Set

A set is a unordered collection of elements. It means that the elements may not appear in the same order as they are entered into set. Set does not accept duplicate elements. {} are used for Set in python.

1. Set: set are written in this form:
   s = {10, 20, 30, 40}
   print s
   #may display output: {40, 20, 10, 30}
2. Frozenset:same as set but we cannot modify values.
   s = {10, 20, 30, 40}
   fs = frozenset (s)
   printfs

Create a Set

In [1]:
```
s={"hi",1,2.5,"l"}
print(s)
print(type(s))
```

```
{'hi', 1, 2.5, 'l'}
<class 'set'>
```

Access Items of Set

In [2]:
```
s1 = {"India","America","Australia"}
for x in s1:
    print(x)
```

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```
India
Australia
America
```

In [3]:
```
print("India" in s1)
```

```
True
```

Change Items: Once a set is created, you cannot change its items, but you can add new items.

In [4]:
```
s1.add("China")
print(s1)
```

```
{'India', 'Australia', 'China', 'America'}
```

In [5]:
```
s1.update(["nepal",125,"italy"])
print(s1)
```

```
{'America', 'Australia', 'China', 'italy', 'nepal', 'India', 125}
```

Remove Item

In [7]:
```
set1={"A","B","C","D"}
set1.remove("E")
print(set1)
```

```
---------------------------------------------------------------------
----
KeyError                                  Traceback (most recent call l
ast)
<ipython-input-7-e2f56f5a7722> in <module>
      1 set1={"A","B","C","D"}
----> 2 set1.remove("E")
      3 print(set1)
```

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```
KeyError: 'E'
```

Join Two Sets

ref: https://docs.python.org/2/library/sets.html#set-objects

In [9]:
```
s2={1,2,3}
s3={1,2,3,4,5,6.6}
s3.issuperset(s2)
```

Out[9]:
```
True
```

Dictionary

In [10]:
```
dict={'mango':100,'orange':200}
dict
```

Out[10]:
```
{'mango': 100, 'orange': 200}
```

In [11]:
```
dict['cherry']=315
dict
```

Out[11]:
```
{'mango': 100, 'orange': 200, 'cherry': 315}
```

In [12]:
```
sorted(dict)
```

Out[12]:
```
['cherry', 'mango', 'orange']
```

In [13]:
```
list(dict)
```

Out[13]:
```
['mango', 'orange', 'cherry']
```

In [14]:
```
dict.pop('mango')
```

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Out[14]: 100

In [15]:
```
dict.popitem()
```

Out[15]: ('cherry', 315)

In [16]:
```
mydict=dict.copy()
mydict
```

Out[16]: {'orange': 200}

In [17]:
```
del mydict
```

In [18]:
```
mydict
```

```
---------------------------------------------------------------------
----
NameError                                 Traceback (most recent call l
ast)
<ipython-input-18-a0537c24f321> in <module>
----> 1 mydict

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

In [19]:
```
#Nested Dictionary
child1 = {
  "name" : "Emil",
  "year" : 2004
}
child2 = {
  "name" : "Tobias",
  "year" : 2007
}
child3 = {
  "name" : "Linus",
  "year" : 2011
}
```

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```
myfamily = {
  "child1" : child1,
  "child2" : child2,
  "child3" : child3
}

myfamily['child1']['name']
```

Out[19]:
```
'Emil'
```

Python Arrays

In [20]:
```
from array import array
a=array('d', [1.0, 2.0, 3.14])
print(a)
```

```
array('d', [1.0, 2.0, 3.14])
```

In [21]:
```
print(a.buffer_info())
```

```
(81473264, 3)
```

In [22]:
```
a.typecode
```

Out[22]:
```
'd'
```

In [23]:
```
#array.append(x). Append a new item with value x to the end of the arra
y.
a.append(55.8)
a
```

Out[23]:
```
array('d', [1.0, 2.0, 3.14, 55.8])
```

In [24]:
```
a.extend([4.5,6.3,6.8])
print(a)
```

```
array('d', [1.0, 2.0, 3.14, 55.8, 4.5, 6.3, 6.8])
```

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In [25]:
```
a.remove(55.8)
a
```

Out[25]:
```
array('d', [1.0, 2.0, 3.14, 4.5, 6.3, 6.8])
```

In [26]:
```
a.reverse()
a
```

Out[26]:
```
array('d', [6.8, 6.3, 4.5, 3.14, 2.0, 1.0])
```

In [27]:
```
#pop
a.pop(2)
a
```

Out[27]:
```
array('d', [6.8, 6.3, 3.14, 2.0, 1.0])
```

Summary

Here are four collection data types in the Python programming language:

- List is a collection which is ordered and changeable. Allows duplicate members.
- Tuple is a collection which is ordered and unchangeable. Allows duplicate members.
- Set is a collection which is unordered and unindexed. No duplicate members.
- Dictionary is a collection which is unordered, changeable and indexed. No duplicate members.

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