In [26]:
```
import pandas as pd
import numpy as np
df1=pd.DataFrame({'order_id':[101,102,103,108,110],
                  'Customer_name':['Lora', 'Alex', 'Nancy', 'Bernard', 'Paul'],
                  'Delivery_option':['Pick_up', 'Shipping', 'Shipping', 'Pick-up', 'Pick_up']})
```

In [20]:
```
df1
```

Out[20]:

	order_id	Customer_name	Delivery_option
0	101	Lora	Pick_up
1	102	Alex	Shipping
2	103	Nancy	Shipping
3	108	Bernard	Pick-up
4	110	Paul	Pick_up

In [13]:
```
df2=pd.DataFrame({'order_id':[101,102,103,105,108,110,154],
                  'state': ['NY','CA','WY','NY','FL','NY','NJ']})
```

In [10]:
```
df2
```

Out[10]:

	order_id	state
0	101	NY
1	102	CA
2	103	WY
3	105	NY
4	108	FL
5	110	NY
6	154	NJ

In [21]:
```
pd.merge(df1,df2,on='order_id',how='left')
```

Out[21]:

	order_id	Customer_name	Delivery_option	state
0	101	Lora	Pick_up	NY
1	102	Alex	Shipping	CA
2	103	Nancy	Shipping	WY
3	108	Bernard	Pick-up	FL
4	110	Paul	Pick_up	NY

In [22]:
```
pd.merge(df1,df2,on='order_id',how='right')
```

Out[22]:

	order_id	Customer_name	Delivery_option	state
0	101	Lora	Pick_up	NY
1	102	Alex	Shipping	CA
2	103	Nancy	Shipping	WY
3	108	Bernard	Pick-up	FL
4	110	Paul	Pick_up	NY
5	105	NaN	NaN	NY
6	154	NaN	NaN	NJ

In [23]:
```
pd.merge(df1,df2)
```

Out[23]:

	order_id	Customer_name	Delivery_option	state
0	101	Lora	Pick_up	NY
1	102	Alex	Shipping	CA
2	103	Nancy	Shipping	WY
3	108	Bernard	Pick-up	FL
4	110	Paul	Pick_up	NY

In [24]:
```
pd.merge(df1,df2,how='inner')
```

Out[24]:

	order_id	Customer_name	Delivery_option	state
0	101	Lora	Pick_up	NY
1	102	Alex	Shipping	CA
2	103	Nancy	Shipping	WY
3	108	Bernard	Pick-up	FL
4	110	Paul	Pick_up	NY

In [25]:
```
pd.merge(df1,df2,how='outer')
```

Out[25]:

	order_id	Customer_name	Delivery_option	state
0	101	Lora	Pick_up	NY
1	102	Alex	Shipping	CA
2	103	Nancy	Shipping	WY
3	108	Bernard	Pick-up	FL
4	110	Paul	Pick_up	NY
5	105	NaN	NaN	NY
6	154	NaN	NaN	NJ

Concat

In [27]:
```
arr=np.arange(15).reshape((3,5))
```

In [28]:
```
arr
```

Out[28]:
```
array([[ 0,  1,  2,  3,  4],
       [ 5,  6,  7,  8,  9],
       [10, 11, 12, 13, 14]])
```

In [30]:
```
np.concatenate([arr,arr])
```

Out[30]:
```
array([[ 0,  1,  2,  3,  4],
       [ 5,  6,  7,  8,  9],
       [10, 11, 12, 13, 14],
       [ 0,  1,  2,  3,  4],
       [ 5,  6,  7,  8,  9],
       [10, 11, 12, 13, 14]])
```

In [31]:
```
np.concatenate([arr,arr],axis=1)
```

Out[31]:
```
array([[ 0,  1,  2,  3,  4,  0,  1,  2,  3,  4],
       [ 5,  6,  7,  8,  9,  5,  6,  7,  8,  9],
       [10, 11, 12, 13, 14, 10, 11, 12, 13, 14]])
```

In [32]:
```
s1=pd.Series(['Brooklyn','Bronx','JerseyCity'], index=[0,1,2])
s2=pd.Series(['Queens','Miami'], index=[0,1])
s3=pd.Series(['Tampa','Newark','Hustan','Dallas','SLC'], index=[0,1,2,
3,4])
```

In [33]:
```
s1
```

Out[33]:
```
0      Brooklyn
1         Bronx
2    JerseyCity
dtype: object
```

In [34]:
```
s2
```

Out[34]:
```
0    Queens
1     Miami
dtype: object
```

In [35]:
```
s3
```

Out[35]:
```
0     Tampa
1    Newark
2    Hustan
3    Dallas
4       SLC
dtype: object
```

In [36]:
```
pd.concat([s1,s2,s3])
```

Out[36]:
```
0      Brooklyn
1         Bronx
2    JerseyCity
0        Queens
1         Miami
0         Tampa
1        Newark
2        Hustan
3        Dallas
4           SLC
dtype: object
```

In [42]:
```
pd.concat([s1,s2,s3],axis=1,keys=['one','two','three'])
```

Out[42]:

	one	two	three
0	Brooklyn	Queens	Tampa
1	Bronx	Miami	Newark
2	JerseyCity	NaN	Hustan
3	NaN	NaN	Dallas
4	NaN	NaN	SLC

In [40]:
```
s4=pd.concat([s2,s3])
```

In [41]:
```
s4
```

Out[41]:
```
0     Queens
1      Miami
0      Tampa
1     Newark
2     Hustan
3     Dallas
4        SLC
dtype: object
```

Combine_first

In [62]:
```
day_temp=pd.Series([75,60,np.nan,54,np.nan,np.nan],
                   index=['Oct15','Oct16','Oct17','Oct18','Oct19','Oct20'])
day_temp2=pd.Series([np.nan,49,52,54,60,np.nan],
                   index=['Oct15','Oct18','Oct19','Oct20','Oct21','Oct22'])
```

In [63]:
```
day_temp
```

Out[63]:
```
Oct15    75.0
Oct16    60.0
Oct17     NaN
Oct18    54.0
Oct19     NaN
Oct20     NaN
dtype: float64
```

In [64]:
```
day_temp2
```

Out[64]:
```
Oct15     NaN
Oct18    49.0
Oct19    52.0
Oct20    54.0
Oct21    60.0
Oct22     NaN
dtype: float64
```

In [65]:
```
day_temp.combine_first(day_temp2)
```

Out[65]:
```
Oct15    75.0
Oct16    60.0
Oct17     NaN
Oct18    54.0
Oct19    52.0
Oct20    54.0
Oct21    60.0
Oct22     NaN
dtype: float64
```

In [66]:
```
day_temp2.combine_first(day_temp)
```

Out[66]:
```
Oct15    75.0
Oct16    60.0
Oct17     NaN
Oct18    49.0
Oct19    52.0
Oct20    54.0
Oct21    60.0
Oct22     NaN
dtype: float64
```

In [ ]:
```

```