Discussion 3 - Recording Notebook

DSC 20, Spring 2023

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```
if x and y and z:
    print('fall')
elif not x and not y:
    print('winter...')
elif not z or x:
    print('spring?')
else:
    print('summer!')
```

Question 1 Solution

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```
In [3]: x = False
y = True

if x and y and z:
    print('fall')
elif not x and not y:
    print('winter...')
elif not z or x:
    print('spring?')
else:
    print('summer!')
```

summer!

Given 2 lists, remove the elements from the first list if they're present in the second one.

Your solution must be 1 line and use filter

note: filter has not been covered quite yet at the time of this discussion, don't worry if this question is confusing - consider it more as a preview of friday's lecture (It is a covered topic on midterm 1).

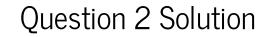
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```
In [2]: def up_join(lst1, lst2):
    """"

>>> grades = ['A', 'B', 'C', 'D', 'F']
>>> grade_filter = ['D', 'F']
>>> up_join(grades, grade_filter)
    ['A', 'B', 'C']
""""
```



Question 2 Solution

Given a dictionary consisting of strings for keys and values and another string, create a new dictionary where the key is the new string and the value is the list of keys who had it as their value. **Write assert statements to check input**.

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Question 3 Solution

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```
In [17]: def flip_dict(owners, pet):
             >>> sample = {'ben':'cats', 'charisse':'dogs', 'nikki':'cats'}
             >>> flip dict(sample, 'cats')
             {'cats': ['ben', 'nikki']}
             assert isinstance(owners, dict)
             assert isinstance(pet, str)
             assert all([isinstance(key, str) for key in list(owners.keys())])
             assert all([isinstance(val, str) for val in list(owners.values())])
             output = {}
             output[pet] = []
             for owner, pet type in owners.items():
                  if pet type == pet:
                     output[pet].append(owner)
             return output
```

Given a file containing an expression on each line, write a function that classifies them as 'energetic' if it ends with!, 'confused' if it ends with a?, and 'neutral' otherwise.

sample file

```
1 hello
```

² omg!

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sample file

```
hello
omg!
ok?
cool
```

```
In [31]: def text_classifier(filepath):
    """
    >>> text_classifier(files/mood.txt)
    ['neutral', 'energetic', 'confused', 'neutral']
    """
```

Question 4 Solution

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Write a function that takes in a list of strings with the pattern of first_name, last_name, first_name,... and strings together first and last names with a single space in between. If the length of the list is odd, insert your own last name.

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Question 5 Solution

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```
In [57]: def combine_names(names):
    """

    >>> combine_names(['Charisse', 'Hao', 'Nicole', 'Zhang'])
    ['Charisse Hao', 'Nicole Zhang']
    >>> combine_names(['Charisse', 'Hao', 'Ben'])
    ['Charisse Hao', 'Ben Chen']
    """

    output = []
    if len(names)%2 == 1:
        names.append('Chen')
    for i in range(0,len(names), 2):
        output.append(' '.join(names[i:i+2]))
    return output
```

Given a dictionary that has lists as values, Write a function that returns a list that consists of the length of each list in the dictionary

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Question 6 Solution

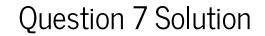
Question 6 Solution

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```
In [67]: def greater_comparison(lst1, lst2):
    """
    >>> greater_comparison([10,20,30], [1,2,3])
    True
    >>> greater_comparison([0,0,4], [1,2,3])
    False
    """
```

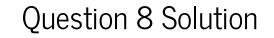


Question 7 Solution

Write a function that takes in a matrix and a number. It returns the result of the multiplication. You may only use list comprehension and the solution must be 1 line.

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```
In [75]: def matrix_multiplication(matrix, coefficient):
    """
    >>> mtx = [[1,2,3],[4,5,6],[7,8,9]]
    >>> matrix_multiplication(mtx, 3)
    [[3, 6, 9], [12, 15, 18], [21, 24, 27]]
    """
```



Question 8 Solution

```
In [77]: def matrix_multiplication(matrix, coefficient):
    """
    >>> mtx = [[1,2,3],[4,5,6],[7,8,9]]
    >>> matrix_multiplication(mtx, 3)
    [[3, 6, 9], [12, 15, 18], [21, 24, 27]]
    """
    return [[element*coefficient for element in row] for row in matrix]
```