#Dictionary

A dictionary in Python is a collection of key-value pairs. Each key in a dictionary is unique, and it maps to a value. Dictionaries are mutable, meaning you can change their contents, and they are unordered

A dictionary has a key: value pair.

Dict Creation

In [53]:
```
1
```

Out[53]:
```
tuple
```

In [ ]:
```
#empty dictionary
y = {}
y
```

Out[34]:
```
{}
```

In [ ]:
```
type(y)
```

Out[35]:
```
dict
```

In [ ]:
```
x=dict()
x
```

Out[36]:
```
{}
```

In [ ]:
```
type(x)
```

Out[37]:
```
dict
```

In [ ]:
```
employee={"name":"nilay"}
```

In [ ]:
```
employee["name"]
```

Out[39]:
```
'nilay'
```

In [ ]:
```
employee={"name":"nilay","id":101,"age":35.8}
```

In [ ]:
```
#print variable content by mentioning variable name in notebook
employee["age"]
```

Out[41]:
```
35.8
```

In [ ]:
```
#print variable content by using print statement
print(employee["age"])
```

```
35.8
```

In [ ]:
```
employee['id']
```

Out[43]:
```
101
```

In [ ]:
```
#print variable content by mentioning variable name in notebook
employee
```

Out[44]:
```
{'name': 'nilay', 'id': 101, 'age': 35.8}
```

In [ ]:
```
#print variable content by using print statement
print(employee)
```

```
{'name': 'nilay', 'id': 101, 'age': 35.8}
```

In [ ]:
```
#adding a new data into a dictionary
employee['designation']="AI engg."
employee
```

Out[46]:
```
{'name': 'nilay', 'id': 101, 'age': 35.8, 'designation': 'AI engg.'}
```

In [ ]:
```
#Task 1 - create following dictionary
#movie
```

In [ ]:
```
#Task 2 - create following dictionary
#student
```

In [ ]:
```
#Task 3 - create following dictionary
#course
```

In [ ]:
```
#dictionary with mixed types of  keys and values
employee = {'name': 'Nilay',
            'age':20,
            'work_from_home':False,
            'skills':['Data Science','Machine Learning','Deep Learning
            'qualification':('Ph D', 'MCA','B Sc'),
            'contact_info':{'address':'Pune','mobile':999999999,
                            'email':'nilaykarade@gmail.com'}
           }
print(employee)
```

```
{'name': 'Nilay', 'age': 20, 'work_from_home': False, 'skills': ['Data Sci
ence', 'Machine Learning', 'Deep Learning'], 'qualification': ('Ph D', 'MC
A', 'B Sc'), 'contact_info': {'address': 'Pune', 'mobile': 999999999, 'ema
il': 'nilaykarade@gmail.com'}}
```

In [ ]:
```
employee['skills']
```

Out[15]:
```
['Data Science', 'Machine Learning', 'Deep Learning']
```

In [ ]:
```
employee['skills'][1]
```

Out[16]:
```
'Machine Learning'
```

In [ ]:
```
employee['skills'].append('Web app development')
employee
```

Out[17]:
```
{'name': 'Nilay',
 'age': 20,
 'work_from_home': False,
 'skills': ['Data Science',
  'Machine Learning',
  'Deep Learning',
  'Web app development'],
 'qualification': ('Ph D', 'MCA', 'B Sc'),
 'contact_info': {'address': 'Pune',
  'mobile': 999999999,
  'email': 'nilaykarade@gmail.com'}}
```

In [ ]:
```
employee['qualification']
```

Out[18]:
```
('Ph D', 'MCA', 'B Sc')
```

In [ ]:
```
employee['qualification'][0]
```

Out[19]:
```
'Ph D'
```

In [ ]:
```
employee['contact_info']
```

Out[20]:
```
{'address': 'Pune', 'mobile': 999999999, 'email': 'nilaykarade@gmail.com'}
```

In [ ]:
```
employee['contact_info']['email']
```

Out[21]:
```
'nilaykarade@gmail.com'
```

In [ ]:
```
# dictionary_name.get('key_name')
employee.get('name')
```

Out[24]:
```
'Nilay'
```

In [ ]:
```
#Task - print other values of user_dict using get()
```

In [ ]:
```
len(employee)
```

Out[51]:
```
6
```

Dict Add or Modify Elements

In [ ]:
```
employee
```

Out[25]:
```
{'name': 'Nilay',
 'age': 20,
 'work_from_home': False,
 'skills': ['Data Science',
  'Machine Learning',
  'Deep Learning',
  'Web app development'],
 'qualification': ('Ph D', 'MCA', 'B Sc'),
 'contact_info': {'address': 'Pune',
  'mobile': 999999999,
  'email': 'nilaykarade@gmail.com'}}
```

In [ ]:
```
employee['name'] = 'Nilay Karade'
employee
```

Out[26]:
```
{'name': 'Nilay Karade',
 'age': 20,
 'work_from_home': False,
 'skills': ['Data Science',
  'Machine Learning',
  'Deep Learning',
  'Web app development'],
 'qualification': ('Ph D', 'MCA', 'B Sc'),
 'contact_info': {'address': 'Pune',
  'mobile': 999999999,
  'email': 'nilaykarade@gmail.com'}}
```

In [ ]:
```
#Task - change age value
```

In [ ]:
```
#Task - change value of 'data science' to  'data science  & analytics'

```

In [ ]:
```
#task - add 'AI' in skill
```

In [ ]:
```
#Task - change  mobile number
```

Dict Delete or Remove Element

In [ ]:
```
employee.pop('age')
employee
```

Out[28]:
```
{'name': 'Nilay Karade',
 'work_from_home': False,
 'skills': ['Data Science',
  'Machine Learning',
  'Deep Learning',
  'Web app development'],
 'qualification': ('Ph D', 'MCA', 'B Sc'),
 'contact_info': {'address': 'Pune',
  'mobile': 999999999,
  'email': 'nilaykarade@gmail.com'}}
```

In [ ]:
```
#deleting from dictionalry
squares = {1:1, 2: 4, 3: 9, 4: 16, 5: 25}
print(squares)
squares.popitem()
print(squares)
```

```
{1: 1, 2: 4, 3: 9, 4: 16, 5: 25}
{1: 1, 2: 4, 3: 9, 4: 16}
```

In [ ]:
```
#remove all items
squares = {2: 4, 3: 9, 4: 16, 5: 25}
print(squares)
squares.clear()
print(squares)
```

```
{2: 4, 3: 9, 4: 16, 5: 25}
{}
```

In [ ]:
```
squares = {2:4, 3:9, 4:16, 5:25}
print(squares.keys()) #return a view of the dictionary keys
```

```
dict_keys([2, 3, 4, 5])
```

In [ ]:
```
squares = {2:4, 3:9, 4:16, 5:25}
print(squares.values()) #return a view of the dictionary values
```

```
dict_values([4, 9, 16, 25])
```