BRAC University

Department of Computer Science and Engineering

CSE110: Programming Language I

Examination: *Quiz #2* Semester: *Summer 2022*

Date: __ __ / __ __ / 2022 Time: 40 Minutes

ID: _ _ _ _ _ _ _ _ _	Name: *(Please write in **CAPITAL LETTERS**)*	Section: **29**

- Read questions carefully.
- Understanding the question is part of the exam, please do not ask questions.

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1. In a parallel dimension, lives a monster **Vecna**. Being a Ph.D. holder in English language from Harvard, he targets only the victims who have at least **3 vowels** in their **name**. He casts and pulls the victims to his own dimension and then removes the 5 senses - as there are five vowels in English - from the victim: touch, hearing, sight, smell, and taste.

   The people of Hawkins are terrified, even the police are worried as they do not have the tools or skills to fight against this monster. Luckily, they have found you, an amazing programmer from BRAC University, their only hope. Hence, you are hired to write a Python program that will read the name as `str` of **10** people separated by a line - one name in one line - and append-only those who could be in the target **list** of **Venca** and store those names in a `list` - `vecna_victims`.

   Next, as per your wonderful solution to the problem, you will *remove all the vowels* from the **name**. But, doing that will be difficult to pronounce someone's name so, you have provided a great proposal that all the vowels will be *replaced* with `"y"` or `"Y"`, **case-sensitive**. For example, "M**i**k**E**" will become "M**y**k**Y**", "J**a**n**e**" will become "J**y**n**y**", and "**E**l**e**v**e**n" will become "**Y**l**y**v**y**n". **[CO3, CO4, CO6]** (**12 Marks**)

   You only have ***about 25 minutes*** before **Vecna** possesses his next victim, **GET STARTED**!

Sample Input	Sample Output
Sakib Jobayer Karita Sadat Fareya Zannat aishi SalsAbil Mine Uddin Prithwi	To be safe from Vecna, please change your name as shown if it occurs in the following list: Jobayer -> Jybyyyr Karita -> Kyryty Fareya -> Fyryyy aishi -> yyshy SalsAbil -> SylsYbyl Mine Uddin -> Myny Yddyn

   These are not **Stranger Things** for you, there are interesting things you might want to add, PTO.

Since you are the best programmer alive now, you have already identified a problem with this approach that is irreversible - meaning once done, it cannot be undone or changed back to its original form. However, you are brilliant and already have a way to fix it but you will only provide it if you are given **extra 8 marks** as **remuneration**. Although you will only implement it after the agreement, since you are very kind-hearted as well, you have described your approach to solving the problem.

The approach, according to you, is first you will enumerate (serialize or give a number to) each vowel - **case-insensitive**. You chose to follow 'a', 'e', 'i', 'o', 'u' so that 'a' represents 1, 'e' represents 2, 'u' represents 5 and so on. Then, while replacing the vowels you will insert `'y'` or `'Y'` as many times as the **serial number** of that particular vowel with a leading and trailing `'#'`. For example, "M**i**k**E**" will become "M**yyy**k**YY**". (**8 Marks**)

Sample Input	Sample Output
Ayman Nadid Julfikar Alif Saptarshi Lazim Ashraful MoumitA Lamia AinanUL	To be safe from Vecna, please change your name as shown if it occur in the following list: Julfikar -> J#yyyyy#lf#yyy#k#y#r Saptarshi -> S#y#pt#y#rsh#yyy# Ashraful -> #Y#shr#y#f#yyyyy#l MoumitA -> M#yyyy##yyyyy#m#yyy#t#Y# Lamia -> L#y#m#yyy##y# AinanUL -> #Y##yyy#n#y#n#YYYYY#L

2. Answer any of the two questions below, both for the bonus. (**8 Marks** - *each*)

Note: *Bonus will be given if at least one question is answered correctly. Otherwise, the highest number will be considered and no bonus will be given.*

a. Write a Python program that removes all Empty strings from a **given_list** of strings and creates a **modified_list** that does not have any duplication, then prints **modified_list**. Next, find the longest string in the list and print its index, length, and value - one at each line. Finally, create a new list, **short_list,** excluding the first and last two elements of the **modified_list,** and print the **short_list**. If there are not enough elements in the **modified_list** to do the task, print `"Not possible"`. **[CO6]**

Given List	Sample Output
`["hey", "there", "", "you've", "", "won", "", "?", "!"]`	**Modified List: ['hey', 'there', "you've", 'won', '?', '!']** **Index: 2** **Length: 6** **Value: you've** **Short List: ["you've", 'won']**
`["Ironman", "", "will", "", "", "return", "", ""]`	**Modified List: ['Ironman', 'will', 'return']** **Index: 0** **Length: 7** **Value: Ironman** **Short List: Not possible**

b. Trace the following code given below and show the complete tracing table. **[CO3, CO4, CO6]**

1	your_id = "_____"
2	semesters = ["Not Defined", "Spring", "Fall", "Summer"]
3	output = ""
4	i = 0
5	
6	while i < 4:
7	holder = ""
8	if not(i == 2):
9	j = i
10	while j < i + 2:
11	holder = holder + your_id[j]
12	j += 1
13	i += 1
14	else:
15	holder = your_id[i]
16	if len(holder) == 1:
17	output = output + "-->" + semesters[int(holder)]
18	else:
19	holder = int(holder)
20	if i > 2:
21	output = output + "-->" + "Computer Science"
22	if holder == 1:
23	output = output + " and Engineering"
24	else:
25	output = output + "-->" + "20" + str(holder)
26	print(output)
27	i += 1