TECHNION
Azrieli Continuing Education and External Studies Division

Python Exercises #1

Mission 1: Solve it in various ways.

You have been provided with `word = "cYBerSecUrity1sHere"` .

Goal:
Determine the indexes of capital letters, the script should print a list of them.

Example:
Provided with "Hello" will print out a list of one item `capital = [0]`

Tasks:

The best start is with building basic skills that will run into a capable script of the following problem.

1.1. Print out the first and the last letter of the string. (**Note**: use index numbers inside a bracket [index])

1.2. Print out the length of the string. (**Note**: use the **len()** function)

1.3. Create a new list defined with the second and the third letter in the word, print it out.

1.4. Python using **methods** - it's a build-in functions that appended to an object. Every type has its own methods. We define method using the **object** (word) appended with **.** and the **method name**.

Example:

```
word = "cYBerSecUrity1sHere"
print(word.capitalize())

#Output:
Cybersecurity1shere
```

Try to use the next methods:

- upper()
- lower()

1.5. Use the **replace()** method to replace the **e** letter to **X**. You could get help about this method with the next print: (Getting help of certain types will categorize as type.method functions)

```
print(help(str.replace))
```

1.6. Use a for loop to iterate over the word variable and print out its characters separately.

1.7. Python uses methods that returns a Boolean statement of True or False.

Define new variables:

```
big = "A"
small = "b"
```

Use **isupper()** and **islower()** methods combined with **if statement** to determine if big is a capital letter and small is a lowercase. Print out "CAPITAL" or "LOWER" regarding the result.

1.8. Iterate over the word variable and create two new lists called “capitals” and “lowers” when an uppercase letter will be **appended** into “capitals” and lowercase to the “lowers” lists. Print out the contents of the lists.

1.9. Regarding 1.8. task we miss the sorting of **1** character.

Use the next help functions:

```
print(dir(str))
print(help(str))
```

Find the correct function that could sort **1** into a new defined list called **“numbers”**

2.1. Use **help(str.index)** or **dir(str.index)** to get help about how to retrieve the index position of certain character.

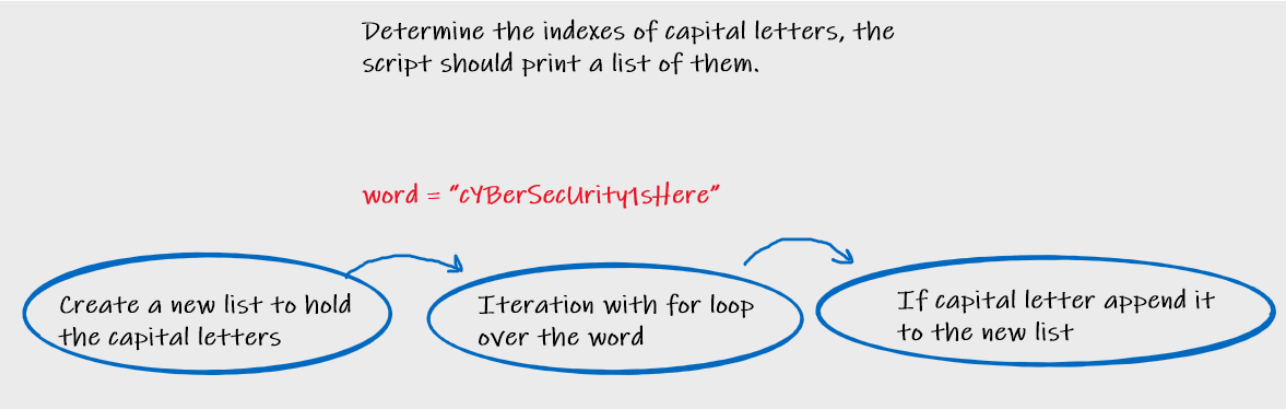
Using the method function what is the index number of the following letters:

- c
- H
- S
- U

2.2. Iterate over the word variable and print out the indexes of each letter.

2.3. Iterate over the word variable and print out the index of letter only if the letter is match to **e**

Mind flow to solve the problem:



3.1. Write a script that will determine the indexes of capital letters, the script should print a list of them.

Use the next cases:

```
word = “cYBerSecUrity1sHere”
word = “HelloWorld”
word = “iMhErEtofaILyou214”
word = “%@$!sfa@SRQxvxs”
```

Mission 2: Skills UP !

You have been provided with next variables:

```
just_var = "abc"
just_var = "hello"
just_var = "abba"
just_var = "whathappendinvegas"
```

Write a python script that will print out the middle letter - If there is no middle letter it returns a printed message of "sorry, there is no middle here".

1.1. Start with building a mind-flow chart, think in loud how you would approach this problem

Ask questions and search for solutions:

"How I determine the middle?"
"Should I base my search for the middle on indexes?"
"Maybe the length of the string is enough to determine the middle?"

1.2. Solve it.

Mission 3: Double Letters

You have been provided with next variables:

```
letters = "hello"
letters = "nono"
letters = "abba"
letters = "noon"
```

Write a python script that will print out all the letters that followed by the same letter.

Examples:

1. If the word is **"moon"** the script will print out **o**
2. If the word is "**man"** the script will not print anything
3. If the word is "**bungee"** the script will output **e**