Password Generator

Overview

The program is coded in python and uses the libraries **string, random.** These allow it to pick random numbers from different lists and compile the ascii alphabets into lists as well. The user can enter the length of the required password to be generated, anything from 0 and up (up *to index-sized integer*). There is also validation present in the program to make sure the user is entering the correct data, this was an easy task as there is only one line of input, so it only required no more than one validation function. The alphabet used is English. The program could be made shorter if the three different lists were compiled into the same list however I preferred having 3 separate lists as it keeps it more organised and also means that there's an equal chance for special characters to be picked, since less of them appear in the list it means that if they were all in the same list they'd have a lower chance of being generated compared to English characters in the alphabet.

Code

```
import random #Importing the random module
import string #Importing the string module

def validateNumber():
    while True:
        try:
            passwordLength = int(input("How long do you want the password to be? "))  # Asking for user input on how long to make the password
            break #breaks the while loop
        except ValueError: #Incase the code above produces a value error
            print("Enter a number")
    return passwordLength #Returns the variable to

alphabet = list(string.ascii_lowercase) #Used to store a lower case alphabet as a list
alphabetUpper = list(string.ascii_uppercase) #Used to store an upper case alphabet as a list
alphabetSpecial = ["@","/",">","<","£","%","$","&","*","!","?"] #A list full of special cases

passwordLength = validateNumber() #Used to validate to make sure the user enters a correct number

passwordList = [None] * passwordLength #Creates a list with the length supplied by the user
for i in range(0,passwordLength): #Runs a for loop for x amount of times as the length of the list
    choice = random.randint(1,3) #Selects 1 of 3 alphabets to pick from
    if choice == 1:
        character = alphabet[random.randint(0, 25)] #Picks a random character from that list
    elif choice == 2:
        character = alphabetUpper[random.randint(0, 25)]
    else:
        character = alphabetSpecial[random.randint(0, 10)]
    passwordList[i] = character #Sets the value of data in the list at that location to the random character

password = "".join(passwordList)
print("Password: " + password)
#Joins the list together with no spacing to create the password
input()
```