Python DEV102 Séance 2

December 15, 2023

Type collections (tableau, chaine de caractères). Python possède d'autres types de collections. (Liste, tuple, set)

1 Listes

[6]:
```
L1 = [1,2,200,1,100,5]
print(L1)
print(L1[2])
print(L1[1:5])
print(L1[0:5:2])
```

```
[1, 2, 200, 1, 100, 5]
200
[2, 200, 1, 100]
[1, 200, 100]
```

[11]:
```
# Liste est un ensemble de données hétérogènes, les tableaux contiennent
# des données homogènes.
L2 = [1,2,6,'a',200]
print(L2)

# Les listes sont dynamique ( on peut ajouter ou supprimer des cases )
L2.append("ali")
print(L2)

print(len(L2))

#Fonction(variable) => exemple len(L2) ==> len est appelé fontion
#variable.fonction() => exemple L2.pop() ==> pop() est appelé une méthode
# et L2 est appelé objet
print(type(L2))

L2.
```

```
[1, 2, 6, 'a', 200]
[1, 2, 6, 'a', 200, 'ali']
6
<class 'list'>
```

[17]:
```
# trier les valeurs d'une liste
L1 = list(range(20,9,-1))
print(L1)
L2 = sorted(L1)
print(f"L1 = {L1}")
print(f"L2 = {L2}")

L1.sort()
print(L1)
```

```
[20, 19, 18, 17, 16, 15, 14, 13, 12, 11, 10]
L1 = [20, 19, 18, 17, 16, 15, 14, 13, 12, 11, 10]
L2 = [10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20]
[10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20]
```

[43]:
```
L3 = list(range(0,101,10))
print(L3)
print(len(L3))
#pop() supprime la derniere valeur ou la valeur de la position x ( x
# comme paramètre)
x = L3.pop()
print(L3)
print(len(L3))
L3.pop(2)
print(L3)
print(len(L3))
L3.append(40)
print(L3)
#Insert(pos, valeur) : insert une valeur dans la la position pos
L3.insert(0,40)
print(L3)
#Cout calcule le nombre d'occurrence d'une valeur
nombreDeFois = L3.count(40)
print(nombreDeFois)
nombreDeFois = L3.count(40)
print(nombreDeFois)
```

```
[0, 10, 20, 30, 40, 50, 60, 70, 80, 90, 100]
11
[0, 10, 20, 30, 40, 50, 60, 70, 80, 90]
10
[0, 10, 30, 40, 50, 60, 70, 80, 90]
9
[0, 10, 30, 40, 50, 60, 70, 80, 90, 40]
[40, 0, 10, 30, 40, 50, 60, 70, 80, 90, 40]
3
3
```

[31]:
```
# Accès au valeurs d'une liste
L4 = [1,2,6,"ali", 3, [20,30,40], [20,30,[100,200,300]], 'Mohamed Ali']
print(L4[2])
print(L4[5])
print(L4[5][1])
print(L4[6][2][1])
```

```
6
[20, 30, 40]
30
200
```

[35]:
```
L5 = list(range(10,101,10))
print(L5)
L5.clear()
print(L5)
del(L5)
print(L5)
```

```
[10, 20, 30, 40, 50, 60, 70, 80, 90, 100]
[]
```

```
---------------------------------------------------------------------------
NameError                                 Traceback (most recent call last)
Input In [35], in <cell line: 6>()
      4 print(L5)
      5 del(L5)
----> 6 print(L5)

NameError: name 'L5' is not defined
```

[40]:
```
L6 = list(range(10,101,10))
print(L6)
L6.append([1,2,3])
print(L6)
L6.extend([1,2,3])
print(L6)
L6.
```

```
[10, 20, 30, 40, 50, 60, 70, 80, 90, 100]
[10, 20, 30, 40, 50, 60, 70, 80, 90, 100, [1, 2, 3]]
[10, 20, 30, 40, 50, 60, 70, 80, 90, 100, [1, 2, 3], 1, 2, 3]
```

[49]:
```
L7 = list(range(10,101,10))
print(L7)
pos = L7.index(40)
print(pos)
L7.insert(0,40)
```

```
print(L7)
pos = L7.index(40)
print(pos)
pos = L7.index(40,2)
print(pos)
```

```
[10, 20, 30, 40, 50, 60, 70, 80, 90, 100]
3
[40, 10, 20, 30, 40, 50, 60, 70, 80, 90, 100]
0
4
```

[64]:
```
L7 = list(range(10,101,10))
print(L7)
L8 = L7
print(L8)
L9 = L7[:]
print(L9)
L7.pop()
print(L7)
print(L8)
print(L9)

# m = L9[0]
# for i in range(1,len(L9)) :
#     if m < L9[i] :
#         m = L9[i]
# print(m)

x = max(L9)
print(x)
y =min(L9)
print(y)
```

```
[10, 20, 30, 40, 50, 60, 70, 80, 90, 100]
[10, 20, 30, 40, 50, 60, 70, 80, 90, 100]
[10, 20, 30, 40, 50, 60, 70, 80, 90, 100]
[10, 20, 30, 40, 50, 60, 70, 80, 90]
[10, 20, 30, 40, 50, 60, 70, 80, 90]
[10, 20, 30, 40, 50, 60, 70, 80, 90, 100]
100
10
```

[58]:
```
X = 100
Y = 100
print(id(X))
print(id(Y))
```

```
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```

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2 Modules (bilbliothèque)

[67]:
```
import math

x  = 4
print(dir(math))
y = math.sqrt(x)
print(y)
```

```
['__doc__', '__loader__', '__name__', '__package__', '__spec__', 'acos',
'acosh', 'asin', 'asinh', 'atan', 'atan2', 'atanh', 'ceil', 'comb', 'copysign',
'cos', 'cosh', 'degrees', 'dist', 'e', 'erf', 'erfc', 'exp', 'expm1', 'fabs',
'factorial', 'floor', 'fmod', 'frexp', 'fsum', 'gamma', 'gcd', 'hypot', 'inf',
'isclose', 'isfinite', 'isinf', 'isnan', 'isqrt', 'lcm', 'ldexp', 'lgamma',
'log', 'log10', 'log1p', 'log2', 'modf', 'nan', 'nextafter', 'perm', 'pi',
'pow', 'prod', 'radians', 'remainder', 'sin', 'sinh', 'sqrt', 'tan', 'tanh',
'tau', 'trunc', 'ulp']
2.0
```

[68]:
```
from math import sqrt,pow

x  = 4

y = sqrt(x)
print(y)
```

```
2.0
```

[ ]:
```

```