strings

- string is a sequence of characters
- strings are immutable (we cannot change the character)(un changeable)
- represented with '',""
- by default it reads as strings

```
In [2]: s="12"
        type(s)

Out[2]: str
```

```
In [4]: s= int(input('enter value'))
        print(s)
        type(s)

        enter value123
        123

Out[4]: int
```

```
In [5]: s='hello ece'
        len(s)

Out[5]: 9
```

```
In [6]: s[0]

Out[6]: 'h'
```

```
In [7]: s[1]

Out[7]: 'e'
```

```
In [8]: # string slicing
        s[2:5]

Out[8]: 'llo'
```

```
In [12]: s[-1]

Out[12]: 'e'
```

In [16]:
```
print(dir(str),end=' ')
```

```
['__add__', '__class__', '__contains__', '__delattr__', '__dir__', '__doc__',
'__eq__', '__format__', '__ge__', '__getattribute__', '__getitem__', '__getne
wargs__', '__gt__', '__hash__', '__init__', '__init_subclass__', '__iter__',
'__le__', '__len__', '__lt__', '__mod__', '__mul__', '__ne__', '__new__', '__
reduce__', '__reduce_ex__', '__repr__', '__rmod__', '__rmul__', '__setattr_
_', '__sizeof__', '__str__', '__subclasshook__', 'capitalize', 'casefold', 'c
enter', 'count', 'encode', 'endswith', 'expandtabs', 'find', 'format', 'forma
t_map', 'index', 'isalnum', 'isalpha', 'isascii', 'isdecimal', 'isdigit', 'is
identifier', 'islower', 'isnumeric', 'isprintable', 'isspace', 'istitle', 'is
upper', 'join', 'ljust', 'lower', 'lstrip', 'maketrans', 'partition', 'replac
e', 'rfind', 'rindex', 'rjust', 'rpartition', 'rsplit', 'rstrip', 'split', 's
plitlines', 'startswith', 'strip', 'swapcase', 'title', 'translate', 'upper',
'zfill']
```

In [17]:
```
s='abc123'
s.isalpha()
```

Out[17]:
```
False
```

In [23]:
```
s.isalnum()
```

Out[23]:
```
True
```

In [29]:
```
s='Hello ece'
s.capitalize()
```

Out[29]:
```
'Hello ece'
```

In [30]:
```
s.casefold()
```

Out[30]:
```
'hello ece'
```

In [33]:
```
S='HELLO ECE'
s.casefold()
```

Out[33]:
```
'hello ece'
```

In [35]:
```
s.center(15)
```

Out[35]:
```
'   Hello ece   '
```

In [42]:
```
s1='problem solving and programming in python'
s1.count('pro')
```

Out[42]:
```
0
```

```
In [43]: s1[2]='a'
```

```
---------------------------------------------------------------------------
TypeError                                 Traceback (most recent call last)
<ipython-input-43-62d4037e8857> in <module>
----> 1 s1[2]='a'

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

```
In [47]: s1.find('py')
```

```
Out[47]: 34
```

```
In [49]: s1.find('ph')
```

```
Out[49]: -1
```

```
In [51]: s1='apssdc'
         s2='python'
         s1.join(s2)
```

```
Out[51]: 'papssdcyapssdctapssdchapssdcoapssdcnapssdcs'
```

```
In [56]: # split method
         s1=s1.split('s')
```

```
In [55]: s1[0]
```

```
Out[55]: 'a'
```

```
In [58]: s2='hello ece'
         s2=s2.split(' ')
```

```
In [59]: s2
```

```
Out[59]: ['hello', 'ece']
```

```
In [60]: s2[0]
```

```
Out[60]: 'hello'
```

```
In [73]: st=input('enter a value')
         st=st.split()
         print(st[1][0]+'.',st[0])
```

```
enter a valuepython workshop
w. python
```

```
In [79]: s='hello'
         s[::-2]

Out[79]: 'olh'
```

```
In [80]: s='s star students'
         s.endswith('s')

Out[80]: True
```

```
In [82]: s=s.startwith('s')

---------------------------------------------------------------------------
AttributeError                            Traceback (most recent call last)
<ipython-input-82-f96752b6e66e> in <module>
----> 1 s=s.startwith('s')

AttributeError: 'str' object has no attribute 'startwith'
```

```
In [84]: #strip - to remove unwanted spaces
         s1='hello world '
         s1.strip()

Out[84]: 'hello world'
```

```
In [88]: s4='HELLO'
         S4.lower(s4)

---------------------------------------------------------------------------
NameError                                 Traceback (most recent call last)
<ipython-input-88-482c53ad5008> in <module>
      1 s4='HELLO'
----> 2 S4.lower(s4)

NameError: name 'S4' is not defined
```

```
In [89]: s1.title()

Out[89]: 'Hello World '
```

```
In [90]: s1.swapcase()

Out[90]: 'HELLO WORLD '
```

```
In [91]: s1='HELLo WorLD'
         s1.swapcase()

Out[91]: 'hellO wORld'
```

Data structures in python

- Lists
- Tuples
- Dictionatries
- Sets

lists

- colletion of data of different data types
- list are mutable
- represented in [] , comma separeted values

```
In [92]: li=[]
         type(li)

Out[92]: list
```

```
In [99]: li=[1,2,3,4,'a','abc']
         li[0]

Out[99]: 1
```

```
In [102]: li[::-1]

Out[102]: ['abc', 'a', 4, 3, 2, 1]
```

```
In [101]: len(li)

Out[101]: 6
```

```
In [106]: li1=[1,3,4,6,2]
          print(max(li1))
          print(min(li1))
          print(sum(li1))

6
1
16
```

In [109]:
```
print(dir(list),end=' ')
```

```
['__add__', '__class__', '__contains__', '__delattr__', '__delitem__', '__dir
__', '__doc__', '__eq__', '__format__', '__ge__', '__getattribute__', '__geti
tem__', '__gt__', '__hash__', '__iadd__', '__imul__', '__init__', '__init_sub
class__', '__iter__', '__le__', '__len__', '__lt__', '__mul__', '__ne__', '__
new__', '__reduce__', '__reduce_ex__', '__repr__', '__reversed__', '__rmul_
_', '__setattr__', '__setitem__', '__sizeof__', '__str__', '__subclasshook_
_', 'append', 'clear', 'copy', 'count', 'extend', 'index', 'insert', 'pop',
'remove', 'reverse', 'sort']
```

In [115]:
```
l1=[1,2,3,'a','b','c']
l1.append(35)
```

In [116]:
```
l1
```

Out[116]:
```
[1, 2, 3, 'a', 'b', 'c', 35]
```

In [117]:
```
l2=['acd',1,4]
l1.append(l2)
l1
```

Out[117]:
```
[1, 2, 3, 'a', 'b', 'c', 35, ['acd', 1, 4]]
```

In [118]:
```
l1.extend(l2)
l1
```

Out[118]:
```
[1, 2, 3, 'a', 'b', 'c', 35, ['acd', 1, 4], 'acd', 1, 4]
```

copy

In [119]:
```
l2.copy()
```

Out[119]:
```
['acd', 1, 4]
```

In [120]:
```
l1.copy()
```

Out[120]:
```
[1, 2, 3, 'a', 'b', 'c', 35, ['acd', 1, 4], 'acd', 1, 4]
```

In [123]:
```
l2=l1.copy()
```

In [124]:
```
l2
```

Out[124]:
```
[1, 2, 3, 'a', 'b', 'c', 35, ['acd', 1, 4], 'acd', 1, 4]
```

count

```
In [125]: l1.count(1)

Out[125]: 2

In [126]: l1.count(6)

Out[126]: 0
```

index

```
In [131]: l1.index(35)

Out[131]: 6

In [132]: l1.index(4)

Out[132]: 10
```

replace

```
In [137]: s='apssdc'
          s[0
          #s[0]='h'
          s=s.split('s')
          print(s)
          print(s[0])
          s[1]='hi'
          print(s)

          ['ap', '', 'dc']
          ap
          ['ap', 'hi', 'dc']

In [138]: s[0]

Out[138]: 'ap'

In [139]: l1[1]

Out[139]: 2

In [140]: l1[1]='apssdc'

In [141]: l1

Out[141]: [1, 'apssdc', 3, 'a', 'b', 'c', 35, ['acd', 1, 4], 'acd', 1, 4]
```

insert

```
In [148]: l1.insert(2,'three')
```

```
In [149]: l1
```

```
Out[149]: [1, 'apssdc', 'three', 3, 3, 3, 'a', 'b', 'c', 35, ['acd', 1, 4], 'acd', 1,
          4]
```

pop

```
In [150]: l1.pop()
```

```
Out[150]: 4
```

```
In [151]: l1
```

```
Out[151]: [1, 'apssdc', 'three', 3, 3, 3, 'a', 'b', 'c', 35, ['acd', 1, 4], 'acd', 1]
```

remove

```
In [155]: l1.remove(1)
```

```
In [158]: l1
```

```
Out[158]: [1, 'three', 3, 3, 'a', 'b', 'c', 35, ['acd', 1, 4], 'acd', 1]
```

sort

```
In [165]: l=[1,9,2,0,3,89]
          l.sort()
          l
```

```
Out[165]: [0, 1, 2, 3, 9, 89]
```

```
In [164]: l=[1,6,3,2,9]
          l.reverse()
          l
```

```
Out[164]: [9, 2, 3, 6, 1]
```

```
In [168]: l.sort(reverse=True)
```

In [169]:

```
l
```

Out[169]:

```
[89, 9, 3, 2, 1, 0]
```

In [170]:

```
l.clear()
l
```

Out[170]:

```
[]
```

In [2]:

```
n=int(input('enter the number'))
if n%2==0:
    print(n,'is even')
else:
    print(n,'is odd')
```

```
enter the number52
52 is even
```

In [ ]:

```
a=int(input('enter the number a'))
b=int(input('enter the number b'))
c=int(input('enter the number c'))
if a>b and a>c:
    print(a,'a is biggest')
elif b>c:
    print(b,'b is biggest')
else:
    print(c,'c is biggest')
```

In [3]:

```
ord('a')
```

Out[3]:

```
97
```

In [4]:

```
chr(97)
```

Out[4]:

```
'a'
```

In [5]:

```
ord('d')
```

Out[5]:

```
100
```

In [10]:

```
ord('d')+1
```

Out[10]:

```
101
```

In [11]:

```
ord('d')+1
```

Out[11]:

```
101
```

In [12]:

```
chr(ord('d')+1)
```

Out[12]:

```
'e'
```

lists

In [16]:

```
# generate n numbers and store them in list
n=int(input('entern a number'))
l=[]
for i in range(n):
   # print(i,end=' ')
   l.append(i)
print(l)
```

```
entern a number10
[0, 1, 2, 3, 4, 5, 6, 7, 8, 9]
```

In [28]:

```
n=int(input('enter the number'))
rev=0
    while n>0:
        #rev=n%10
        #rev=rev*10+rev
        rev=rev*10+m%10
        n=n//10

print(rev)
```

```
  File "<ipython-input-28-b55e045824bd>", line 3
    while n>0:
    ^
IndentationError: unexpected indent
```

tuples

In [30]:

```
tup = (1,2,5,'python','hello')
print(tup)
```

```
(1, 2, 5, 'python', 'hello')
```

```
In [31]: dir(tuple)
```

```
Out[31]: ['__add__',
          '__class__',
          '__contains__',
          '__delattr__',
          '__dir__',
          '__doc__',
          '__eq__',
          '__format__',
          '__ge__',
          '__getattribute__',
          '__getitem__',
          '__getnewargs__',
          '__gt__',
          '__hash__',
          '__init__',
          '__init_subclass__',
          '__iter__',
          '__le__',
          '__len__',
          '__lt__',
          '__mul__',
          '__ne__',
          '__new__',
          '__reduce__',
          '__reduce_ex__',
          '__repr__',
          '__rmul__',
          '__setattr__',
          '__sizeof__',
          '__str__',
          '__subclasshook__',
          'count',
          'index']
```

```
In [33]: tup[4]
```

```
Out[33]: 'hello'
```

```
In [35]: tup.count("hello")
```

```
Out[35]: 1
```

```
In [37]: tup.index('hello')
```

```
Out[37]: 4
```

```
In [43]: tup.len(1)
```

```
---------------------------------------------------------------------------
AttributeError                            Traceback (most recent call last)
<ipython-input-43-5e67f1de31e8> in <module>
----> 1 tup.len(1)

AttributeError: 'tuple' object has no attribute 'len'
```

dictonires

```
In [ ]:
```