



## Highsted Knowledge Organiser

### Computer Science: Python Programming (2) – GCSE – Term 6

#### What I need to know

- How to manipulate strings in Python
- What are the common string methods
- How to use string manipulations in a program

#### Key Vocabulary

- String manipulation	- Validation
- Syntax error	- Logic error
- String	- If not any ()
- Iteration	- For loop
- While loop	-

#### Student reference point

##### Password Validation Program Code

```

1 user_password = input("Enter a password: ")
2
3 valid = True
4 symbols = "! , , £, $, %, &, *, ~, _"
5
6 while valid != False:
7
8     #check if there are 8 or more characters in password
9     if (len(user_password) < 8):
10        print("8 or more characters required")
11        valid = False
12        break
13
14    #check if there are any lower case characters in the password
15    elif not any(i.islower() for i in user_password):
16        print("lowercase characters required")
17        valid = False
18        break
19
20    #check if there are any upper case characters in the password
21    elif not any(i.isupper() for i in user_password):
22        print("uppercase characters required")
23        valid = False
24        break
25
26    #check if there are any digits (numbers) in the password
27    elif not any(i.isdigit() for i in user_password):
28        print("digits required")
29        valid = False
30        break
31
32    #check if there are any symbols in the password
33    elif not any(i in symbols for i in user_password):
34        print("symbols required")
35        valid = False
36        break
37
38    #check if there are any spaces in the password
39    elif any(i.isspace() for i in user_password):
40        print("there shouldn't be any spaces")
41        valid = False
42        break
43
44    #replace all the characters from valid user password with *
45    else:
46        for i in user_password:
47            user_password = user_password.replace(user_password, "*")
48            print(user_password, end=" ")
49
50        print("\ninvalid password entered")
51        break
52
53 if valid == False:
54     print("invalid password entered")
55

```

##### Password Validation Outcome

Below are the validation (check) messages to see if the user has entered the correct format for the password:

- Must contain 8 or more characters
- Must contain lowercase and uppercase letters
- Must contain numbers and symbols
- Must not have any spaces

Enter a password: 1234GT&  
8 or more characters required  
invalid password entered

Enter a password: 123erf6yj  
uppercase characters required  
invalid password entered

Enter a password: QWERTYUI  
lowercase characters required  
invalid password entered

Enter a password: QWetgysu  
digits required  
invalid password entered

When the user has entered the correct format of the password, it is converted to \*.

Enter a password: 1234FGty&  
\* \* \* \* \*  
valid password entered

#### Challenge question

- Create a login system asking the user for a username and password and applying different string manipulation methods to it.

#### Suggested reading

- [https://www.w3schools.com/python/python\\_ref\\_string.asp](https://www.w3schools.com/python/python_ref_string.asp)