Python – Strings

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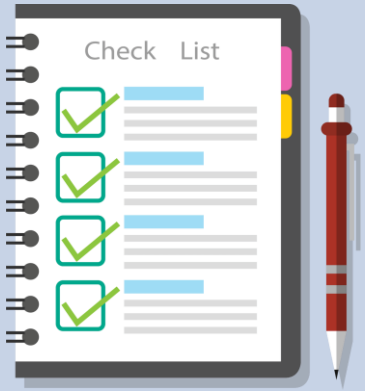

Python Basics

What are Strings?

String Manipulation

- Accessing Strings
- Basic Operations
- String slices

What are strings?

Strings:

- String is a sequential data type, which holds sequences of characters in it.
- A character can be anything either Numeric or Alphabet.
- Strings can have spaces: "hello world".
- An empty string is a string that has 0 characters.
- Python strings are immutable
- Python recognize as strings everything that is delimited by quotation marks (" " or ' ').

String Manipulation

- To do string manipulation, we can use some of **Pythons built-in methods**.
- Python has a lot of built in methods that allow us to easily manipulate (change) strings

Creation:

```
word = "Hello World"
print(word)
```

```
C:\Users\ravikiran\Desktop\python>a.py
Hello World
```

Accessing :

- Use [ ] to access characters in a string

```
word = "Hello World"
print(word[0])
```

```
C:\Users\ravikiran\Desktop\python>a.py
H
```

String Manipulation

Length:

- The **len** method counts the number of characters in a string.

```
word = "Hello World"
print(len(word))
```

```
C:\Users\ravikiran\Desktop\python>a.py
11
```

Finding:

```
word = "Hello World"
print ("word.count('l'):",word.count('l'))
# count how many times l is in the string
print ("word.find('H'):",word.find("H"))
# find the word H in the string
print ("word.index('World'):",word.index("World"))
# find the letters World in the string
```

```
C:\Users\ravikiran\Desktop\python>a.py
word.count('l'): 3
word.find('H'): 0
word.index('World'): 6
```

String Manipulation

Replace:

```
word = "Hello World"
print (word.replace('Hello','Hi'))
```

```
C:\Users\ravikiran\Desktop\python>a.py
Hi World
```

Slicing :

- Use [# : #] to get set of letter as many other languages, python starts to count from 0.

```
word = "Hello World"
print (word[0])          #get one char of the word
print (word[0:1])        #get one char of the word (same as above)
print (word[0:3])       #get the first three char
print (word[:3])         #get the first three char
print (word[-3:])        #get the last three char
print (word[3:])         #get all but the three first char
print (word[:-3])        #get all but the three last character
```

```
C:\Users\ravikiran\Desktop\python>
a.py
H
H
Hel
Hel
rld
lo World
Hello Wo
```

String Manipulation

Startswith / Endswith:

```
word = "Hello World"
print(word.startswith("H"))
print(word.endswith("d"))
print( word.endswith("w"))
```

```
C:\Users\ravikiran\Desktop\pythona
.py
True
True
False
```

Repeat Strings & Replacing:

```
word = "Hello World"
print ("."* 10)
print(word.replace("Hello", "Goodbye"))
```

```
C:\Users\ravikiran\Desktop\pythona
.py
..........
Goodbye World
```

String Manipulation

Reversing:

```
word = "Hello World"
print (' '.join(reversed(word)))
print ('@ '.join(reversed(word)))
```

```
C:\Users\ravikiran\Desktop\pythona
.py
d l r o W   o l l e H
d@ l@ r@ o@ W@  @ o@ l@ l@ e@ H
```

Strip:

- Python strings have the strip(), lstrip(), rstrip() methods for removing any character from both ends of a string.
- If the characters to be removed are not specified then white-space will be removed.

- **strip()** #removes from both ends
- **lstrip()** #removes leading characters (Left-strip)
- **rstrip()** #removes trailing characters (Right-strip)

String Manipulation

```
word = "    Hello World    "
print (word)
print (word.strip())
print (word.lstrip())
print (word.rstrip())
```

```
C:\Users\ravikiran\Desktop\pythona
.py
    Hello World
Hello World
Hello World
    Hello World
```

Concatenation:

```
word = "Hello"
word1 = "World"
print(word + word1)
print(word,word1)
```

```
.py
HelloWorld

C:\Users\ravikiran\Desktop\pythona
.py
HelloWorld
Hello World
```

String Manipulation

Others:

- **word.isalnum()** #check if all char are alphanumeric
- **word.isalpha()** #check if all char in the string are alphabetic
- **word.isdigit()** #test if string contains digits
- **word.istitle()** #test if string contains title words
- **word.isupper()** #test if string contains upper case
- **word.islower()** #test if string contains lower case
- **word.isspace()** #test if string contains spaces
- **word.endswith('d')** #test if string ends with a d
- **word.startswith('H')** #test if string starts with H

Assignment - 4

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1. Write a Python program to calculate the length of a string.

2. Write a Python program to count the number of characters (character frequency) in a string.
   Sample String : google.com'
   Expected Result : {'o': 3, 'g': 2, '.': 1, 'e': 1, 'l': 1, 'm': 1, 'c': 1}

3. Write a Python program to get a single string from two given strings, separated by a space and swap the first two characters of each string
   Sample String : 'abc', 'xyz'
   Expected Result : 'xyc abz‘

4. Write a Python program to remove the characters which have odd index values of a given string.

5. Write a Python program to check whether a string starts with specified characters.