

Basic Python 2 - Collections

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1 Collection

There are 4 built-in data types in Python used to store collections of data. * List * Dictionary * Tuple * Set

1.1 List

Lists are used to store multiple items in a single variable.

```
[ ]: bicycles = ['trek', 'cannondale', 'redline', 'specialized']
      print(bicycles)
      print(bicycles[0])
      print(bicycles[0].title())
```

List can contain any anything i.e. datatype, function, object, variables etc.

```
[ ]: x = [1,2,3,4,5]
      y = ['hi',1,3,x]
      z = x + y
      z
```

1.1.1 Access element in LIST

```
[ ]: bicycles = ['trek', 'cannondale', 'redline', 'specialized']
      print(bicycles[0])
      print(bicycles[1])
      print(bicycles[-1])
      print(bicycles[-2])
      print(bicycles[0:2])
```

1.1.2 Modify element in LIST

```
[ ]: motorcycles = ['honda', 'yamaha', 'suzuki']
      print(motorcycles)
      motorcycles[0] = 'ducati'
      print(motorcycles)
```

1.1.3 Add items

```
[ ]: motorcycles = []
motorcycles.append('honda')
motorcycles.append('yamaha')
motorcycles.append('suzuki')
print(motorcycles)
```

1.1.4 Remove items

```
[ ]: motorcycles = ['honda', 'yamaha', 'suzuki', 'BMW']
print(motorcycles)
motorcycles.remove('yamaha')
print(motorcycles)
```

```
[ ]: motorcycles.pop(0)
print(motorcycles)
```

```
[ ]: del motorcycles[1]
print(motorcycles)
```

1.2 Dictionary

Dictionaries are used to store data values in key:value pairs.

1.2.1 Creating dictionary

```
[ ]: mydic = {}
mydic['winn'] = '0618201998'
mydic['ricky'] = '0812312341'
print(mydic)
```

```
[ ]: number_dict = {1:"one",2:"two",3:"three"}
print(number_dict)
```

1.2.2 Adding information

```
[ ]: mydic["arm"] = "4548885656"
```

```
[ ]: mydic
```

1.2.3 Create dictionary from list

```
[ ]: a = [["winn", '0618201998'], ["ricky", '0812312341']]
print(a)
b = dict(a)
print(b)
```

```
[ ]: name = ["winn","ricky"]
tel = ['0618201998','0812312341']
b = dict(zip(name,tel))
print(b)
```

1.2.4 Accessing elements

```
[ ]: print(mydic)
mydic['winn']
```

1.2.5 Removing element

```
[ ]: mydic = {'arm': '000000000',
             'ricky': '0812312341',
             'winn': '0618201998',
             'tao': '0811111111'}
print(mydic)
del mydic['tao']
print(mydic)
```

```
[ ]: mydic.pop('ricky')
print(mydic)
```

1.2.6 Extract keys and values

```
[ ]: print(list(mydic.keys()))
print(list(mydic.values()))
```

1.2.7 Dictionary inside a dictionary

```
[ ]: winninfo = {'telephone': '0618201998', 'email': 'vwinnv@gmail.com'}
kitimainfo = {'telephone': '0812314123', 'email': 'kitima@gmail.com'}
nonginfo = {'telephone': '092123123123', 'email': 'nong@gmail.com'}
mydic = {'winn': winninfo, 'kitima': kitimainfo, 'nong': nonginfo}
print(mydic)
```

```
[ ]: print(mydic["winn"]["email"])
print(mydic['nong']['telephone'])
```

2 Tuple

A tuple is a collection which is ordered and unchangeable.

```
[ ]: a = ("apple", "banana", "cherry")
print(a)
```

```
[ ]: print(a[0])
```

```
[ ]: #This generates error.  
      #a[0] = "Lemon"
```

3 Set

Sets are used to store multiple items in a single variable.

```
[ ]: #Set does not contain duplicated value  
      a = {"apple", "banana", "cherry", "apple"}  
      print(a)
```

```
[ ]: # Set does not support indexing  
      # print(a[0])
```

```
[ ]: #Convert set into list  
      b = list(a)  
      print(b[0])
```