금공프 HW5

20249433 최재필

In [ ]:
```
import numpy as np
import pandas as pd
```

1.

In [ ]:
```
np.random.seed(123)

arr = np.random.randn(8, 10)
```

(1)

In [ ]:
```
arr.sum(axis=0)
```

Out[ ]:
```
array([-3.68648899, -3.20797062,  1.89628963, -4.31697028, -1.68652947,
        3.31014718,  3.61439765,  2.82609217,  1.68894737,  0.84241575])
```

(2)

In [ ]:
```
row_idx, col_idx = np.where(arr > 2)

print(f'row index: {row_idx}')
print(f'column index: {col_idx}')
```

```
row index: [1 1 4 4]
column index: [6 7 6 9]
```

2.

In [ ]:
```
values = [0, 1, 2, 3]
index = ['a', 'b', 'c', 'd']
```

In [ ]:
```
# 1. Create series from list/numpy array
s = pd.Series(data=values, index=index)
s
```

Out[ ]:
```
a    0
b    1
c    2
d    3
dtype: int64
```

In [ ]:
```
# 2. Create series from dictionary
s = pd.Series(data={k: v for k, v in zip(index, values)})
s
```

Out[ ]:
```
a    0
b    1
c    2
d    3
dtype: int64
```

In [ ]:
```
# 3. Create series from scalar value
s = pd.Series(data=0, index=index)

s['b'] = 1
s['c'] = 2
s['d'] = 3

s
```

Out[ ]:
```
a    0
b    1
c    2
d    3
dtype: int64
```

3.

In [ ]:
```
Snew = pd.Series({
    'a': 1,
    'b': 4,
    'c': 2,
    'd': 3,
})
Snew
```

Out[ ]:
```
a    1
b    4
c    2
d    3
dtype: int64
```

In [ ]:
```
# Use index number to access values
Snew[1:3]
```

Out[ ]:
```
b    4
c    2
dtype: int64
```

In [ ]:
```
# Use index value to access values
Snew[['b', 'c']]
```

Out[ ]:
```
b    4
c    2
dtype: int64
```

In [ ]:
```
# Use the .loc[] accessor to select elements by index
Snew.loc['b':'c']
```

Out[ ]:
```
b    4
c    2
dtype: int64
```

In [ ]:
```
# Use the .iloc[] accessor to select elements by position
Snew.iloc[1:3]
```

Out[ ]:
```
b    4
c    2
dtype: int64
```

4

In [ ]:
```
DF = pd.DataFrame(
    data=np.random.randn(6, 7),
    columns=list('abcdefg'),
    index=[3, 2, 4, 5, 1, 0],
    )
DF
```

Out[ ]:

	a	b	c	d	e	f	g
3	1.255237	-0.688869	1.660952	0.807308	-0.314758	-1.085902	-0.732462
2	-1.212523	2.087113	0.164441	1.150206	-1.267352	0.181035	1.177862
4	-0.335011	1.031114	-1.084568	-1.363472	0.379401	-0.379176	0.642055
5	-1.977888	0.712265	2.598304	-0.024626	0.034142	0.179549	-1.861976
1	0.426147	-1.605410	-0.427680	1.242870	-0.735217	0.501249	1.012739
0	0.278741	-1.370948	-0.332475	1.959411	-2.025046	-0.275786	-0.552108

(1)

In [ ]:
```
DF.iloc[:, 2:5]
```

Out[ ]:

	c	d	e
3	1.660952	0.807308	-0.314758
2	0.164441	1.150206	-1.267352
4	-1.084568	-1.363472	0.379401
5	2.598304	-0.024626	0.034142
1	-0.427680	1.242870	-0.735217
0	-0.332475	1.959411	-2.025046

(2)

In [ ]:
```
DF[['c', 'd', 'e']]
```

Out[ ]:

	c	d	e
3	1.660952	0.807308	-0.314758
2	0.164441	1.150206	-1.267352
4	-1.084568	-1.363472	0.379401
5	2.598304	-0.024626	0.034142
1	-0.427680	1.242870	-0.735217
0	-0.332475	1.959411	-2.025046

5.

(1)

In [ ]:
```
DF.loc[DF['c'] < 0, 'c']
```

Out[ ]:
```
4   -1.084568
1   -0.427680
0   -0.332475
Name: c, dtype: float64
```

(2)

In [ ]:
```
DF[(DF['c'] < 0)]['c']
```

Out[ ]:
```
4   -1.084568
1   -0.427680
0   -0.332475
Name: c, dtype: float64
```