String

A string is a sequence of charactures.

Computer don't deal with charactures, they deal with numbers(binary). Even through you may see charactor on your screen, internally it is stored and manipulated as a combination of 0's and 1's.

This conversion of charactors to a number called encoding, and the reverse process is decoding. ASCII and Unicode are some of the populator encoding used.

In Python, String is a sequence of unicode character.

How to Create a String

```
mystring = "hello hi"
print(mystring)

mystring = 'hello hi '
print(mystring)

mystring = '''hello hi'''
print(mystring)
```

```
hello hi
hello hi
hello hi
```

How to Access Character in String

```
mystring = "hello"

#print first character
print(mystring[4])

#print last character of string using negative indexing
print(mystring[-4])

#slicing of 2nd and 5th character
print(mystring[3:5])
```

```
o
e
lo
```

If we try to access index out of range or use decimal number, we get errors.

```
print(mystring[15])
```

```
---------------------------------------------------------------------------
IndexError                                Traceback (most recent call
last)
<ipython-input-6-51da74bbfeec> in <module>
----> 1 print(mystring[15])

IndexError: string index out of range
```

```
print(mystring[1.5])
```

```
---------------------------------------------------------------------------
TypeError                                 Traceback (most recent call
last)
<ipython-input-5-ed7a544e721c> in <module>
----> 1 print(mystring[1.5])

TypeError: string indices must be integers
```

How to change or Delete character in String

Strings are immutable. This means that elements of as string can't be change once it has been assigned.

We can simply reassign different string to the same name.

```
mystring = "hello"
mystring[4] = 'i' # strings are immutable.
```

```
---------------------------------------------------------------------------
TypeError                                 Traceback (most recent call
last)
<ipython-input-12-660da19442f4> in <module>
      1 mystring = "hello"
----> 2 mystring[4] = 'i' # strings are immutable.

TypeError: 'str' object does not support item assignment
```

We can't delete or remove characters from string. But delete entire string is possible using the keyword del.

```
del mystring
```

```
print(mystring)
```

```
---------------------------------------------------------------------------
-----
NameError                                 Traceback (most recent call
last)
<ipython-input-15-fe4c199fc922> in <module>
----> 1 print(mystring)

NameError: name 'mystring' is not defined
```

String operations

```
s1 = "hello !"
s2 = "Harsh raj singh "
print(id(s2))

# concatenation of 2 strings
print( s2 + s1 )

# repeat string n times
print(s2*3)

s2 = s1
print(s2)
print(id(s2))
```

```
2247579184488
Harsh raj singh hello !
Harsh raj singh Harsh raj singh Harsh raj singh
hello !
2247580148432
```

Iteration through strings

```
count = 0
for l in "hello word":
    if l=='w':
        count += 1
print(count,'letter found')
```

```
1 letter found
```

String membership test

```
print('a' in "hello word" ) # in operator to test memberhship
```

```
False
```

```
print('ow' in "hello word" )
```

```
False
```

Sring Methods

some of the commonly used method are lower(),upper(), join(),split(), find(), replace() etc.

```
'HELLO HI'.lower()
```

```
'hello hi'
```

```
'hello hi'.upper()
```

```
'HELLO HI'
```

```
" This will split all words in a list".split()
```

```
['This', 'will', 'split', 'all', 'words', 'in', 'a', 'list']
```

```
" This will split all words in a list".upper().split()
```

```
['THIS', 'WILL', 'SPLIT', 'ALL', 'WORDS', 'IN', 'A', 'LIST']
```

```
''.join(['THIS', 'WILL', 'SPLIT', 'ALL', 'WORDS', 'IN', 'A', 'LIST'])
```

```
'THISWILLSPLITALLWORDSINALIST'
```

```
' '.join(['THIS', 'WILL', 'SPLIT', 'ALL', 'WORDS', 'IN', 'A', 'LIST'])
```

```
'THIS WILL SPLIT ALL WORDS IN A LIST'
```

```
' '.join(['THIS', 'WILL', 'SPLIT', 'ALL', 'WORDS', 'IN', 'A',
'LIST']).lower()
```

```
'this will split all words in a list'
```

```
"Good Morning".find("o")
```

```
1
```

```
"Bad moring".replace('Bad', 'very Good')
```

```
'very Good moring'
```

```
s1 = "Bad moring"

s2 = s1.replace('Bad', 'Good')
print(s1)

print(s2)
```

```
Bad moring
Good moring
```

Python Program to check where a string is palindrome or not ?

```
mystr = "AabbbaaA"

# convert entire string to either lower and upper case
mystr = mystr.lower()

#reverse string
revstr = reversed(mystr)

# check if the string is equal to its reverse
if list(mystr) == list(revstr):
    print("given string is palindrome")
else :
    print("given string is not palindrome")
```

```
given string is not palindrome
```

Python program to Sort the Words in Alphabetic order ?

```
mystr = "Python program to Sort the Words in Alphabetic order Harsh
harsh raj singh"
# break the string into list of words
words = mystr.split()
print(words)
print("")

#short the list
words.sort()

# print sorted words are
for word in words:
    print(word)
```

```
['Python', 'program', 'to', 'Sort', 'the', 'Words', 'in',
'Alphabetic', 'order', 'Harsh', 'harsh', 'raj', 'singh']

Alphabetic
Harsh
Python
Sort
Words
harsh
in
order
program
raj
singh
the
to
```