# Python Built-In Functions with Syntax and Examples

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We have talked about Functions in Python. In that tutorial of Python Functions, we discussed user-defined functions in Python.

But that isn't all, a list of Python built-in functions that we can toy around with.

In this tutorial on Built-in functions in Python, we will see each of those; we have 67 of those in Python 3.6 with their Python Syntax and examples.

So, let's start Python Built-In Functions.



Python Built-In Functions with Syntax and Examples

# What are Python Built-In Functions?

# 1. abs()

The abs() is one of the most popular Python built-in functions, which returns the absolute value of a number.

A negative value's absolute is that value is positive.

```
>>> abs(-7)
```

7

```
>>> abs(7)
```

#### Output

7

```
>>> abs(0)
```

# 2. all()

The all() function takes a container as an argument. This Built in Functions returns True if all values in a python iterable have a Boolean value of True.

An empty value has a Boolean value of False.

```
>>> all({'*','',''})
```

#### **Output**

False

```
>>> all([' ',' ',' '])
```

True

# 3. any()

Like all(), it takes one argument and returns True if, even one value in the iterable has a Boolean value of True.

```
>>> any((1,0,0))
```

#### **Output**

True

```
>>> any((0,0,0))
```

#### **Output**

False

# 4. ascii()

It is important Python built-in functions, returns a printable representation of a python object (like a string or a Python list).

Let's take a Romanian character.

```
>>> ascii('ș')
```

#### **Output**

```
"'\\u0219'"
```

Since this was a non-ASCII character in python, the interpreter added a backslash (\) and escaped it using another backslash.

```
>>> ascii('ușor')
```

#### **Output**

```
"'u\\u0219or'"
```

Let's apply it to a list.

```
>>> ascii(['s','ș'])
```

#### Output

```
"['s', '\\u0219']"
```

# 5. bin()

bin() converts an integer to a binary string. We have seen this and other functions in our article on Python Numbers.

```
>>> bin(7)
```

#### **Output**

```
'0b111'
```

We can't apply it on floats, though.

```
>>> bin(7.0)
```

```
Traceback (most recent call last):File "<pyshell#20>", line 1, in <module>
bin(7.0)

TypeError: 'float' object cannot be interpreted as an integer
```

### 6. bool()

bool() converts a value to Boolean.

```
>>> bool(0.5)
```

#### **Output**

True

```
>>> bool('')
```

#### **Output**

False

```
>>> bool(True)
```

#### **Output**

True

# 7. bytearray()

bytearray() returns a python array of a given byte size.

```
>>> a=bytearray(4)
```

>>> a

#### Output

bytearray(b'\x00\x00\x00\x00')

```
>>> a.append(1)
```

>>> a

#### **Output**

bytearray(b'\x00\x00\x00\x00\x01')

>>> a

#### **Output**

bytearray(b'\x01\x00\x00\x00\x01')

>>> a[0]

#### Output

1

Let's do this on a list.

>>> bytearray([1,2,3,4])

bytearray(b'\x01\x02\x03\x04')

# 8. bytes()

bytes() returns an immutable bytes object.

```
>>> bytes(5)
```

#### **Output**

b'\x00\x00\x00\x00\x00'

```
>>> bytes([1,2,3,4,5])
```

#### **Output**

b'\x01\x02\x03\x04\x05'

```
>>> bytes('hello','utf-8')
```

#### **Output**

b'hello'Here, utf-8 is the encoding.

Both bytes() and bytearray() deal with raw data, but bytearray() is mutable, while bytes() is immutable.

```
>>> a=bytes([1,2,3,4,5])
>>> a
```

b'\x01\x02\x03\x04\x05'

```
>>> a[4]=
```

#### **Output**

```
3Traceback (most recent call last):
File "<pyshell#46>", line 1, in <module>
a[4]=3
TypeError: 'bytes' object does not support item assignment
```

Let's try this on bytearray().

```
>>> a=bytearray([1,2,3,4,5])
>>> a
```

#### Output

bytearray(b'\x01\x02\x03\x04\x05')

```
>>> a[4]=3
>>> a
```

#### **Output**

bytearray(b'\x01\x02\x03\x04\x03')

# 9. callable()

callable() tells us if an object can be called.

```
>>> callable([1,2,3])
```

#### **Output**

False

```
>>> callable(callable)
```

#### **Output**

True

```
>>> callable(False)
```

#### **Output**

False

```
>>> callable(list)
```

#### **Output**

True

A function is callable, a list is not. Even the callable() python Built In function is callable.

### 10. chr()

chr() Built In function returns the character in python for an ASCII value.

```
>>> chr(65)
```

'A'

```
>>> chr(97)
```

#### Output

**'**a'

```
>>> chr(9)
```

#### Output

'\t'

```
>>> chr(48)
```

#### Output

**'**0'

# 11. classmethod()

classmethod() returns a class method for a given method.

```
>>> class fruit:

def sayhi(self):
```

```
print("Hi, I'm a fruit")

>>> fruit.sayhi=classmethod(fruit.sayhi)

>>> fruit.sayhi()
```

```
Hi, I'm a fruit
```

When we pass the method sayhi() as an argument to classmethod(), it converts it into a python class method one that belongs to the class.

Then, we call it like we would call any static method in python without an object.

### 12. compile()

compile() returns a Python code object. We use Python in built function to convert a string code into object code.

```
>>> exec(compile('a=5\nb=7\nprint(a+b)','','exec'))
```

#### **Output**

12

Here, 'exec' is the mode. The parameter before that is the filename for the file form which the code is read.

Finally, we execute it using exec().

### 13. complex()

complex() function creates a complex number. We have seen this is our article on Python Numbers.

```
>>> complex(3)
```

#### Output

(3+0j)

```
>>> complex(3.5)
```

#### **Output**

(3.5+0j)

```
>>> complex(3+5j)
```

#### **Output**

(3+5j)

# 14. delattr()

delattr() takes two arguments- a class, and an attribute in it. It deletes the attribute.

```
>>> class fruit:
size=7
```

```
>>> orange=fruit()
>>> orange.size
```

7

```
>>> delattr(fruit,'size')
>>> orange.size
```

#### Output

```
Traceback (most recent call last):File "<pyshell#95>", line 1, in <module>
orange.size
AttributeError: 'fruit' object has no attribute 'size'
```

# 15. dict()

dict(), as we have seen it, creates a python dictionary.

```
>>> dict()
```

#### Output

{ }

```
>>> dict([(1,2),(3,4)])
```

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

This was about dict() Python Built In function

### 16. dir()

dir() returns an object's attributes.

#### Output

```
['_class_', '_delattr_', '_dict_', '_dir_', '_doc_', '_eq_',
'_format_', '_ge_', '_getattribute_', '_gt_', '_hash_', '_init_',
'_init_subclass_', '_le_', '_lt_', '_module_', '_ne_', '_new_',
'_reduce_', '_reduce_ex_', '_repr_', '_setattr_', '_sizeof_',
'_str_', '_subclasshook_', '_weakref_', 'shape', 'size']
```

### 17. divmod()

divmod() in Python built-in functions, takes two parameters, and returns a tuple of their quotient and remainder.

In other words, it returns the floor division and the modulus of the two numbers.

```
>>> divmod(3,7)
```

```
(0, 3)
```

```
>>> divmod(7,3)
```

#### **Output**

```
(2, 1)
```

If you encounter any doubt in Python Built-in Function, Please Comment.

### 18. enumerate()

This Python Built In function returns an enumerate object. In other words, it adds a counter to the iterable.

```
>>> for i in enumerate(['a','b','c']):
    print(i)
```

#### Output

```
(0, 'a')
(1, 'b')
(2, 'c')
```

# 19. eval()

This Function takes a string as an argument, which is parsed as an expression.

```
>>> x=7
>>> eval('x+7')
```

14

```
>>> eval('x+(x%2)')
```

#### Output

8

# 20. exec()

exec() runs Python code dynamically.

```
>>> exec('a=2;b=3;print(a+b)')
```

#### **Output**

5

```
>>> exec(input("Enter your program"))
```

#### Output

Enter your programprint(2+3)5

# 21. filter()

Like we've seen in python Lambda Expressios, filter() filters out the items for which the condition is True.

```
>>> list(filter(lambda x:x%2==0,[1,2,0,False]))
```

#### **Output**

```
[2, 0, False]
```

### 22. float()

This Python Built In function converts an int or a compatible value into a float.

```
>>> float(2)
```

#### **Output**

2.0

```
>>> float('3')
```

#### **Output**

3.0

```
>>> float('3s')
```

#### Output

```
Traceback (most recent call last):File "<pyshell#136>", line 1, in <module>
float('3s')
```

ValueError: could not convert string to float: '3s'

```
>>> float(False)
```

#### Output

0.0

```
>>> float(4.7)
```

#### **Output**

4.7

# 23. format()

We have seen this Python built-in function, one in our lesson on Python Strings.

```
>>> a,b=2,3
>>> print("a={0} and b={1}".format(a,b))
```

#### **Output**

a=2 and b=3

```
>>> print("a={a} and b={b}".format(a=3,b=4))
```

#### Output

a=3 and b=4

### 24. frozenset()

frozenset() returns an immutable frozenset object.

```
>>> frozenset((3,2,4))
```

#### **Output**

```
frozenset({2, 3, 4})
```

### 25. getattr()

getattr() returns the value of an object's attribute.

```
>>> getattr(orange,'size')
```

#### Output

# 26. globals()

This Python built-in functions, returns a dictionary of the current global symbol table.

```
>>> globals()
```

#### Output

```
{'__name__': '__main__', '__doc__': None, '__package__': None, '__loader__':
<class '_frozen_importlib.BuiltinImporter'>, '__spec__': None,
'__annotations__': {}, '__builtins__': <module 'builtins' (built-in)>,
'fruit': <class '__main__.fruit'>, 'orange': <__main__.fruit object at
0x05F937D0>, 'a': 2, 'numbers': [1, 2, 3], 'i': (2, 3), 'x': 7, 'b': 3}
```

### 27. hasattr()

Like delattr() and getattr(), hasattr() Python built-in functions, returns True if the object has that attribute.

```
>>> hasattr(orange,'size')
```

#### **Output**

True

```
>>> hasattr(orange,'shape')
```

#### **Output**

True

```
>>> hasattr(orange,'color')
```

#### **Output**

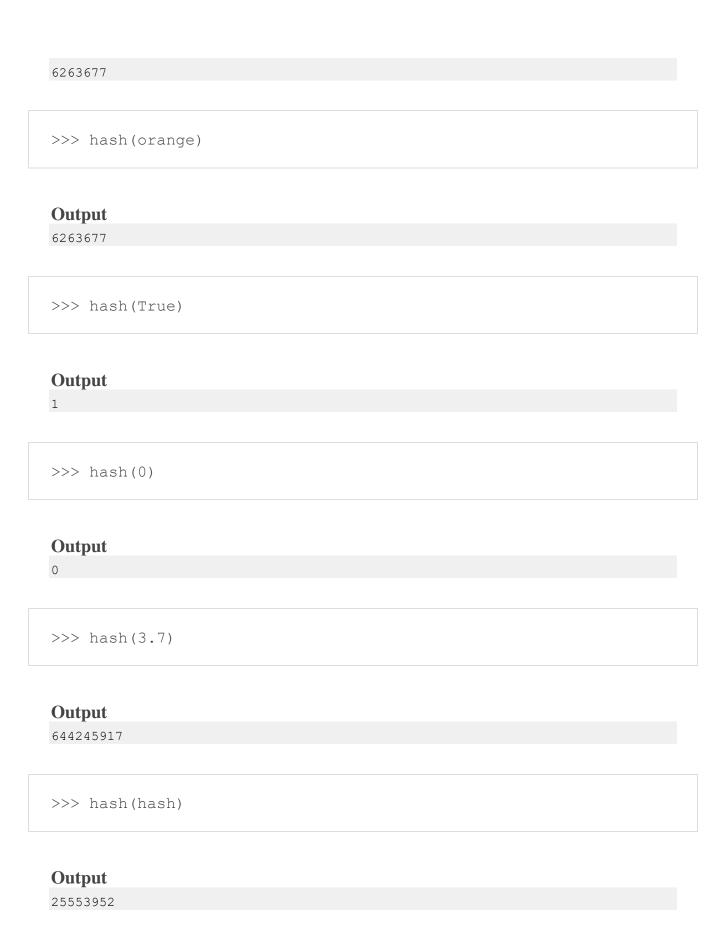
False

# 28. hash()

hash() function returns the hash value of an object. And in Python, everything is an object.

```
>>> hash(orange)
```

#### Output



This was all about hash() Python In Built function

### 29. help()

spam".

To get details about any module, keyword, symbol, or topic, we use the help() function.

```
>>> help()
Welcome to Python 3.6's help utility!
If this is your first time using Python, you should definitely c
heck out
the tutorial on the Internet at http://docs.python.org/3.6/tutor
ial/.
Enter the name of any module, keyword, or topic to get help on w
Python programs and using Python modules. To quit this help uti
lity and return to the interpreter, just type "quit".
To get a list of available modules, keywords, symbols, or topics
, type "modules", "keywords", "symbols", or "topics". Each
module also comes with a one-
line summary of what it does; to list the modules whose name
or summary contain a given string such as "spam", type "modules
```

```
help> map
Help on class map in module builtins:
class map(object)
| map(func, *iterables) --> map object
| Make an iterator that computes the function using arguments f
rom
| each of the iterables. Stops when the shortest iterable is e
xhausted.
| Methods defined here:
getattribute (self, name, /)
    Return getattr(self, name).
iter (self, /)
    Implement iter(self).
new (*args, **kwargs) from builtins.type
```

```
Create and return a new object. See help(type) for accur
ate signature.
next (self, /)
      Implement next(self).
| reduce (...)
      Return state information for pickling.
help> You are now leaving help and returning to the Python
interpreter.
If you want to ask for help on a particular object directly from
the
interpreter, you can type "help(object)". Executing
"help('string')"
has the same effect as typing a particular string at the help>
prompt.
>>>
```

# 30. hex()

Hex() Python built-in functions, converts an integer to hexadecimal.

```
>>> hex(16)
```

'0x10'

>>> hex(False)

#### **Output**

'0x0'

# 31. id() Function

id() returns an object's identity.

>>> id(orange)

#### Output

100218832

 $>>> id({1,2,3}) == id({1,3,2})$ 

#### Output

True

# 32. input()

Input() Python built-in functions, reads and returns a line of string.

```
>>> input("Enter a number")
```

```
Enter a number7
```

Note that this returns the input as a string. If we want to take 7 as an integer, we need to apply the int() function to it.

```
>>> int(input("Enter a number"))
```

#### **Output**

Enter a number77

### 33. int()

int() converts a value to an integer.

```
>>> int('7')
```

#### **Output**

7

# 34. isinstance()

We have seen this one in previous lessons. isinstance() takes a variable and a class as arguments.

Then, it returns True if the variable belongs to the class. Otherwise, it returns False.

```
>>> isinstance(0,str)
```

False

```
>>> isinstance(orange,fruit)
```

#### **Output**

True

# 35. issubclass()

This Python Built In function takes two arguments- two python classes. If the first class is a subclass of the second, it returns True.

Otherwise, it returns False.

```
>>> issubclass(fruit,fruit)
```

#### Output

True

```
>>> class fruit:
    pass

>>> class citrus(fruit):
    pass
```

```
>>> issubclass(fruit,citrus)
```

False

# 36. iter()

Iter() Python built-in functions, returns a python iterator for an object.

```
>>> for i in iter([1,2,3]):

print(i)
```

#### **Output**

```
1
2
3
```

# 37. len()

We've seen len() so many times by now. It returns the length of an object.

```
>>> len({1,2,2,3})
```

### Output

3

Here, we get 3 instead of 4, because the set takes the value '2' only once.

# 38. list()

list() creates a list from a sequence of values.

```
>>> list({1,3,2,2})
```

```
[1, 2, 3]
```

### 39. locals()

This function returns a dictionary of the current local symbol table.

```
>>> locals()
```

#### **Output**

```
{'__name__': '__main__', '__doc__': None, '__package__': None, '__loader__':

<class '_frozen_importlib.BuiltinImporter'>, '__spec__': None,

'__annotations__': {}, '__builtins__': <module 'builtins' (built-in)>,

'fruit': <class '__main__.fruit'>, 'orange': <__main__.fruit object at

0x05F937D0>, 'a': 2, 'numbers': [1, 2, 3], 'i': 3, 'x': 7, 'b': 3, 'citrus':

<class '__main__.citrus'>}
```

### 40. map()

Like filter(), map() Python built-in functions, takes a function and applies it on an iterable. It maps True or False values on each item in the iterable.

```
>>> list(map(lambda x:x%2==0,[1,2,3,4,5]))
```

#### Output

```
[False, True, False, True, False]
```

### 41. max()

A no-brainer, max() returns the item, in a sequence, with the highest value of all.

```
>>> max(2,3,4)
```

#### Output

4

```
>>> max([3,5,4])
```

#### **Output**

5

```
>>> max('hello','Hello')
```

#### Output

'hello'

# 42. memoryview()

memoryview() shows us the memory view of an argument.

```
>>> a=bytes(4)
>>> memoryview(a)
```

#### **Output**

<memory at 0x05F9A988>

```
>>> for i in memoryview(a):

print(i)
```

# 43. min()

min() returns the lowest value in a sequence.

```
>>> min(3,5,1)
```

#### **Output**

1

```
>>> min(True, False)
```

#### **Output**

False

# 44. next()

This Python Built In function returns the next element from the iterator.

```
>>> myIterator=iter([1,2,3,4,5])
>>> next(myIterator)
```

#### Output

1

```
>>> next(myIterator)
Output
2
>>> next(myIterator)
Output
>>> next(myIterator)
Output
>>> next(myIterator)
Output
Now that we've traversed all items, when we call next(), it raises StopIteration.
>>> next(myIterator)
```

Traceback (most recent call last):File "<pyshell#392>", line 1, in <module>

```
next(myIterator)
StopIteration
```

# 45. object()

Object() Python built-in functions, creates a featureless object.

```
>>> o=object()
>>> type(o)
```

#### Output

```
<class 'object'>
```

```
>>> dir(o)
```

#### **Output**

```
['__class__', '__delattr__', '__dir__', '__doc__', '__eq__', '__format__',
    '__ge__', '__getattribute__', '__gt__', '__hash__', '__init__',
    '__init_subclass__', '__le__', '__lt__', '__ne__', '__new__', '__reduce__',
    '__reduce_ex__', '__repr__', '__setattr__', '__sizeof__', '__str__',
    '__subclasshook__']
```

Here, the function type() tells us that it's an object. dir() tells us the object's attributes. But since this does not have the \_\_\_dict\_\_ attribute, we can't assign to arbitrary attributes.

### 46. oct()

oct() converts an integer to its octal representation.

```
>>> oct(7)
```

**'**007'

```
>>> oct(8)
```

#### **Output**

'0010'

```
>>> oct(True)
```

#### **Output**

**'**001'

# 47. open()

open() lets us open a file. Let's change the current working directory to Desktop.

```
>>> import os
>>> os.chdir('C:\\Users\\lifei\\Desktop')
```

Now, we open the file 'topics.txt'.

```
>>> f=open('topics.txt')
```

```
>>> f
```

```
<_io.TextIOWrapper name='topics.txt' mode='r' encoding='cp1252'>
```

```
>>> type(f)
```

#### Output

```
<class '_io.TextIOWrapper'>
```

To read from the file, we use the read() method.

```
>>> print(f.read())

DBMS mappings

projection

union

rdbms vs dbms

doget dopost

how to add maps

OOT

SQL queries

Join
```

Pattern programs

### Output

Default constructor in inheritance

## 48. ord()

The function ord() returns an integer that represents the Unicode point for a given Unicode character.

```
>>> ord('A')
```

#### Output

65

```
>>> ord('9')
```

## Output

57

This is complementary to chr().

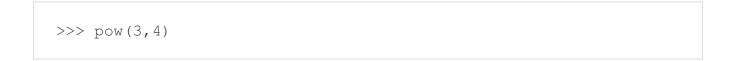
```
>>> chr(65)
```

## Output

۱A'

49. pow()

pow() takes two arguments- say, x and y. It then returns the value of x to the power of y.



#### **Output**

81

```
>>> pow(7,0)
```

#### **Output**

1

```
>>> pow(7,-1)
```

### Output

0.14285714285714285

```
>>> pow(7,-2)
```

#### **Output**

0.02040816326530612

# 50. print()

We don't think we need to explain this anymore. We've been seeing this function since the beginning of this article.

```
>>> print("Okay, next function, please!")
```

```
Okay, next function, please!
```

## 51. property()

The function property() returns a property attribute. Alternatively, we can use the syntactic sugar @property.

We will learn this in detail in our tutorial on Python Property.

## 52. range()

We've taken a whole tutorial on this. Read up range() in Python.

```
>>> for i in range(7,2,-2):

print(i)
```

## Output

```
7
5
3
```

# 53. repr()

repr() returns a representable string of an object.

```
>>> repr("Hello")
```

```
"'Hello'"
```

```
>>> repr(7)
```

171

```
>>> repr(False)
```

#### **Output**

'False'

# 54. reversed()

This functions reverses the contents of an iterable and returns an iterator object.

```
>>> a=reversed([3,2,1])
>>> a
```

```
<list_reverseiterator object at 0x02E1A230>
```

```
>>> for i in a:
print(i)
```

2

3

```
>>> type(a)
```

## Output

<class 'list\_reverseiterator'>

# 55. round()

round() rounds off a float to the given number of digits (given by the second argument).

```
>>> round(3.777,2)
```

## Output

3.78

```
>>> round(3.7,3)
```

### **Output**

3.7

```
>>> round(3.7,-1)
```

0.0

```
>>> round(377.77,-1)
```

### **Output**

380.0

The rounding factor can be negative.

## 56. set()

Of course, set() returns a set of the items passed to it.

```
>>> set([2,2,3,1])
```

### Output

```
{1, 2, 3}
```

Remember, a set cannot have duplicate values, and isn't indexed, but is ordered. Read on Sets and Booleans for the same.

## 57. setattr()

Like getattr(), setattr() sets an attribute's value for an object.

```
>>> orange.size
```

## Output

7

```
>>> orange.size=8
>>> orange.size
```

8

## 58. slice()

slice() returns a slice object that represents the set of indices specified by range(start, stop, step).

```
>>> slice(2,7,2)
```

#### **Output**

```
slice(2, 7, 2)
```

We can use this to iterate on an iterable like a string in python.

```
>>> 'Python'[slice(1,5,2)]
```

#### **Output**

**'**yh'

## 59. sorted()

Like we've seen before, sorted() prints out a sorted version of an iterable. It does not, however, alter the iterable.

```
>>> sorted('Python')
```

```
['P', 'h', 'n', 'o', 't', 'y']
```

```
>>> sorted([1,3,2])
```

#### **Output**

```
[1, 2, 3]
```

## 60. staticmethod()

staticmethod() creates a static method from a function. A static method is bound to a class rather than to an object.

But it can be called on the class or on an object.

### Output

Ηi

You can also use the syntactic sugar @staticmethod for this.

```
>>> class fruit:
```

Ηi

# 61. str()

str() takes an argument and returns the string equivalent of it.

```
>>> str('Hello')
```

#### **Output**

'Hello'

```
>>> str(7)
```

#### **Output**

171

```
>>> str(8.7)
```

```
`8.7′
```

```
>>> str(False)
```

'False'

```
>>> str([1,2,3])
```

#### **Output**

```
`[1, 2, 3]'
```

## 62. sum()

The function sum() takes an iterable as an argument, and returns the sum of all values.

```
>>> sum([3,4,5],3)
```

### **Output**

15

# 63. super()

super() returns a proxy object to let you refer to the parent class.

```
>>> class person:
    def __init__(self):
```

```
print("A person")

>>> class student(person):

    def __init__(self):
        super().__init__()

        print("A student")

>>> Avery=student()
```

A personA student

# 64. tuple()

As we've seen in our tutorial on Python Tuples, the function tuple() lets us create a tuple.

```
>>> tuple([1,3,2])
```

## Output

```
(1, 3, 2)
```

```
>>> tuple({1:'a',2:'b'})
```

#### **Output**

(1, 2)

# 65. type()

We have been seeing the type() function to check the type of object we're dealing with.

```
>>> type({})
Output
<class 'dict'>
>>> type(set())
Output
<class 'set'>
>>> type(())
Output
<class 'tuple'>
>>> type((1))
```

### Output

<class 'int'>

```
>>> type((1,))
```

```
<class 'tuple'>
```

## 66. vars()

vars() function returns the \_\_\_dict\_\_\_ attribute of a class.

```
>>> vars(fruit)
```

#### **Output**

```
mappingproxy({ '__module__': '__main__', 'size': 7, 'shape': 'round',
    '__dict__': <attribute '__dict__' of 'fruit' objects>, '__weakref__':
    <attribute '__weakref__' of 'fruit' objects>, '__doc__': None})
```

# 67. zip()

zip() returns us an iterator of tuples.

```
>>> set(zip([1,2,3],['a','b','c']))
```

## Output

```
{(1, 'a'), (3, 'c'), (2, 'b')}
```

```
>>> set(zip([1,2],[3,4,5]))
```

```
{ (1, 3), (2, 4) }
```

```
>>> a=zip([1,2,3],['a','b','c'])
```

To unzip this, we write the following code.

```
>>> x,y,z=a
>>> x
```

#### Output

```
(1, 'a')
```

```
>>> y
```

#### **Output**

(2, 'b')

```
>>> z
```

#### Output

```
(3, 'c')
```

Isn't this just like tuple unpacking? So, this was all about Python Built-in Functions. Hope you like our explanation.

# Python Interview Question on Built-in Functions

- 1. What are built in functions in Python?
- 2. How many built in functions does Python have?
- 3. Give an example of built in function in Python library.
- 4. What are the inbuilt functions in Python?
- 5. How do you find the built in function in Python?

# Conclusion

Phew, was that too much for once? It may be overwhelming at once, but as you will get using these python Built-in functions, you will get used to them.