Exercise W7D1

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Python Programming Pt. 2

In this report we are going to write two programs with Python to explore the basic functions of this programming language.

TASKS

#1

Write a function that, given as input a list A containing n words, returns as output a list B of integers representing the lengths of the words contained in A.

#2

Write a password generator function.
The function must generate an 8 character alphanumeric string, if the user wants a simple password, or a 20-character ASCII string if he desires a more complex password.

EXECUTION

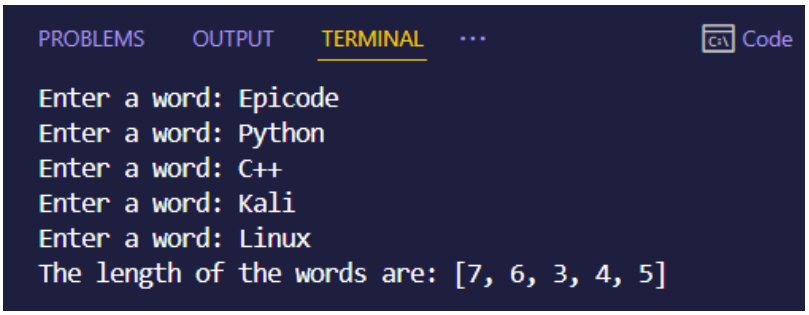
Task #1

```python
# This program takes 5 words as input from the user and returns the length of each word.
def counter():

    i = 0
    word_list = []
    length = []

    while i < 5:
        word = input("Enter a word: ")
        word_list.append(word)
        length.append(len(word))
        i += 1
    print("The length of the words are:" ,length)

counter()
```

//comment

The program uses a while loop to take input and store the words in a list.
It also calculates the length of each word and stores it in another list.
Finally, it prints thelist with the lengths of the words.

#output_example



Task #2

```python
# This program generates a random password based on user input.
import random
import string

def generate_password ():
    print("Welcome to the Password Generator!")
    print("This program allows you to choose the length and complexity of your password.")
    print("You can choose from the following options:")
    print("1. Short password (8 characters)")
    print("2. Long password (20 characters)")

    ascii_characters = string.ascii_letters + string.digits + string.punctuation
    # This includes letters, digits, and punctuation characters
    alphanumeric_characters = string.ascii_letters + string.digits
    # This includes letters and digits only

    type_of_password = input("\nPlease choose the type of password you want (1 or 2): ")
    if type_of_password == '1':
        password_length = 8
        password_characters = alphanumeric_characters
    elif type_of_password == '2':
        password_length = 20
        password_characters = ascii_characters

    psw = ""
    counter = 0
    while counter < password_length:
        psw += random.choice(password_characters)
        counter += 1

    print(f"\nYour generated password is: {psw}")

generate_password()

```

//comment

In this program, we insert into variables, using commands of the module `string`, the types of characters we need. Then, with the `random.choice` (from `random` module) function, we randomly select 8 or 20 characters to insert into the variable `psw` that will print the password.

`string.ascii_letters`
Represents all the letters of the alphabet (both uppercase and lowercase).

`string.digits`
Represents all numeric digits from 0 to 9.

`string.punctuation`
Represents all available punctuation characters.

#output_example

```
Welcome to the Password Generator!
This program allows you to choose the length and complexity of your password.
You can choose from the following options:
1. Short password (8 characters)
2. Long password (20 characters)

Please choose the type of password you want (1 or 2): 2

Your generated password is: #Or>uziLLeoGZ[<;3bEd
```