In [ ]:
```
# It is recommended that you try to run the code yourself, there may be typo
```

In [ ]:
```
# boolean True - 1 False - 0
```

In [1]:
```
4 > (3<5)
```

Out[1]:
```
True
```

In [2]:
```
type(3<5)
```

Out[2]:
```
bool
```

In [3]:
```
list("CUHK(SZ)")
```

Out[3]:
```
['C', 'U', 'H', 'K', '(', 'S', 'Z', ')']
```

In [4]:
```
str(123)
```

Out[4]:
```
'123'
```

In [5]:
```
str(1+1+1)
```

Out[5]:
```
'3'
```

In [6]:
```
str(1)+str(1)+str(1)
```

Out[6]:
```
'111'
```

In [7]:
```
# for mutable variables i.e. list...
# by assigning same value/ copy/ ... different ID address
# only lst1 = lst2 , same ID

# for immutable variables i.e. string int float ....
# same value, same ID
```

In [8]:
```
a = 1
b = 1
print(a == b)
print(a is b)
```

```
True
True
```

In [9]:
```
a = 1
b = a
print(a is b)
```

```
True
```

In [10]:
```
b += 1
print("after we change b, a is b?",a is b)
print(a)
print(b)
```

```
after we change b, a is b? False
1
2
```

In [11]:
```
a = 1
b = a
print(a is b)
a = 2
print("after we change b, a is b?",a is b)
print(a)
print(b)
```

```
True
after we change b, a is b? False
2
1
```

In [12]:
```
a = [1,2,3]
b = [1,2,3]
print(a == b)
print(a is b)
```

```
True
False
```

In [13]:
```
a = [1,2,3]
b = a
print(a == b)
print(a is b)
```

```
True
True
```

In [14]:
```
a[0] = 0
print(a)
```

```
[0, 2, 3]
```

In [15]:
```
print(b)
print(a == b)
print(a is b)
```

```
[0, 2, 3]
True
True
```

In [16]:
```
a = [1,2,3]
b = a
b[0] = 0
print(a)
print(b)
print(a == b)
print(a is b )
```

```
[0, 2, 3]
[0, 2, 3]
True
True
```

In [17]:
```
#print()
#print(*objects, sep=' ', end='\n')
print(1,2,3,4,5)
```

```
1 2 3 4 5
```

In [18]:
```
print(1,2,3,4,5,sep='',end='')
```

```
12345
```

In [19]:
```
print(1,2,3,4,5,sep=' & ',end='')
```

```
1 & 2 & 3 & 4 & 5
```

In [20]:
```
print(1,2,3,4,5,sep='\n')
```

```
1
2
3
4
5
```

In [21]:
```
print(1,2,3,4,5,sep='\t')
```

```
1	2	3	4	5
```

In [22]:
```
print("\\t \\n")
```

```
\t \n
```

In [23]:
```
# formatted output
from math import pi
a = pi
print(a)
print(type(a))
print('%i'%a)
print('%d'%a)
print('%.5f'%a)
print('%s'%a)
```

```
3.141592653589793
<class 'float'>
3
3
3.14159
3.141592653589793
```

In [24]:
```
a = 8848
print("%8d"%a)
```

```
    8848
```

In [25]:
```
print("%-8d"%a)
```

```
8848
```

In [26]:
```
print("%8.4f"%pi)
```

```
  3.1416
```

In [27]:
```
#ex1 print a table
#Use formatted output of print function
print('%-8s%-8s%-8s'%('a','b','a**b'))
print('%-8d%-8d%-8d'%(1,2,1**2))
print('%-8d%-8d%-8d'%(2,3,2**3))
print('%-8d%-8d%-8d'%(3,4,3**4))
print('%-8d%-8d%-8d'%(4,5,4**5))
print('%-8d%-8d%-8d'%(5,6,5**6))
```

```
a       b       a**b
1       2       1
2       3       8
3       4       81
4       5       1024
5       6       15625
```

In [28]:
```
#Arithemetic Operators
x = 1
x += 1
print(x)
```

```
2
```

In [29]:
```
9%4
```

Out[29]:
```
1
```

In [30]:
```
-9%4
```

Out[30]:
```
3
```

In [31]:
```
9%-4
```

Out[31]:
```
-3
```

In [32]:
```
2/1
```

Out[32]:
```
2.0
```

In [33]:
```
12/4 - 3 + 2
```

Out[33]:
```
2.0
```

In [34]:
```
3.5-0.5
```

Out[34]:
```
3.0
```

In [35]:
```
# eval()
a = eval("123")
print(a)
print(type(a))

b = eval("1,2+3,'1+2+3'")
print(b)
print(type(b))
```

```
123
<class 'int'>
(1, 5, '1+2+3')
<class 'tuple'>
```

In [37]:
```
#eval() with input()
b = eval(input("please enter something:"))
print(b)
print(type(b))
```

```
123
<class 'int'>
```

In [38]:
```
#eval(expression)
a = eval("3*7")
b = eval("a**2")
c = eval("pow(2,2)")
print("%i \n%i \n%i"%(a,b,c))
```

```
21
441
4
```

In [39]:
```
#eval(expression)
a = eval("'1'+'2'")
b = eval("1+2")
print("%s\t%s\n%i\t%s"%(a,type(a),b,type(b)))
```

```
12      <class 'str'>
3       <class 'int'>
```

In [40]:
```
int(9.999)
```

Out[40]:
```
9
```

In [42]:
```
a = input("input:")
b = eval(a[0])
print(b)
```

```
1
```

In [43]:
```
a = 1.0
print("%s"%a)
```

```
1.0
```

In [ ]:
```

```