1. sql question

I received a employees table, the table contains 3 colums, employee\_id, name, salary, department\_id and a department table contains 2 columns, department\_id, department\_name. I asked to find the 2nd highest salary in each department. the question was to test my knowledge about window function (rank). The output should have employee\_name, department\_name, salary.

2. python question

 a. write a regression function to find all factors of a number (e.g. Factors of 4: 1, 2, 4)

 b. impletement Stack class with 3 methods (isempty, push, pop)

 c. this is a leetcode question. <https://leetcode.com/problems/longest-substring-without-repeating-characters/>

 d. give a list and a target, find the indices of 2 numbers in the list that can be summed up to the target (e.g. [1,2,3] taget = 3, so the output is [0, 1])

 e. give a list, find the 2nd largest number (you can not use build-in function such as sorted)

Python

1. Given 2 strings: string, strong. Find the common alphabets in two strings and print it.

2. Print the count of each letter in a string.

3. Find the minimum difference between the prime numbers in a given array

array =[2,4,9,11,47,51,67,73,88].

1. Given a string – to check whether it is a ‘Palindrome’ or not

2. Given the sentence as ‘This is a beautiful day’

·       Print the count of each distinct letter present in the sentence

·       Print the sentence by removing the duplicate characters present in the sentence

3. Print the given number in the reverse order( eg: 4587 has to be printed as 7854)

4. Check whether the given number is a prime number or not

5. Implement a stack class (push, pop, isEmpty, size)

6. Find the two indexes in the array that add to the target number

7. Find the longest substring

8. Find the 2nd highest number in the array without using built in sorting method

9. write a regression function to find all factors of a number (e.g. Factors of 4: 1, 2, 4)

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12. give a list and a target, find the indices of 2 numbers in the list that can be summed up to the target (e.g. [1,2,3] taget = 3, so the output is [0, 1])

13. give a list, find the 2nd largest number (you can not use build-in function such as sorted)

14. How to enter the user input?

15. From the given input find all the string January and print the output? ? text="january is the first month","january has 31 days","Today is monday"

16. How to replace the string with February? text="january is the first month","january has 31 days","Today is monday"

17. Get count of Mon from the list:['Mon','Tuesday','Mon']

18. Result of the expression:

x = re.findall('data', 'data is everywhere, data is key')

19. Difference between append and expand

20. Mutable and Immutable data types in Python

21. Result of the expression:

  l = ['a','b','d','f','c','i','k']

print(l[1::2])

22. How to get last 5 elements of the data set

23. Write code to get the count of all the days from the list

['Mon','Tuesday','Mon','Wednesday','Tuesday','Friday']

24. result of expression

l = [100,200,200,300,400,500]

print(l[3:])

25. Find the numbers out of string.

S = "My name is x and my number is 1234567889, please find me"

26. How to get the ramdom number

27. write a palindrome function and pass two strings to it, then return true or false. string1 = 'malayalam' string2 = 'Washington'. String1 should return True, string2 should return false.

28. write a function to determine if a number is prime or not. then pass an array of numbers into the function, and create a new array containing only the prime numbers. then just find the difference between the first and second values.

29. Reverse the string that contains English letters.

Keep the non english letters in the same position but reverse the rest of the string.

Keep the letters the same if it was Upper or Lower case.

input: s = "ab-cd"

output: "dc-ba"

input: s = "j-iHg-fE-dCBa"

output: "a-BCd-Ef-gHij"

30. Find the average length of words in a string

text = "The red fox jumped over the brown wall"

31. Code to determine if list of integers is a subset of a another list of integers - Is s1 a subset of s3? Is s2 a subset of s3?

    s1=[1,2,3]

    s2=[1,2,3,77]

    s3=[1,2,3,4,5]

32. Print the count of each letter in stiring s="Today is a beautiful day"

33. given array [0,1,1,1,0,1,0,1,0], without using builtin sort, sort the 0 together on the left, and the 1 to the right

34. given an array [1,5,3,13,15,7,2,3,4,6], find the longest set of consecutive integers. You can use builtin sort. This array has 7, as it has the numbers 1,2,3,4,5,6,7 with a break at 8, which is missing.

1.) # Create a function that returns all repeating characters in a string as a list of tuples (i.e. the character, and the number of occurrences)

# e.g.: Input: "aabccdddefgg"

# output : [(a, 2), (c, 2), (d,3), (g, 3)]

(Note: That's an array of tuples for the output.)

2.) # Give a list [1, 10, 2, 20] find the product of the list for each index.

# output: [400, 40, 200, 20]

(Note: I originally solved this with nested loops, and he asked me if I could do it without nested loops, so I then rewrote it more optimally using two sequential loops.)

3.) # Write a function to remove the duplicate characters from a string. The output should be the input string with all duplicate characters removed:

# str="kayak"

# output: "kay"

4.) # Given two strings s and t, return true if s is a subsequence of t, or false otherwise.

# A subsequence of a string is a new string that is formed from the original string by deleting some (can be none) of the characters without disturbing the relative positions of the remaining characters. (i.e., "ace" is a subsequence of "abcde" while "aec" is not).

# Test case 1:

# s = 'abd'

# t = 'aabbcddd'

# Test case 2:

# s = 'dbc'

# t = 'aabbcddd'

5.) # Write a function to determine is a given string is a palindrome. Palindrome is a phrase that reads the same forwards and backwards.

# Input:

# candidates = [

#     "racecar",

#     "Kayak",

#     "never odd or even",

#     "rats live on no evil star",

#     "A Toyota! Race fast... safe car: a Toyota",

#     "Some men interpret nine memos",

#     "wombat",

#     "No lemons, one melon",

#     "Too bad – I hid a book",

#     "No trace; not one cartoon",

#     "Ma'am, I'm Adam",

#     "Del was a sled",

#     "Flee to Em, remote elf",

#     "Ma? Ha! A sham!"

# ]

(Note: Ignore case and non-alpha characters when determining if it's a palindrome.)

6 & 7.) # MESSAGE\_LIST is a list of strings that has some errors. Not all strings have errors. Errors are in the form:

# ERR: in file

MESSAGE\_LIST = ["ERR: timeout detected in file1", "Nothing found in file4", "ERR: timeout detected in file3", "Nothing found in file2", "ERR: unknown error in file5", "Nothing found in file8", "Nothing found in file2", "ERR: segfault in file1", "Nothing found in file6", "Nothing found in file0", "ERR: timeout detected in file9", "Nothing found in file2", "ERR: timeout detected in file5", "Nothing found in file8", "ERR: segfault in file3", "Nothing found in file4", "ERR: timeout detected in file5", "Nothing found in file2", "Nothing found in file0", "ERR: timeout detected in file9", "Nothing found in file6", "ERR: timeout detected in file5", "Nothing found in file4", "ERR: unknown error in file9", "ERR: timeout detected in file9", "ERR: timeout detected in file9", "Nothing found in file4", "Nothing found in file0", "ERR: segfault in file5", "Nothing found in file2", "Nothing found in file4", "ERR: timeout detected in file9", "ERR: unknown error in file1", "ERR: unknown error in file3", "ERR: segfault in file9", "ERR: segfault in file1", "ERR: unknown error in file1", "Nothing found in file0", "Nothing found in file0", "ERR: unknown error in file1", "ERR: segfault in file3", "ERR: timeout detected in file9", "Nothing found in file4", "ERR: unknown error in file3", "Nothing found in file8", "ERR: segfault in file5", "Nothing found in file4", "ERR: timeout detected in file3", "Nothing found in file6", "Nothing found in file4", "Nothing found in file0", "ERR: segfault in file9", "ERR: timeout detected in file7", "Nothing found in file4", "Nothing found in file4", "Nothing found in file4", "ERR: segfault in file5", "Nothing found in file8", "Nothing found in file6", "Nothing found in file2", "ERR: segfault in file1", "ERR: timeout detected in file5", "Nothing found in file8", "Nothing found in file6", "Nothing found in file4", "Nothing found in file0", "ERR: unknown error in file3", "Nothing found in file0", "ERR: segfault in file3"]

# Q1: How many errors are in the list?

# Q2: How many times is there an error in file5?

(Note: Since I just checked the beginning and ends of the string in my solution for the second question, he also asked how I could solve it if "ERR:" and "file5" could be found anywhere in the string.)

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