

datatypes

July 1, 2017

```
In [1]: a=10  
        b=20
```

```
In [2]: type(a)
```

```
Out[2]: int
```

```
In [1]: a=10
```

```
In [2]: a="str"
```

```
In [3]: a=[1,2,3,4]
```

```
In [5]: a=(1,2,3,4)
```

```
In [6]: a={1,2,3}
```

```
In [7]: a={1:2,3:4}
```

```
In [8]: a=100
```

```
In [10]: a=10000
```

```
In [11]: a=10  
        b=20
```

```
In [12]: print a+b  
        print a-b  
        print a*b  
        print a/b  
        print a%2  
        print a**3
```

```
30  
-10  
200  
0  
0  
1000
```

```
In [13]: print 10/20
```

0

```
In [14]: print 10/20.0
```

0.5

```
In [15]: print 10.0/20
```

0.5

```
In [16]: print 10.0/20.0
```

0.5

```
In [17]: a=12.34  
        b=34.56
```

```
In [19]: print int(12.34)
```

12

```
In [20]: print float(12)
```

12.0

```
In [21]: a=10  
        b=20  
        print a/b
```

0

```
In [22]: print float(a)/b
```

0.5

```
In [23]: print float(a/b)
```

0.0

```
In [24]: 23+45/9
```

```
Out[24]: 28
```

```
In [25]: (23+45)/9
```

```
Out[25]: 7
```

```
In [26]: a=10  
        b=20  
        print a**3+b**3+3*a*b*(a+b)
```

```
27000
```

```
In [27]: print (a+b)**3
```

```
27000
```

```
In [28]: a=10  
        b=20
```

```
In [29]: print a/b
```

```
0
```

```
In [30]: print float(a)/b
```

```
0.5
```

```
In [31]: print float(a/b)
```

```
0.0
```

```
In [32]: name="python"
```

```
In [33]: product_name="Microsoft mobile"
```

```
In [34]: product-name="Microsoft mobile"
```

```
File "<ipython-input-34-62b201bae8e7>", line 1  
product_name="Microsoft mobile"  
SyntaxError: can't assign to operator
```

```
In [35]: product$name="Microsoft mobile"
```

```
File "<ipython-input-35-bfd05305ee27>", line 1
product$name="Microsoft mobile"
      ^
```

SyntaxError: invalid syntax

```
In [36]: product_name1="Microsoft mobile"
```

```
In [37]: 1product_name1="Microsoft mobile"
```

```
File "<ipython-input-37-f52c3cb99b3b>", line 1
1product_name1="Microsoft mobile"
      ^
```

SyntaxError: invalid syntax

```
In [38]: PRODCUT_Name = "cell1"
```

```
In [39]: s1="str1"
        s2="str2"
```

```
In [40]: print s1+s2
```

str1str2

```
In [41]: print s1-s2
```

```
-----

TypeError                                Traceback (most recent call last)

<ipython-input-41-1f9dc72bac7a> in <module>()
----> 1 print s1-s2
```

TypeError: unsupported operand type(s) for -: 'str' and 'str'

```
In [43]: print s1*s2
```

```
-----

TypeError                                Traceback (most recent call last)
```

```
<ipython-input-43-a9102ecc2f2a> in <module>()
----> 1 print s1*s2
```

TypeError: can't multiply sequence by non-int of type 'str'

```
In [44]: print s1/s2
```

TypeError Traceback (most recent call last)

```
<ipython-input-44-6533963e16de> in <module>()
----> 1 print s1/s2
```

TypeError: unsupported operand type(s) for /: 'str' and 'str'

```
In [45]: print 10+23.45
```

33.45

```
In [47]: print 10-23.45
```

-13.45

```
In [48]: print 1*23.45
```

23.45

```
In [49]: print 10/23.45
```

0.426439232409

```
In [50]: print 10%23.45
```

10.0

```
In [51]: print 10%5
```

0

```
In [52]: print 10%3
```

1

```
In [53]: print 10%12
```

10

```
In [54]: a=10
          b=010
          print a
          print b
```

10

8

```
In [55]: a=10
```

```
In [56]: print a
```

10

```
In [58]: a=0x312
```

```
In [59]: print a
```

786

```
In [60]: print 2*16**0+1*16**1+3*16**2
```

786

```
In [61]: a=0o12
          print a
```

10

```
In [62]: a=0b0101
          print a
```

5

```
In [63]: a=0b123
          print a
```

```
File "<ipython-input-63-ac1c3b2b3368>", line 1
a=0b123
    ^
SyntaxError: invalid syntax
```

```
In [64]: a=0o789
        print a
```

```
File "<ipython-input-64-657d18127c36>", line 1
a=0o789
    ^
SyntaxError: invalid syntax
```

```
In [65]: a=0o10
        print a
```

8

```
In [66]: a=010
        print a
```

8

```
In [67]: a=10
```

```
In [69]: print a
```

10

```
In [70]: a=9676622023
```

```
In [71]: import os
```

```
In [72]: import sys
```

```
In [73]: sys.getsizeof(a)
```

```
Out[73]: 24
```

```
In [74]: a=hex(a)
```

```
In [75]: print a
```

0x240c588c7

```
In [76]: sys.getsizeof(a)
```

```
Out[76]: 48
```

```
In [77]: s1="str1"  
        a=10  
        print s1+a
```

TypeError Traceback (most recent call last)

```
<ipython-input-77-9f6333a5e95b> in <module>()  
    1 s1="str1"  
    2 a=10  
----> 3 print s1+a
```

TypeError: cannot concatenate 'str' and 'int' objects

```
In [78]: print s1*a
```

```
str1str1str1str1str1str1str1str1str1
```

```
In [79]: name="cell"  
        cost=20000  
        # cell: 20000
```

```
In [81]: name="cell"  
        cost="20000"  
        print name+cost
```

```
cell20000
```

```
In [82]: name="cell"  
        cost=20000  
        print name+cost
```

TypeError Traceback (most recent call last)


```

<ipython-input-82-b27d0d558cf6> in <module>()
      1 name="cell"
      2 cost=20000
----> 3 print name+cost

```

TypeError: cannot concatenate 'str' and 'int' objects

```

In [83]: name="cell"
        cost=20000
        c=str(cost)
        print "a=",cost,type(a)
        print "c=",c,type(c)
        print
        print name+c

```

```

a= 20000 <type 'int'>
c= 20000 <type 'str'>

```

```
cell20000
```

```

In [84]: a=20000
        a1="20000"
        print a
        print a1

```

```

20000
20000

```

```

In [85]: print type(a)
        print type(a1)

```

```

<type 'int'>
<type 'str'>

```

```

In [86]: a1="10"
        a2="20"
        print a1+a2

```

```
1020
```

```

In [87]: a=raw_input("Enter a value:")
        b=raw_input("Enter b value:")
        print a+b

```

```
Enter a value:python
Enter b value:program
pythonprogram
```

```
In [88]: a=raw_input("Enter a value:")
        b=raw_input("Enter b value:")
        print a+b
```

```
Enter a value:10
Enter b value:20
1020
```

```
In [89]: a=raw_input("Enter a value:")
        b=raw_input("Enter b value:")
        print a,type(a)
        print b,type(b)
        print a+b
```

```
Enter a value:python
Enter b value:program
python <type 'str'>
program <type 'str'>
pythonprogram
```

```
In [90]: a=raw_input("Enter a value:")
        b=raw_input("Enter b value:")
        print a,type(a)
        print b,type(b)
        print a+b
```

```
Enter a value:10
Enter b value:20
10 <type 'str'>
20 <type 'str'>
1020
```

```
In [91]: a=raw_input("Enter a value:")
        b=raw_input("Enter b value:")
        print a,type(a)
        print b,type(b)
        print a+b
        print "type casting"
        a1=int(a)
        b1=int(b)
        print a1+b1
```

```
Enter a value:12
Enter b value:45
12 <type 'str'>
45 <type 'str'>
1245
type casting
57
```

```
In [93]: a=raw_input("Enter a value:")
        b=raw_input("Enter b value:")
        print a,type(a)
        print b,type(b)
        print a+b
        print "type casting"
        a1=int(a)
        b1=int(b)
        print a1+b1
```

```
Enter a value:12.34
Enter b value:57.89
12.34 <type 'str'>
57.89 <type 'str'>
12.3457.89
type casting
```

```
-----
ValueError                                Traceback (most recent call last)
<ipython-input-93-b9a3032c4f2b> in <module>()
      5 print a+b
      6 print "type casting"
----> 7 a1=int(a)
      8 b1=int(b)
      9 print a1+b1
```

```
ValueError: invalid literal for int() with base 10: '12.34'
```

```
In [94]: print "10"*3

101010
```

```
In [ ]:
```