Python Remediation Exercises

Generic Mission: Strings or numbers?

Pre-defined:

```
strnums = ["1","2","505","what","1","ok","505","just","example","just"]
```

1. Write a script that will count the number of strings and numbers of the given list.
2. Write a script that will print a new list without duplicates.
3. Write a script that will print the highest number.
4. Write a script that will a new dictionary where the key is number, and the value is the square of these number.
5. Following task number 4 - add to the script an output that will look like **“2 squared equal 4”** following for all the numbers assigned.

Mission 1: Case Study

Write a function that will check if two given characters are the same case.

- If any of characters is not a letter, return -1
- If both characters are the same case, return 1
- If both characters are letters and not the same case, return 0

Examples:

- 'a' and 'g' returns 1
- 'A' and 'C' returns 1
- 'b' and 'G' returns 0
- 'B' and 'g' returns 0
- '0' and '?' returns -1

Test Cases:

- C and B
- b and a
- \t and t
- H and :

Mission 2: Closest elevator

Given 2 elevators (named "left" and "right") in a building with 3 floors (numbered 0 to 2), write a function elevator accepting 3 arguments (in order):

- left - The current floor of the left elevator
- right - The current floor of the right elevator
- call - The floor that called an elevator

It should return the name of the elevator closest to the called floor ("left"/"right").

In the case where both elevators are equally distant from the called floor, choose the elevator to the right.

You can assume that the inputs will always be valid integers between 0-2.

Examples:

- elevator(0, 1, 0) # => "left"
- elevator(0, 1, 1) # => "right"
- elevator(0, 1, 2) # => "right"
- elevator(0, 0, 0) # => "right"
- elevator(0, 2, 1) # => "right"

Test Cases:

- 0, 2, 1
- 0, 1, 2
- 0, 1, 0

Mission 3: A wolf in sheep's clothing

Wolves have been reintroduced to Great Britain. You are a sheep farmer and are now plagued by wolves which pretend to be sheep. Fortunately, you are good at spotting them.

Warn the sheep in front of the wolf that it is about to be eaten. Remember that you are standing at the front of the queue which is at the end of the array:

[sheep, sheep, sheep, sheep, sheep, wolf, sheep, sheep] (YOU ARE HERE AT THE FRONT OF THE QUEUE)
 7 6 5 4 3 2 1

If the wolf is the closest animal to you, return "Pls go away and stop eating my sheep". Otherwise, return "Oi! Sheep number N! You are about to be eaten by a wolf!" where N is the sheep's position in the queue.

Note: there will always be exactly one wolf in the array.

Examples:

- Input: ["sheep", "sheep", "sheep", "wolf", "sheep"]
  Output: "Oi! Sheep number 1! You are about to be eaten by a wolf!"

- Input: ["sheep", "sheep", "wolf"]
  Output: "Pls go away and stop eating my sheep"

Test cases:

- ['sheep', 'sheep', 'sheep', 'sheep', 'sheep', 'wolf', 'sheep', 'sheep']
- ['sheep', 'sheep', 'wolf']
- ['sheep', 'wolf', 'sheep']

Mission 4: Our Champions

Our football team finished the championship. The result of each match look like "x:y". Results of all matches are recorded in the collection.

For example: ["3:1", "2:2", "0:1", ...]

Write a function that takes such collection and counts the points of our team in the championship. Rules for counting points for each match:

- if x>y - 3 points
- if x<y - 0 point
- if x=y - 1 point

Notes:

- there are 10 matches in the championship
- 0 <= x <= 4
- 0 <= y <= 4

Test Cases:

- ['1:0','2:0','3:0','4:0','2:1','3:1','4:1','3:2','4:2','4:3']
- ['1:1','2:2','3:3','4:4','2:2','3:3','4:4','3:3','4:4','4:4']
- ['1:0','2:0','3:0','4:4','2:2','3:3','1:4','2:3','2:4','3:4']
- ['1:0','2:0','3:0','4:0','2:1','1:3','1:4','2:3','2:4','3:4']

Bonus:

If we assume that all the testcases are assigned to teams:

- Team 1: ['1:0','2:0','3:0','4:0','2:1','3:1','4:1','3:2','4:2','4:3']
- Team 2: ['1:1','2:2','3:3','4:4','2:2','3:3','4:4','3:3','4:4','4:4']
- Team 3: ['1:0','2:0','3:0','4:4','2:2','3:3','1:4','2:3','2:4','3:4']
- Team 4: ['1:0','2:0','3:0','4:0','2:1','1:3','1:4','2:3','2:4','3:4']

What team is gathered the maximum amount of points and win the championship?