Basic python

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[1]:
```
a="Ishita Jain"
type(a)
```

[1]:
```
str
```

[5]:
```
fn="Ishita"
ln="Jain"
print("My name is {} {}".format(fn,ln))
```

```
My name is Ishita Jain
```

[6]:
```
len(a)
```

[6]:
```
11
```

[7]:
```
type([1,2,3,4])
```

[7]:
```
list
```

what all langauges are used in machine learning? python java julia R Scala

why python is most popular langauge in ml? syntax of python is very easy have multiple libraries and framework

some of the products amazon alexa google assistant recommendation system

string inbuilt functions all of them return boolean function .isalnum() .isdigit() .istitle() .isupper() .islower() .isspace()

[8]:
```
True and True
```

[8]:
```
True
```

[10]:
```
True or False
```

[10]:
```
True
```

1 list

list is a mutable ie can change an item in a list by accessing it directly.

some inbuild function in list len - to find length of the list .append() - to append new elements at the end of the list .insert(position,item)- use to add at specific position .extend() - if we add multiple elements in the form of dictionary it does not append in the form of dictionary but this not happen in case of append function.

[4]:
```
a=[1,2,3]
a.append(["ishita","jain"])
a
```

[4]:
```
[1, 2, 3, ['ishita', 'jain']]
```

[2]:
```
a.insert(1,"ABC")
a
```

[2]:
```
[1, 'ABC', 2, 3, 'ishita']
```

[5]:
```
a.extend([1,2])
a
```

[5]:
```
[1, 2, 3, ['ishita', 'jain'], 1, 2]
```

Various operations sum(name of the list) - sum of all elements list.pop() - return last element of the list and pop out it. list.pop(0) - pop the first element list.count(any element) - count the number of times that element comes. list.index() - return the index of first occurence min(list) max(list)

[6]:
```
l=[1,2,3,4,5]
sum(l)
```

[6]:
```
15
```

[8]:
```
l=[1,2,3,"ishita"]
sum(l)
```

```
---------------------------------------------------------------------------
TypeError                                 Traceback (most recent call last)
Input In [8], in <cell line: 2>()
      1 l=[1,2,3,"ishita"]
----> 2 sum(l)

TypeError: unsupported operand type(s) for +: 'int' and 'str'
```

[9]:
```
l=[1,2,3,4,'a']
sum(l)
```

```
---------------------------------------------------------------------------
TypeError                                 Traceback (most recent call last)
Input In [9], in <cell line: 2>()
      1 l=[1,2,3,4,'a']
----> 2 sum(l)

TypeError: unsupported operand type(s) for +: 'int' and 'str'
```

[10]:
```
l.pop()
```

[10]: 'a'

[11]:
```
l
```

[11]: [1, 2, 3, 4]

[12]:
```
l.pop(0)
```

[12]: 1

[13]:
```
l
```

[13]: [2, 3, 4]

[19]:
```
lst=[1,1,2,3,4,5]
lst.count(1)
```

[19]: 2

[21]:
```
lst.index(1)
```

[21]: 0

[22]:
```
min(lst)
```

[22]: 1

[24]:
```
max(lst)
```

[24]: 5

[25]:
```
lst*2
```

[25]: [1, 1, 2, 3, 4, 5, 1, 1, 2, 3, 4, 5]

2 sets

sets are unorder collection of datatype mutable and has no duplicate elements.set does not support indexing.

[26]:
```
s={1,2,3,"ishita"}
s[0]
```

```
---------------------------------------------------------------------------
TypeError                                 Traceback (most recent call last)
Input In [26], in <cell line: 2>()
      1 s={1,2,3}
----> 2 s[0]

TypeError: 'set' object is not subscriptable
```

[29]:
```
s={1,2,3,"ishita"}
s
```

[29]:
```
{1, 2, 3, 'ishita'}
```

[2]:
```
s={'a','b','c',1}
s
```

[2]:
```
{1, 'a', 'b', 'c'}
```

[3]:
```
#to add the new element in the set
s.add(2)
s
```

[3]:
```
{1, 2, 'a', 'b', 'c'}
```

[ ]:
```
#set have many different inbuilt functions if we write set name.and press tab␣
↪key all are listed there
```

[9]:
```
s1={1,2,3,4,5}
s2={1,2,3,4}
print(s1.difference(s2))
print(s1)
print(s2)
```

```
{5}
{1, 2, 3, 4, 5}
{1, 2, 3, 4}
```

[12]:
```
s1={1,2,3,4,5}
s2={1,2,3,4}
```

```
print(s1.difference_update(s2))
print(s1)
print(s2)
```

```
None
{5}
{1, 2, 3, 4}
```

3 Dictionaries

dictionary is unordered,changeable and indexed .It has key value pairs.

[13]:
```
d={1:"Mon",2:"Tue",3:"Wed",4:"Thus",5:"Fri",6:"Sat",7:"Sun"}
d
```

[13]:
```
{1: 'Mon', 2: 'Tue', 3: 'Wed', 4: 'Thus', 5: 'Fri', 6: 'Sat', 7: 'Sun'}
```

[14]:
```
for i in d:
    print(i)
```

```
1
2
3
4
5
6
7
```

[16]:
```
for i in d.values():
    print(i)
```

```
Mon
Tue
Wed
Thus
Fri
Sat
Sun
```

[17]:
```
for i in d.keys():
    print(i)
```

```
1
2
3
4
5
```

```
6
7
```

[18]:
```
for i,j in d.items():
    print(i,j)
```

```
1 Mon
2 Tue
3 Wed
4 Thus
5 Fri
6 Sat
7 Sun
```

[21]:
```
#change the value of a specific key.
d[4]=40
d
```

[21]: {1: 'Mon', 2: 'Tue', 3: 'Wed', 4: 40, 5: 'Fri', 6: 'Sat', 7: 'Sun'}

4 Nested Dictionary

[27]:
```
a={'a':'A'}
b={'b':'B'}
c={'c':'C'}
d={1:a,2:b,3:c}
d
```

[27]: {1: {'a': 'A'}, 2: {'b': 'B'}, 3: {'c': 'C'}}

[28]:
```
#accessing the item in dictionary
d[1]
```

[28]: {'a': 'A'}

[30]:
```
d[1]['a']
```

[30]: 'A'

5 Tuples

non mutable

[31]:
```
t=(1,2,3,4)
t
```

[31]:
```
(1, 2, 3, 4)
```

[ ]:
```
#tuple have two inbuilt functions
```

[32]:
```
t.count(1)
```

[32]:
```
1
```

[33]:
```
t.index(4)
```

[33]:
```
3
```

[ ]:
```

```