

```
In [5]: import numpy as np
import pandas as pd
df = pd.DataFrame(
    np.random.randn(5,3),
    index = ['A','C','D','F','G'],
    columns = ['ONE','TWO','THREE'],
)
df
```

Out[5]:

	ONE	TWO	THREE
A	1.847285	-0.157227	0.701204
C	0.695610	-1.381305	1.317655
D	-0.923595	-1.263974	2.180541
F	0.377857	-0.547410	0.059798
G	-0.111076	1.461865	-0.432664

```
In [6]: df1 = df.reindex(['A','B','C','D','E','F','G'])
df1
```

Out[6]:

	ONE	TWO	THREE
A	1.847285	-0.157227	0.701204
B	NaN	NaN	NaN
C	0.695610	-1.381305	1.317655
D	-0.923595	-1.263974	2.180541
E	NaN	NaN	NaN
F	0.377857	-0.547410	0.059798
G	-0.111076	1.461865	-0.432664

```
In [7]: df1.isna()
```

Out[7]:

	ONE	TWO	THREE
A	False	False	False
B	True	True	True
C	False	False	False
D	False	False	False
E	True	True	True
F	False	False	False
G	False	False	False

```
In [8]: df1.isnull()
```

```
Out[8]:
```

	ONE	TWO	THREE
A	False	False	False
B	True	True	True
C	False	False	False
D	False	False	False
E	True	True	True
F	False	False	False
G	False	False	False

```
In [9]: df1.isnull().sum()
```

```
Out[9]: ONE      2  
        TWO      2  
        THREE    2  
        dtype: int64
```

```
In [10]: df1.isna().sum()
```

```
Out[10]: ONE      2  
         TWO      2  
         THREE    2  
         dtype: int64
```

```
In [13]: df.notna().sum()
```

```
Out[13]: ONE      5  
         TWO      5  
         THREE    5  
         dtype: int64
```

```
In [12]: df.notnull()
```

```
Out[12]:
```

	ONE	TWO	THREE
A	True	True	True
C	True	True	True
D	True	True	True
F	True	True	True
G	True	True	True

```
In [14]: ma = pd.DataFrame(  
    {"Name" : ['Ares', 'Marry', 'Jain'],  
     "Toys" : [np.nan, 'Bat', 'Tab'],  
     "Phn"  : [np.nan, 333, np.nan],  
    }  
    )  
ma
```

Out[14]:

	Name	Toys	Phn
0	Ares	NaN	NaN
1	Marry	Bat	333.0
2	Jain	Tab	NaN

```
In [16]: ma.dropna()
```

Out[16]:

	Name	Toys	Phn
1	Marry	Bat	333.0

```
In [19]: ma.dropna('columns')
```

Out[19]:

	Name
0	Ares
1	Marry
2	Jain

```
In [20]: ma.dropna(1)
```

Out[20]:

	Name
0	Ares
1	Marry
2	Jain

```
In [21]: ma.dropna(0)
```

Out[21]:

	Name	Toys	Phn
1	Marry	Bat	333.0

In [22]: `ma.dropna(how='any')`

Out[22]:

	Name	Toys	Phn
1	Marry	Bat	333.0

In [23]: `ma.dropna(how='all')`

Out[23]:

	Name	Toys	Phn
0	Ares	NaN	NaN
1	Marry	Bat	333.0
2	Jain	Tab	NaN

In [25]: `ma.fillna(method = 'ffill')`

Out[25]:

	Name	Toys	Phn
0	Ares	NaN	NaN
1	Marry	Bat	333.0
2	Jain	Tab	333.0

In [26]: `ma.fillna(method = 'bfill')`

Out[26]:

	Name	Toys	Phn
0	Ares	Bat	333.0
1	Marry	Bat	333.0
2	Jain	Tab	NaN

In [28]: `df1.fillna(0.1)`

Out[28]:

	ONE	TWO	THREE
A	1.847285	-0.157227	0.701204
B	0.100000	0.100000	0.100000
C	0.695610	-1.381305	1.317655
D	-0.923595	-1.263974	2.180541
E	0.100000	0.100000	0.100000
F	0.377857	-0.547410	0.059798
G	-0.111076	1.461865	-0.432664

In [29]: `df1.fillna('Boo')`

Out[29]:

	ONE	TWO	THREE
A	1.84728	-0.157227	0.701204
B	Boo	Boo	Boo
C	0.69561	-1.3813	1.31765
D	-0.923595	-1.26397	2.18054
E	Boo	Boo	Boo
F	0.377857	-0.54741	0.0597978
G	-0.111076	1.46187	-0.432664

In [30]: `df1.fillna(method = 'backfill')`

Out[30]:

	ONE	TWO	THREE
A	1.847285	-0.157227	0.701204
B	0.695610	-1.381305	1.317655
C	0.695610	-1.381305	1.317655
D	-0.923595	-1.263974	2.180541
E	0.377857	-0.547410	0.059798
F	0.377857	-0.547410	0.059798
G	-0.111076	1.461865	-0.432664

In [31]: `ma.replace('Jain', 'Laura')`

Out[31]:

	Name	Toys	Phn
0	Ares	NaN	NaN
1	Marry	Bat	333.0
2	Laura	Tab	NaN

In [34]: `ma.replace('Tab' , 7)`

Out[34]:

	Name	Toys	Phn
0	Ares	NaN	NaN
1	Marry	Bat	333.0
2	Jain	7	NaN

In []:

