

2018-09-28-075152

September 28, 2018

```
In [1]: print("Welcome everyone!")
```

Welcome everyone!

## 1 Python Basics

### 1.1 Arithmetics

```
In [2]: a = 5
        b = 10
        c = a + b
```

```
print(c)
print(b*a) # multiplication
print(c/a) # division integer
print(a/b) # division int is automatically converted to float in this notebook
print(b%c) # Modulus - remainder of the division for example 31%6 has a remainder of 1
print(str(a)) # you can convert int to string
```

```
15
50
3
1/2
10
5
```

### 1.2 Strings

```
In [11]: a = "simple string"
        b = "other string"
        c = " string\twith\tspaces\tand\ttabs "
```

```
print(a+b)
print("{0}\t{1}".format(a, b))
print(c.strip()) # remove white space from the left and right side of a string
print(b.strip("s")) # remove the character 's' from the left and right side of a string
```

```

print(c.split("\t"))    # convert a string into a list by cutting all tabs
print(c.split("with")) # non-conventional split
print(int("12345"))     # you can convert numerical characters into a int or float
print(float("test"))    # you cannot convert characters into a float or int

```

```

simple stringother string
simple string      other string
string      with      sp aces      and      tabs
other string
[' string', 'with', 'sp aces', 'and', 'tabs ']
[' string\t', '\tsp aces\tand\ttabs ']
12345

```

---

```

ValueError                                Traceback (most recent call last)

```

```

<ipython-input-11-061521733c3c> in <module>()
    10 print(c.split("with"))
    11 print(int("12345"))
---> 12 print(float("test"))

```

```

ValueError: could not convert string to float: test

```

### 1.3 Lists

```

In [18]: a = [1,2,3,4,5]
        b = ["a", "b", "c"]
        c = [["a", 3], ["b", 4], ["c", 5]]

print("Print list items:")
for list_item in b:
    print(list_item)

print("\nPrint 2D list items:")
for item_1, item_2 in c:
    print("Item 1: {0}\tItem 2: {1}".format(item_1, item_2))

print("\nPrint list items with index:")
for n, item in enumerate(b):
    print("Index: {0}\tItem 2: {1}".format(n, item))

print("\nMerging lists:")
print(a + b)

```

```

print("\nJoin list items:")
print(":".join(b))

print("\nSort a list:")
l = [3,1,5,2]
l.sort()
print(l)

```

Print list items:

```

a
b
c

```

Print 2D list items:

```

Item 1: a      Item 2: 3
Item 1: b      Item 2: 4
Item 1: c      Item 2: 5

```

Print list items with index:

```

Index: 0      Item 2: a
Index: 1      Item 2: b
Index: 2      Item 2: c

```

Merging lists:

```

[1, 2, 3, 4, 5, 'a', 'b', 'c']

```

Join list items:

```

a;b;c
[1, 2, 3, 5]

```

## 1.4 Dictionaries

```

In [14]: a = {"a":1, "b":2, "c":3}

```

```

print(a.keys())
print(a.values())
print(a.items())

```

```

['a', 'c', 'b']
[1, 3, 2]
[('a', 1), ('c', 3), ('b', 2)]

```

## 1.5 If statements

```

In [4]: a = 1
        b = 5

```

```

print(a == b)
print(a == 1)
print(a < b)
print(a > b)
print(a >= 1)
print(a <= 1)

if a == 1:
    print("Do something..")

if a == b:
    print("a equals b")
else:
    print("a is not equal to b")

```

```

False
True
True
False
True
True
Do something..
a is not equal to b

```

## 1.6 Exceptions

```
In [7]: l = [1,2,3,4,5]
```

```

print(len(l))
print(range(6))

for n in range(6):
    print("Index: {0}\tValue: {1}".format(n, l[n]))

```

```

5
[0, 1, 2, 3, 4, 5]
Index: 0      Value: 1
Index: 1      Value: 2
Index: 2      Value: 3
Index: 3      Value: 4
Index: 4      Value: 5

```

```

-----
IndexError                                Traceback (most recent call last)

```

```
<ipython-input-7-d0ee313cc7a9> in <module>()
      5
      6 for n in range(Integer(6)):
----> 7     print("Index: {0}\tValue: {1}".format(n, l[n]))
```

IndexError: list index out of range

```
In [8]: print(int("char"))
```

---

ValueError Traceback (most recent call last)

```
<ipython-input-8-1032df1a07fa> in <module>()
----> 1 print(int("char"))
```

ValueError: invalid literal for int() with base 10: 'char'

```
In [10]: print(hello)
```

---

NameError Traceback (most recent call last)

```
<ipython-input-10-1cd80308eb4c> in <module>()
----> 1 print(hello)
```

NameError: name 'hello' is not defined

```
In [29]: print("hello world!")
```

```
File "<ipython-input-29-4ea4ad55d21e>", line 1
print("hello world!")
      ^
```

SyntaxError: unexpected EOF while parsing

```
In [3]: try:
        non-existing-variable
```

```
except SyntaxError:  
    print("it was a SyntaxError")  
except NameError:  
    print("it was a NameError")
```

it was a NameError