Lecture-12

Raw String:

A **Python raw string** is a normal **string**, prefixed with a r or R. This treats characters such as backslash ('\') as a literal character. This also means that this character will not be treated as a escape character.

Conversely, prefixing a special character with "\" turns it into an ordinary character. This is called "escaping". For example, "\'" is the single quote character. 'It\'s raining' therefore is a valid string and equivalent to "It's raining". Likewise, "" can be escaped: "\"hello\"" is a string begins and ends with the literal double quote character. Finally, "\" can be used to escape itself: "\\" is the literal backslash character.

```
>>> print 'It\'s raining
'It's raining
 >>> 'It\'s raining'     # Same string specified differently
"It's raining“
 >>> print "\"hello\"“
"hello"
>>> print '"\\“
 is the backslash‘     # Try with "\" instead of "\\“
```

Raw strings do not treat the backslash as a special character at all. Every character you put into a raw string stays the way you wrote it −

```
print 'C:\\nowhere'
```

When the above code is executed, it produces the following result −

```
C:\nowhere Now let's make use of raw string. We would put expression in r'expression' as follows −

print r'C:\\nowhere'
```

When the above code is executed, it produces the following result −

```
C:\\nowhere
```

Unicode String

Normal strings in Python are stored internally as 8-bit ASCII, while Unicode strings are stored as 16-bit Unicode. This allows for a more varied set of characters, including special characters from most languages in the world. I'll restrict my treatment of Unicode strings to the following –

```
print u'Hello, world!'
```

When the above code is executed, it produces the following result –

```
Hello, world!
```

Built-in String Methods:

Python includes the following built-in methods to manipulate strings –

Sr.No.	Methods with Description
1	capitalize() Capitalizes first letter of string
2	center(width, fillchar) Returns a space-padded string with the original string centered to a total of width columns.
3	count(str, beg= 0,end=len(string)) Counts how many times str occurs in string or in a substring of string if starting index beg and ending index end are given.
4	decode(encoding='UTF-8',errors='strict') Decodes the string using the codec registered for encoding. encoding defaults to the default string encoding.

Sr.No.	Methods with Description
5	encode(encoding='UTF-8',errors='strict') Returns encoded string version of string; on error, default is to raise a ValueError unless errors is given with 'ignore' or 'replace'.
6	endswith(suffix, beg=0, end=len(string)) Determines if string or a substring of string (if starting index beg and ending index end are given) ends with suffix; returns true if so and false otherwise.
7	expandtabs(tabsize=8) Expands tabs in string to multiple spaces; defaults to 8 spaces per tab if tabsize not provided.
8	find(str, beg=0 end=len(string)) Determine if str occurs in string or in a substring of string if starting index beg and ending index end are given returns index if found and -1 otherwise.
9	index(str, beg=0, end=len(string)) Same as find(), but raises an exception if str not found.
10	isalnum() Returns true if string has at least 1 character and all characters are alphanumeric and false otherwise.
11	isalpha() Returns true if string has at least 1 character and all characters are alphabetic and false otherwise.

Sr.No.	Methods with Description
12	isdigit() Returns true if string contains only digits and false otherwise.
13	islower() Returns true if string has at least 1 cased character and all cased characters are in lowercase and false otherwise.
14	isnumeric() Returns true if a unicode string contains only numeric characters and false otherwise.
15	isspace() Returns true if string contains only whitespace characters and false otherwise.
16	istitle() Returns true if string is properly "titlecased" and false otherwise.
17	isupper() Returns true if string has at least one cased character and all cased characters are in uppercase and false otherwise.

Sr.No.	Methods with Description
18	join(seq) Merges (concatenates) the string representations of elements in sequence seq into a string, with separator string.
19	len(string) Returns the length of the string
20	ljust(width[, fillchar]) Returns a space-padded string with the original string left-justified to a total of width columns.
21	lower() Converts all uppercase letters in string to lowercase.
22	lstrip() Removes all leading whitespace in string.
23	maketrans() Returns a translation table to be used in translate function.

Sr.No.	Methods with Description
24	max(str) Returns the max alphabetical character from the string str.
25	min(str) Returns the min alphabetical character from the string str.
26	replace(old, new [, max]) Replaces all occurrences of old in string with new or at most max occurrences if max given.
27	rfind(str, beg=0,end=len(string)) Same as find(), but search backwards in string.
28	rindex(str, beg=0, end=len(string)) Same as index(), but search backwards in string.
29	rjust(width,[, fillchar]) Returns a space-padded string with the original string right-justified to a total of width columns.
30	rstrip() Removes all trailing whitespace of string.
31	split(str="", num=string.count(str)) Splits string according to delimiter str (space if not provided) and returns list of substrings; split into at most num substrings if given.

Sr.No.	Methods with Description
32	splitlines(num=string.count('\n')) Splits string at all (or num) NEWLINEs and returns a list of each line with NEWLINEs removed.
33	startswith(str, beg=0,end=len(string)) Determines if string or a substring of string (if starting index beg and ending index end are given) starts with substring str; returns true if so and false otherwise.
34	strip([chars]) Performs both lstrip() and rstrip() on string.
35	swapcase() Inverts case for all letters in string.
36	title() Returns "titlecased" version of string, that is, all words begin with uppercase and the rest are lowercase.
37	translate(table, deletechars="") Translates string according to translation table str(256 chars), removing those in the del string.

Sr.No.	Methods with Description
38	upper() Converts lowercase letters in string to uppercase.
39	zfill (width) Returns original string leftpadded with zeros to a total of width characters; intended for numbers, zfill() retains any sign given (less one zero).
40	isdecimal() Returns true if a unicode string contains only decimal characters and false otherwise.

References:

1.Introduction to Computation and Programming using Python, by John Guttag, PHI Publisher

2. Fundamentals of Python first Programmes by Kenneth A Lambert, Copyrighted material Course Technology Inc. 1 st edition (6th February 2009)

3. https://www.tutorialspoint.com/python/index.htm

****END OF THE LECTURE***

THANK YOU