Python Functions - Assignment III

Project: 1
1 or 89 application.

Mr.Talentpy would like to create a function one_or_eight which takes an integer input (no) and performs following operation.

1. Square the number if it is single digit. (Eg: 3, then 3 * 3 = 9)
2. If it is not single digit, square each digits and add. (Eg: 12, then (1*1) + (2*2) = 1+4 = 5

You have to repeat step (1) and (2) until you reach 1 or 89. Note that, always your result will reach 1 or 89 for sure. Input must be a positive number.

If the operation reaches at the end, 89 return True, if operation reaches 1 at the end return False.

Sample Input/Output: 1

- Input: 3
- Output : 3 *3 = 9 => 9 * 9 => 81 => (64+1) = 65 => (36+25) = 61 => (36+1) => 37 = (9+49) => 58 => (25+64) => 89.
- Explanation : True

Sample Input/Output: 2

- Input: 10
- Output : 1 square + 0 square = 1+0 = 1
- Explanation : False

Project: 2
Sam College of Cartoon

You have to create different functions for Sam's college of cartoon. Please find the functions list below -

- **Give me a random cartoon character: - Function 1**
  - This function should take *N* arguments, where *N* is not fixed and ranges from 0 to many. This function should return a random character from the *N* argument.
  - For example: If arguments are "Dora", "Shin Chan", "Poke mon" etc… this function should return any one of the above character. (Eg: "Dora") and must be random.
  - If the argument length for the function is 0, then this function should return False (boolean) as output.
- **Swap the cartoon character: - Function 2**
  - This function should call Function 1 (above) and if function 1 returns False, then this function should also return False.
  - Else, get the character and swap the letters of characters. (Upper case to lower case and vice versa)
  - For example: if the function gives you "Dora", then output should be "dORA".
  - Return the swapped output as result.

- **Multiply the swap: - Function 3**
  - This function should take 2 arguments. First one is cartoon_character and second one as multiplier. If the user is not specifying multiplier value it should take 3. Else if user specified any value, take that value into account.
  - Multiply the cartoon_character (first argument) with the multiplier value given.
  - Example: If cartoon_character is “Dora”, multiplier is 5, then DoraDoraDoraDoraDora should be the output.
- **Main function: - Function 4**
  - Create a function with name main()
  - Call function 2, if it is not returning False, pass the output of function 2 as a first parameter to function 3 and get the output from F3 and print it.
  - If call to function 2, gives False, print the message “Oops! No cartoon selected”.

Project 3:
Oh! That’s the difference!

Create a function difference which takes a string S and character K. Find the difference between first occurrence of K and last occurrence of K in string S. Convert the input to lower case before processing.
Check for following conditions :
1. If K not occurred in S, return “K not found in S”.
2. If K occurred only once in S, return “Difference can’t be calculated”.
3. If K occurs more than once, return count of difference.

Sample I/O:
- Input: S= ‘talentpy', K=‘a’ => output: “Difference can’t be calculated”,
- Input: S=“science”, K=‘c’ => output: 3.

Project 4:
Be Positive! Create a function to sum up all positive argument inputs. Inputs ranges from 0 to N, where N can be any positive number.

Project 5:
Star Generation: Create a python function which takes a number N and generates following star pattern accordingly. N ranges from 1 to any positive number. Make sure if N is not passed as argument while calling function, it should take 3 as it’s default value.

Example: N = 4
Output:
*
@@
***
@@@@

Example: N = 2
*
@@