

# National 5 Computing Homework



## Computational Thinking

### Topic 3 - String Handling

Name -

Grade - / 19

Feedback

All programming languages can store and manipulate text using string variables and built in functions. Some examples of string handling, in the programming language Python are shown below:

Storing Text: `productName = "Apple iPad Air 32Gb"`

Concatenation:  
(joining text) `productName = "Apple " + "iPad Air " + "32Gb"`  
`print (productName)`

Output from Program  
Apple iPad Air 32Gb

Sub-String:  
(splitting text) `comment = "Most Excellent"`  
`part1 = comment[0:7]`  
`print (part1)`

Note the above  
two lines can  
be combined  
like this

`print (comment[-5:-2])`  
`print (comment[:3])`  
`print (comment[-9:])`

Output from Program

Most Ex  
lle  
Mos  
Excellent

Lower Case

`quotation = "The answer is Forty Two"`  
`smallQuotation = quotation.lower()`  
`print (smallQuotation)`

Upper Case

`print (quotation.upper())`

Output from Program

the answer is forty two  
THE ANSWER IS FORTY TWO

Length of String

`sentence = "I never could get the hang of Thursdays"`  
`sentencelength = len(sentence)`  
`print(sentencelength)`

Output from Program

39

For each of the following problems, think through the code and write down the output from each program. The problems will get harder and harder.

1. `productName = "The Hobbit"`  
`print (productName)`

Output from Program

(1)

2. `footballTeam = "Dunfermline" + " Football " + "Club"`  
`print (footballTeam)`

Output from Program

(1)

3. `dogBreed = "Labradoodle"`  
`print (dogBreed + dogBreed)`

Output from Program

(1)

4. `dogBreed = "Labradoodle"`  
`dogAge = "Two"`  
`print (dogBreed + dogAge)`

Output from Program

(1)

5. `dogBreed = "Labradoodle"`  
`dogAge = "Two"`  
`print (dogAge + dogBreed)`

Output from Program

(1)



6. `bookWeek = "The Colour of Magic"`  
`print (bookWeek[0:1])` Output from Program (1)
7. `bookWeek = "The Colour of Magic"`  
`print (bookWeek[:3])` Output from Program (1)
8. `bookWeek = "The Colour of Magic"`  
`print (bookWeek[5:11])` Output from Program (1)
9. `bookWeek = "The Colour of Magic"`  
`print (bookWeek[-4:])` Output from Program (1)
10. `bookWeek = "The Colour of Magic"`  
`print (bookWeek[5:-10])` Output from Program (1)
11. `firstName = "Walter"`  
`surname = "White"`  
`print (firstName[0:1])`  
`print (surname [-1:])` Output from Program (1)
12. `firstName = "Walter"`  
`surname = "White"`  
`print (firstName[-1:7])`  
`print (surname [-1:])` Output from Program (1)
13. `firstName = "Walter"`  
`surname = "White"`  
`print (firstName[0:3] + surname [0:3])` Output from Program (1)
14. `filmRelease = "World War Z"`  
`tempFilm = filmRelease.lower()`  
`print (tempFilm)` Output from Program (1)
15. `filmRelease = "World War Z"`  
`releaseDate = "31st OCT"`  
`tempFilm = filmRelease.upper()`  
`tempDate = releaseDate.lower()`  
`print (tempFilm + " " + tempDate)` Output from Program (1)
16. `word1 = "central"`  
`word2 = "processing"`  
`word3 = "unit"`  
`word4 = word1[0:1].upper()`  
`word5 = word2[0:1].upper()`  
`word6 = word3[0:1].upper()`  
`print (word4 + " = " + word1)`  
`print (word5 + " = " + word2)`  
`print (word6 + " = " + word3)` Output from Program (1)



17. `password = "spider man"`  
`passwordLength = len(password)`  
`print (passwordLength)`

Output from Program

(1)

18. `password = "Olympus"`  
`passwordLength = len(password)`  
`print ("Your password is " + passwordLength + " characters long")`

Output from Program

(1)

19. `word = "Sydney"`  
`middleLetter = len(word) / 2`  
#note that the next line removes any decimal place from the number  
`middleLetter = int(middleLetter)`  
`print (word[middleLetter-1:middleLetter])`

Output from Program

(1)

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Python has many other functions used to manipulate strings. Here is one more:

Count: *#This returns the number of times text is found in a given string*

```
advice = "In winter, sensible people stay indoors"
print (advice.count("in"))
```

Output from Program

2

*#Note that the output is 2 because the follow "in"s are found in the advice string:*  
In **w**inter, sensible people stay **i**ndors  
The first "In" has a capital I so isn't counted.

20. The following program uses string handling to create a simple password. Can you work out what the password is? (4)

```
statement = "When Mr. Bilbo Baggins of Bag End announced"
letter1position = statement.count("a")
letter2position = statement.count("e")
letter3position = statement.count("i")
letter4position = statement.count("o")
letter1 = statement[letter1position-1:letter1position]
letter2 = statement[letter2position-1:letter2position]
letter3 = statement[letter3position-1:letter3position]
letter4 = statement[letter4position-1:letter4position]
password = letter4 + letter2 + letter3 + letter1
print (password)
```

Output from Program