In [ ]:
```
dictinary {}
dictionary has a key/value pair
dictionary is mutable, we can change, add, remove
dictionary key must be unique
dictionary value will be change but key can not change
```

In [1]:
```python
d = {}

print(d)
```

```
{}
```

In [2]:
```python
d = {1:"python",2:"Java",3:"C++"}
print(d)
```

```
{1: 'python', 2: 'Java', 3: 'C++'}
```

In [3]:
```python
d = {1:"python",2:"Java",3:"C++","name": "John",[2,3,4]: "Group of values"}
print(d)
```

```
---------------------------------------------------------------------------
TypeError                                 Traceback (most recent call last)
Cell In[3], line 1
----> 1 d = {1:"python",2:"Java",3:"C++","name": "John",[2,3,4]: "Group of va
lues"}
      2 print(d)

TypeError: unhashable type: 'list'
```

In [22]:
```python
# Accessing the element from dict
my_dict = {1:"python",2:"Java",3:"C++","name": "John"}

print(my_dict[1])
print(my_dict["name"])
print(my_dict.get("name"))
```

```
python
John
John
```

In [15]:
```python
# Add/update/delete


## adding the new key
my_dict["first_name"] = "Viraj"
print(my_dict)

## Update
my_dict[1] = "AI"
print(my_dict)

## Delete
del my_dict[1]
#del my_dict
```

```
{1: 'AI', 2: 'Java', 3: 'C++', 'name': 'John', 'first_name': 'Viraj'}
{1: 'AI', 2: 'Java', 3: 'C++', 'name': 'John', 'first_name': 'Viraj'}
```

In [23]:
```python
print(my_dict)
```

```
{1: 'python', 2: 'Java', 3: 'C++', 'name': 'John'}
```

In [21]:
```python
# built in function

my_dict.clear()
print(my_dict)
```

```
{}
```

In [24]:
```python
# len
len(my_dict)
```

Out[24]: 4

In [25]:
```python
# pop
my_dict.pop('name')
```

Out[25]: 'John'

In [27]:
```python
my_dict
```

Out[27]: {1: 'python', 2: 'Java', 3: 'C++'}

In [31]:
```python
print(type(my_dict))
print(type(str(my_dict)))
```

```
<class 'dict'>
<class 'str'>
```

```
In [33]: print(my_dict)
```

```
{1: 'python', 2: 'Java', 3: 'C++'}
```

```
In [34]: my_dict2 = {"name": "viraj","age": 20}
```

```
In [36]: my_dict.update(my_dict2)
         print(my_dict)
```

```
{1: 'python', 2: 'Java', 3: 'C++', 'name': 'viraj', 'age': 20}
```

```
In [40]: ## Membership

         ("name" in my_dict)
```

```
Out[40]: True
```

```
In [41]: ("name" not in my_dict)
```

```
Out[41]: False
```

```
In [ ]: ##  Exercise
        1- create a empty dictionary of the "Bird"
        2- Add key "name","color" and "age"
        3-FInd the the len of the dictionary
        4- Change the dictionary with different dictionary
        5- Get the the dictionary keys as list
        6- delete the "Bird" as dictionary single key as well as whole dictionary
```