PythonCourse_1_Introduction&Loops

April 18, 2021

0.0.1 Variable & Data Types

[1]:
```
a = 10
a = 10.0
type(a)
```

[1]:
```
float
```

[18]:
```
type(a)
a = 10/ 5
print (type(a))
a = 10 % 5
print (type(a))
```

```
<class 'float'>
<class 'int'>
```

0.0.2 Python Numbers

[5]:
```
a1 = 5
a2 = 5.0
a3 = 5+0j
print(type(a1))
print(type(a2))
print(type(a3))
```

```
<class 'int'>
<class 'float'>
<class 'complex'>
```

[14]:
```
b1 = 256 #pthon optimization for range [-5,256]
b2 = 256
print(b1,id(b1))
print(b2,id(b2))
c1 = 257
c2 =257
print(c1,id(c1))
print(c2,id(c2))
d1 = -4.9
```

```
d2 = -4.9
print(d1,id(d1))
print(d2,id(d2))
```

```
256 8791212902144
256 8791212902144
257 81484240
257 81485264
-4.9 81484560
-4.9 81485104
```

0.0.3 Arithmetic Operators

[19]:
```
a = 30
b = 4
print(a + b)
print(a - b)
print(a * b)
print(a / b)  # floating point division
print(a // b) # integer division
print(a ** b) # exponentiation - a^b
```

```
34
26
120
7.5
7
810000
```

0.0.4 Input

[22]:
```
a = input()
print(type(a)) # by default takes input as string

b = int (input())
print(type(b))

c = float(input())
print(type(c))
```

```
333
<class 'str'>
333
<class 'int'>
333
<class 'float'>
```

0.0.5 Boolean

[25]:
```
a = True
b = False
print(type(a))
# a = true # syntax error
```

```
<class 'bool'>
```

0.0.6 Relational Operators

[26]:
```
a = 10
b = 20

print(a<b)
print(a>b)
print(a<=b)
print(a>=b)
print(a==b)
print(a!=b)
```

```
True
False
True
False
False
True
```

0.0.7 Logical Operators

[27]:
```
a = True
b = False
print(a and b)
print(a or b)
print(not a)
```

```
False
True
False
```

0.0.8 If Else

[28]:
```
# Print odd or even

n = int(input())

if (n%2 == 0):
    print("Even")
else:
```

```
    print("Odd")
```

```
6
Even
```

0.0.9 ElIf

[30]:
```
n = int(input())
if n > 10:
    print("red")
elif n >=5:
    print("green")
elif n>0:
    print("yellow")
```

```
90
red
```

[31]:
```
n = int(input())
if n >= 5:
    print("green")
elif n > 10:
    print("red")     #order very important, logically incorrect
elif n>0:
    print("yellow")
```

```
90
green
```

[33]:
```
if False:
    print("If")
elif True:
    print("Elif")
else:
    print("Else")
```

```
Elif
```

0.0.10 While Loop

[38]:
```
n = int(input())
count = 1
while count<=n:
    print(count)
    count = count + 1

#while 1: #empty while syntax error - indentation
#print("Hi")
```

```
  File "<ipython-input-38-f2727aeea9a1>", line 8
    print("Hi")
    ^
IndentationError: expected an indented block
```

0.0.11 Primality Check

[37]:
```
n = int(input())
d = 2
flag = False

while d<n:
    if n % d == 0:
        flag = True
    d = d + 1
if flag:
    print("Not Prime")
else:
    print("Prime")
```

```
99
Not Prime
```

0.0.12 Nested Loops

[43]:
```
n = int(input())
k = 2

while(k <= n):
    d = 2
    flag = False
    while(d < k):
        if(k % d == 0):
            flag = True
        d = d + 1
    if not(flag):
        print(k)
    k = k + 1
```

```
10
2
3
5
7
```