



Chapter 11
Strings

Computer Science

Class XI (As per
CBSE Board)

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String is a sequence of characters, which is enclosed between either single (' ') or double quotes (" "), python treats both single and double quotes same.



Creating String

Creation of string in python is very easy.

e.g.

a='Computer Science'

b="Informatics Practices"

Accessing String Elements

e.g.

```
str='Computer Sciene'  
print('str-', str)  
print('str[0]-', str[0])  
print('str[1:4]-', str[1:4])  
print('str[2:]-', str[2:])  
print('str *2-', str *2)  
print("str +'yes'-", str +'yes')
```

OUTPUT

```
('str-', 'Computer Sciene')  
( 'str[0]-', 'C')  
( 'str[1:4]-', 'omp')  
( 'str[2:]-', 'mputer Sciene')  
( 'str *2-', 'Computer  
ScieneComputer Sciene')  
("str +'yes'-", 'Computer  
Scieneyes')
```

Iterating/Traversing through string

Each character of the string can be accessed sequentially using for loop.

e.g.

```
str='Computer Sciene'  
for i in str:  
    print(i)
```

OUTPUT



C
o
m
p
u
t
e
r

S
c
i
e
n
e

String comparison

We can use (> , < , <= , <= , == , !=) to compare two strings. Python compares string lexicographically i.e using ASCII value of the characters.

Suppose you have str1 as "Maria" and str2 as "Manoj" . The first two characters from str1 and str2 (M and M) are compared. As they are equal, the second two characters are compared. Because they are also equal, the third two characters (r and n) are compared. And because 'r' has greater ASCII value than 'n' , str1 is greater than str2 .

e.g.program

	<u>OUTPUT</u>
<code>print("Maria" == "Manoj")</code>	False
<code>print("Maria" != "Manoj")</code>	True
<code>print("Maria" > "Manoj")</code>	True
<code>print("Maria" >= "Manoj")</code>	False
<code>print("Maria" < "Manoj")</code>	False
<code>print("Maria" <= "Manoj")</code>	True
<code>print("Maria" > "")</code>	

Updating Strings

String value can be updated by reassigning another value in it.

e.g.

```
var1 = 'Comp Sc'  
var1 = var1[:7] + ' with Python'  
print ("Updated String :- ",var1 )
```

OUTPUT

```
('Updated String :- ', 'Comp Sc with Python')
```

String Special Operators

e.g.

a="comp"

B="sc"

Operator	Description	Example
+	Concatenation - to add two strings	a + b = comp sc
*	Replicate same string multiple times (Repetition)	a*2 = compcomp
[]	Character of the string	a[1] will give o
[:]	Range Slice -Range string	a[1:4] will give omp
in	Membership check	p in a will give 1
not in	Membership check for non availability	M not in a will give 1
%	Format the string	

`print ("My Subject is %s and class is %d" % ('Comp Sc', 11))`

Format Symbol

%s -string conversion via `str()` prior to formatting

%i -signed decimal integer

%d -signed decimal integer

%u -unsigned decimal integer

%o -octal integer

%x -hexadecimal integer (lowercase letters)

%X -hexadecimal integer (UPPERcase letters)

%e -exponential notation (with lowercase 'e')

%E -exponential notation (with UPPERcase 'E')

%f -floating point real number

%c -character

%G -the shorter of **%f** and **%E**

Triple Quotes

It is used to create string with multiple lines.

e.g.

```
Str1 = """This course will introduce the learner to  
text mining and text manipulation basics. The  
course begins with an understanding of how text is  
handled by python"""
```

String functions and methods

a="comp"

b="my comp"

Method	Result	Example
len()	Returns the length of the string	r=len(a) will be 4
str.capitalize()	To capitalize the string	r=a.capitalize() will be "COMP"
str.title()	Will return title case string	
str.upper()	Will return string in upper case	r=a.upper() will be "COMP"
str.lower()	Will return string in lower case	r=a.lower() will be "comp"
str.count()	will return the total count of a given element in a string	r=a.count('o') will be 1
str.find(sub)	To find the substring position(starts from 0 index)	r=a.find('m') will be 2
str.replace()	Return the string with replaced sub strings	r=b.replace('my','your') will be 'your comp'

String functions and methods

a="comp"

Method	Result	Example
<code>str.index()</code>	Returns index position of substring	<code>r=a.index('om')</code> will be 1
<code>str.isalnum()</code>	String consists of only alphanumeric characters (no symbols)	<code>r=a.isalnum()</code> will return True
<code>str.isalpha()</code>	String consists of only alphabetic characters (no symbols)	
<code>str.islower()</code>	String's alphabetic characters are all lower case	
<code>str.isnumeric()</code>	String consists of only numeric characters	
<code>str.isspace()</code>	String consists of only whitespace characters	
<code>str.istitle()</code>	String is in title case	
<code>str.isupper()</code>	String's alphabetic characters are all upper case	

String functions and methods

a="comp"

Method	Result	Example
str.lstrip(char) str.rstrip(char)	Returns a copy of the string with leading/trailing characters removed	b='**comp'; r=b.lstrip(); will be 'comp'
str.strip(char)	Removes specific character from leading and trailing position	
str.split()	Returns list of strings as splitted	b='my comp'; r=b.split(); will be ['my','comp']
str.partition()	Partition the string on first occurrence of substring	b='my comp'; r=b.partition('comp'); will be ['my','comp']

#Python Program to calculate the number of digits and letters in a string

```
string=raw_input("Enter string:")
count1=0
count2=0
for i in string:
    if(i.isdigit()):
        count1=count1+1
    count2=count2+1
print("The number of digits is:")
print(count1)
print("The number of characters is:")
print(count2)
```

Searching for Substrings

METHOD NAME	METHODS DESCRIPTION:
<code>endswith(s1: str): bool</code>	Returns True if strings ends with substring <code>s1</code>
<code>startswith(s1: str): bool</code>	Returns True if strings starts with substring <code>s1</code>
<code>count(substring): int</code>	Returns number of occurrences of substring the string
<code>find(s1): int</code>	Returns lowest index from where <code>s1</code> starts in the string, if string not found returns -1
<code>rfind(s1): int</code>	Returns highest index from where <code>s1</code> starts in the string, if string not found returns -1

E.g. program

```
s = "welcome to python"
print(s.endswith("thon"))
print(s.startswith("good"))
print(s.find("come"))
print(s.find("become"))
print(s.rfind("o"))
print(s.count("o"))
```

OUTPUT

```
True
False
3
-1
15
3
```