

Lab 5

Tuple and List

```
*Python 2.7.10 Shell*
File Edit Shell Debug Options Window Help
Python 2.7.10 (default, May 23 2015, 09:40:32) [MSC v.1500 32 bit (Intel)]
Type "copyright", "credits" or "license()" for more information.
>>> s='jaypee'
>>> #string is any text inside ' '
>>> # to check use type(s) function
>>> a=(1,2,3,4)
>>> # any values within ( ) creates a data type tuple
>>> # to check use type(a) function
>>> #index inside [] can be used to print any element of string or tuple
>>> # index may be positive or negative
>>> b=[1,2,3]
>>> # any values within [] creates a data type list
>>> # string and tuples are not editable whereas list is editable
>>> # to see any function of string/tuple/list use name with . operator
>>> #to know how str.count works use help(str.count)
```

Basic Exercise

1. Create a tuple of 10 elements and find the sum and average of its elements.
2. Create a list of 10 elements and find the sum and average of its elements.
3. Create a list of 10 elements, ask user to enter values, and swap first and last elements.
4. Create a list of 10 elements ask user to enter values and print it in reverse order.
5. Create a list of 10 elements, ask user to enter values, and find the largest and smallest elements.
6. Define a function sum() and a function multiply() that sums and multiplies (respectively) all the numbers in a list. For example, sum([1, 2, 3, 4]) should return 10, and multiply([1, 2, 3, 4]) should return 24.

Dictionary Demo

Dictionary store key, value pair, key and value are separated by :

Example 1

```
>>> a={1:10,2:20,3:30,4:40}
>>> print a
{1: 10, 2: 20, 3: 30, 4: 40}
```

Example 2

```
>>> b={'one':1,'two':2,'three':3,'four':4}
>>> print b
{'four': 4, 'three': 3, 'two': 2, 'one': 1}
```

Example 3

To get keys only

```
>>> b.keys()
['four', 'three', 'two', 'one']
```

Example 4

To get values only

```
>>> b.values()
[4, 3, 2, 1]
```

Example 5

To get value against a key

```
>>> b.get('two')
```

Example 6

Dictionary is mutable (editable)

To add an item or update dictionary b use method update

```
>>>b.update({'five':5})
```

```
>>> print b
```

```
{'four': 4, 'three': 3, 'five': 5, 'two': 2, 'one': 1}
```

Other methods of dictionary can be checked by using conventional method of help.

Example 7

Printing key and values using for loop

```
for i,j in b.iteritems():
```

```
    print i,
```

```
    print ":", j
```

Exercises

1. Write a python script to create a dictionary **week**, the key to be integer and values should be name of the days of the week
2. Write a python script to create a dictionary D1, enter details of the students in the form of enrolment and name (See details from the file "Std Record.pdf").
3. Write a python script to create a dictionary D2, enter details of the students in the form of enrolment and City (hometown) it belongs to.
4. Write a python script to create a dictionary D3, enter details of the students in the form of enrolment and mobile.
5. Write a python script to create a dictionary D4, enter details of the students in the form of enrolment and State it belongs to.
6. Write a python script to create a dictionary D5, enter details of the students in the form of enrolment and marks in Phy,Chem, and Maths.
7. Write a python script to create a dictionary D6, enter details of the students in the form of enrolment and email-id.
8. Write a python script to display students' details who are from same hometown.
9. Write a python script to display students' details who are from same State.
10. Write a python script to display students' details who have email id on same host (i.e. gmail.com, yahoo.com, rediffmail.com etc)
11. Write a python script to display students' details whose mobile service provider is same(first two bits 94: BSNL, 98: Airtel, 89:Idea, 77:Reliance, 97:Idea, 99:Vodafone, 79:Docomo)
12. Write a python script to display students' details who scored highest marks in Phy among all.
13. Write a python script to display students' details who scored highest marks in Chem among all
14. Write a python script to display students' details who scored highest marks in Maths among all

15. Write a python script to display students' details who scored highest average marks in Phy, Chem, and Maths among all.
16. Write a python script to create a dictionary **square** to store 10 integers and their square.
17. Write a python script to create any data structure named **sroot** to store 10 integers between 20 and 30, their square root.
18. Write a python script to create a dictionary odd to store first 50 odd numbers, their \log_2 .
19. Write a python to store prime numbers between 50 and 100 along with their digit-sum.
20. Write a script to print selected details of the student, asking user to keyin student's name
21. Write a script to print all details of the student, asking user to keyin student's Enrollment
22. Write a script to print all details of the student, asking user to keyin student's name