```
import pandas as pd
import numpy as np
df = pd.DataFrame(np.arange(6).reshape((2, 3)), index=pd.Index(['Ohio', 'Colorado'], name='state'), columns=pd.Index(['one', 'two', 'th
print(df)
result = df.stack()
print("\n",result)
final =result.unstack()
print("\n\n",final)
```

```
number    one  two  three
state
Ohio        0    1      2
Colorado    3    4      5

 state     number
Ohio      one       0
          two       1
          three     2
Colorado  one       3
          two       4
          three     5
dtype: int64


 number    one  two  three
state
Ohio        0    1      2
Colorado    3    4      5
```

```
arr1 = np.arange(1,7)
print("\n\n",arr1)
arr2 = arr1.reshape((2,3))
print("\n\n",arr2)
arr2[:2, 2:] = 0
print("\n\n",arr2)
arr3 = arr2.T
print("\n\n",arr3)
```

```
 [1 2 3 4 5 6]


 [[1 2 3]
 [4 5 6]]


 [[1 2 0]
 [4 5 0]]


 [[1 4]
 [2 5]
 [0 0]]
```

```
data = [[50, 'Delhi'], [40, 'Mumbai'], [30, 'Patna']]
a = ["Sarika", "Mark", "Sahil"]
b = ["Age", "Home Town"]
df = pd.DataFrame(data, a, b)
print("\n\n",df)
print("\n\n",df.loc["Mark", "Age"])
print("\n\n",df.loc["Mark":])
print("\n\n",df.iloc[1])
```

```
         Age Home Town
Sarika   50     Delhi
Mark     40    Mumbai
Sahil    30     Patna


 40


        Age Home Town
Mark    40    Mumbai
Sahil   30     Patna


 Age             40
```

```
Home Town    Mumbai
Name: Mark, dtype: object
```

```
left = pd.DataFrame({'key1':['foo','foo','bar'],
                     'key2':['one','two','one'],
                     'lval':[1,2,3]})
right = pd.DataFrame({'key1':['foo','foo','bar','bar'],
                      'key2':['one','one','one', 'two'],
                      'rval':[4,5,6,7]})
print("\n",left)
print("\n\n",right)
pd.merge(left, right, on=['key1','key2'])
```

```
   key1 key2  lval
0  foo  one     1
1  foo  two     2
2  bar  one     3


   key1 key2  rval
0  foo  one     4
1  foo  one     5
2  bar  one     6
3  bar  two     7
```

	key1	key2	lval	rval
0	foo	one	1	4
1	foo	one	1	5
2	bar	one	3	6

```
ages = [20, 22, 25, 27, 21, 23, 37, 31, 61, 45, 41,32]
bins = [18, 25, 35, 60, 100]
group_names = ['Youth', 'YoungAdult','MiddleAged','Senior']
groups = pd.cut(ages, bins, labels=group_names)
print("\n",groups,"\n")
pd.value_counts(groups)
```

```
 ['Youth', 'Youth', 'Youth', 'YoungAdult', 'Youth', ..., 'YoungAdult', 'Senior', 'MiddleAged', 'MiddleAged', 'YoungAdult']
Length: 12
Categories (4, object): ['Youth' < 'YoungAdult' < 'MiddleAged' < 'Senior']

Youth         5
YoungAdult    3
MiddleAged    3
Senior        1
dtype: int64
```