

# Study of python

ST 60  
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# Part I: Basic Grammar

# List

Code:

```
print "##### define list #####"  
  
list=[1,2,3]  
print list  
  
print "##### iterator list #####"  
for a in list:  
    print a
```

Result:



Four " "

```
##### define list #####  
[1, 2, 3]  
##### iterator list #####  
1  
2  
3
```

# Dict

```
print "##### define dict #####"
```

```
dict={"Shan":"165cm","Asia":"180cm"}
print dict
print dict.keys()
print dict.values()
print dict["Shan"]
```

```
##### define dict #####
{'Shan': '165cm', 'Asia': '180cm'}
['Shan', 'Asia']
['165cm', '180cm']
165cm
```

```
print "##### iterator dict #####"
```

```
for b in dict:
    print b + ":" + dict[b]
```

```
print "##### if #####"
for b in dict:
    if ( b == "Shan"):
        print b + ":" + dict[b]
```

```
##### iterator dict #####
Shan:165cm
Asia:180cm
##### if #####
Shan:165cm
```

# 9×9 table

```
print "##### 9*9 #####"
```

```
for c in range(1,10):
```

```
    for d in range(1,c+1):
```

```
        print str(d) + "*" +str(c) + "=" + str(c*d),
```

```
        if (d==c):
```

```
            print "\n"
```

```
##### 9*9 #####
```

```
1*1=1
```

```
1*2=2 2*2=4
```

```
1*3=3 2*3=6 3*3=9
```

```
1*4=4 2*4=8 3*4=12 4*4=16
```

```
1*5=5 2*5=10 3*5=15 4*5=20 5*5=25
```

```
1*6=6 2*6=12 3*6=18 4*6=24 5*6=30 6*6=36
```

```
1*7=7 2*7=14 3*7=21 4*7=28 5*7=35 6*7=42 7*7=49
```

```
1*8=8 2*8=16 3*8=24 4*8=32 5*8=40 6*8=48 7*8=56 8*8=64
```

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

# Continue and break

```
print "##### if continue#####"
```

```
for f in range(1,11):  
    if (f%2==0):  
        continue  
    print f
```

```
print "##### if break#####"
```

```
for f in range(1,11):  
    if (f%2==0):  
        break  
    print f
```

```
##### if continue#####  
1  
3  
5  
7  
9  
##### if break#####  
1
```

# Part II: Functions

# Define function

```
print "##### prepare for function #####"
```

```
a=4  
b=6
```

```
print str(a)+" "+str(b) + "=" + str(a+b)  
print str(a)+"*"+str(b) + "=" + str(a*b)
```

```
##### prepare for function #####  
4+6=10  
4*6=24
```

```
print "##### define function plus_mul #####"
```

```
def plus_mul(a,b):  
    print str(a)+" "+str(b) + "=" + str(a+b)  
    print str(a)+"*"+str(b) + "=" + str(a*b)  
    return "check return"
```

```
##### define function plus_mul #####  
5+6=11  
5*6=30  
7+8=15  
7*8=56  
check return
```

```
plus_mul(5,6)  
print plus_mul(7,8)
```



# Define function

```
print "##### define function san_jiao_bian #####"
```

```
import math
```

```
def san_jiao_bian(a,b):  
    return math.sqrt(a*a+b*b)
```

```
print san_jiao_bian(3,4)
```

```
##### define function san_jiao_bian #####  
5.0
```

# Import tools

```
import tools
a=3
b=4
tools.print_plus_mul(a,b)
print tools.san_jiao_bian(a,b)

print "##### another import"

from tools import print_plus_mul, san_jiao_bian
print_plus_mul(3,4)
print san_jiao_bian(3,4)
```

```
[gushan@lxslc702 python]vi tools.py
```

```
import math

def print_plus_mul(a,b):
    print str(a)+" "+str(b)+ "=" + str(a+b)
    print str(a)+"*"+str(b)+ "=" + str(a*b)
    return "check return"
```

```
def san_jiao_bian(a,b):
    return math.sqrt(a*a+b*b)
```

```
-
3+4=7
3*4=12
5.0
##### another import
3+4=7
3*4=12
5.0
```

# Build a tools\_main

```
[gushan@lxslc702 python]vi tools_main.py
```

```
import math
```

```
def print_plus_mul(a,b):  
    print str(a)+" "+str(b) + "=" + str(a+b)  
    print str(a)+"*" +str(b) + "=" + str(a*b)  
    return "check return"
```

```
def san_jiao_bian(a,b):  
    return math.sqrt(a*a+b*b)
```

```
if __name__ == '__main__':  
    print_plus_mul(3,4)  
    print san_jiao_bian(3,4)
```

```
from tools_main import print_plus_mul, san_jiao_bian  
print_plus_mul(3,4)  
print san_jiao_bian(3,4)
```

```
--  
3+4=7  
3*4=12  
5.0
```

# Input

```
import sys
from tools_main import print_plus_mul, san_jiao_bian
```

```
if __name__ == "__main__":
```

```
    print "####sys.argv:"
```

```
    print sys.argv
```

```
    print "### a b"
```

```
    a=int(sys.argv[1])
```

```
    b=int(sys.argv[2])
```

```
    print a,b
```

```
    print_plus_mul(a,b)
```

```
    print san_jiao_bian(a,b)
```

```
[gushan@lxslc702 python]python sum5.py 3 4
```

```
####sys.argv:
```

```
['sum5.py', '3', '4']
```

```
### a b
```

```
3 4
```

```
3+4=7
```

```
3*4=12
```

```
5.0
```

# Part II: write and read files

# Write and Read files

```
def print_9_9_table():  
    result = ""  
    for c in range(1,10):  
        for d in range(1,c+1):  
            result += str(d) + "*" +str(c) + "=" + str(c*d) + " "  
            if (d==c):  
                result += "\n"  
    return result
```

```
if __name__=="__main__":  
    result = print_9_9_table()  
    with open("data.txt","w") as f:  
        f.write(result)
```

```
a = "data.txt"  
f = open(a)  
while True:  
    line = f.readline()  
    if not line: break  
    print(line)  
f.close()
```

# Put all functions in the toos\_main

```
[gushan@lxslc702 python]vi tools_main.py
```

```
import math

def print_plus_mul(a,b):
    print str(a)+"+"+str(b)+ "=" + str(a+b)
    print str(a)+"*"+str(b)+ "=" + str(a*b)
    return "check return"

def san_jiao_bian(a,b):
    return math.sqrt(a*a+b*b)

def write_file(a,b):
    with open(a,"w") as f:
        f.write(b)

def read_file(a):
    f = open(a)
    while True:
        line = f.readline()
        if not line: break
        print(line)
    f.close()

if __name__ == '__main__':
    print_plus_mul(3,4)
    print san_jiao_bian(3,4)
    write_file("newdata.txt","3")
    read_file("data.txt")
```