



Python hash() method

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Python hash() function is a built-in function and returns the hash value of an object if it has one. The hash value is an integer which is used to quickly compare dictionary keys while looking at a dictionary.

Syntax of Python hash() method:

Syntax : *hash(obj)*

Parameters : *obj* : The object which we need to convert into hash.

Returns : Returns the hashed value if possible.

Properties of hash() function

- Objects hashed using hash() are irreversible, leading to loss of information.
- hash() returns hashed value only for immutable objects, hence can be used as an indicator to check for mutable/immutable objects.

Python hash() methods Examples

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```
# Python 3 code to demonstrate
# working of hash()

# initializing objects
int_val = 4
str_val = 'GeeksforGeeks'
flt_val = 24.56

# Printing the hash values.
# Notice Integer value doesn't change
# You'll have answer later in article.
print("The integer hash value is : " + str(hash(int_val)))
print("The string hash value is : " + str(hash(str_val)))
print("The float hash value is : " + str(hash(flt_val)))
```

Output:

```
The integer hash value is : 4
```



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Example 2: Demonstrating property of hash()

```
# Python 3 code to demonstrate
# property of hash()

# initializing objects
# tuple are immutable
tuple_val = (1, 2, 3, 4, 5)

# list are mutable
list_val = [1, 2, 3, 4, 5]

# Printing the hash values.
# Notice exception when trying
```

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Output:

```
The tuple hash value is : 8315274433719620810
```

Exceptions :

```
Traceback (most recent call last):
  File "/home/eb7e39084e3d151114ce5ed3e43babb8.py", line 15, in
    print ("The list hash value is : " + str(hash(list_val)))
TypeError: unhashable type: 'list'
```

Example 3: hash() for immutable tuple object



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```
print(hash(val))
```

Output:

```
5434435027328283763
```

Example 4: hash() on the mutable object

hash() method used by on immutable object, if we use this on a mutable object like list, set, dictionaries then it will generate an error.

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```
TypeError: unhashable type: 'list'
```

Example 5: hash() on a Custom Object

Here we will override the `__hash__()` methods to call the `hash()`, and `__eq__()` method will check the equality of the two custom objects.

```
class Emp:
    def __init__(self, emp_name, id):
        self.emp_name = emp_name
        self.id = id

    def __eq__(self, other):
        # Equality Comparison between two objects
```



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```
        # hash(custom_object)
        return hash((self.emp_name, self.id))

emp = Emp('Ragav', 12)
print("The hash is: %d" % hash(emp))

# We'll check if two objects with the same
# attribute values have the same hash
emp_copy = Emp('Ragav', 12)
print("The hash is: %d" % hash(emp_copy))
```

Output:

```
The hash is: -674930604243231063
The hash is: -674930604243231063
```

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