Dictionary

- A dictionary is like an address-book where you can find the address or contact details of a person by knowing only his/her name i.e. we associate keys (name) with values (details). Note that the key must be unique just like you cannot find out the correct information if you have two persons with the exact same name.
- Remember that key-value pairs in a dictionary are not ordered in any manner.

Creating a dict

```
# Fruit rate on blinkit

# type of fruits

# Quiz

# empty

d = {}

print(d)

{}

type(d)

dict

d = dict()

d

{}

type(d)

dict
```

```
# Non empty dictionary

fruits = {"Apple": 120, "Guava": 90, "Kiwi": 40, "Grapes": 160,
"Banana": 60}

fruits

{'Apple': 120, 'Guava': 90, 'Kiwi': 40, 'Grapes': 160, 'Banana': 60}

type(fruits)

dict
```

```
# zip
# zip(key, value)

fr = ["Apple", "Orange", "Banana", "Pineapple", "Apple"]
prices = (120, 90, 60, 90, 89)

basket = dict(zip(fr, prices))

basket
```

```
{'Apple': 89, 'Orange': 90, 'Banana': 60, 'Pineapple': 90}
```

```
# Key are unique in dictinary


# Quiz

words = {
"is": 2,
"hello": 3,
"the": 4
}

print(type(words))
```

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

Access the values of the dict

Dictionaries doesn't support indexing

```
# indexing?

# Quiz

fruits
```

```
{'Apple': 120, 'Guava': 90, 'Kiwi': 40, 'Grapes': 160, 'Banana': 60}
```

```
# Dictionary does not support indexing

# fruits[0]

fruits["Apple"]
```

```
120
```

```
# Quiz

## Key error

words = {
"is": 2,
"hello": 3,
"the": 4
}
this_count = words["this"]

print(this_count)
```

```
---------------------------------------------------------------------------
KeyError                                  Traceback (most recent call last)
/var/folders/zn/hkv6562d6_d30glfs8yc76900000gn/T/ipykernel_34208/1366392
88.py in <module>
      4 "the": 4
      5 }
----> 6 this_count = words["this"]
      7
      8 print(this_count)

KeyError: 'this'
```

```
## Can we have 2 keys in dict with same meaning

# Keys are unique in dict

d = {"a": 12, "b" : 12, "c" : 1, "a" : 1}

print(d)
```

```
{'a': 1, 'b': 12, 'c': 1}
```

```
# a: 1
# b: 12
# c: 1
```

Adding new values

```
# Adding new fruits: d["item"] = value
```

```
fruits
```

```
{'Apple': 120, 'Guava': 90, 'Kiwi': 40, 'Grapes': 160, 'Banana': 60}
```

```
# fruits["Pineapple"]
```

```
fruits["Pineapple"] = 90
```

```
fruits
```

```
{'Apple': 120,
 'Guava': 90,
 'Kiwi': 40,
 'Grapes': 160,
 'Banana': 60,
 'Pineapple': 90}
```

```
# dict[key] = value
```

```
# Quiz
```

```
d = {"a": 1, "b": 2, "c": 3}
d['d'] = 55

print(d['d'])
```

```
55
```

```
# Updating the value of given item
```

```
fruits
```

```
{'Apple': 120,
 'Guava': 90,
 'Kiwi': 40,
 'Grapes': 160,
 'Banana': 60,
 'Pineapple': 90}
```

```
fruits["Pineapple"]
```

```
90
```

```
fruits["Pineapple"] = 60
```

```
fruits
```

```
{'Apple': 120,
 'Guava': 90,
 'Kiwi': 40,
 'Grapes': 160,
 'Banana': 60,
 'Pineapple': 60}
```

```
# update
```

```
# d1.update(d2)
```

```
d1 = {1: "Rahul", 2: "Amit", 3: "Reetu"}
d2 = {4: "Arnav", 5: "Royal", 6: "Devender"}
```

```
d2
```

```
{4: 'Arnav', 5: 'Royal', 6: 'Devender'}
```

```
d1.update(d2)
```

```
d1
```

```
{1: 'Rahul', 2: 'Amit', 3: 'Reetu', 4: 'Arnav', 5: 'Royal', 6:
'Devender'}
```

```
fruits = {'Apple': 120,
 'Guava': 90,
 'Kiwi': 40,
 'Grapes': 160,
 'Banana': 60,
 'Pineapple': {"small": 90, "large": 120}}
```

```
fruits
```

```
{'Apple': 120,
 'Guava': 90,
 'Kiwi': 40,
 'Grapes': 160,
 'Banana': 60,
 'Pineapple': {'small': 90, 'large': 120}}
```

```
fruits["Pineapple"]
```

```
{'small': 90, 'large': 120}
```

```
fruits["Pineapple"]["small"]
```

```
90
```

```
fruits["Pineapple"]["large"]
```

```
120
```

```
d = {1: "Apple"}
```

```
stocks = ['reliance', 'infosys', 'tcs']
prices = [2175, 1127, 2750]
dictionary = dict(zip(stocks, prices))
print(dictionary)
```

```
{'reliance': 2175, 'infosys': 1127, 'tcs': 2750}
```

Getting errors while trying to get a value for key not present?

Get function

- get(key, 0)

```
# quiz
```

```
fruits
```

```
{'Apple': 120,
 'Guava': 90,
 'Kiwi': 40,
 'Grapes': 160,
 'Banana': 60,
 'Pineapple': {'small': 90, 'large': 120}}
```

```
fruits["Dragon Fruit"]
```

```
---------------------------------------------------------------------------
KeyError                                  Traceback (most recent call
last)
/var/folders/zn/hkv6562d6_d30glfs8yc76900000gn/T/ipykernel_34208/30231
07297.py in <module>
----> 1 fruits["Dragon Fruit"]

KeyError: 'Dragon Fruit'
```

```
fruits.get("Apple")
```

```
120
```

```
fruits.get('Dragon Fruit', 0)
```

```
0
```

```
fruits.get('Dragon Fruit', "Not available")
```

```
'Not available'
```

```
fruits.get("Apple", 0)
```

```
120
```

```
# Quiz

d = {"a": 1, "b": 2, "c": 3}
print(d.get("a", 0))
print(d.get("b", 0))
print(d.get("c", 0))
print(d.get("d", 0))
```

```
1
2
3
0
```

```
# a: 1
# b: 2
# c: 3
# d: 0
```

Iterating on a dict

```
# Quiz

fruits
```

```
{'Apple': 120,
 'Guava': 90,
 'Kiwi': 40,
 'Grapes': 160,
```

```
 'Banana': 60,
 'Pineapple': {'small': 90, 'large': 120}}
```

```
for i in fruits:
    print(i)
```

```
Apple
Guava
Kiwi
Grapes
Banana
Pineapple
```

```
for i in fruits:
    print(fruits[i])
```

```
120
90
40
160
60
{'small': 90, 'large': 120}
```

```
for i in fruits:
    print(i, fruits[i])
```

```
Apple 120
Guava 90
Kiwi 40
Grapes 160
Banana 60
Pineapple {'small': 90, 'large': 120}
```

```
# for i, v in dict.items()
```

```
fruits.items()
```

```
dict_items([('Apple', 120), ('Guava', 90), ('Kiwi', 40), ('Grapes',
160), ('Banana', 60), ('Pineapple', {'small': 90, 'large': 120})])
```

```
for key, value in fruits.items():
    print(key, value)
```

```
Apple 120
Guava 90
Kiwi 40
Grapes 160
Banana 60
Pineapple {'small': 90, 'large': 120}
```

```
for i, j in fruits.items():
    print(i, j)
```

```
Apple 120
Guava 90
Kiwi 40
Grapes 160
Banana 60
Pineapple {'small': 90, 'large': 120}
```

```
# Quiz

a = {1: 1, 2: 4, 3: 9}

for x in a:
    print(a[x], end=' ')
```

```
1 4 9
```

```
# a[1]: 1
# a[2]: 4
# a[3]: 9
```

```
# for i, j in range(12):
#     print(i, j)

a, b = (1, 2)

print(a, b)
```

```
1 2
```

Keys in a dict

```
fruits.keys()
```

```
dict_keys(['Apple', 'Guava', 'Kiwi', 'Grapes', 'Banana', 'Pineapple'])
```

Values in a dict

```
fruits.values()
```

```
dict_values([120, 90, 40, 160, 60, {'small': 90, 'large': 120}])
```

Len function

```
fruits
```

```
{'Apple': 120,
 'Guava': 90,
 'Kiwi': 40,
 'Grapes': 160,
 'Banana': 60,
 'Pineapple': {'small': 90, 'large': 120}}
```

```
len(fruits)
```

```
6
```

in dict: Citizenship check

```
# in operator will check for keys only
```

```
fruits
```

```
{'Apple': 120,
 'Guava': 90,
 'Kiwi': 40,
 'Grapes': 160,
 'Banana': 60,
 'Pineapple': {'small': 90, 'large': 120}}
```

```
"apple" in fruits
```

```
False
```

```
"Apple" in fruits
```

```
True
```

```
120 in fruits
```

```
False
```

```
60 in fruits
```

```
False
```

```
## Challenge: Take an input
# Find the freq of each letter and return the letter and their freq
## ex: "Rahul janghu"
# "R" : 1
# "a" : 2
# "h" : 2
# "u" : 2
# "l" : 1
# " " : 1
# "j" : 1
# "n" : 1
# "g" : 1
```

```
name = input()
```

```
 Rahul janghu
```

```
# Get all the alphabets of this string
```

```
for i in name:
    print(i)
```

```
R
a
h
u
l

j
a
n
g
h
u
```

```
freq = {}
```

```
for i in name:
    freq[i] = 1
```

```
print(freq)
```

```
{'R': 1, 'a': 1, 'h': 1, 'u': 1, 'l': 1, ' ': 1, 'j': 1, 'n': 1, 'g':
1}
```

```
fruits["Apple"] += 20
```

```
fruits
```

```
{'Apple': 140,
 'Guava': 90,
 'Kiwi': 40,
 'Grapes': 160,
 'Banana': 60,
 'Pineapple': {'small': 90, 'large': 120}}
```

```
# Final Code
```

```
name
```

```
'Rahul janghu'
```

```
freq = {}

for i in name:
    # If element present increase frequency
    if i in freq:
        freq[i] += 1

    # If not then add element with freq of 1
    else:
        freq[i] = 1

print(freq)
```

```
{'R': 1, 'a': 2, 'h': 2, 'u': 2, 'l': 1, ' ': 1, 'j': 1, 'n': 1, 'g':
1}
```

```
# R: 1
# a: 1+1 = 2
# h: 1+1 = 2
# u: 1+1 = 2
# l: 1
# " ": 1
# j: 1
# n: 1
# g = 1
```

```
d = {}
```

```
d["Apple"] = 120
```

```
d
```

```
{'Apple': 120}
```

```
# Doubts
```

```
stocks = ['reliance', 'infosys', 'tcs']
prices = [2175, 1127, 2750]
dictionary = dict(zip(stocks, prices))
print(dictionary)
```

```
{'reliance': 2175, 'infosys': 1127, 'tcs': 2750}
```