01_hello_python_?????????

September 8, 2020

1 Python tutorial #1

Hello World!

[ ]:
```
print('Hello World')
print('Hello World {} + {} = {}'.format(2, 3, 2+3))
```

```
Hello World
Hello World 2 + 3 = 5
```

Basic data types

[ ]:
```
x = 3
print(type(x))
print(x)
```

```
<class 'int'>
3
```

[ ]:
```
print(x + 1)
print(x - 1)
print(x * 2)
print(x ** 2)
```

```
4
2
6
9
```

For statement

[ ]:
```
A = range(5)
print(A)
```

```
range(0, 5)
```

[ ]:
```
print(A[2])
```

```
2
```

[ ]:
```
for i in range(5):
   print('{} ----- {}'.format(i, A[i]))
```

```
0 ----- 0
1 ----- 1
2 ----- 2
3 ----- 3
4 ----- 4
```

Excersise

[ ]:
```
for i in range(10):
 print('{} x {} = {}'.format(9, i, 9*i))
```

```
9 x 0 = 0
9 x 1 = 9
9 x 2 = 18
9 x 3 = 27
9 x 4 = 36
9 x 5 = 45
9 x 6 = 54
9 x 7 = 63
9 x 8 = 72
9 x 9 = 81
```

Operators

[ ]:
```
print((1, 2, 3) * 3)
print([1, 2, 3] * 3)
print("Hello "*3)
```

```
(1, 2, 3, 1, 2, 3, 1, 2, 3)
[1, 2, 3, 1, 2, 3, 1, 2, 3]
Hello Hello Hello
```

Containers

Python includes several built-in container types: lists, dictionaries, sets, and tuples.

[ ]:
```
months = ('January','February','March','April','May','June',\
'July','August','September','October','November','December')
print(months[0])
print("index of 7 ==> " , months[7])
```

```
January
index of 7 ==>  August
```

[ ]:
```
for item in months:
   print(item)
```

```
January
February
March
April
May
June
July
August
September
October
November
December
```

[ ]:
```
t = ('john', 32, (2,3,4,5), 'hello')
print(t)
print(t[2])
print(t[2][1])
print(t[:2])
print(t[2:])
print(t[-1])
print(t[-2])
```

```
('john', 32, (2, 3, 4, 5), 'hello')
(2, 3, 4, 5)
3
('john', 32)
((2, 3, 4, 5), 'hello')
hello
(2, 3, 4, 5)
```

List

Mutable ordered sequence of items of mixed types

[ ]:
```
li = ['hallym', 1, 3.141572, 'hello']
print(li)
```

```
['hallym', 1, 3.141572, 'hello']
```

[ ]:
```
li[1] = 45
print(li)
```

```
['hallym', 45, 3.141572, 'hello']
```

[ ]:
```
li.append('September')
print(li)
```

```
['hallym', 45, 3.141572, 'hello', 'September']
```

[ ]:
```
v = []
```

[ ]:
```
for i in range(0, 3):
    v.append(i*5)
    print(i, v)
```

```
0 [0]
1 [0, 5]
2 [0, 5, 10]
```

+

[ ]:
```
print((1, 2, 3) + (4, 5, 6))
print([1, 2, 3] + [4, 5, 6])
print("Hello" + " " + "World")
```

```
(1, 2, 3, 4, 5, 6)
[1, 2, 3, 4, 5, 6]
Hello World
```

*** **

The * operator produces a new tuple, list, or string that "repeats" the original content.

[ ]:
```
y =2.5
print(type(y))
print(y, y + 1, y * 2, y ** 2)
```

```
<class 'float'>
2.5 3.5 5.0 6.25
```

Enumeration

[ ]:
```
for i, val in enumerate(v):
 print('{} ---> {}'.format(i, val))
```

```
0 ---> 0
1 ---> 5
2 ---> 10
```

[ ]:
```
v2 = [ 'A', 'B', 'C', '0', '1', '2', '3']
print(v2)
```

```
['A', 'B', 'C', '0', '1', '2', '3']
```

[ ]:
```
for i, val in enumerate(v2):
 print('{} ---> {}'.format(i, val))
```

```
0 ---> A
1 ---> B
2 ---> C
3 ---> 0
4 ---> 1
5 ---> 2
6 ---> 3
```