S02 T01. Jupyter Notebook and Markdown

September 23, 2021

Welcome to Python with JupyterNotebook

Introduction: in this paper we will practise a bit of Python and learn how to use this new Notebook!

Informal Introduction:

1 Operations

1.1 Mathematics operations and variables

[36]:
```
#Priority of operators

5*4/2 #Python knows the priority of operators
```

[36]:
```
10.0
```

[37]:
```
n=5 #Multiplication after create a variable with a associated number
n*6
```

[37]:
```
30
```

[39]:
```
n**3 #Power
```

[39]: 125

[40]:
```
m=20  #Sum of variables
n+m
```

[40]: 25

[42]:
```
m=n #assignment of a variable
m
```

[42]: 5

[46]:
```
#Reuse code

mark_1=7.5
mark_2=5.3

mean=(mark_1 + mark_2)/2

mean
```

[46]: 6.4

1.2 Explicit conversion

1.2.1 Convert float to int
1.2.2 Convert float to String
1.2.3 Convert int to String
1.2.4 Convert a list
1.2.5 Convert a set

[84]:
```
#1.2.1 Convert float to int
a=3.5
a=int(a)
print(a)
```

3

[89]:
```
#1.2.2 Convert float to String
a=3.5
print(type(a))
a=str(a)
print(type(a))
```

<class 'float'>
<class 'str'>

[90]:
```
#1.2.3 Convert int to String
a=10
print(type(a))
a=str(a)
print(type(a))
```

```
<class 'int'>
<class 'str'>
```

[94]:
```
#1.2.4 Convert a list from a set
a={1,2,3}
b=list(a)
print((a))
print((b))
```

```
{1, 2, 3}
[1, 2, 3]
```

[95]:
```
#1.2.5 Convert a set
a=[1,2,3]
b=set(a)
print(a)
print(b)
```

```
[1, 2, 3]
{1, 2, 3}
```

1.3 Booleans

[99]:
```
#Evaluate expressions
print(25<30)
print(1<=0)
print(1==1)
```

```
True
False
True
```

[103]:
```
#Use boolean with if
a=1
b=2
if True:
    print("b is bigger than a")
else:
    print("a is bigger than b")
```

```
b is bigger than a
```

2 Text

[47]:
```
"Hello JupyterNoteBook, this is my first String"
```

[47]: 'Hello JupyterNoteBook this is my first String'

[48]:
```
'Hello World only with commas'
```

[48]: 'Hello World only with commas'

[54]:
```
#Add commas in the middle of a String

"We are here trying to know how \"JUPYTER\" works"
```

[54]: 'We are here trying to know how "JUPYTER" works'

[59]:
```
#How to use the print() function
print("My name is: \tAdrià Nova Pagés") #\t hace un salto de espacio y \n hace␣
↪un salto de línea
```

```
My name is:     Adrià Nova Pagés
```

[58]:
```
print("My name is: \nAdrià Nova Pagés")
```

```
My name is:
Adrià Nova Pagés
```

[62]:
```
#To avoid special characters we must use a RAW chain
print(r"C:\name\directory")
```

```
C:\name\directory
```

[63]:
```
c="This is a chain \nwith two lines"
print(c)
```

```
This is a chain
with two lines
```

[68]:
```
#Write a text in the middle
ten_spaces="  " * 40
print(ten_spaces + "a text with 40 spaces")
```

```
                                        a text with 40 spaces
```

[72]:
```
#Indexes on Strings
word="GAME OF THRONES"
word[1]
```

[72]: 'A'

[74]:
```
#To access a character at the end
word[-0] #Like if it was the first letter
word[-1]
word[-2]
```

[74]:
```
'G'
```

[79]:
```
#Mutability
word="S" + word[1:]
word
```

[79]:
```
'SAME OF THRONES'
```

[80]:
```
#To know the length of the String
len(word)
```

[80]:
```
15
```

[9]:
```
#String formatting
s="The numbers are {a} and {b}".format(a=10,b=20)
print(s)
```

```
The numbers are 10 and 20
```

[13]:
```
#f-Strings (allows you to embed expressions within strings)
a=10;b=20
s=f"The numbers are {a} and {b}"
print(s)
z=f"a+b={a+b}"
print(z)
```

```
The numbers are 10 and 20
a+b=30
```

2.1 Methods

[17]:
```
#Converts uppercase alphabetic characters to lowercase and viceversa.
series="The Crown"
print(series.swapcase())
```

```
tHE cROWN
```

[19]:
```
#Count. Allows counting the times that another string is within the first
tigers="Tres tristes tigres, tragaban trigo en un trigal, en tres tristes␣
 ↪trastos, tragaban trigo tres tristes tigres"
print(tigers.count("tr"))
```

```
11
```

[28]:
```
#Strip. Deletes the character that is entered to the left and right
email=" adrianova8@gmail.com  adria"
print(email.strip("adria"))
```

```
 adrianova8@gmail.com
```

[31]:
```
#Z.fill. Full the string with leading zeros until it reaches the length passed␣
 ↪as a parameter.
number="5"
print(number.zfill(5))
```

```
00005
```

[38]:
```
#Split.Splits a string into substrings and returns them stored in a list
programs="Java,Python,C"
print(programs.split(","))
```

```
['Java', 'Python', 'C']
```

3 Lists

[105]:
```
list_number=[1,2,3,4,5]
list_number
```

[105]:
```
[1, 2, 3, 4, 5]
```

[106]:
```
#List has the same running that chain charachters
information=[4,"a good chain", -345, 3.54, "other chain"]
print(information[0])
print(information[1])
print(information[2])
```

```
4
a good chain
-345
```

[107]:
```
#Sum of lists
list_number+[6,7,8,9,10]
```

[107]:
```
[1, 2, 3, 4, 5, 6, 7, 8, 9, 10]
```

[108]:
```
#Mutability
even=[0,2,4,6,8,10]
even[3]=7
even
```

[108]:
```
[0, 2, 4, 7, 8, 10]
```

[111]:
```
#Add items in a list
even.append(12)
even.append(14)
even.append(4*4)
even
```

[111]: [0, 2, 4, 7, 8, 10, 12, 12, 14, 16]

[114]:
```
#Nest list
a=[1,2,3]
b=[4,5,6]
c=[7,8,9]
total=[a,b,c]
total
```

[114]: [[1, 2, 3], [4, 5, 6], [7, 8, 9]]

[115]:
```
print(total[0]) #first sublist
print(total[-1])#last sublist

print(total[0][0]) #first sublist,and first ítem of it
print(total[1][1]) #second sublist,and second ítem of it
print(total[2][2]) #third sublist,and third ítem of it
print(total[-1][-1]) #last sublist,and first last of it
```

```
[1, 2, 3]
[7, 8, 9]
1
5
9
9
```

4 Keyboard reading

[40]:
```
#Introduce a number by keyboard
number=input("Introduce a number: ")
```

```
Introduce a number: 75
```

[42]:
```
#We must use int() if we want transform a chain variable to int
number=int(input("Introduce a enter number: "))
number*5
```

```
Introduce a enter number: 5
```

[42]: 25

[43]:
```
#The same but with a float
floats=float(input("Introduce a float number: "))
floats*5
```

```
Introduce a float number: 3.12
```

[43]:
```
15.600000000000001
```

5 Types of images

5.1 Add an image in JupyetNotebook:

[9]:
```
from IPython.display import Image
Image (filename="/Users/adrianova/Desktop/Data Science/Python/IT Academy -␣
↪Python/SPRINT 2 - Introducció a PYthon/images/phyton.png", width=450,␣
↪height=250)
```

[9]:

[ ]:
```

```