# TECHPLEMENT INTERNSHIP

## WEEK-1 TASK

**Description**: Develop a command-line tool for generating random passwords with customizable length and complexity. - Allow users to specify password requirements such as including uppercase letters, lowercase letters, digits, and special characters. - The application ensures that the generated passwords are secure and random, making them resistant to brute-force attacks and guessing. Create a proper documentation of commands to use.

### COMMANDS USED:

**string –** For accessing string constants. The ones we would need are –

- **string.ascii_letters:** ASCII is a system that is used to represent characters digitally, every ASCII character has its own unique code. string.ascii_letters is a string constant which contains all the letters in ASCII ranging from A to Z and a to z. Its value is non-locale dependent and it is just a concatenation of ascii_uppercase and ascii_lowercase. Thus it provides us the whole letter set as a string that can be used as desired.
- **string.digits:** This is a pre-initialized string that contains all the digits in the Arabic numeral system i.e. 0, 1, 2, 3, 4, 5, 6, 7, 8, 9. It should be kept in mind that even though these are digits, the type is still a string constant, and all digits are concatenated like this – "0123456789". If we want to access specific numbers then we can do so using slicing.
- **string.punctuation:** Apart from letters and digits, python also provides us all the special characters in a pre-initialized string constant. These include various kinds of braces, logical operators, comparison operators, arithmetical operators as well as punctuation marks like commas, inverted commas, periods, exclamations marks, and question marks. The whole string is – !"#$%&'()*+, -./:;<=>?@[\]^_`{|}~

**random –** The python random module helps a user to generate pseudo-random numbers. Inside the module, there are various functions that just depend on the function "random()". This function generates a random float uniformly in the semi-open range [0.0, 1.0) i.e. it generates a decimal number greater than or equal to 0 and strictly less than one. Other functions use this number in their own ways. These functions can be used for bytes, integers, and sequences. for our task, we are interested in sequences. There are functions random. **choices** that take in a sequence as its argument and return a random element from that sequence.

## CODE:

```
import string
import random
length = int(input("Enter password length: "))
print('''Choose character set for password from these :
                1. Digits
                2. Letters
                3. Special characters
                4. Exit''')
characterList = ""
while(True):
        choice = int(input("Pick a number "))
        if(choice == 1):
                characterList += string.ascii_letters
        elif(choice == 2):
                characterList += string.digits
        elif(choice == 3):
                characterList += string.punctuation
        elif(choice == 4):
                break
        else:
                print("Please pick a valid option!")
password = []
for i in range(length):
        randomchar = random.choice(characterList)
        password.append(randomchar)
print("The random password is " + "".join(password))
```