

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) # diviation integer
    print(a/b) # diviation int is automatically converted to int with 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\tsp aces\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 equeals b")
else:
    print("a is not equeal to b")

False
True
True
False
True
True
Do something..
a is not equeal 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: {}\\tValue: {}".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
```