



## Chapter: Basic data types

# The proverbial “hello world” program

```
>>> print "Hello World!"  
Hello World!
```

```
>>> print 'Hello World!'  
Hello World!
```

```
>>> print '''Hello World!'''  
Hello World!
```

```
>>> print """Hello World!"""  
Hello World!
```

```
>>> print "Hello \  
World!"  
Hello World!
```

```
>>> print '''Hello  
World!'''  
Hello  
World
```



# Variables

```
>>> a = 10
>>> b = 10.2
>>> c = True
>>> d = 'Hello'
>>> print a , b, c, d
10 10.2 True Hello
```

```
>>> type(a)
<type 'int'>

>>> type(b)
<type 'float'>

>>> type(c)
<type 'bool'>

>>> type(d)
<type 'str'>
```



# Python Errors

```
>>> a = 10/0
```

```
Traceback (most recent call last):  
  File "<pyshell#67>", line 1, in  
<module>
```

```
    a = 10/0
```

```
ZeroDivisionError: integer  
division or modulo by zero
```

```
>>> hello
```

```
Traceback (most recent call last):  
  File "<pyshell#65>", line 1, in  
<module>
```

```
    hello
```

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



# Python Integers and Floats

```
>>> a = 10 + 4
>>> a
14
```

```
>>> a = a*a
>>> a
169
```

```
>>> a = 2**10
>>> a
1024
```

```
>>> a= 1.0
>>> type(a)
<type 'float'>
```



# Python type conversions

```
>>> a= 10
>>> b = True
>>> a + b
11
>>> a = 10.0
>>> b = True
>>> a + b
11.0
>>> a = True + True
>>> a
2
>>> a = 3
>>> b = 4
>>> a/b
0
```

```
>>> a = 3
>>> b=4.0
>>> a/b
0.75
>>> b/a
1.3333333333333333
>>> a = 5 + '5'
Traceback (most recent call last):
  File "<pyshell#144>", line 1, in
<module>
    a = 5 + '5'
TypeError: unsupported operand
type(s) for +: 'int' and 'str'
```



# Python type conversions

```
>>> a = 5 + int('5')
>>> a
10
```

```
>>> a = 5 + float(1)
>>> a
6.0
```

```
>>> a = 3
>>> b = 4
>>> a / float(b)
0.75
```

```
>>> a = 3
>>> b=4.0
>>> a/b
0.75
```

```
>>> b/a
1.3333333333333333
```

```
>>> a = 5 + '5'
```

```
Traceback (most recent call last):
  File "<pyshell#144>", line 1, in
<module>
```

```
    a = 5 + '5'
```

```
TypeError: unsupported operand
type(s) for +: 'int' and 'str'
```