

Pandas

July 5, 2023

```
[236]: import pandas as pd
```

```
[237]: df=pd.DataFrame(  
        {"Name":[  
            "Braund, Mr. Owen Harris",  
            "Allen, Mr. William Henry",  
            "Bonnell, Miss. Elizabeth",  
        ],  
        "Age": [22,35,58],  
        "Sex": ["male","male","female"],})
```

```
[238]: df
```

```
[238]:
```

	Name	Age	Sex
0	Braund, Mr. Owen Harris	22	male
1	Allen, Mr. William Henry	35	male
2	Bonnell, Miss. Elizabeth	58	female

```
[239]: type(df)
```

```
[239]: pandas.core.frame.DataFrame
```

```
[240]: df["Age"]
```

```
[240]: 0    22  
      1    35  
      2    58  
      Name: Age, dtype: int64
```

```
[241]: ages=pd.Series([22,35,58], name="Age")
```

```
[242]: type(ages)
```

```
[242]: pandas.core.series.Series
```

```
[243]: df["Age"].max()
```

```
[243]: 58
```

```
[244]: df["Age"].min()
```

```
[244]: 22
```

```
[245]: df.describe()
```

```
[245]:
```

	Age
count	3.000000
mean	38.333333
std	18.230012
min	22.000000
25%	28.500000
50%	35.000000
75%	46.500000
max	58.000000

```
[246]: import os
print(os.getcwd())
```

C:\Users\ddaya\Documents\Practice_3

```
[247]: data1=pd.read_csv("P1-OfficeSupplies.csv")
```

```
[248]: data1
```

```
[248]:
```

	OrderDate	Region	Rep	Item	Units	Unit Price
0	4-Jul-14	East	Richard	Pen Set	62	4.99
1	12-Jul-14	East	Nick	Binder	29	1.99
2	21-Jul-14	Central	Morgan	Pen Set	55	12.49
3	29-Jul-14	East	Susan	Binder	81	19.99
4	7-Aug-14	Central	Matthew	Pen Set	42	23.95
5	15-Aug-14	East	Richard	Pencil	35	4.99
6	24-Aug-14	West	James	Desk	3	275.00
7	1-Sep-14	Central	Smith	Desk	2	125.00
8	10-Sep-14	Central	Bill	Pencil	7	1.29
9	18-Sep-14	East	Richard	Pen Set	16	15.99
10	27-Sep-14	West	James	Pen	76	1.99
11	5-Oct-14	Central	Morgan	Binder	28	8.99
12	14-Oct-14	West	Thomas	Binder	57	19.99
13	22-Oct-14	East	Richard	Pen	64	8.99
14	31-Oct-14	Central	Rachel	Pencil	14	1.29
15	8-Nov-14	East	Susan	Pen	15	19.99
16	17-Nov-14	Central	Alex	Binder	11	4.99
17	25-Nov-14	Central	Matthew	Pen Set	96	4.99
18	4-Dec-14	Central	Alex	Binder	94	19.99
19	12-Dec-14	Central	Smith	Pencil	67	1.29
20	21-Dec-14	Central	Rachel	Binder	28	4.99
21	29-Dec-14	East	Susan	Pen Set	74	15.99

22	6-Jan-15	East	Richard	Pencil	95	1.99
23	15-Jan-15	Central	Bill	Binder	46	8.99
24	23-Jan-15	Central	Matthew	Binder	50	19.99
25	1-Feb-15	Central	Smith	Binder	87	15.00
26	9-Feb-15	Central	Alex	Pencil	36	4.99
27	18-Feb-15	East	Richard	Binder	4	4.99
28	26-Feb-15	Central	Bill	Pen	27	19.99
29	7-Mar-15	West	James	Binder	7	19.99
30	15-Mar-15	West	James	Pencil	56	2.99
31	24-Mar-15	Central	Alex	Pen Set	50	4.99
32	1-Apr-15	East	Richard	Binder	60	4.99
33	10-Apr-15	Central	Rachel	Pencil	66	1.99
34	18-Apr-15	Central	Rachel	Pencil	75	1.99
35	27-Apr-15	East	Nick	Pen	96	4.99
36	5-May-15	Central	Alex	Pencil	90	4.99
37	14-May-15	Central	Bill	Pencil	53	1.29
38	22-May-15	West	Thomas	Pencil	32	1.99
39	31-May-15	Central	Bill	Binder	80	8.99
40	8-Jun-15	East	Richard	Binder	60	8.99
41	17-Jun-15	Central	Matthew	Desk	5	125.00
42	25-Jun-15	Central	Morgan	Pencil	90	4.99

```
[249]: data1.head(8)
```

```
[249]:
```

	OrderDate	Region	Rep	Item	Units	Unit Price
0	4-Jul-14	East	Richard	Pen Set	62	4.99
1	12-Jul-14	East	Nick	Binder	29	1.99
2	21-Jul-14	Central	Morgan	Pen Set	55	12.49
3	29-Jul-14	East	Susan	Binder	81	19.99
4	7-Aug-14	Central	Matthew	Pen Set	42	23.95
5	15-Aug-14	East	Richard	Pencil	35	4.99
6	24-Aug-14	West	James	Desk	3	275.00
7	1-Sep-14	Central	Smith	Desk	2	125.00

```
[250]: data1.columns
```

```
[250]: Index(['OrderDate', 'Region', 'Rep', 'Item', 'Units', 'Unit Price'],
dtype='object')
```

```
[251]: data1.columns=['OrderDate', 'Region', 'Rep', 'Item', 'Units', 'UnitPrice']
```

```
[252]: data1
```

```
[252]:
```

	OrderDate	Region	Rep	Item	Units	UnitPrice
0	4-Jul-14	East	Richard	Pen Set	62	4.99
1	12-Jul-14	East	Nick	Binder	29	1.99
2	21-Jul-14	Central	Morgan	Pen Set	55	12.49

3	29-Jul-14	East	Susan	Binder	81	19.99
4	7-Aug-14	Central	Matthew	Pen Set	42	23.95
5	15-Aug-14	East	Richard	Pencil	35	4.99
6	24-Aug-14	West	James	Desk	3	275.00
7	1-Sep-14	Central	Smith	Desk	2	125.00
8	10-Sep-14	Central	Bill	Pencil	7	1.29
9	18-Sep-14	East	Richard	Pen Set	16	15.99
10	27-Sep-14	West	James	Pen	76	1.99
11	5-Oct-14	Central	Morgan	Binder	28	8.99
12	14-Oct-14	West	Thomas	Binder	57	19.99
13	22-Oct-14	East	Richard	Pen	64	8.99
14	31-Oct-14	Central	Rachel	Pencil	14	1.29
15	8-Nov-14	East	Susan	Pen	15	19.99
16	17-Nov-14	Central	Alex	Binder	11	4.99
17	25-Nov-14	Central	Matthew	Pen Set	96	4.99
18	4-Dec-14	Central	Alex	Binder	94	19.99
19	12-Dec-14	Central	Smith	Pencil	67	1.29
20	21-Dec-14	Central	Rachel	Binder	28	4.99
21	29-Dec-14	East	Susan	Pen Set	74	15.99
22	6-Jan-15	East	Richard	Pencil	95	1.99
23	15-Jan-15	Central	Bill	Binder	46	8.99
24	23-Jan-15	Central	Matthew	Binder	50	19.99
25	1-Feb-15	Central	Smith	Binder	87	15.00
26	9-Feb-15	Central	Alex	Pencil	36	4.99
27	18-Feb-15	East	Richard	Binder	4	4.99
28	26-Feb-15	Central	Bill	Pen	27	19.99
29	7-Mar-15	West	James	Binder	7	19.99
30	15-Mar-15	West	James	Pencil	56	2.99
31	24-Mar-15	Central	Alex	Pen Set	50	4.99
32	1-Apr-15	East	Richard	Binder	60	4.99
33	10-Apr-15	Central	Rachel	Pencil	66	1.99
34	18-Apr-15	Central	Rachel	Pencil	75	1.99
35	27-Apr-15	East	Nick	Pen	96	4.99
36	5-May-15	Central	Alex	Pencil	90	4.99
37	14-May-15	Central	Bill	Pencil	53	1.29
38	22-May-15	West	Thomas	Pencil	32	1.99
39	31-May-15	Central	Bill	Binder	80	8.99
40	8-Jun-15	East	Richard	Binder	60	8.99
41	17-Jun-15	Central	Matthew	Desk	5	125.00
42	25-Jun-15	Central	Morgan	Pencil	90	4.99

```
[253]: data1["unitprice*2"]=data1.UnitPrice*2
```

```
[254]: data1
```

```
[254]:
```

	OrderDate	Region	Rep	Item	Units	UnitPrice	unitprice*2
0	4-Jul-14	East	Richard	Pen Set	62	4.99	9.98

1	12-Jul-14	East	Nick	Binder	29	1.99	3.98
2	21-Jul-14	Central	Morgan	Pen Set	55	12.49	24.98
3	29-Jul-14	East	Susan	Binder	81	19.99	39.98
4	7-Aug-14	Central	Matthew	Pen Set	42	23.95	47.90
5	15-Aug-14	East	Richard	Pencil	35	4.99	9.98
6	24-Aug-14	West	James	Desk	3	275.00	550.00
7	1-Sep-14	Central	Smith	Desk	2	125.00	250.00
8	10-Sep-14	Central	Bill	Pencil	7	1.29	2.58
9	18-Sep-14	East	Richard	Pen Set	16	15.99	31.98
10	27-Sep-14	West	James	Pen	76	1.99	3.98
11	5-Oct-14	Central	Morgan	Binder	28	8.99	17.98
12	14-Oct-14	West	Thomas	Binder	57	19.99	39.98
13	22-Oct-14	East	Richard	Pen	64	8.99	17.98
14	31-Oct-14	Central	Rachel	Pencil	14	1.29	2.58
15	8-Nov-14	East	Susan	Pen	15	19.99	39.98
16	17-Nov-14	Central	Alex	Binder	11	4.99	9.98
17	25-Nov-14	Central	Matthew	Pen Set	96	4.99	9.98
18	4-Dec-14	Central	Alex	Binder	94	19.99	39.98
19	12-Dec-14	Central	Smith	Pencil	67	1.29	2.58
20	21-Dec-14	Central	Rachel	Binder	28	4.99	9.98
21	29-Dec-14	East	Susan	Pen Set	74	15.99	31.98
22	6-Jan-15	East	Richard	Pencil	95	1.99	3.98
23	15-Jan-15	Central	Bill	Binder	46	8.99	17.98
24	23-Jan-15	Central	Matthew	Binder	50	19.99	39.98
25	1-Feb-15	Central	Smith	Binder	87	15.00	30.00
26	9-Feb-15	Central	Alex	Pencil	36	4.99	9.98
27	18-Feb-15	East	Richard	Binder	4	4.99	9.98
28	26-Feb-15	Central	Bill	Pen	27	19.99	39.98
29	7-Mar-15	West	James	Binder	7	19.99	39.98
30	15-Mar-15	West	James	Pencil	56	2.99	5.98
31	24-Mar-15	Central	Alex	Pen Set	50	4.99	9.98
32	1-Apr-15	East	Richard	Binder	60	4.99	9.98
33	10-Apr-15	Central	Rachel	Pencil	66	1.99	3.98
34	18-Apr-15	Central	Rachel	Pencil	75	1.99	3.98
35	27-Apr-15	East	Nick	Pen	96	4.99	9.98
36	5-May-15	Central	Alex	Pencil	90	4.99	9.98
37	14-May-15	Central	Bill	Pencil	53	1.29	2.58
38	22-May-15	West	Thomas	Pencil	32	1.99	3.98
39	31-May-15	Central	Bill	Binder	80	8.99	17.98
40	8-Jun-15	East	Richard	Binder	60	8.99	17.98
41	17-Jun-15	Central	Matthew	Desk	5	125.00	250.00
42	25-Jun-15	Central	Morgan	Pencil	90	4.99	9.98

```
[255]: data2=data1.transpose()
```

```
[256]: data2
```

```
[256]:
```

	0	1	2	3	4	5	\
OrderDate	4-Jul-14	12-Jul-14	21-Jul-14	29-Jul-14	7-Aug-14	15-Aug-14	
Region	East	East	Central	East	Central	East	
Rep	Richard	Nick	Morgan	Susan	Matthew	Richard	
Item	Pen Set	Binder	Pen Set	Binder	Pen Set	Pencil	
Units	62	29	55	81	42	35	
UnitPrice	4.99	1.99	12.49	19.99	23.95	4.99	
unitprice*2	9.98	3.98	24.98	39.98	47.9	9.98	

	6	7	8	9	...	33	\
OrderDate	24-Aug-14	1-Sep-14	10-Sep-14	18-Sep-14	...	10-Apr-15	
Region	West	Central	Central	East	...	Central	
Rep	James	Smith	Bill	Richard	...	Rachel	
Item	Desk	Desk	Pencil	Pen Set	...	Pencil	
Units	3	2	7	16	...	66	
UnitPrice	275.0	125.0	1.29	15.99	...	1.99	
unitprice*2	550.0	250.0	2.58	31.98	...	3.98	

	34	35	36	37	38	39	\
OrderDate	18-Apr-15	27-Apr-15	5-May-15	14-May-15	22-May-15	31-May-15	
Region	Central	East	Central	Central	West	Central	
Rep	Rachel	Nick	Alex	Bill	Thomas	Bill	
Item	Pencil	Pen	Pencil	Pencil	Pencil	Binder	
Units	75	96	90	53	32	80	
UnitPrice	1.99	4.99	4.99	1.29	1.99	8.99	
unitprice*2	3.98	9.98	9.98	2.58	3.98	17.98	

	40	41	42
OrderDate	8-Jun-15	17-Jun-15	25-Jun-15
Region	East	Central	Central
Rep	Richard	Matthew	Morgan
Item	Binder	Desk	Pencil
Units	60	5	90
UnitPrice	8.99	125.0	4.99
unitprice*2	17.98	250.0	9.98

[7 rows x 43 columns]

```
[257]: data2.to_excel("NewData1.xlsx",sheet_name="Testingdata",index=True)
```

```
[258]: data1.dtypes
```

```
[258]: OrderDate    object
Region          object
Rep             object
Item            object
Units           int64
```

```
UnitPrice      float64
unitprice*2    float64
dtype: object
```

```
[259]: pd.read_excel("NewData1.xlsx", sheet_name="Testingdata")
```

```
[259]:
```

	Unnamed: 0	0	1	2	3	4	\
0	OrderDate	4-Jul-14	12-Jul-14	21-Jul-14	29-Jul-14	7-Aug-14	
1	Region	East	East	Central	East	Central	
2	Rep	Richard	Nick	Morgan	Susan	Matthew	
3	Item	Pen Set	Binder	Pen Set	Binder	Pen Set	
4	Units	62	29	55	81	42	
5	UnitPrice	4.99	1.99	12.49	19.99	23.95	
6	unitprice*2	9.98	3.98	24.98	39.98	47.9	

	5	6	7	8	...	33	34	\
0	15-Aug-14	24-Aug-14	1-Sep-14	10-Sep-14	...	10-Apr-15	18-Apr-15	
1	East	West	Central	Central	...	Central	Central	
2	Richard	James	Smith	Bill	...	Rachel	Rachel	
3	Pencil	Desk	Desk	Pencil	...	Pencil	Pencil	
4	35	3	2	7	...	66	75	
5	4.99	275	125	1.29	...	1.99	1.99	
6	9.98	550	250	2.58	...	3.98	3.98	

	35	36	37	38	39	40	41	\
0	27-Apr-15	5-May-15	14-May-15	22-May-15	31-May-15	8-Jun-15	17-Jun-15	
1	East	Central	Central	West	Central	East	Central	
2	Nick	Alex	Bill	Thomas	Bill	Richard	Matthew	
3	Pen	Pencil	Pencil	Pencil	Binder	Binder	Desk	
4	96	90	53	32	80	60	5	
5	4.99	4.99	1.29	1.99	8.99	8.99	125	
6	9.98	9.98	2.58	3.98	17.98	17.98	250	

	42
0	25-Jun-15
1	Central
2	Morgan
3	Pencil
4	90
5	4.99
6	9.98

```
[7 rows x 44 columns]
```

```
[260]: data1.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 43 entries, 0 to 42
```

Data columns (total 7 columns):

#	Column	Non-Null Count	Dtype
0	OrderDate	43 non-null	object
1	Region	43 non-null	object
2	Rep	43 non-null	object
3	Item	43 non-null	object
4	Units	43 non-null	int64
5	UnitPrice	43 non-null	float64
6	unitprice*2	43 non-null	float64

dtypes: float64(2), int64(1), object(4)

memory usage: 2.5+ KB

```
[261]: titanic=pd.DataFrame(  
        {"Name": [  
            "Braund, Mr. Owen Harris",  
            "Allen, Mr. William Henry",  
            "Bonnell, Miss. Elizabeth",  
        ],  
        "Age": [22,35,58],  
        "Sex": ["male","male","female"],})
```

```
[262]: ages=titanic["Age"]
```

```
[263]: ages
```

```
[263]: 0    22  
      1    35  
      2    58  
      Name: Age, dtype: int64
```

```
[264]: type(titanic["Age"])
```

```
[264]: pandas.core.series.Series
```

```
[265]: titanic["Age"].shape
```

```
[265]: (3,)
```

```
[266]: age_sex=titanic[["Age","Sex"]]
```

```
[267]: age_sex
```

```
[267]:   Age  Sex  
0    22  male  
1    35  male  
2    58 female
```



```
[268]: age_sex.head(2)
```

```
[268]:   Age  Sex
0    22  male
1    35  male
```

```
[269]: type(titanic[["Age","Sex"]])
```

```
[269]: pandas.core.frame.DataFrame
```

```
[270]: titanic[["Age","Sex"]].shape
```

```
[270]: (3, 2)
```

```
[271]: above_34=titanic[titanic["Age"]>34]
```

```
[272]: above_34.shape
```

```
[272]: (2, 3)
```

```
[273]: import pandas as pd
titanic=pd.read_csv("P1-OfficeSupplies.csv")
```

```
[274]: titanic
```

```
[274]:   OrderDate  Region  Rep  Item  Units  Unit Price
0   4-Jul-14    East  Richard  Pen Set    62      4.99
1  12-Jul-14    East   Nick  Binder    29      1.99
2  21-Jul-14  Central  Morgan  Pen Set    55     12.49
3  29-Jul-14    East   Susan  Binder    81     19.99
4   7-Aug-14  Central  Matthew  Pen Set    42     23.95
5  15-Aug-14    East  Richard  Pencil    35      4.99
6  24-Aug-14    West   James   Desk     3    275.00
7   1-Sep-14  Central   Smith   Desk     2    125.00
8  10-Sep-14  Central   Bill   Pencil     7      1.29
9  18-Sep-14    East  Richard  Pen Set    16     15.99
10 27-Sep-14    West   James    Pen    76      1.99
11  5-Oct-14  Central  Morgan  Binder    28      8.99
12 14-Oct-14    West  Thomas  Binder    57     19.99
13 22-Oct-14    East  Richard    Pen    64      8.99
14 31-Oct-14  Central  Rachel  Pencil    14      1.29
15  8-Nov-14    East   Susan    Pen    15     19.99
16 17-Nov-14  Central   Alex  Binder    11      4.99
17 25-Nov-14  Central  Matthew  Pen Set    96      4.99
18  4-Dec-14  Central   Alex  Binder    94     19.99
19 12-Dec-14  Central   Smith  Pencil    67      1.29
20 21-Dec-14  Central  Rachel  Binder    28      4.99
21 29-Dec-14    East   Susan  Pen Set    74     15.99
```

22	6-Jan-15	East	Richard	Pencil	95	1.99
23	15-Jan-15	Central	Bill	Binder	46	8.99
24	23-Jan-15	Central	Matthew	Binder	50	19.99
25	1-Feb-15	Central	Smith	Binder	87	15.00
26	9-Feb-15	Central	Alex	Pencil	36	4.99
27	18-Feb-15	East	Richard	Binder	4	4.99
28	26-Feb-15	Central	Bill	Pen	27	19.99
29	7-Mar-15	West	James	Binder	7	19.99
30	15-Mar-15	West	James	Pencil	56	2.99
31	24-Mar-15	Central	Alex	Pen Set	50	4.99
32	1-Apr-15	East	Richard	Binder	60	4.99
33	10-Apr-15	Central	Rachel	Pencil	66	1.99
34	18-Apr-15	Central	Rachel	Pencil	75	1.99
35	27-Apr-15	East	Nick	Pen	96	4.99
36	5-May-15	Central	Alex	Pencil	90	4.99
37	14-May-15	Central	Bill	Pencil	53	1.29
38	22-May-15	West	Thomas	Pencil	32	1.99
39	31-May-15	Central	Bill	Binder	80	8.99
40	8-Jun-15	East	Richard	Binder	60	8.99
41	17-Jun-15	Central	Matthew	Desk	5	125.00
42	25-Jun-15	Central	Morgan	Pencil	90	4.99

```
[275]: df1=pd.DataFrame({"Name": [
                                "Anil Kumar",
                                "Mandeep Kaur",
                                "Vivak",
                                "Kashor"
                                ],
                        "Age": [22,23,65,13],
                        "Sex": ["Male","Female","Male","Male"],})
```

```
[276]: df1
```

```
[276]:
```

	Name	Age	Sex
0	Anil Kumar	22	Male
1	Mandeep Kaur	23	Female
2	Vivak	65	Male
3	Kashor	13	Male

```
[277]: df1["Age"]
```

```
[277]: 0    22
        1    23
        2    65
        3    13
        Name: Age, dtype: int64
```

```
[278]: ages=pd.Series([22,22,23,24])
```

```
[279]: ages
```

```
[279]: 0    22
      1    22
      2    23
      3    24
      dtype: int64
```

```
[280]: df1["Age"].max()
```

```
[280]: 65
```

```
[281]: ages.max()
```

```
[281]: 24
```

```
[282]: df1.describe()
```

```
[282]:
```

	Age
count	4.000000
mean	30.750000
std	23.271943
min	13.000000
25%	19.750000
50%	22.500000
75%	33.500000
max	65.000000

```
[283]: titanic=pd.read_csv("P1-OfficeSupplies.csv")
```

```
[284]: titanic
```

```
[284]:
```

	OrderDate	Region	Rep	Item	Units	Unit Price
0	4-Jul-14	East	Richard	Pen Set	62	4.99
1	12-Jul-14	East	Nick	Binder	29	1.99
2	21-Jul-14	Central	Morgan	Pen Set	55	12.49
3	29-Jul-14	East	Susan	Binder	81	19.99
4	7-Aug-14	Central	Matthew	Pen Set	42	23.95
5	15-Aug-14	East	Richard	Pencil	35	4.99
6	24-Aug-14	West	James	Desk	3	275.00
7	1-Sep-14	Central	Smith	Desk	2	125.00
8	10-Sep-14	Central	Bill	Pencil	7	1.29
9	18-Sep-14	East	Richard	Pen Set	16	15.99
10	27-Sep-14	West	James	Pen	76	1.99
11	5-Oct-14	Central	Morgan	Binder	28	8.99
12	14-Oct-14	West	Thomas	Binder	57	19.99

13	22-Oct-14	East	Richard	Pen	64	8.99
14	31-Oct-14	Central	Rachel	Pencil	14	1.29
15	8-Nov-14	East	Susan	Pen	15	19.99
16	17-Nov-14	Central	Alex	Binder	11	4.99
17	25-Nov-14	Central	Matthew	Pen Set	96	4.99
18	4-Dec-14	Central	Alex	Binder	94	19.99
19	12-Dec-14	Central	Smith	Pencil	67	1.29
20	21-Dec-14	Central	Rachel	Binder	28	4.99
21	29-Dec-14	East	Susan	Pen Set	74	15.99
22	6-Jan-15	East	Richard	Pencil	95	1.99
23	15-Jan-15	Central	Bill	Binder	46	8.99
24	23-Jan-15	Central	Matthew	Binder	50	19.99
25	1-Feb-15	Central	Smith	Binder	87	15.00
26	9-Feb-15	Central	Alex	Pencil	36	4.99
27	18-Feb-15	East	Richard	Binder	4	4.99
28	26-Feb-15	Central	Bill	Pen	27	19.99
29	7-Mar-15	West	James	Binder	7	19.99
30	15-Mar-15	West	James	Pencil	56	2.99
31	24-Mar-15	Central	Alex	Pen Set	50	4.99
32	1-Apr-15	East	Richard	Binder	60	4.99
33	10-Apr-15	Central	Rachel	Pencil	66	1.99
34	18-Apr-15	Central	Rachel	Pencil	75	1.99
35	27-Apr-15	East	Nick	Pen	96	4.99
36	5-May-15	Central	Alex	Pencil	90	4.99
37	14-May-15	Central	Bill	Pencil	53	1.29
38	22-May-15	West	Thomas	Pencil	32	1.99
39	31-May-15	Central	Bill	Binder	80	8.99
40	8-Jun-15	East	Richard	Binder	60	8.99
41	17-Jun-15	Central	Matthew	Desk	5	125.00
42	25-Jun-15	Central	Morgan	Pencil	90	4.99

```
[285]: titanic.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 43 entries, 0 to 42
Data columns (total 6 columns):
#   Column      Non-Null Count  Dtype
---  -
0   OrderDate    43 non-null     object
1   Region       43 non-null     object
2   Rep          43 non-null     object
3   Item         43 non-null     object
4   Units        43 non-null     int64
5   Unit Price   43 non-null     float64
dtypes: float64(1), int64(1), object(4)
memory usage: 2.1+ KB
```

```
[286]: titanic.head(8)
```

```
[286]:
```

	OrderDate	Region	Rep	Item	Units	Unit Price
0	4-Jul-14	East	Richard	Pen Set	62	4.99
1	12-Jul-14	East	Nick	Binder	29	1.99
2	21-Jul-14	Central	Morgan	Pen Set	55	12.49
3	29-Jul-14	East	Susan	Binder	81	19.99
4	7-Aug-14	Central	Matthew	Pen Set	42	23.95
5	15-Aug-14	East	Richard	Pencil	35	4.99
6	24-Aug-14	West	James	Desk	3	275.00
7	1-Sep-14	Central	Smith	Desk	2	125.00

```
[287]: titanic.dtypes
```

```
[287]: OrderDate      object
Region      object
Rep         object
Item        object
Units       int64
Unit Price  float64
dtype: object
```

```
[288]: titanic.to_excel("titanic.xlsx",sheet_name="Passenger")
```

```
[289]: titanic.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 43 entries, 0 to 42
Data columns (total 6 columns):
#   Column      Non-Null Count  Dtype
---  -
0   OrderDate   43 non-null    object
1   Region      43 non-null    object
2   Rep         43 non-null    object
3   Item        43 non-null    object
4   Units       43 non-null    int64
5   Unit Price  43 non-null    float64
dtypes: float64(1), int64(1), object(4)
memory usage: 2.1+ KB
```

```
[290]: titanic
```

```
[290]:
```

	OrderDate	Region	Rep	Item	Units	Unit Price
0	4-Jul-14	East	Richard	Pen Set	62	4.99
1	12-Jul-14	East	Nick	Binder	29	1.99
2	21-Jul-14	Central	Morgan	Pen Set	55	12.49
3	29-Jul-14	East	Susan	Binder	81	19.99
4	7-Aug-14	Central	Matthew	Pen Set	42	23.95
5	15-Aug-14	East	Richard	Pencil	35	4.99
6	24-Aug-14	West	James	Desk	3	275.00

7	1-Sep-14	Central	Smith	Desk	2	125.00
8	10-Sep-14	Central	Bill	Pencil	7	1.29
9	18-Sep-14	East	Richard	Pen Set	16	15.99
10	27-Sep-14	West	James	Pen	76	1.99
11	5-Oct-14	Central	Morgan	Binder	28	8.99
12	14-Oct-14	West	Thomas	Binder	57	19.99
13	22-Oct-14	East	Richard	Pen	64	8.99
14	31-Oct-14	Central	Rachel	Pencil	14	1.29
15	8-Nov-14	East	Susan	Pen	15	19.99
16	17-Nov-14	Central	Alex	Binder	11	4.99
17	25-Nov-14	Central	Matthew	Pen Set	96	4.99
18	4-Dec-14	Central	Alex	Binder	94	19.99
19	12-Dec-14	Central	Smith	Pencil	67	1.29
20	21-Dec-14	Central	Rachel	Binder	28	4.99
21	29-Dec-14	East	Susan	Pen Set	74	15.99
22	6-Jan-15	East	Richard	Pencil	95	1.99
23	15-Jan-15	Central	Bill	Binder	46	8.99
24	23-Jan-15	Central	Matthew	Binder	50	19.99
25	1-Feb-15	Central	Smith	Binder	87	15.00
26	9-Feb-15	Central	Alex	Pencil	36	4.99
27	18-Feb-15	East	Richard	Binder	4	4.99
28	26-Feb-15	Central	Bill	Pen	27	19.99
29	7-Mar-15	West	James	Binder	7	19.99
30	15-Mar-15	West	James	Pencil	56	2.99
31	24-Mar-15	Central	Alex	Pen Set	50	4.99
32	1-Apr-15	East	Richard	Binder	60	4.99
33	10-Apr-15	Central	Rachel	Pencil	66	1.99
34	18-Apr-15	Central	Rachel	Pencil	75	1.99
35	27-Apr-15	East	Nick	Pen	96	4.99
36	5-May-15	Central	Alex	Pencil	90	4.99
37	14-May-15	Central	Bill	Pencil	53	1.29
38	22-May-15	West	Thomas	Pencil	32	1.99
39	31-May-15	Central	Bill	Binder	80	8.99
40	8-Jun-15	East	Richard	Binder	60	8.99
41	17-Jun-15	Central	Matthew	Desk	5	125.00
42	25-Jun-15	Central	Morgan	Pencil	90	4.99

```
[291]: titanic=pd.read_excel("titanic.xlsx",sheet_name="Passenger")
```

```
[292]: titanic
```

```
[292]:
```

	Unnamed: 0	OrderDate	Region	Rep	Item	Units	Unit Price
0	0	4-Jul-14	East	Richard	Pen Set	62	4.99
1	1	12-Jul-14	East	Nick	Binder	29	1.99
2	2	21-Jul-14	Central	Morgan	Pen Set	55	12.49
3	3	29-Jul-14	East	Susan	Binder	81	19.99
4	4	7-Aug-14	Central	Matthew	Pen Set	42	23.95

5	5	15-Aug-14	East	Richard	Pencil	35	4.99
6	6	24-Aug-14	West	James	Desk	3	275.00
7	7	1-Sep-14	Central	Smith	Desk	2	125.00
8	8	10-Sep-14	Central	Bill	Pencil	7	1.29
9	9	18-Sep-14	East	Richard	Pen Set	16	15.99
10	10	27-Sep-14	West	James	Pen	76	1.99
11	11	5-Oct-14	Central	Morgan	Binder	28	8.99
12	12	14-Oct-14	West	Thomas	Binder	57	19.99
13	13	22-Oct-14	East	Richard	Pen	64	8.99
14	14	31-Oct-14	Central	Rachel	Pencil	14	1.29
15	15	8-Nov-14	East	Susan	Pen	15	19.99
16	16	17-Nov-14	Central	Alex	Binder	11	4.99
17	17	25-Nov-14	Central	Matthew	Pen Set	96	4.99
18	18	4-Dec-14	Central	Alex	Binder	94	19.99
19	19	12-Dec-14	Central	Smith	Pencil	67	1.29
20	20	21-Dec-14	Central	Rachel	Binder	28	4.99
21	21	29-Dec-14	East	Susan	Pen Set	74	15.99
22	22	6-Jan-15	East	Richard	Pencil	95	1.99
23	23	15-Jan-15	Central	Bill	Binder	46	8.99
24	24	23-Jan-15	Central	Matthew	Binder	50	19.99
25	25	1-Feb-15	Central	Smith	Binder	87	15.00
26	26	9-Feb-15	Central	Alex	Pencil	36	4.99
27	27	18-Feb-15	East	Richard	Binder	4	4.99
28	28	26-Feb-15	Central	Bill	Pen	27	19.99
29	29	7-Mar-15	West	James	Binder	7	19.99
30	30	15-Mar-15	West	James	Pencil	56	2.99
31	31	24-Mar-15	Central	Alex	Pen Set	50	4.99
32	32	1-Apr-15	East	Richard	Binder	60	4.99
33	33	10-Apr-15	Central	Rachel	Pencil	66	1.99
34	34	18-Apr-15	Central	Rachel	Pencil	75	1.99
35	35	27-Apr-15	East	Nick	Pen	96	4.99
36	36	5-May-15	Central	Alex	Pencil	90	4.99
37	37	14-May-15	Central	Bill	Pencil	53	1.29
38	38	22-May-15	West	Thomas	Pencil	32	1.99
39	39	31-May-15	Central	Bill	Binder	80	8.99
40	40	8-Jun-15	East	Richard	Binder	60	8.99
41	41	17-Jun-15	Central	Matthew	Desk	5	125.00
42	42	25-Jun-15	Central	Morgan	Pencil	90	4.99

```
[293]: titanic.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 43 entries, 0 to 42
Data columns (total 7 columns):
#   Column      Non-Null Count  Dtype
---  -
0   Unnamed: 0   43 non-null    int64
1   OrderDate    43 non-null    object
```

```
2   Region      43 non-null    object
3   Rep         43 non-null    object
4   Item        43 non-null    object
5   Units       43 non-null    int64
6   Unit Price  43 non-null    float64
dtypes: float64(1), int64(2), object(4)
memory usage: 2.5+ KB
```

```
[294]: region=titanic["Region"]
```

```
[295]: region
```

```
[295]: 0      East
1      East
2    Central
3      East
4    Central
5      East
6      West
7    Central
8    Central
9      East
10     West
11    Central
12     West
13     East
14    Central
15     East
16    Central
17    Central
18    Central
19    Central
20    Central
21     East
22     East
23    Central
24    Central
25    Central
26    Central
27     East
28    Central
29     West
30     West
31    Central
32     East
33    Central
34    Central
```



```
35      East
36    Central
37    Central
38      West
39    Central
40      East
41    Central
42    Central
Name: Region, dtype: object
```

```
[296]: type(titanic["Region"])
```

```
[296]: pandas.core.series.Series
```

```
[297]: titanic["Region"].shape
```

```
[297]: (43,)
```

```
[298]: Region=titanic[["Region","Item"]]
```

```
[299]: Region
```

```
[299]:
```

	Region	Item
0	East	Pen Set
1	East	Binder
2	Central	Pen Set
3	East	Binder
4	Central	Pen Set
5	East	Pencil
6	West	Desk
7	Central	Desk
8	Central	Pencil
9	East	Pen Set
10	West	Pen
11	Central	Binder
12	West	Binder
13	East	Pen
14	Central	Pencil
15	East	Pen
16	Central	Binder
17	Central	Pen Set
18	Central	Binder
19	Central	Pencil
20	Central	Binder
21	East	Pen Set
22	East	Pencil
23	Central	Binder

24	Central	Binder
25	Central	Binder
26	Central	Pencil
27	East	Binder
28	Central	Pen
29	West	Binder
30	West	Pencil
31	Central	Pen Set
32	East	Binder
33	Central	Pencil
34	Central	Pencil
35	East	Pen
36	Central	Pencil
37	Central	Pencil
38	West	Pencil
39	Central	Binder
40	East	Binder
41	Central	Desk
42	Central	Pencil

```
[300]: type(titanic[["Region","Item"]])
```

```
[300]: pandas.core.frame.DataFrame
```

```
[301]: titanic[["Region","Item"]].shape
```

```
[301]: (43, 2)
```

```
[302]: titanic["Region"]=="East"
```

```
[302]: 0      True
      1      True
      2     False
      3      True
      4     False
      5      True
      6     False
      7     False
      8     False
      9      True
     10     False
     11     False
     12     False
     13      True
     14     False
     15      True
     16     False
```

```

17    False
18    False
19    False
20    False
21     True
22     True
23    False
24    False
25    False
26    False
27     True
28    False
29    False
30    False
31    False
32     True
33    False
34    False
35     True
36    False
37    False
38    False
39    False
40     True
41    False
42    False
Name: Region, dtype: bool

```

```
[303]: East_region=titanic[titanic["Region"]=="East"]
```

```
[304]: East_region
```

```
[304]:
```

	Unnamed: 0	OrderDate	Region	Rep	Item	Units	Unit Price
0	0	4-Jul-14	East	Richard	Pen Set	62	4.99
1	1	12-Jul-14	East	Nick	Binder	29	1.99
3	3	29-Jul-14	East	Susan	Binder	81	19.99
5	5	15-Aug-14	East	Richard	Pencil	35	4.99
9	9	18-Sep-14	East	Richard	Pen Set	16	15.99
13	13	22-Oct-14	East	Richard	Pen	64	8.99
15	15	8-Nov-14	East	Susan	Pen	15	19.99
21	21	29-Dec-14	East	Susan	Pen Set	74	15.99
22	22	6-Jan-15	East	Richard	Pencil	95	1.99
27	27	18-Feb-15	East	Richard	Binder	4	4.99
32	32	1-Apr-15	East	Richard	Binder	60	4.99
35	35	27-Apr-15	East	Nick	Pen	96	4.99
40	40	8-Jun-15	East	Richard	Binder	60	8.99

```
[305]: East_region.shape
```

```
[305]: (13, 7)
```

```
[306]: titanic
```

```
[306]:      Unnamed: 0  OrderDate  Region  Rep  Item  Units  Unit Price
0           0    4-Jul-14    East  Richard  Pen Set    62         4.99
1           1   12-Jul-14    East    Nick  Binder    29         1.99
2           2   21-Jul-14  Central  Morgan  Pen Set    55        12.49
3           3   29-Jul-14    East    Susan  Binder    81        19.99
4           4    7-Aug-14  Central  Matthew  Pen Set    42        23.95
5           5   15-Aug-14    East  Richard  Pencil    35         4.99
6           6   24-Aug-14    West    James   Desk     3       275.00
7           7    1-Sep-14  Central  Smith   Desk     2       125.00
8           8   10-Sep-14  Central    Bill  Pencil     7         1.29
9           9   18-Sep-14    East  Richard  Pen Set    16        15.99
10          10   27-Sep-14    West    James    Pen    76         1.99
11          11    5-Oct-14  Central  Morgan  Binder    28         8.99
12          12   14-Oct-14    West  Thomas  Binder    57        19.99
13          13   22-Oct-14    East  Richard    Pen    64         8.99
14          14   31-Oct-14  Central  Rachel  Pencil    14         1.29
15          15    8-Nov-14    East    Susan    Pen    15        19.99
16          16   17-Nov-14  Central    Alex  Binder    11         4.99
17          17   25-Nov-14  Central  Matthew  Pen Set    96         4.99
18          18    4-Dec-14  Central    Alex  Binder    94        19.99
19          19   12-Dec-14  Central  Smith  Pencil    67         1.29
20          20   21-Dec-14  Central  Rachel  Binder    28         4.99
21          21   29-Dec-14    East    Susan  Pen Set    74        15.99
22          22    6-Jan-15    East  Richard  Pencil    95         1.99
23          23   15-Jan-15  Central    Bill  Binder    46         8.99
24          24   23-Jan-15  Central  Matthew  Binder    50        19.99
25          25    1-Feb-15  Central  Smith  Binder    87        15.00
26          26    9-Feb-15  Central    Alex  Pencil    36         4.99
27          27   18-Feb-15    East  Richard  Binder     4         4.99
28          28   26-Feb-15  Central    Bill    Pen    27        19.99
29          29    7-Mar-15    West    James  Binder     7        19.99
30          30   15-Mar-15    West    James  Pencil    56         2.99
31          31   24-Mar-15  Central    Alex  Pen Set    50         4.99
32          32    1-Apr-15    East  Richard  Binder    60         4.99
33          33   10-Apr-15  Central  Rachel  Pencil    66         1.99
34          34   18-Apr-15  Central  Rachel  Pencil    75         1.99
35          35   27-Apr-15    East    Nick    Pen    96         4.99
36          36    5-May-15  Central    Alex  Pencil    90         4.99
37          37   14-May-15  Central    Bill  Pencil    53         1.29
38          38   22-May-15    West  Thomas  Pencil    32         1.99
39          39   31-May-15  Central    Bill  Binder    80         8.99
```

40	40	8-Jun-15	East	Richard	Binder	60	8.99
41	41	17-Jun-15	Central	Matthew	Desk	5	125.00
42	42	25-Jun-15	Central	Morgan	Pencil	90	4.99

```
[307]: class_23=titanic[titanic["Region"].isin(["Central","West"])]
```

```
[308]: class_23
```

```
[308]:
```

	Unnamed: 0	OrderDate	Region	Rep	Item	Units	Unit Price
2	2	21-Jul-14	Central	Morgan	Pen Set	55	12.49
4	4	7-Aug-14	Central	Matthew	Pen Set	42	23.95
6	6	24-Aug-14	West	James	Desk	3	275.00
7	7	1-Sep-14	Central	Smith	Desk	2	125.00
8	8	10-Sep-14	Central	Bill	Pencil	7	1.29
10	10	27-Sep-14	West	James	Pen	76	1.99
11	11	5-Oct-14	Central	Morgan	Binder	28	8.99
12	12	14-Oct-14	West	Thomas	Binder	57	19.99
14	14	31-Oct-14	Central	Rachel	Pencil	14	1.29
16	16	17-Nov-14	Central	Alex	Binder	11	4.99
17	17	25-Nov-14	Central	Matthew	Pen Set	96	4.99
18	18	4-Dec-14	Central	Alex	Binder	94	19.99
19	19	12-Dec-14	Central	Smith	Pencil	67	1.29
20	20	21-Dec-14	Central	Rachel	Binder	28	4.99
23	23	15-Jan-15	Central	Bill	Binder	46	8.99
24	24	23-Jan-15	Central	Matthew	Binder	50	19.99
25	25	1-Feb-15	Central	Smith	Binder	87	15.00
26	26	9-Feb-15	Central	Alex	Pencil	36	4.99
28	28	26-Feb-15	Central	Bill	Pen	27	19.99
29	29	7-Mar-15	West	James	Binder	7	19.99
30	30	15-Mar-15	West	James	Pencil	56	2.99
31	31	24-Mar-15	Central	Alex	Pen Set	50	4.99
33	33	10-Apr-15	Central	Rachel	Pencil	66	1.99
34	34	18-Apr-15	Central	Rachel	Pencil	75	1.99
36	36	5-May-15	Central	Alex	Pencil	90	4.99
37	37	14-May-15	Central	Bill	Pencil	53	1.29
38	38	22-May-15	West	Thomas	Pencil	32	1.99
39	39	31-May-15	Central	Bill	Binder	80	8.99
41	41	17-Jun-15	Central	Matthew	Desk	5	125.00
42	42	25-Jun-15	Central	Morgan	Pencil	90	4.99

```
[309]: class_24=titanic[(titanic["Region"]=="East") | (titanic["Region"]=="Central")]
```

```
[310]: class_24
```

```
[310]:
```

	Unnamed: 0	OrderDate	Region	Rep	Item	Units	Unit Price
0	0	4-Jul-14	East	Richard	Pen Set	62	4.99
1	1	12-Jul-14	East	Nick	Binder	29	1.99

2	2	21-Jul-14	Central	Morgan	Pen Set	55	12.49
3	3	29-Jul-14	East	Susan	Binder	81	19.99
4	4	7-Aug-14	Central	Matthew	Pen Set	42	23.95
5	5	15-Aug-14	East	Richard	Pencil	35	4.99
7	7	1-Sep-14	Central	Smith	Desk	2	125.00
8	8	10-Sep-14	Central	Bill	Pencil	7	1.29
9	9	18-Sep-14	East	Richard	Pen Set	16	15.99
11	11	5-Oct-14	Central	Morgan	Binder	28	8.99
13	13	22-Oct-14	East	Richard	Pen	64	8.99
14	14	31-Oct-14	Central	Rachel	Pencil	14	1.29
15	15	8-Nov-14	East	Susan	Pen	15	19.99
16	16	17-Nov-14	Central	Alex	Binder	11	4.99
17	17	25-Nov-14	Central	Matthew	Pen Set	96	4.99
18	18	4-Dec-14	Central	Alex	Binder	94	19.99
19	19	12-Dec-14	Central	Smith	Pencil	67	1.29
20	20	21-Dec-14	Central	Rachel	Binder	28	4.99
21	21	29-Dec-14	East	Susan	Pen Set	74	15.99
22	22	6-Jan-15	East	Richard	Pencil	95	1.99
23	23	15-Jan-15	Central	Bill	Binder	46	8.99
24	24	23-Jan-15	Central	Matthew	Binder	50	19.99
25	25	1-Feb-15	Central	Smith	Binder	87	15.00
26	26	9-Feb-15	Central	Alex	Pencil	36	4.99
27	27	18-Feb-15	East	Richard	Binder	4	4.99
28	28	26-Feb-15	Central	Bill	Pen	27	19.99
31	31	24-Mar-15	Central	Alex	Pen Set	50	4.99
32	32	1-Apr-15	East	Richard	Binder	60	4.99
33	33	10-Apr-15	Central	Rachel	Pencil	66	1.99
34	34	18-Apr-15	Central	Rachel	Pencil	75	1.99
35	35	27-Apr-15	East	Nick	Pen	96	4.99
36	36	5-May-15	Central	Alex	Pencil	90	4.99
37	37	14-May-15	Central	Bill	Pencil	53	1.29
39	39	31-May-15	Central	Bill	Binder	80	8.99
40	40	8-Jun-15	East	Richard	Binder	60	8.99
41	41	17-Jun-15	Central	Matthew	Desk	5	125.00
42	42	25-Jun-15	Central	Morgan	Pencil	90	4.99

```
[311]: region_no_na=titanic[titanic["Region"].notna()]
```

```
[312]: region_no_na
```

```
[312]:
```

	Unnamed: 0	OrderDate	Region	Rep	Item	Units	Unit Price
0	0	4-Jul-14	East	Richard	Pen Set	62	4.99
1	1	12-Jul-14	East	Nick	Binder	29	1.99
2	2	21-Jul-14	Central	Morgan	Pen Set	55	12.49
3	3	29-Jul-14	East	Susan	Binder	81	19.99
4	4	7-Aug-14	Central	Matthew	Pen Set	42	23.95
5	5	15-Aug-14	East	Richard	Pencil	35	4.99

6	6	24-Aug-14	West	James	Desk	3	275.00
7	7	1-Sep-14	Central	Smith	Desk	2	125.00
8	8	10-Sep-14	Central	Bill	Pencil	7	1.29
9	9	18-Sep-14	East	Richard	Pen Set	16	15.99
10	10	27-Sep-14	West	James	Pen	76	1.99
11	11	5-Oct-14	Central	Morgan	Binder	28	8.99
12	12	14-Oct-14	West	Thomas	Binder	57	19.99
13	13	22-Oct-14	East	Richard	Pen	64	8.99
14	14	31-Oct-14	Central	Rachel	Pencil	14	1.29
15	15	8-Nov-14	East	Susan	Pen	15	19.99
16	16	17-Nov-14	Central	Alex	Binder	11	4.99
17	17	25-Nov-14	Central	Matthew	Pen Set	96	4.99
18	18	4-Dec-14	Central	Alex	Binder	94	19.99
19	19	12-Dec-14	Central	Smith	Pencil	67	1.29
20	20	21-Dec-14	Central	Rachel	Binder	28	4.99
21	21	29-Dec-14	East	Susan	Pen Set	74	15.99
22	22	6-Jan-15	East	Richard	Pencil	95	1.99
23	23	15-Jan-15	Central	Bill	Binder	46	8.99
24	24	23-Jan-15	Central	Matthew	Binder	50	19.99
25	25	1-Feb-15	Central	Smith	Binder	87	15.00
26	26	9-Feb-15	Central	Alex	Pencil	36	4.99
27	27	18-Feb-15	East	Richard	Binder	4	4.99
28	28	26-Feb-15	Central	Bill	Pen	27	19.99
29	29	7-Mar-15	West	James	Binder	7	19.99
30	30	15-Mar-15	West	James	Pencil	56	2.99
31	31	24-Mar-15	Central	Alex	Pen Set	50	4.99
32	32	1-Apr-15	East	Richard	Binder	60	4.99
33	33	10-Apr-15	Central	Rachel	Pencil	66	1.99
34	34	18-Apr-15	Central	Rachel	Pencil	75	1.99
35	35	27-Apr-15	East	Nick	Pen	96	4.99
36	36	5-May-15	Central	Alex	Pencil	90	4.99
37	37	14-May-15	Central	Bill	Pencil	53	1.29
38	38	22-May-15	West	Thomas	Pencil	32	1.99
39	39	31-May-15	Central	Bill	Binder	80	8.99
40	40	8-Jun-15	East	Richard	Binder	60	8.99
41	41	17-Jun-15	Central	Matthew	Desk	5	125.00
42	42	25-Jun-15	Central	Morgan	Pencil	90	4.99

```
[313]: titanic.shape
```

```
[313]: (43, 7)
```

```
[314]: region_no_na.head()
```

```
[314]:   Unnamed: 0  OrderDate  Region  Rep  Item  Units  Unit Price
0          0   4-Jul-14   East  Richard  Pen Set    62      4.99
1          1  12-Jul-14   East    Nick  Binder    29      1.99
```

2	2	21-Jul-14	Central	Morgan	Pen Set	55	12.49
3	3	29-Jul-14	East	Susan	Binder	81	19.99
4	4	7-Aug-14	Central	Matthew	Pen Set	42	23.95

```
[315]: adult_name=titanic.loc[titanic["Units"]>=50, "Region"]
```

```
[316]: adult_name
```

```
[316]: 0      East
      2    Central
      3      East
     10     West
     12     West
     13      East
     17    Central
     18    Central
     19    Central
     21      East
     22      East
     24    Central
     25    Central
     30     West
     31    Central
     32      East
     33    Central
     34    Central
     35      East
     36    Central
     37    Central
     39    Central
     40      East
     42    Central
      Name: Region, dtype: object
```

```
[317]: titanic
```

```
[317]: Unnamed: 0  OrderDate  Region  Rep  Item  Units  Unit Price
      0      0   4-Jul-14   East  Richard  Pen Set    62      4.99
      1      1  12-Jul-14   East   Nick   Binder    29      1.99
      2      2  21-Jul-14  Central  Morgan  Pen Set    55     12.49
      3      3  29-Jul-14   East   Susan  Binder    81     19.99
      4      4   7-Aug-14  Central  Matthew  Pen Set    42     23.95
      5      5  15-Aug-14   East  Richard  Pencil    35      4.99
      6      6  24-Aug-14   West   James   Desk      3    275.00
      7      7   1-Sep-14  Central  Smith   Desk      2    125.00
      8      8  10-Sep-14  Central   Bill   Pencil      7      1.29
      9      9  18-Sep-14   East  Richard  Pen Set    16     15.99
```


10	10	27-Sep-14	West	James	Pen	76	1.99
11	11	5-Oct-14	Central	Morgan	Binder	28	8.99
12	12	14-Oct-14	West	Thomas	Binder	57	19.99
13	13	22-Oct-14	East	Richard	Pen	64	8.99
14	14	31-Oct-14	Central	Rachel	Pencil	14	1.29
15	15	8-Nov-14	East	Susan	Pen	15	19.99
16	16	17-Nov-14	Central	Alex	Binder	11	4.99
17	17	25-Nov-14	Central	Matthew	Pen Set	96	4.99
18	18	4-Dec-14	Central	Alex	Binder	94	19.99
19	19	12-Dec-14	Central	Smith	Pencil	67	1.29
20	20	21-Dec-14	Central	Rachel	Binder	28	4.99
21	21	29-Dec-14	East	Susan	Pen Set	74	15.99
22	22	6-Jan-15	East	Richard	Pencil	95	1.99
23	23	15-Jan-15	Central	Bill	Binder	46	8.99
24	24	23-Jan-15	Central	Matthew	Binder	50	19.99
25	25	1-Feb-15	Central	Smith	Binder	87	15.00
26	26	9-Feb-15	Central	Alex	Pencil	36	4.99
27	27	18-Feb-15	East	Richard	Binder	4	4.99
28	28	26-Feb-15	Central	Bill	Pen	27	19.99
29	29	7-Mar-15	West	James	Binder	7	19.99
30	30	15-Mar-15	West	James	Pencil	56	2.99
31	31	24-Mar-15	Central	Alex	Pen Set	50	4.99
32	32	1-Apr-15	East	Richard	Binder	60	4.99
33	33	10-Apr-15	Central	Rachel	Pencil	66	1.99
34	34	18-Apr-15	Central	Rachel	Pencil	75	1.99
35	35	27-Apr-15	East	Nick	Pen	96	4.99
36	36	5-May-15	Central	Alex	Pencil	90	4.99
37	37	14-May-15	Central	Bill	Pencil	53	1.29
38	38	22-May-15	West	Thomas	Pencil	32	1.99
39	39	31-May-15	Central	Bill	Binder	80	8.99
40	40	8-Jun-15	East	Richard	Binder	60	8.99
41	41	17-Jun-15	Central	Matthew	Desk	5	125.00
42	42	25-Jun-15	Central	Morgan	Pencil	90	4.99

```
[318]: titanic.iloc[9:25,2:5]
```

```
[318]:
```

	Region	Rep	Item
9	East	Richard	Pen Set
10	West	James	Pen
11	Central	Morgan	Binder
12	West	Thomas	Binder
13	East	Richard	Pen
14	Central	Rachel	Pencil
15	East	Susan	Pen
16	Central	Alex	Binder
17	Central	Matthew	Pen Set
18	Central	Alex	Binder

```

19 Central    Smith    Pencil
20 Central    Rachel   Binder
21     East    Susan   Pen Set
22     East    Richard  Pencil
23 Central      Bill   Binder
24 Central    Matthew  Binder

```

```
[319]: titanic.iloc[0:3,3]="anonymous"
```

```
[320]: titanic.loc[11,"Item"]
```

```
[320]: 'Binder'
```

```
[321]: import pandas as pd
import matplotlib.pyplot as plt
```

```
[322]: air_quality=pd.read_csv("air_quality_no2.csv")
```

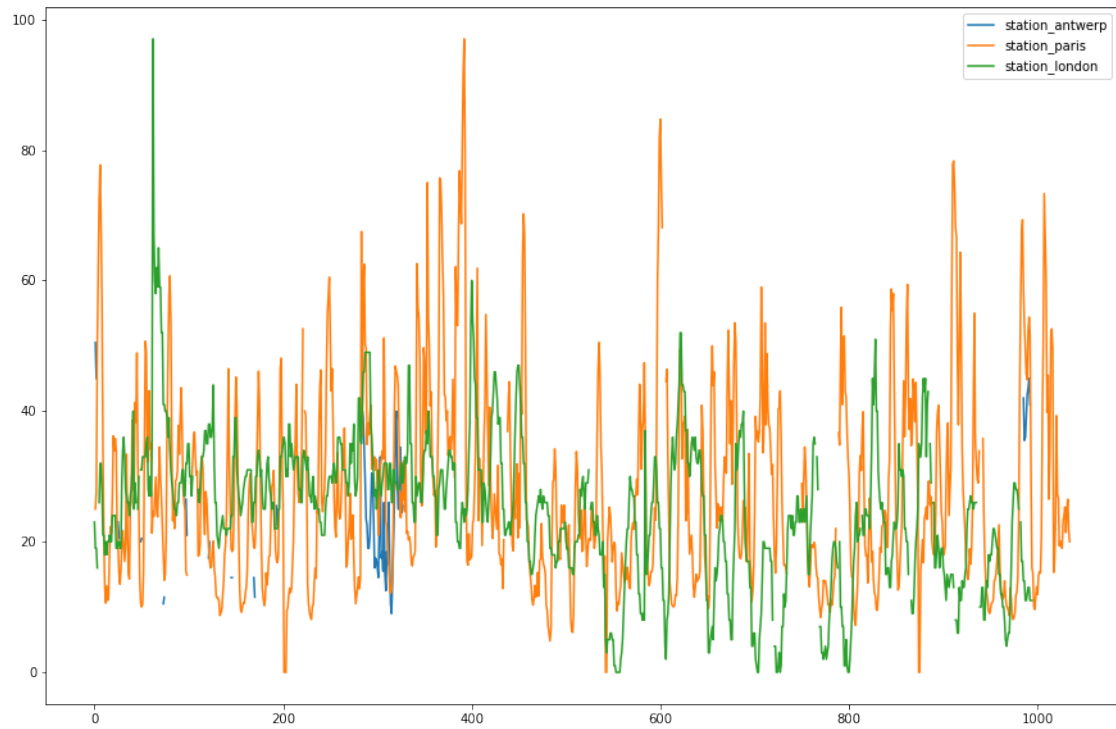
```
[323]: air_quality
```

```
[323]:
```

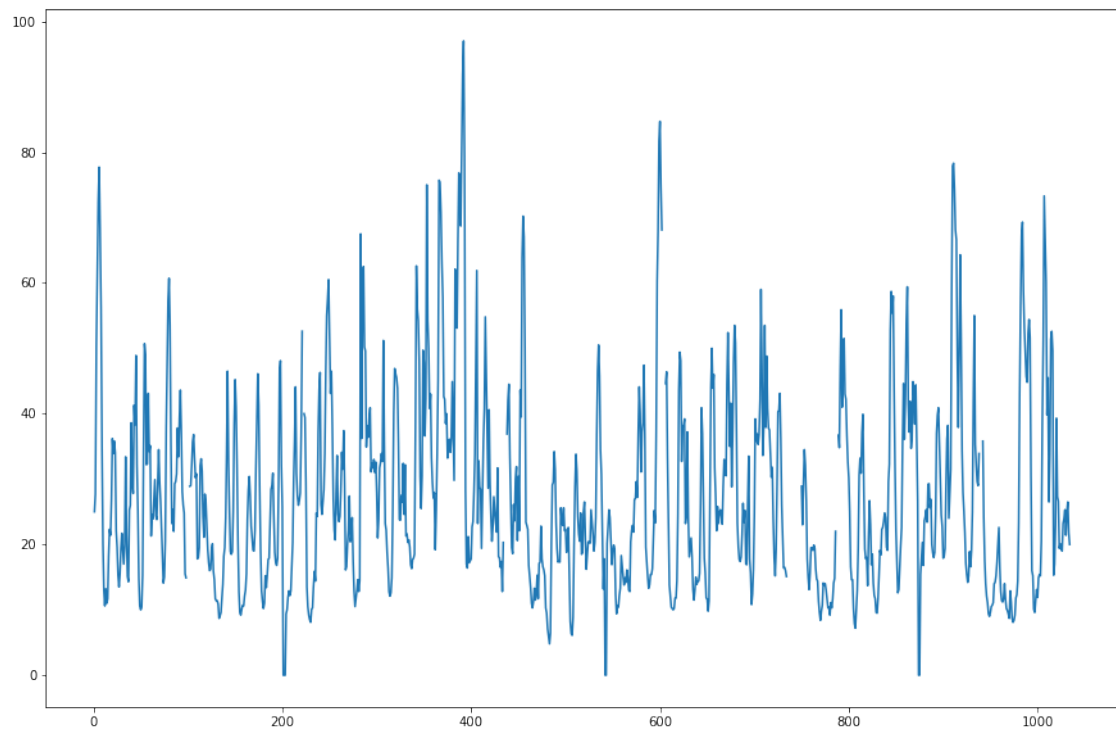
	datetime	station_antwerp	station_paris	station_london
0	5/7/2019 2:00	NaN	NaN	23.0
1	5/7/2019 3:00	50.5	25.0	19.0
2	5/7/2019 4:00	45.0	27.7	19.0
3	5/7/2019 5:00	NaN	50.4	16.0
4	5/7/2019 6:00	NaN	61.9	NaN
...
1030	6/20/2019 22:00	NaN	21.4	NaN
1031	6/20/2019 23:00	NaN	24.9	NaN
1032	6/21/2019 0:00	NaN	26.5	NaN
1033	6/21/2019 1:00	NaN	21.8	NaN
1034	6/21/2019 2:00	NaN	20.0	NaN

```
[1035 rows x 4 columns]
```

```
[324]: plt.rcParams["figure.figsize"]=15,10
air_quality.plot()
plt.show()
```



```
[325]: air_quality["station_paris"].plot()  
plt.show()
```



```
[326]: df2=air_quality.iloc[25:30]
```

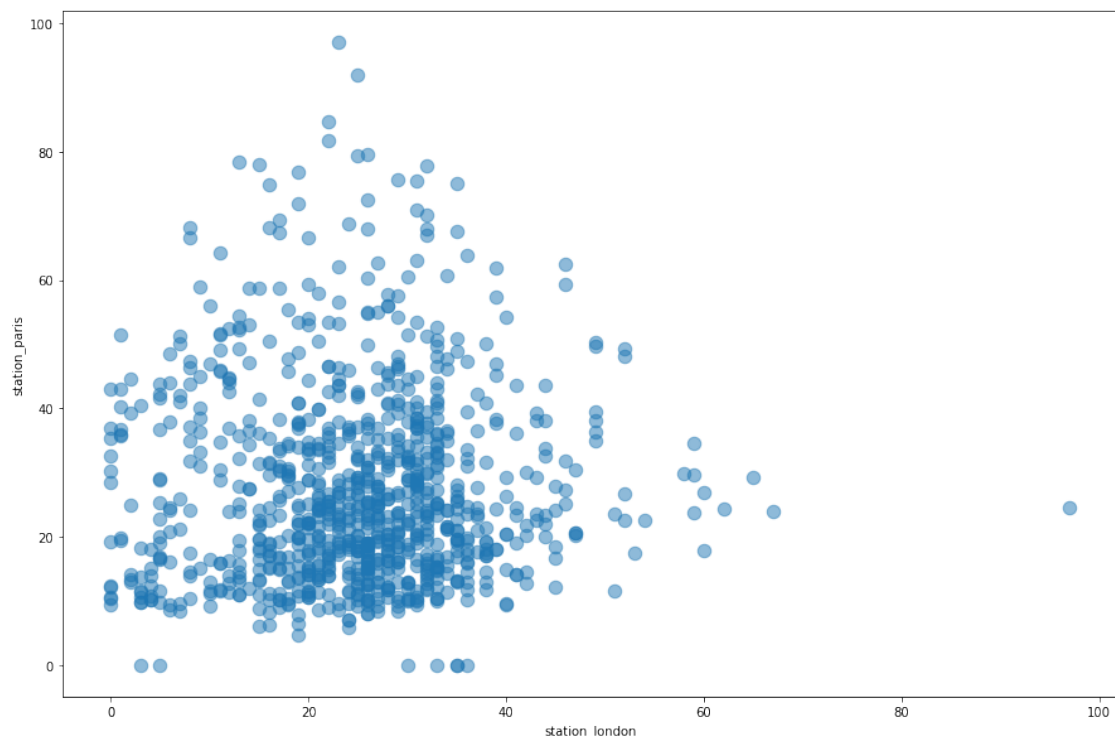
```
[327]: df2
```

```
[327]:
```

	datetime	station_antwerp	station_paris	station_london
25	5/8/2019 3:00	23.0	19.6	20.0
26	5/8/2019 4:00	20.5	15.3	20.0
27	5/8/2019 5:00	NaN	13.5	19.0
28	5/8/2019 6:00	NaN	15.5	19.0
29	5/8/2019 7:00	NaN	19.3	29.0

```
[328]: air_quality.plot.scatter(x="station_london",y="station_paris",alpha=0.5,s=110)
```

```
[328]: <AxesSubplot:xlabel='station_london', ylabel='station_paris'>
```

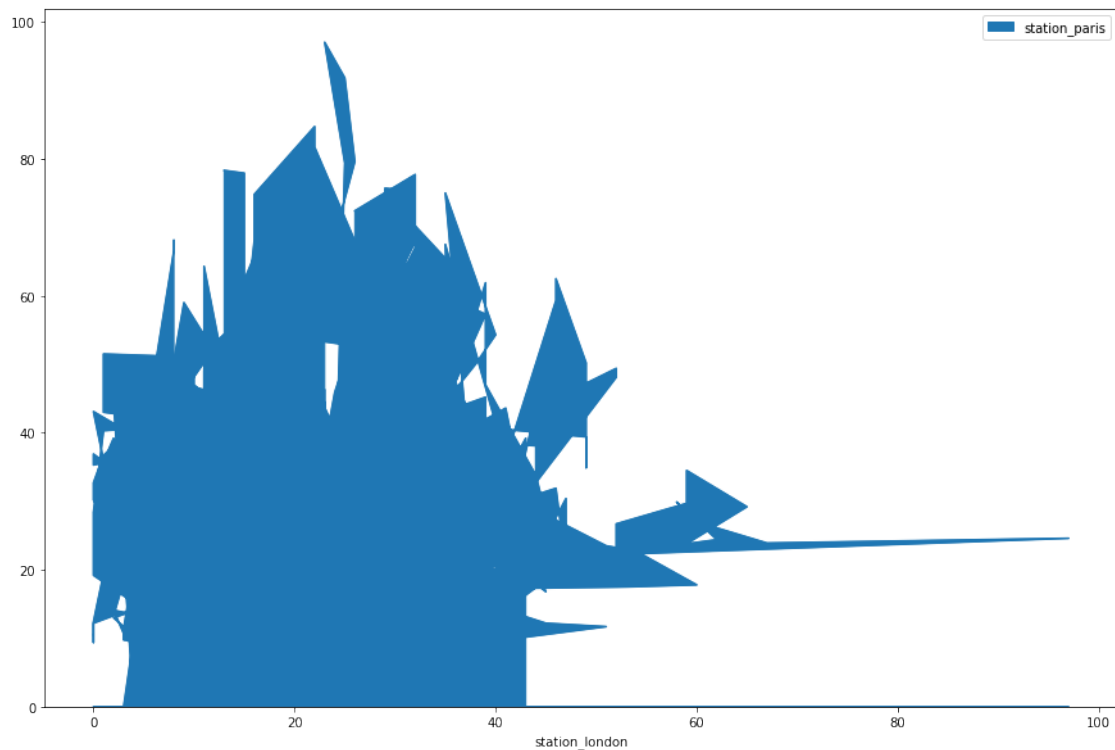


```
[329]: [
    method_name
    for method_name in dir(air_quality.plot)
    if not method_name.startswith("_")
]
```

```
[329]: ['area',  
        'bar',  
        'barh',  
        'box',  
        'density',  
        'hexbin',  
        'hist',  
        'kde',  
        'line',  
        'pie',  
        'scatter']
```

```
[330]: air_quality.plot.area(x="station_london",y="station_paris")
```

```
[330]: <AxesSubplot:xlabel='station_london'>
```

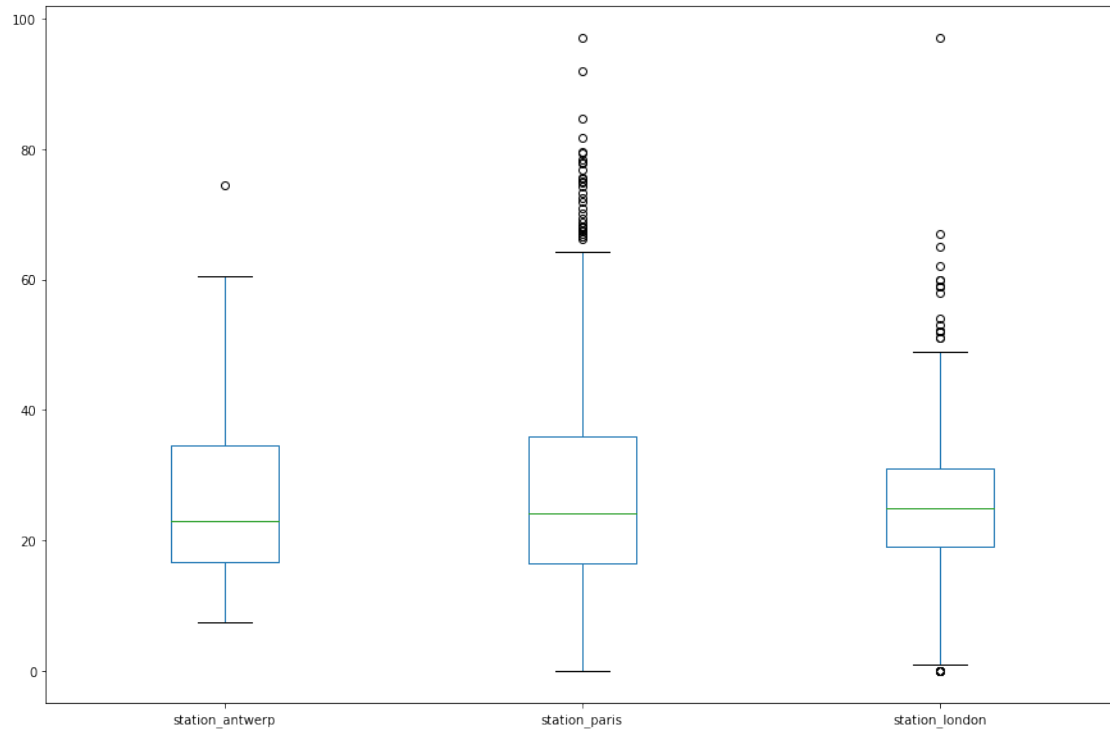


```
[331]: #air_quality.plot.bar(x="datetime",y="station_antwerp")
```

```
[332]: #air_quality.plot.barh(x="station_london",y="station_paris")
```

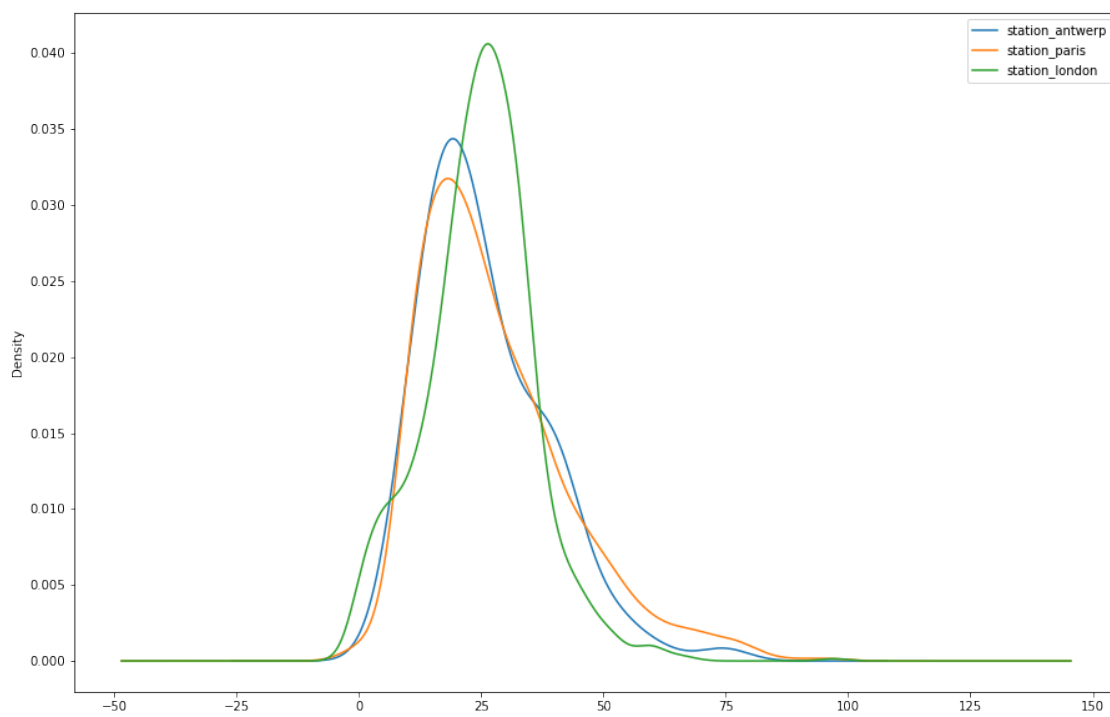
```
[333]: air_quality.plot.box()
```

```
[333]: <AxesSubplot:>
```



```
[334]: air_quality.plot.density()
```

```
[334]: <AxesSubplot:ylabel='Density'>
```



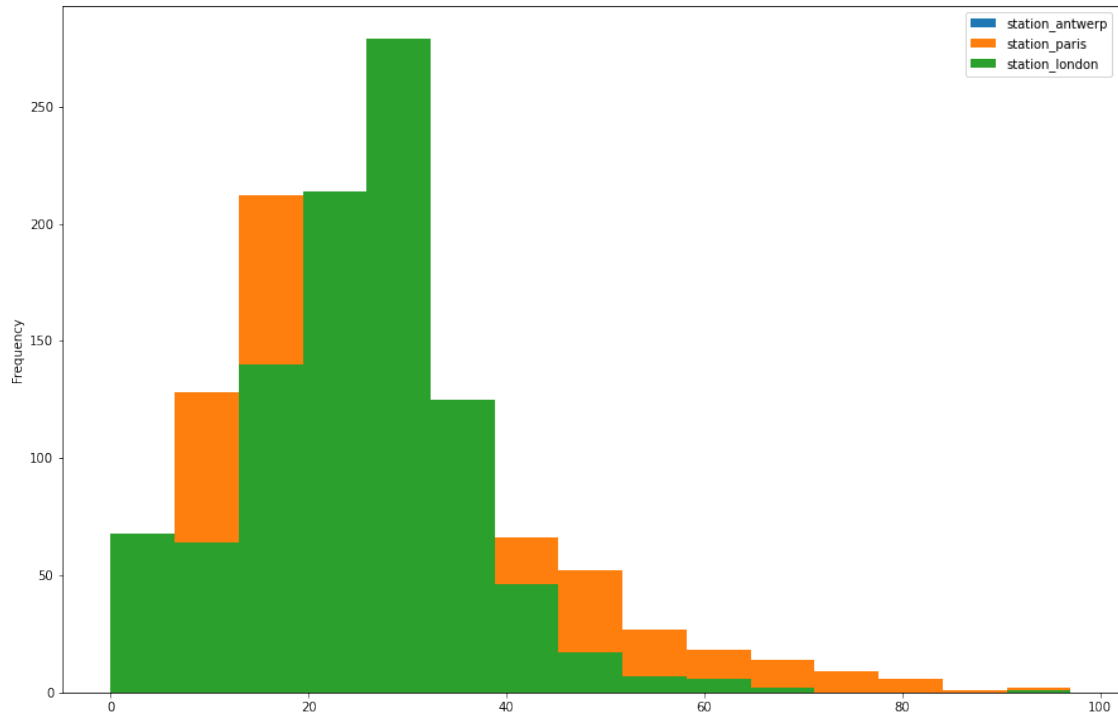
```
[335]: air_quality.plot.hexbin(x="station_london",y="station_paris")
```

```
[335]: <AxesSubplot:xlabel='station_london', ylabel='station_paris'>
```



```
[336]: air_quality.plot.hist(bins=15)
```

```
[336]: <AxesSubplot:ylabel='Frequency'>
```

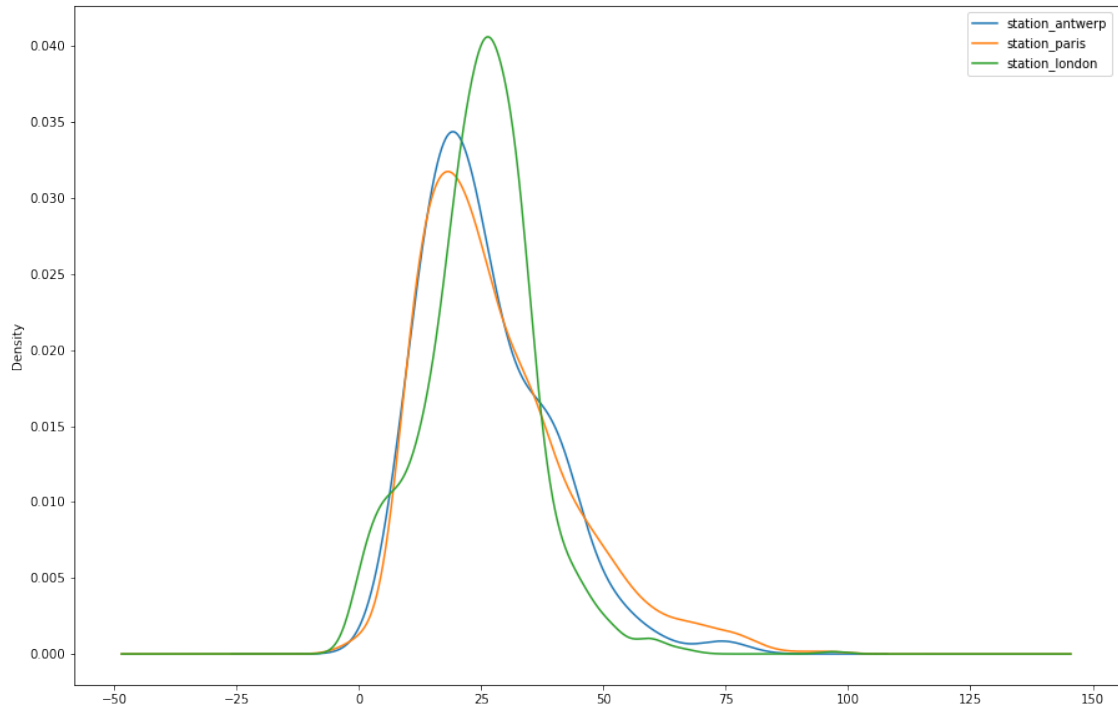


```
[337]: [
    method_name
    for method_name in dir(air_quality.plot)
    if not method_name.startswith("_")
]
```

```
[337]: ['area',
        'bar',
        'barh',
        'box',
        'density',
        'hexbin',
        'hist',
        'kde',
        'line',
        'pie',
        'scatter']
```

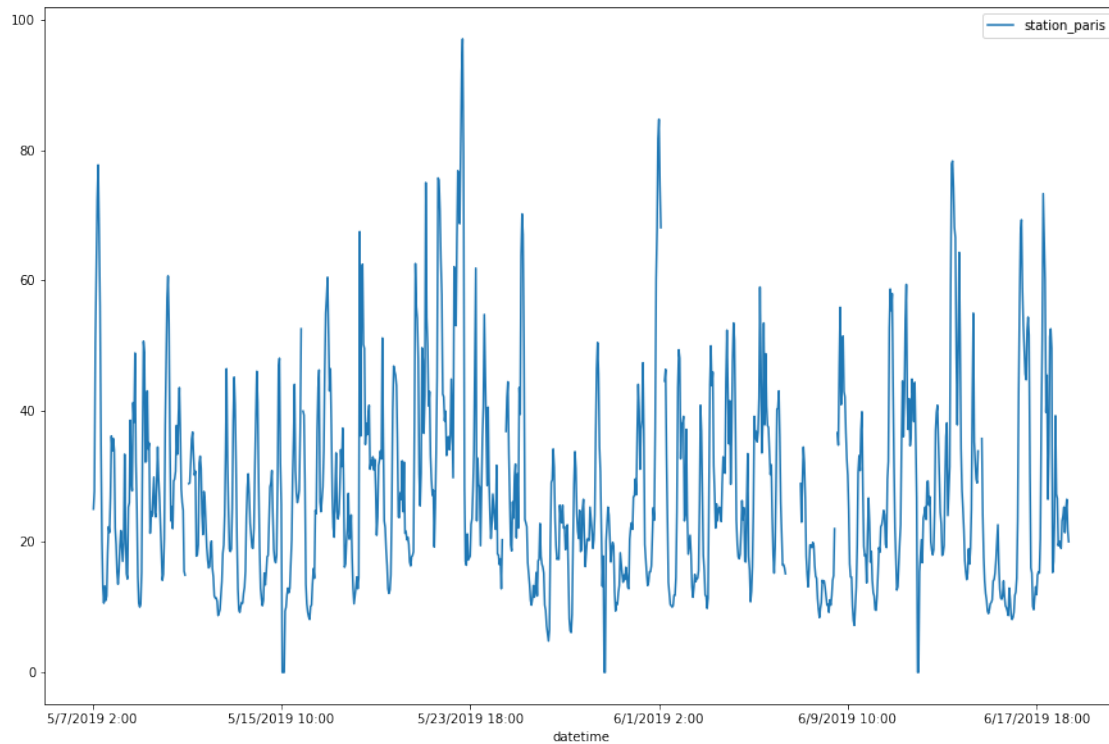
```
[338]: air_quality.plot.kde()
```

```
[338]: <AxesSubplot:ylabel='Density'>
```

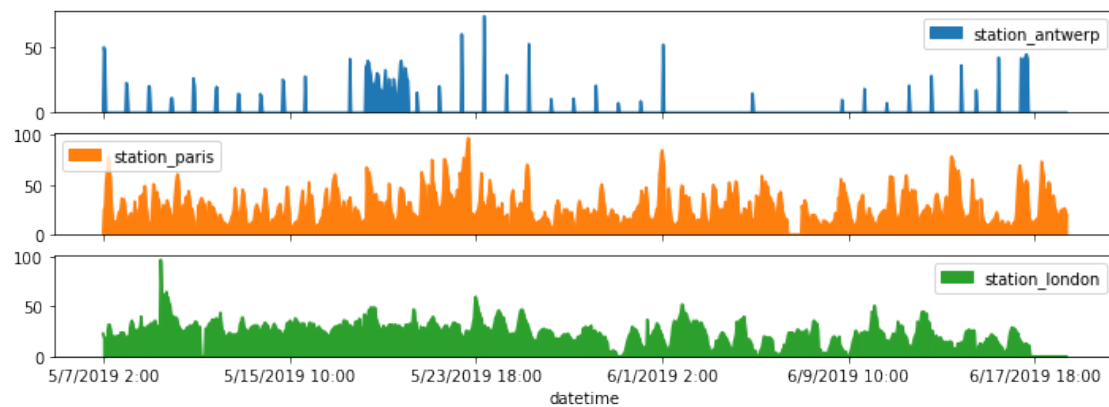



```
[339]: air_quality.plot.line(x="datetime",y="station_paris")
```

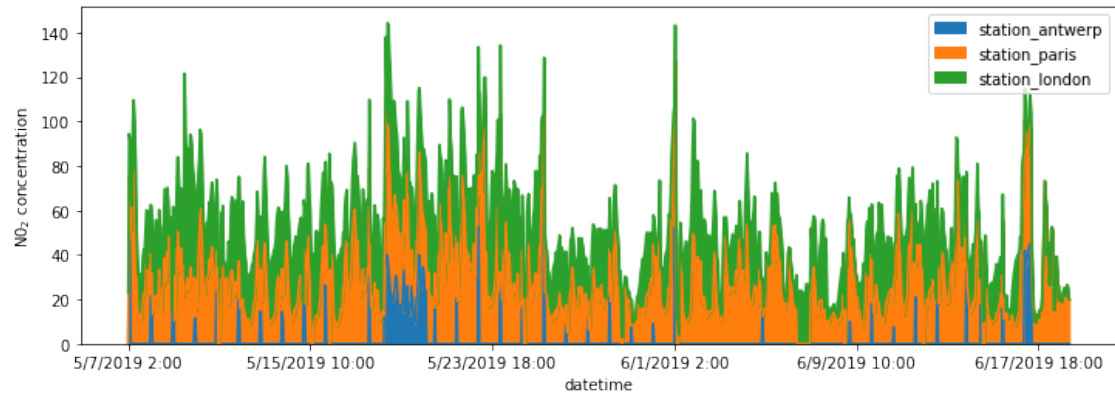
```
[339]: <AxesSubplot:xlabel='datetime'>
```



```
[340]: axs=air_quality.plot.area(figsize=(12,4),subplots=True,x="datetime")
```



```
[341]: fig, axs=plt.subplots(figsize=(12,4))
air_quality.plot.area(x="datetime",ax=axs)
axs.set_ylabel("NO2 concentration")
fig.savefig("no2_concentrations.png")
```



[]: