Using More Built - in Types

- Python provides four other important basic types: tuples, lists, sets, and dictionaries.
- These four types have a lot in common because they all allow you to group more than one item of data together under one name.
- These groupings are indicated by the presence of enclosing parentheses (), square brackets [], and curly braces {}.

Tuple

A tuple is created by placing all the items inside a parentheses (), separated by comma.

A tuple can have any number of items and they may be of different types (integer, float, string etc.).

Syntax for creating tuple is->

Tuple_name= (‘item1’,’item2’,item3’……..

’item n’);

Ex-

Sample_tuple = (‘first’, ‘second’, ‘third’)

Examples on Tuples-

Ex-1 ->

```
tup1 = ('java', 'C Language', 2016, 2017);

tup2 = (1, 2, 3, 4, 5, 6, 7 );

print ("tup1[0]: ", tup1[0])

print ("tup2[1:5]: ", tup2[1:5])
```

Tuple count()

The count() method returns the number of occurrences of an element in a tuple.

The syntax of count() method is:

tuple.count(element)

Return value from count()

count() method returns the number of occurrences of a given element in the tuple.

Tuple index()

The index() method searches an element in a tuple and returns its index.

The syntax of index() method for Tuple is:

tuple.index(element)

Tuple index() parameters

index() method takes a single argument:

element - element that is to be searched.

Return value from Tuple index()

The index method returns the position/index of the given element in the tuple.

If no element is found, a ValueError exception is raised indicating the element is not found.

bool()

The bool() method converts a value to Boolean (True or False) using the standard truth testing procedure.

max()

The max() method returns the largest element in an iterable or largest of two or more parameters.

min()

The min() method returns the smallest element in an iterable or smallest of two or more parameters.

Lists — Changeable Sequences of Data

Lists are like tuples and are sequences that contain elements referenced starting at zero.

Lists are created by using square brackets:

```
breakfast = [ “coffee”, “tea”, “toast”]
```

A list is another type of sequence, which is similar to a tuple except that its elements can be modified.

The length of the list can be modified to accommodate elements being added using the append method and the length can be reduced by using the pop method.

Built-in List Functions

cmp()

The method cmp() compares elements of two lists.

The syntax for cmp() method −

```
cmp(list1, list2)
```

Parameters

list1 -- This is the first list to be compared.

list2 -- This is the second list to be compared.

len()

The method len() returns the number of elements in the list.

Syntax

Following is the syntax for len() method −

len(list)

Return Value

This method returns the number of elements in the list.

max()

The method max returns the elements from the list with maximum value.

Syntax

Following is the syntax for max() method −

max(list)

Return Value

This method returns the elements from the list with maximum value.

append()

The method append() appends a passed obj into the existing list.

Syntax

Following is the syntax for append() method −

list.append(obj)

Parameters

obj -- This is the object to be appended in the list.

Return Value

This method does not return any value but updates existing list.

index()

The method index() returns the lowest index in list that obj appears.

Syntax

Following is the syntax for index() method −

list.index(obj)Parameters

obj -- This is the object to be find out.

Return Value

This method returns index of the found object otherwise raise an exception indicating that value does not find.

insert()

The method insert() inserts object obj into list at offset index.

Syntax

Following is the syntax for insert() method −

list.insert(index, obj)Parameters

index -- This is the Index where the object obj need to be inserted.

obj -- This is the Object to be inserted into the given list.

Return Value

This method does not return any value but it inserts the given element at the given index.

pop()

The method pop() removes and returns last object or obj from the list.

Syntax

Following is the syntax for pop() method −

list.pop(obj=list[-1])Parameters

obj -- This is an optional parameter, index of the object to be removed from the list.

Return Value

This method returns the removed object from the list.

reverse()

The method reverse() reverses objects of list in place.

Syntax

Following is the syntax for reverse() method −

list.reverse()

Dictionary

Dictionary is placing items inside curly braces {} separated by comma.

An item has a key and the corresponding value expressed as a pair, key: value.

The values can be of any data type and can repeat.

The key value must be unique

Syntax –

Dictionary_variable= {'key':'value'}

The key value must be unique.

The value must be any data type.

```
# empty dictionary
my_dict = {}
# dictionary with integer keys
my_dict = {1: ‘bat', 2: 'ball'}
```

popitem()-

Remove and return an arbitrary item (key, value). Generates Error if the dictionary is empty.