**LAB 3**

This lab explores the ideas of mutability and aliasing through manipulating tuples and lists

**filename: lab3\_mu.py**

The goal of the lab is to complete each of the functions p1, p2, p3, and if you have time, the bonus question, according to the function's docstring. Pay special attention to how the function is supposed to handle mutability.

SHOPPING\_LIST = ['flour', 'baking powder', 'butter', 'brown sugar', 'chocolate chips']

STUDENTS = [

('April', 9078273),

('Greg', 3016445),

('Carter', 4598974),

('Ben', 5089601),

('Toni', 6838897),

('John', 7834461),

('Courtney', 6663484)

]

**LAB 3A -**

def p1(ingredients):

"""

Given a list of ingredients, if the list contains 'butter', this function returns a new instance of

the list where 'butter' has been removed from the list. This function does NOT mutate the input

list.

:param list ingredients: List of ingredients (as strings)

:return: A new list containing ingredients with 'butter' removed

:rtype: list

"""

return None

**LAB 3B -**

def p2(ingredients):

"""

Given a list of ingredients, if the list contains 'butter', this function removes 'butter' from the list

by mutating the list in place, then returns the mutated list.

:param list ingredients: List if ingredients (as strings)

:return: A new list containing ingredients with 'butter' removed

:rtype: list

"""

return None

**LAB 3C -**

def p3(student\_list, remove\_when\_id\_contains):

"""

Given a list of tuples containing students first names and their student ID numbers,

lists, returns a new list with all students except those whose ID number contains

the sequential digits in remove\_when\_id\_contains. Does not mutate student\_list.

:param list student\_list: A list of tuples of (student\_name, student\_ID)

:param string remove\_when\_id\_contains: A string of digits. When the student\_ID

contains these digits, the student is not included in the returned list

:return: A new list without students whose student IDs contain the sequential digits in

remove\_when\_id\_contains

:rtype: list

"""

return None

**LAB 3D -**

def bonus\_question(student\_list, digits\_to\_remove):

"""

Given a list of tuples containing students first names and their student ID numbers,

lists, returns a new list with all students, where the student ID numbers have been

modified to remove occurrences of the sequence of digits in digits\_to\_remove.

:param list student\_list: A list of tuples of (student\_name, student\_ID)

:param string digits\_to\_remove: A string of digits. When the student\_ID

contains these digits, the student ID is modified to remove them.

:return: A new list of students with modified student IDs. s

:rtype: list

"""

return None

Hint: the object.replace() command could be useful here :)