# String

# Accessing Values in Strings

Python does not support a character type; these are treated as strings of length one, thus also considered a substring.

```
var1 = 'Hello World!'
var2 = "Python Programming"
print "var1[0]: ", var1[0]
print "var2[1:5]: ", var2[1:5]
```

output::

```
var1[0]:  H
var2[1:5]:  ytho
```

# Updating Strings

**You can "update" an existing string by (re)assigning a variable to another string.**

```
var1 = 'Hello World!'
print("The String is  String   :- ", var1)
print("Updated String :- ", var1[:6] + 'Python')
```

**output::**

```
The String is  String   :-  Hello World!
Updated String :-  Hello Python
```

# Escape Characters

| Backslash notation | Description | Example |
|---|---|---|
| \\ | Prints Backslash | Print("\\") |
| \` | Prints single-quote | print("\'") |
| \" | Pirnts double quote | Print("\"") |
| \a | Bell or alert | print("\a fox") |
| \b | Backspace | print("Hello \b World!") |
| \f | Formfeed | print("Hello \f World!") |
| \n | Newline | print("Hello \n World!") |
| \r | Carriage return | print("Hello \r World!") |
| \t | Tab | print("Hello \t World!") |
| \v | Vertical tab | print("Hello \v World!") |

# String Special Operators

| Operator | Description | Example |
|---|---|---|
| + | Concatenation - Adds values on either side of the operator | a + b will give HelloPython |
| * | Repetition - Creates new strings, concatenating multiple copies of the same string | a*2 will give -HelloHello |
| [] | Slice - Gives the character from the given index | a[1] will give e |
| [ : ] | Range Slice - Gives the characters from the given range | a[1:4] will give ell |
| in | Membership - Returns true if a character exists in the given string | H in a will give 1 |
| not in | Membership - Returns true if a character does not exist in the given string | M not in a will give 1 |
| r/R | Raw String - Suppresses actual meaning of Escape characters. The syntax for raw strings is exactly the same as for normal strings with the exception of the raw string operator, the letter "r," which precedes the quotation marks. The "r" can be lowercase (r) or uppercase (R) and must be placed immediately preceding the first quote mark. | print r'\n' prints \n and print R'\n'prints \n |

# String Formatting Operator

| Format Symbol | Conversion |
|---|---|
| %c | Character |
| %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 |
| %g | the shorter of %f and %e |
| %G | the shorter of %f and %E |

# Built-in String Methods

| Sr.No. | Methods with Description |
|---|---|
| 1 | capitalize()<br><br>Capitalizes first letter of string |
| 2 | center(width, fillchar)<br>Returns a space-padded string with the original string centered to a total of width columns. |
| 3 | count(str, beg= 0,end=len(string))<br>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 | index(str, beg=0, end=len(string))<br>Same as find(), but raises an exception if str not found. |
| 5 | isupper()<br>Returns true if string has at least one cased character and all cased characters are in uppercase and false otherwise. |
| 6 | len(string)<br>Returns the length of the string |
| 7 | lower()<br>Converts all uppercase letters in string to lowercase. |
| 8 | max(str)<br>Returns the max alphabetical character from the string str. |
| 9 | min(str)<br>Returns the min alphabetical character from the string str. |
| 10 | replace(old, new [, max])<br>Replaces all occurrences of old in string with new or at most max occurrences if max given. |
| 11 | split(str="", num=string.count(str))<br>Splits string according to delimiter str (space if not provided) and returns list of substrings; split into at most num substrings if given. |
| 12 | upper()<br>Converts lowercase letters in string to uppercase. |