

Python Dictionaries

[< Previous](#)[Next >](#)

Dictionary

A dictionary is a collection which is unordered, changeable and indexed. In Python dictionaries are written with curly brackets, and they have keys and values.

Example

Create and print a dictionary:

```
thisdict = {  
    "brand": "Ford",  
    "model": "Mustang",  
    "year": 1964  
}  
print(thisdict)
```

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Accessing Items

You can access the items of a dictionary by referring to its key name:

Example

Get the value of the "model" key:

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There is also a method called `get()` that will give you the same result:

Example

Get the value of the "model" key:

```
x = thisdict.get("model")
```

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Change Values

You can change the value of a specific item by referring to its key name:

Example

Change the "year" to 2018:

```
thisdict = {  
    "brand": "Ford",  
    "model": "Mustang",  
    "year": 1964  
}  
thisdict["year"] = 2018
```

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Loop Through a Dictionary

You can loop through a dictionary by using a `for` loop.

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Example

Print all key names in the dictionary, one by one:

```
for x in thisdict:  
    print(x)
```

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Example

Print all *values* in the dictionary, one by one:

```
for x in thisdict:  
    print(thisdict[x])
```

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Example

You can also use the `values()` function to return values of a dictionary:

```
for x in thisdict.values():  
    print(x)
```

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Example

Loop through both *keys* and *values*, by using the `items()` function:

```
for x, y in thisdict.items():  
    print(x, y)
```

Dictionary Length

To determine how many items (key-value pairs) a dictionary have, use the `len()` method.

Example

Print the number of items in the dictionary:

```
print(len(thisdict))
```

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Adding Items

Adding an item to the dictionary is done by using a new index key and assigning a value to it:

Example

```
thisdict = {  
    "brand": "Ford",  
    "model": "Mustang",  
    "year": 1964  
}  
thisdict["color"] = "red"  
print(thisdict)
```

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Removing Items

There are several methods to remove items from a dictionary:

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The `del` keyword removes the item with the specified key name:

```
thisdict = {  
    "brand": "Ford",  
    "model": "Mustang",  
    "year": 1964  
}  
del thisdict["model"]  
print(thisdict)
```

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Example

The `pop()` method removes the item with the specified key name:

```
thisdict = {  
    "brand": "Ford",  
    "model": "Mustang",  
    "year": 1964  
}  
thisdict.pop("model")  
print(thisdict)
```

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Example

The `popitem()` method removes the last inserted item (in versions before 3.7, a random item is removed instead):

```
thisdict = {  
    "brand": "Ford",  
    "model": "Mustang",  
    "year": 1964  
}
```

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Example

The `del` keyword removes the item with the specified key name:

```
thisdict = {  
    "brand": "Ford",  
    "model": "Mustang",  
    "year": 1964  
}  
del thisdict["model"]  
print(thisdict)
```

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Example

The `del` keyword can also delete the dictionary completely:

```
thisdict = {  
    "brand": "Ford",  
    "model": "Mustang",  
    "year": 1964  
}  
del thisdict  
print(thisdict) #this will cause an error because "thisdict" no longer  
exists.
```

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Example

The `clear()` keyword empties the dictionary:

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```
brand = "Ford",  
"model": "Mustang",  
"year": 1964  
}  
thisdict.clear()  
print(thisdict)
```

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The dict() Constructor

It is also possible to use the `dict()` constructor to make a dictionary:

Example

```
thisdict = dict(brand="Ford", model="Mustang", year=1964)  
# note that keywords are not string literals  
# note the use of equals rather than colon for the assignment  
print(thisdict)
```

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Dictionary Methods

Python has a set of built-in methods that you can use on dictionaries.

Method	Description
<u>clear()</u>	Removes all the elements from the dictionary
<u>copy()</u>	Returns a copy of the dictionary
<u>fromkeys()</u>	Returns a dictionary with the specified keys and values
<u>get()</u>	Returns the value of the specified key
<u>items()</u>	Returns a list containing the a tuple for each key value pair

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<u>pop()</u>	Removes the element with the specified key
<u>popitem()</u>	Removes the last inserted key-value pair
<u>setdefault()</u>	Returns the value of the specified key. If the key does not exist: insert the key, with the specified value
<u>update()</u>	Updates the dictionary with the specified key-value pairs
<u>values()</u>	Returns a list of all the values in the dictionary

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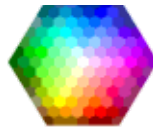
Exercise:

Use the **get** method to print the value of the "model" key of the **car** dictionary.

```
car = {  
    "brand": "Ford",  
    "model": "Mustang",  
    "year": 1964  
}  
print(          )
```

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