

```

for i in range(4):
    for j in range(4):
        for k in range(4):
            for l in range(4):
                if i != j and j != k and k != l and k != i and l != i:
                    print(i,j,k,l)

```

```

0 1 2 3
0 1 3 2
0 2 1 3
0 2 3 1
0 3 1 2
0 3 2 1
1 0 2 3
1 0 3 2
1 2 0 3
1 2 3 0
1 3 0 2
1 3 2 0
2 0 1 3
2 0 3 1
2 1 0 3
2 1 3 0
2 3 0 1
2 3 1 0
3 0 1 2
3 0 2 1
3 1 0 2
3 1 2 0
3 2 0 1
3 2 1 0
24

```

```

# if i != j and j != k and k != l and k != i
# and l != i and l != j:
s = 'abcd'
for i in range(4):
    for j in range(4):
        for k in range(4):
            for l in range(4):
                if i != j and j != k and k != l and k != i and l != i:
                    print(s[i],s[j],s[k],s[l])

```

```

a b c d
a b d c
a c b d
a c d b
a d b c
a d c b
b a c d
b a d c
b c a d
b c d a
b d a c
b d c a
c a b d
c a d b
c b a d
c b d a
c d a b
c d b a
d a b c
d a c b
d b a c
d b c a
d c a b
d c b a

```

collection classes

data structures

list

tuple**set****frozenset****dict****▼ list****list is mutable****list is a sequence****list is iterable****list can store any data type value or item****list can store any number of values or items****list can store duplicate values or items****list is ordered****list supports indexing(+ve and -ve)****list supports slicing****list literal []****list items enclosed in [, , , ,]****empty list : [], list()**

```
l = [1,2,3,4,5]
```

```
l = [1,2,3,4,5]
for i in l:
    print(i,end=' ')

1 2 3 4 5
```

```
l = [1,2,3,4,5]
print(l)

[1, 2, 3, 4, 5]
```

```
print(type(l))

<class 'list'>
```

```
print(id(l))

140450745432064
```

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

```
l = [5,6.8,'hello',False,"python",' '@',1,2]
```

```
for i in l:
    print(i)
```

```
5
6.8
hello
False
python
@
1
2
```

```
l = [1,2,3,4,5]
print(l[0])
print(l[4])
print(l[-1])
print(l[-3])
```

```
1
5
5
3
```

```
l = [1,2,3,4,5]
print(l[:])
print(l[::])
print(l[0:])
print(l[0::])
print(l[0::1])
print(l[0:len(l):])
print(l[0:len(l):1])
```

```
[1, 2, 3, 4, 5]
[1, 2, 3, 4, 5]
[1, 2, 3, 4, 5]
[1, 2, 3, 4, 5]
[1, 2, 3, 4, 5]
[1, 2, 3, 4, 5]
[1, 2, 3, 4, 5]
```

```
l = [1,2,3,4,5,1,2,3,4,5]
print(l)
```

```
[1, 2, 3, 4, 5, 1, 2, 3, 4, 5]
```

```
l = []
print(l)
print(type(l))
print(id(l))
```

```
[]
<class 'list'>
140450262706496
```

```
l = list()
print(l)
print(type(l))
print(id(l))
```

```
[]
<class 'list'>
140450745066112
```

```
l = [1,2,3,4,5]
l[2] = 300
print(l)
```

```
[1, 2, 300, 4, 5]
```

```
print(id(l))
```

```
140450262678784
```

```
l = [1,2,3,4,5]
```

```
print(l)
```

```
print(id(l))
```

```
l[2] = 300
```

```
print(l)
```

```
print(id(l))
```

```
[1, 2, 3, 4, 5]
140450745218944
[1, 2, 300, 4, 5]
140450745218944
```

```
l = [9,77,256,25,30,1024]
```

```
for i in l:
```

```
    if i % 2 == 0:
```

```
        print(i)
```

```
256
30
1024
```

```
l = [9,77,256,25,30,1024]
```

```
for i in range(len(l)):
```

```
    if l[i] % 2 != 0:
```

```
        l[i] = l[i] + 1
```

```
else:
```

```
    print(l)
```

```
[10, 78, 256, 26, 30, 1024]
```

```
l = [9,77,256,25,30,1024]
```

```
for i in l:
```

```
    if i > 50:
```

```
        print(i)
```

```
77
256
1024
```

```
l = [9,77,256,25,30,1024]
```

```
for i in range(len(l)):
```

```
    if l[i] > 50:
```

```
        rev = 0
```

```
        while l[i] != 0:
```

```
            digit = l[i] % 10
```

```
            rev = rev * 10 + digit
```

```
            l[i] = l[i] // 10
```

```
        else:
```

```
            l[i] = rev
```

```
else:
```

```
    print(l)
```

```
[9, 77, 652, 25, 30, 4201]
```

```
l = [9,77,256,25,30,1024]
```

```
for i in range(1,len(l)):
```

```
    print(l[i] - l[i-1])
```

```
68
179
-231
5
994
```

```
l = [9,77,256,25,30,1024]
for i in range(1,len(l)):
    if l[i] > l[i-1]:
        print(l[i] - l[i-1])
    else:
        print(l[i-1] - l[i])

68
179
231
5
994
```

```
l = ['raja','prasanth','sandeep','naveen','madhavi']
for i in range(0,len(l),2):
    l[i],l[i+1] = l[i+1],l[i]
else:
    print(l)
```

```
-----
IndexError                                Traceback (most recent call last)
<ipython-input-29-886fbb0b8d52> in <module>
      1 l = ['raja','prasanth','sandeep','naveen','madhavi']
      2 for i in range(0,len(l),2):
----> 3     l[i],l[i+1] = l[i+1],l[i]
      4 else:
      5     print(l)
```

IndexError: list index out of range

SEARCH STACK OVERFLOW

```
l = ['raja','prasanth','sandeep','naveen','madhavi']
for i in range(len(l)):
    if i % 2 != 0:
        l[i],l[i-1] = l[i-1],l[i]
else:
    print(l)
```

```
['prasanth', 'raja', 'naveen', 'sandeep', 'madhavi']
```

```
l = ['raja','prasanth','sandeep','naveen','madhavi']
for i in range(len(l)):
    l[i] = len(l[i])
else:
    print(l)
```

```
[4, 8, 7, 6, 7]
```

```
l = ['raja','prasanth','sandeep','naveen','madhavi']
#['rAjA','prAsAnth','sAndEEp','nAvEEen','mAdhAvi']
```

✓ 0s completed at 1:31 PM

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