python™

Dictionary –
Methods & Examples

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Electronics Shop Inventory

To understand the Python dictionary, let's take the example of an electronics shop inventory like **Gada Electronics**. We will see how you can manage the inventory using a Python dictionary. If you are a shop owner like **Jethalal**, you always need to check the inventory to see if we have items in stock or not.

If you **do have** items in stock then you will be **happy Jethalal**

If you **don't have** items in stock then you will be **sad Jethalal**

I hope you now understand the issue of maintaining records for items that are in stock and those that are not. Now, we will ask **Bagha** to use a Python dictionary to manage the electronics items stock.

First, let's convert our stocks table to dictionary.

Stocks Table

Item Name	Stock Quantity
Laptop	10
Smartphone	15
Tablet	5
Headphones	20

Stocks Dictionary

inventory = {'Laptop': 10, 'Smartphone': 15, 'Tablet': 5, 'Headphones': 20}

Scene - items()

Jethalal: Bagha, please check and let me know **what electronics items** we have and **how much stock** we have for each electronic item.

Bagha: Yes sethji, I will check and will let you know

use this dictionary method

Method: items()

-- Returns a view object that displays a list of dictionary's (key, value) tuple pairs.

Example - items()

Stocks Table

Item Name	Stock Quantity
Laptop	10
Smartphone	15
Tablet	5
Headphones	20

Code

```python
inventory = {'Laptop': 10, 'Smartphone': 15, 'Tablet': 5, 'Headphones': 20}

print(inventory.items())
```

Output

```
dict_items([('Laptop', 10), ('Smartphone', 15), ('Tablet', 5), ('Headphones', 20)])
```

Scene - keys()

Jethalal: Bagha, please check and let me know **what electronics items we have in godown**.

Bagha: Yes sethji, I will check and will let you know

use this dictionary method

Method: **keys()**

-- Extracts the keys of the dictionary and returns the list of keys as a view object.

Example - keys()

Stocks Table

Item Name	Stock Quantity
Laptop	10
Smartphone	15
Tablet	5
Headphones	20

Code

```
inventory = {'Laptop': 10,
'Smartphone': 15, 'Tablet': 5,
'Headphones': 20}


# extracts the keys of the dictionary

dictionaryKeys = inventory.keys()


print(dictionaryKeys)
```

Output

```
dict_keys(['Laptop', 'Smartphone',
'Tablet', 'Headphones'])
```

Scene - values()

Jethalal: Bagha, please check and let me know **how much stock we have for each electronic item**.

Bagha: Yes sethji, I will check and will let you know

use this dictionary method

Method: **values()**

-- **Returns a view object that displays a list of all the values in the dictionary.**

Example - values()

Stocks Table

Item Name	Stock Quantity
Laptop	10
Smartphone	15
Tablet	5
Headphones	20

Code

```
inventory = {'Laptop': 10, 'Smartphone': 15, 'Tablet': 5, 'Headphones': 20}

# extracts the values of the dictionary

dictionaryValues= inventory.values()

print(dictionaryValues)
```
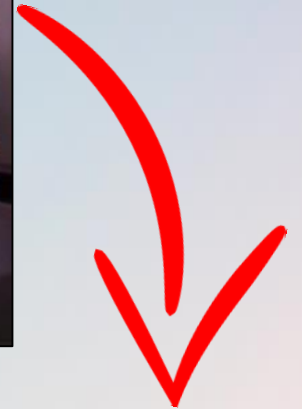
Output

```
dict_values([10, 15, 5, 20])
```

Scene - get()

Jethalal: Bagha, please check and let me know **how much stock we have for Smartphones**.

Bagha: Yes sethji, I will check and will let you know

use this dictionary method

Method: get()

-- Returns the value for the specified key if the key is in the dictionary.

Example - get()

Stocks Table

Item Name	Stock Quantity
Laptop	10
Smartphone	15
Tablet	5
Headphones	20

Code

```python
inventory = {'Laptop': 10, 'Smartphone': 15, 'Tablet': 5, 'Headphones': 20}

print("Smartphones in Stock: {}".format(inventory.get('Smartphone')))
```
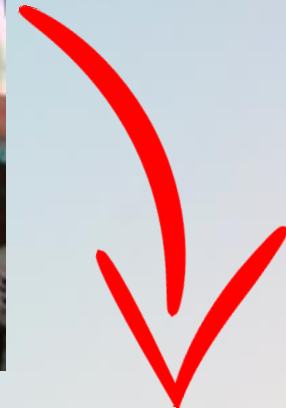
Output

Smartphones in Stock: 15

Scene - copy()

Jethalal: Bagha, please review everything and give me a **copy of all items and how much stock we have for Smartphones**.

Bagha: Yes sethji, I will check and will let you know

use this dictionary method

Method: **copy()**

-- Returns a copy (shallow copy) of the dictionary.

Example - copy()

Stocks Table

Item Name	Stock Quantity
Laptop	10
Smartphone	15
Tablet	5
Headphones	20

Code

```python
inventory = {'Laptop': 10, 'Smartphone': 15, 'Tablet': 5, 'Headphones': 20}

copied_inventory = inventory.copy()

print('Original Inventory:', inventory)

print('Copied Inventory:', copied_inventory)
```

Output

```
Original Inventory: {'Laptop': 10, 'Smartphone': 15, 'Tablet': 5, 'Headphones': 20}
Copied Inventory: {'Laptop': 10, 'Smartphone': 15, 'Tablet': 5, 'Headphones': 20}
```

Scene - update()

Bagha: Natu Kaka, **have we added those new electronic items in our stock list.**

Natu Kaka: Ohh no, I forgot. Can you add it Bagha beta?

use this dictionary method

Method: **update()**

-- **Updates the dictionary with the elements from another dictionary object or from an iterable of key/value pairs.**

Example - update()

Stocks Table

Item Name	Stock Quantity
Laptop	10
Smartphone	15
Tablet	5
Headphones	20
Air Conditioners	8

Code

```
inventory = {'Laptop': 10, 'Smartphone': 15, 'Tablet': 5, 'Headphones': 20}

new_items = {'Air Conditioner' : 8}

inventory.update(new_items)

print('Inventory:', inventory)
```

Output

Inventory: {'Laptop': 10, 'Smartphone': 15, 'Tablet': 5, 'Headphones': 20, 'Air Conditioner': 8}

Scene - pop()

Bagha: Natu Kaka, **we don't have Air Conditioners in stock. Should I remove them?**

Natu Kaka: Yes, please remove them Bagha beta.

use this dictionary method

Method: pop()

-- **Removes and returns an element from a dictionary having the given key.**

Example - pop()

Stocks Table

Item Name	Stock Quantity
Laptop	10
Smartphone	15
Tablet	5
Headphones	20
~~Air Conditioners~~ ❌	~~8~~

Code

```python
inventory = {'Laptop': 10, 'Smartphone': 15, 'Tablet': 5, 'Headphones': 20, 'Air Conditioner' : 8}

remove_element = inventory.pop('Air Conditioner')

print('Inventory:', inventory)
```

Output

Inventory: {'Laptop': 10, 'Smartphone': 15, 'Tablet': 5, 'Headphones': 20}

Scene - **popitem()**

Bagha: Natu Kaka, **we don't have Headphones in stock. Should I remove them?**

Natu Kaka: Yes**, it was added last to the sheet, so please remove them**, Bagha beta.

use this dictionary method

Method: **popitem()**

-- **Removes and returns the last element (key, value) pair inserted into the dictionary.**

Example - popitem()

Stocks Table

Item Name	Stock Quantity
Laptop	10
Smartphone	15
Tablet	5
~~Headphones~~ ❌	~~20~~

Code

```python
inventory = {'Laptop': 10, 'Smartphone': 15, 'Tablet': 5, 'Headphones': 20}

remove_element = inventory.popitem()

print('Removed Element:', remove_element)

print('Inventory:', inventory)
```

Output

Removed Element: ('Headphones', 20)

Inventory: {'Laptop': 10, 'Smartphone': 15, 'Tablet': 5}

Scene - **clear()**

Natu Kaka: Yes, Let's do it Bagha beta.

use this dictionary method

Method: **clear()**

-- Removes all items from the dictionary.

Example - clear()

Stocks Table

Item Name	Stock Quantity
~~Laptop~~ ❌	~~10~~
~~Smartphone~~ ❌	~~15~~
~~Tablet~~ ❌	~~5~~

Code

```python
inventory = {'Laptop': 10, 'Smartphone': 15, 'Tablet': 5, 'Headphones': 20}

remove_element = inventory.clear()

print('Inventory:', inventory)
```
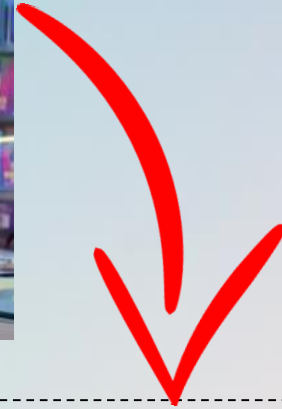
Output

Inventory: {}

Scene - fromkeys()

Bagha: Natu Kaka, we have to create a new smartphones sheet. **But I have two list, one with different brand items and second with items category.**

Natu Kaka: Ohh, no problem Bagha beta. We can do it.

use this dictionary method

Method: fromkeys()

-- Creates a dictionary from the given sequence of keys and values.

Example - fromkeys()

Smartphones Table

Item Name	Stock Quantity
Samsung	Smartphone
iPhone	Smartphone
Nothing	Smartphone

Code

```python
# keys for the dictionary

item_brand = {'Samsung', 'iPhone', 'Nothing'}

# value for the dictionary

item_category = 'Smartphone'

inventory = dict.fromkeys(item_brand, item_category)

print('Inventory:', inventory)
```

Output

```
Inventory: {'Samsung': 'Smartphone', 'iPhone': 'Smartphone', 'Nothing': 'Smartphone'}
```
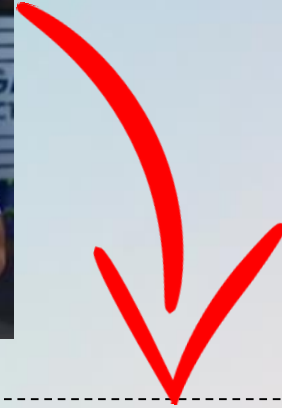
Scene - setdefault()

Natu Kaka: Bagha beta, can you please check **if you have added Nokia item in Smartphone list or not and if not then please add it.**

Bagha: Yes Natu kaka, I am checking on it.

use this dictionary method

Method: setdefault()

-- **Returns the value of a key (if the key is in dictionary). If not, it inserts key with a value to the dictionary.**

Example - setdefault()

Smartphones Table

Item Name	Stock Quantity
Samsung	Smartphone
iPhone	Smartphone
Nothing	Smartphone
Nokia	Smartphone

Code

```python
inventory = {'Nothing': 'Smartphone', 'Samsung': 'Smartphone', 'iPhone': 'Smartphone'}

print('Inventory:', inventory)

# Nokia was not present in above dictionary still will give its default value set in below

item_category = inventory.setdefault('Nokia', 'Smartphone')

print('Item Category = ',item_category)

# Now here you can also see that Nokia key with value has been added

print('Inventory:', inventory)
```
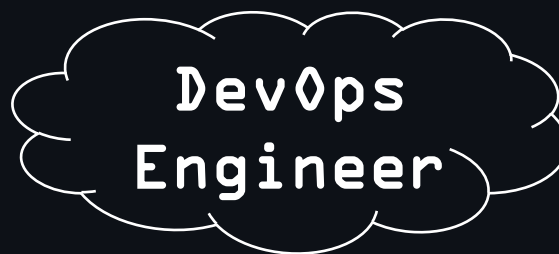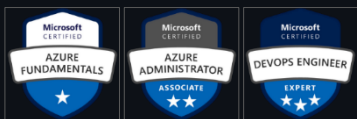
Output

Inventory: {'Samsung': 'Smartphone', 'iPhone': 'Smartphone', 'Nothing': 'Smartphone'}

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