The function segments the input string and reverses each segment character by character. It then returns all the reversed segments together with the separators as a list.

For example, given the input string above, the function returns the following list:

['c b a', '|', 'fed', '-', 'aaa 321', '=', '', '|', ')cba(']