

```
In [2]: list(range(10,15))
```

```
Out[2]: [10, 11, 12, 13, 14]
```

```
In [3]: list(range(10,20,2))
```

```
Out[3]: [10, 12, 14, 16, 18]
```

```
In [4]: list(range(20,10,-2))
```

```
Out[4]: [20, 18, 16, 14, 12]
```

```
In [6]: a=[True, True, True]
```

```
In [7]: a=[True, True, True]
all(a)
```

```
Out[7]: True
```

```
In [8]: a=[True, True, False]
all(a)
```

```
Out[8]: False
```

```
In [9]: a=[True, True, '']
all(a)
```

```
Out[9]: False
```

```
In [10]: if '':
           print ('hello')
        else:
           print ('asdfasd')
```

```
asdfasd
```

```
In [11]: a=[True, True, 'sdfsdf']
all(a)
```

```
Out[11]: True
```

```
In [12]: a=[True, True, 0]
all(a)
```

```
Out[12]: False
```

```
In [13]: a=[True, True, []]
all(a)
```

```
Out[13]: False
```

```
In [14]: any([False, False, False, True])
```

```
Out[14]: True
```

```
In [15]: any([0, '', []])
```

```
Out[15]: False
```

```
In [16]: any([0, '', 1, []])
```

```
Out[16]: True
```

```
In [17]: "a+b+c".split('+')
```

```
Out[17]: ['a', 'b', 'c']
```

```
In [18]: ".dsjf lkdjfh alskj alkjdgh  adlkjg  asdlkjfgh ".split()
```

```
Out[18]: ['.dsjf', 'lkdjfh', 'alskj', 'alkjdgh', 'adlkjg', 'asdlkjfgh']
```

```
In [19]: a = """
sd;flkgjsd .fklg ds.fg adf
gs
dfg
sd f
gsd
fg s
f
"""
a.split('\n')
```

```
Out[19]: ['',
'sd;flkgjsd .fklg ds.fg adf',
'gs',
'dfg',
'sd f',
'gsd',
'fg s',
'f',
'']
```

```
In [20]: a = ['a', 'b', 'c']
```

```
In [21]: "+".join(a)
```

```
Out[21]: 'a+b+c'
```

```
In [22]: " mitsos ".join(a)
```

```
Out[22]: 'a mitsos b mitsos c'
```

```
In [23]: a
```

```
Out[23]: ['a', 'b', 'c']
```

```
In [24]: ''.join(a)
```

```
Out[24]: 'abc'
```

```
In [25]: list('abc')
```

```
Out[25]: ['a', 'b', 'c']
```

```
In [26]: ''.join(list('abc'))
```

```
Out[26]: 'abc'
```

```
In [27]: list(''.join(['a', 'b', 'c']))
```

```
Out[27]: ['a', 'b', 'c']
```

```
In [28]: ''.join(['a', 'b', 'c'])
```

```
Out[28]: 'abc'
```

```
In [29]: list('abc')
```

```
Out[29]: ['a', 'b', 'c']
```

```
In [30]: list(''.join(['a', 'b', 'c']))
```

```
Out[30]: ['a', 'b', 'c']
```

```
In [35]: a = ['a', 'b', 'c']  
b = [1,2,3]  
c = [True, 5.5, 'Mitsos']
```

```
In [33]: list(zip(a,b))
```

```
Out[33]: [('a', 1), ('b', 2), ('c', 3)]
```

```
In [36]: list(zip(a,b,c))
```

```
Out[36]: [('a', 1, True), ('b', 2, 5.5), ('c', 3, 'Mitsos')]
```

```
In [37]: list(zip(a,a,b,b,b,c))
```

```
Out[37]: [('a', 'a', 1, 1, 1, True),  
          ('b', 'b', 2, 2, 2, 5.5),  
          ('c', 'c', 3, 3, 3, 'Mitsos')]
```

```
In [38]: c = list(zip(a,b))
```

```
In [39]: c
```

```
Out[39]: [('a', 1), ('b', 2), ('c', 3)]
```

```
In [41]: def f(x):  
         return x[1]  
  
         list(map(f, c))
```

```
Out[41]: [1, 2, 3]
```

```
In [42]: a
```

```
Out[42]: ['a', 'b', 'c']
```

```
In [45]: list(enumerate(a))
```

```
Out[45]: [(0, 'a'), (1, 'b'), (2, 'c')]
```

```
In [46]: list(zip(range(len(a)),a))
```

```
Out[46]: [(0, 'a'), (1, 'b'), (2, 'c')]
```

```
In [48]: list(range(10))
```

```
Out[48]: [0, 1, 2, 3, 4, 5, 6, 7, 8, 9]
```

```
In [49]: list(range(0,10))
```

```
Out[49]: [0, 1, 2, 3, 4, 5, 6, 7, 8, 9]
```

```
In [50]: list(range(3))
```

```
Out[50]: [0, 1, 2]
```

```
In [51]: a = ["a", "b", "c"]
```

```
Out[51]: ['a', 'b', 'c']
```

```
In [52]: list(zip(range(3),a))
```

```
Out[52]: [(0, 'a'), (1, 'b'), (2, 'c')]
```

```
In [53]: list(enumerate(a))
```

```
Out[53]: [(0, 'a'), (1, 'b'), (2, 'c')]
```

```
In [55]: a.reverse()
```

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

```
Out[56]: ['c', 'b', 'a']
```

```
In [57]: a = ['a', 'b', 'c']
```

```
In [58]: a[::-1]
```

```
Out[58]: ['c', 'b', 'a']
```

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

```
Out[59]: ['a', 'b', 'c']
```

```
In [60]: a.sort
```

```
Out[60]: <function list.sort(*, key=None, reverse=False)>
```

```
In [63]: def f(x):  
         return x.replace('1','').replace('2','').replace('3', '')
```

```
f('adsfasdq2dq3kjd2hfgi1yoq2uo2ttyuleyud')
```

```
Out[63]: 'adsfasdqdkjd2hfgiyoquottyeud'
```

```
In [66]: 'chr16'[-2:]
```

```
Out[66]: '16'
```

```
In [68]: if 'chr1'[-2:][0].isdigit():
```

```
Out[68]: False
```

```
In [69]: 'chr16'.replace('chr', '')
```

```
Out[69]: '16'
```

```
In [71]: int('chr7'.replace('chr', ''))
```

```
Out[71]: 7
```

```
In [72]: for a in [4,5,6,7]:  
         print ("mitsos")
```

```
mitsos  
mitsos  
mitsos  
mitsos
```

```
In [73]: for a in []:  
         print ("mitsos")
```

```
In [74]: for a in range(10):  
         print ("mitsos")
```

```
mitsos  
mitsos  
mitsos  
mitsos  
mitsos  
mitsos  
mitsos  
mitsos  
mitsos  
mitsos
```

mitsos

```
In [75]: for a in [4,5,6,7]:  
        print (a)
```

4  
5  
6  
7

```
In [77]: for i in range(1,11):  
        print (i, 'fores to 8 kanei', i*8)
```

1 fores to 8 kanei 8  
2 fores to 8 kanei 16  
3 fores to 8 kanei 24  
4 fores to 8 kanei 32  
5 fores to 8 kanei 40  
6 fores to 8 kanei 48  
7 fores to 8 kanei 56  
8 fores to 8 kanei 64  
9 fores to 8 kanei 72  
10 fores to 8 kanei 80

```
In [78]: print(i)
```

10

```
In [79]: for i in ["a", "b", "c"]:  
        print (i)
```

a  
b  
c

```
In [81]: for i in [{"a", 1}, {"b", 2}, {"c", 3}]:  
        print (i)
```

['a', 1]  
['b', 2]  
['c', 3]

```
In [82]: for i,j in [{"a", 1}, {"b", 2}, {"c", 3}]:  
        print (i, j)
```

a 1  
b 2  
c 3

```
In [84]: a=["a", "b", "c"]  
        b=[1,2,3]  
  
        for i,j in zip(a,b):  
            print (i,j)
```

a 1  
b 2  
c 3

```
In [85]: list(zip(a,b))
```

```
Out[85]: [('a', 1), ('b', 2), ('c', 3)]
```

```
In [86]: for i,j in [('a', 1), ('b', 2), ('c', 3)]:  
        print (i,j)
```

```
a 1
b 2
c 3
```

```
In [90]: for i in 'Mitsos':
          print (i)
```

```
M
i
t
s
o
s
```

```
In [91]: # kolpo 1
          #METRIMA!!!!!!
```

```
In [92]: a = [1,2,3,4,3,2,3,4,4,5,6,7,8,]
```

```
In [95]: def f(x):
          return x%2==1

          len(list(filter(f,a)))
```

```
Out[95]: 6
```

```
In [96]: sum(map(f, a))
```

```
Out[96]: 6
```

```
In [88]: list('asdasdas')
```

```
Out[88]: ['a', 's', 'd', 'a', 's', 'd', 'a', 's']
```

```
In [102]: c = 0
          for x in a:
              if x%2==1:
                  c += 1

          print (c)
```

```
6
```

```
In [103]: a
```

```
Out[103]: [1, 2, 3, 4, 3, 2, 3, 4, 4, 5, 6, 7, 8]
```

```
In [ ]:
```

```
In [98]: c = 0
          for x in a:
              if f(x):
                  #c += 1
                  c = c + 1

          print (c)
```

```
6
```

```
In [112... # KOLPO 2
# Pws tsekaroume an mia lista exei mesa ena sugkekrimeno stoixeio
```

```
In [105... a = ["a", "b", "c", "d"]
```

```
In [114... "b" in a
```

```
Out[114... True
```

```
In [115... "r" in a
```

```
Out[115... False
```

```
In [119... found = False
for x in a:
    #if x == 'b':
    if x == 'r':
        found = True

print (found)
```

```
False
```

```
In [171... 1000000 in range(0,1_000_000_001)
```

```
Out[171... True
```

```
In [160... found = False
for x in range(0,1000000001):
    if x == 1:
        found = True
        break
print(found)
```

```
True
```

```
In [170... for x in ['a', "b", "c", "d"]:
    print (x)
    if x=="b":
        break
```

```
a
b
```

```
In [173... for x in ['a', "b", "c", "d"]:
    if x!='b':
        print (x)
```

```
a
c
d
```



```
In [174... for x in ['a', 'b', 'c', 'd']:
            if x=='b':
                continue
            print (x)
```

a  
c  
d

```
In [176... for x in ['a', 'b', 'c', 'd']:
            print (x)
            if x=="r":
                break
        else:
            print ("didn't break")
```

a  
b  
c  
d  
didn't break

```
In [178... for x in a:
            #if x == 'b':
            if x == 'a':
                break
        else:
            print ('did not find it')
```

```
In [110... "A" < "α"
```

Out[110... True

```
In [111... "A" < "a"
```

Out[111... True

```
In [100... c += 1
            print (c)
```

6

```
In [101... c=5
            c = c + 1
            print (c)
```

6

```
In [179... # KOLPO 3
            # pws kanoyme thn map
```

```
In [180... a = [1,2,3,4,5]
            def f(x):
                return x*10
            list(map(f,a))
```

Out[180... [10, 20, 30, 40, 50]

```
In [193... a = [1,2,3,4,5]
b = []
def f(x):
    return x*10

for x in a:
    b += [f(x)] # h' b.append(f(x))

print (b)

[10, 20, 30, 40, 50]
```

```
In [194... a=[1,2,3,4,5,6,7,8]
def f(x):
    return x%2==1

list(filter(f,a))
```

```
Out[194... [1, 3, 5, 7]
```

```
In [197... # Filter
a=[1,2,3,4,5,6,7,8]
b = []

def f(x):
    return x%2==1

for x in a:
    if f(x):
        b.append(x)
print (b)

[1, 3, 5, 7]
```

```
In [198... # Map
a=[1,2,3,4,5,6,7,8]
b = []

def f(x):
    return x*10

for x in a:
    b.append(f(x))
print (b)

[10, 20, 30, 40, 50, 60, 70, 80]
```

```
In [199... # List comprehensions
```

```
In [201... # Map with list comprehensions
b = [f(x) for x in a]
print (b)

[10, 20, 30, 40, 50, 60, 70, 80]
```

```
In [202... # Filter with list comprehensions
# Filter
a=[1,2,3,4,5,6,7,8]
b = []

def f(x):
    return x%2==1

for x in a:
    if f(x):
        b.append(x)
print (b)

[1, 3, 5, 7]
```

```
In [203... [x for x in a if f(x) ]
```

```
Out[203... [1, 3, 5, 7]
```

```
In [205... def f(x):
    return x*10

def g(x):
    return x%2==1

a = [1,2,3,4,5,6,7,8,9,10]

# pare auta pou einai mona kai pollaplasiase ta epi 10
list(map(f, filter(g, a)))
```

```
Out[205... [10, 30, 50, 70, 90]
```

```
In [206... [f(x) for x in a if g(x)]
```

```
Out[206... [10, 30, 50, 70, 90]
```

```
In [207... [f(x) for x in a if g(x)]
```

```
Out[207... [10, 30, 50, 70, 90, 'mitsos']
```

```
In [209... [f(x) for x in a if g(x)]
```

```
Out[209... [10, 30, 50, 70, 90]
```

```
In [210... for x in range(1,11):
    print (x,'fores to 8 kanei:', x*8)

1 fores to 8 kanei: 8
2 fores to 8 kanei: 16
3 fores to 8 kanei: 24
4 fores to 8 kanei: 32
5 fores to 8 kanei: 40
6 fores to 8 kanei: 48
7 fores to 8 kanei: 56
8 fores to 8 kanei: 64
9 fores to 8 kanei: 72
10 fores to 8 kanei: 80
```

In [220...

```
for i in range(1,11):  
    for x in range(1,11):  
        #print (i,x)  
        print (x,'fores to ',i,' kanei:', i*x)
```

```
1 fores to 1 kanei: 1  
2 fores to 1 kanei: 2  
3 fores to 1 kanei: 3  
4 fores to 1 kanei: 4  
5 fores to 1 kanei: 5  
6 fores to 1 kanei: 6  
7 fores to 1 kanei: 7  
8 fores to 1 kanei: 8  
9 fores to 1 kanei: 9  
10 fores to 1 kanei: 10  
1 fores to 2 kanei: 2  
2 fores to 2 kanei: 4  
3 fores to 2 kanei: 6  
4 fores to 2 kanei: 8  
5 fores to 2 kanei: 10  
6 fores to 2 kanei: 12  
7 fores to 2 kanei: 14  
8 fores to 2 kanei: 16  
9 fores to 2 kanei: 18  
10 fores to 2 kanei: 20  
1 fores to 3 kanei: 3  
2 fores to 3 kanei: 6  
3 fores to 3 kanei: 9  
4 fores to 3 kanei: 12  
5 fores to 3 kanei: 15  
6 fores to 3 kanei: 18  
7 fores to 3 kanei: 21  
8 fores to 3 kanei: 24  
9 fores to 3 kanei: 27  
10 fores to 3 kanei: 30  
1 fores to 4 kanei: 4  
2 fores to 4 kanei: 8  
3 fores to 4 kanei: 12  
4 fores to 4 kanei: 16  
5 fores to 4 kanei: 20  
6 fores to 4 kanei: 24  
7 fores to 4 kanei: 28  
8 fores to 4 kanei: 32  
9 fores to 4 kanei: 36  
10 fores to 4 kanei: 40  
1 fores to 5 kanei: 5  
2 fores to 5 kanei: 10  
3 fores to 5 kanei: 15  
4 fores to 5 kanei: 20  
5 fores to 5 kanei: 25  
6 fores to 5 kanei: 30  
7 fores to 5 kanei: 35  
8 fores to 5 kanei: 40  
9 fores to 5 kanei: 45  
10 fores to 5 kanei: 50  
1 fores to 6 kanei: 6  
2 fores to 6 kanei: 12  
3 fores to 6 kanei: 18  
4 fores to 6 kanei: 24  
5 fores to 6 kanei: 30  
6 fores to 6 kanei: 36  
7 fores to 6 kanei: 42  
8 fores to 6 kanei: 48  
9 fores to 6 kanei: 54  
10 fores to 6 kanei: 60  
1 fores to 7 kanei: 7  
2 fores to 7 kanei: 14  
3 fores to 7 kanei: 21  
4 fores to 7 kanei: 28  
5 fores to 7 kanei: 35
```

```

6 fores to 7 kanei: 42
7 fores to 7 kanei: 49
8 fores to 7 kanei: 56
9 fores to 7 kanei: 63
10 fores to 7 kanei: 70
1 fores to 8 kanei: 8
2 fores to 8 kanei: 16
3 fores to 8 kanei: 24
4 fores to 8 kanei: 32
5 fores to 8 kanei: 40
6 fores to 8 kanei: 48
7 fores to 8 kanei: 56
8 fores to 8 kanei: 64
9 fores to 8 kanei: 72
10 fores to 8 kanei: 80
1 fores to 9 kanei: 9
2 fores to 9 kanei: 18
3 fores to 9 kanei: 27
4 fores to 9 kanei: 36
5 fores to 9 kanei: 45
6 fores to 9 kanei: 54
7 fores to 9 kanei: 63
8 fores to 9 kanei: 72
9 fores to 9 kanei: 81
10 fores to 9 kanei: 90
1 fores to 10 kanei: 10
2 fores to 10 kanei: 20
3 fores to 10 kanei: 30
4 fores to 10 kanei: 40
5 fores to 10 kanei: 50
6 fores to 10 kanei: 60
7 fores to 10 kanei: 70
8 fores to 10 kanei: 80
9 fores to 10 kanei: 90
10 fores to 10 kanei: 100

```

```
In [228... a = [i*x for i in range(1,11) for x in range(1,11)]
```

```
In [225... a = []
for i in range(1,11):
    for j in range(1,11):
        a.append(i*j)
```

```
In [229... a = 'dsf34lkjh2k3jhreETW65TR34'

b = ''
for x in a:
    if not x in '0123456789':
        b += x
print (b)
```

```
dsflkjhkhjhreETWTR
```

```
In [230... a = 'dsf34lkjh2k3jhreETW65TR34'

b = ''
for x in a:
    if x in '0123456789':
        continue
    b += x
print (b)
```

```
dsflkjhkhjhreETWTR
```

```
In [232... ''.join([x for x in a if not x in '0123456789'])
```

Out[232...] 'dsflkjkhkjhreETWTR'

In [233...] `a = [1,2,3,4,5,6,7,8,9,10]`

In [234...] `c = 0  
for x in a:  
 if x %2==0:  
 c+=1  
print (c)`

5

In [239...] `len([x for x in a if x%2==1])`

Out[239...] 5

In [240...] `len(['mitsos' for x in a if x%2==1])`

Out[240...] 5

In [242...] `[x for x in a if x%2==1]`

Out[242...] [1, 3, 5, 7, 9]

In [243...] `[x%2==1 for x in a]`

Out[243...] [True, False, True, False, True, False, True, False, True, False]

In [244...] `a`

Out[244...] [1, 2, 3, 4, 5, 6, 7, 8, 9, 10]

In [245...] `sum([x%2==1 for x in a])`

Out[245...] 5

In [246...] `sum(x%2==1 for x in a)`

Out[246...] 5

In [247...] `a=["a", "b", "c"]`

In [248...] `a.index(a[-1])`

Out[248...] 2

In [250...] `a = [1,2,3,4,5,6,7,8,9,10]  
all(x%2==1 for x in a)`

Out[250...] False

In [251...] `a = [1,2,3,4,5,6,7,8,9,10]  
any(x%2==1 for x in a)`

Out[251]: True

In [ ]: