In [1]:
```
import pandas as pd
```

Concat Series/DataFrame

In [3]:
```
s1=pd.Series([1,2,3,4,5])
s2=pd.Series(['A','B','C','D','F'])
s1
```

Out[3]:
```
0    1
1    2
2    3
3    4
4    5
dtype: int64
```

In [4]:
```
s2
```

Out[4]:
```
0    A
1    B
2    C
3    D
4    F
dtype: object
```

In [7]:
```
pd.concat([s1,s2],axis=1)
# col wise
```

Out[7]:

	0	1
0	1	A
1	2	B
2	3	C
3	4	D
4	5	F

Unequal Series

In [8]:
```
s1=pd.Series([1,2,3,4,5])
s2=pd.Series(['A','B','C','D','F','G'])
```

In [13]:
```
pd.concat([s1,s2],axis=1)
```

Out[13]:

	0	1
0	1.0	A
1	2.0	B
2	3.0	C
3	4.0	D
4	5.0	F
5	NaN	G

In [16]:
```
pd.concat([s1,s2],ignore_index=True)
```

Out[16]:
```
0     1
1     2
2     3
3     4
4     5
5     A
6     B
7     C
8     D
9     F
10    G
dtype: object
```

concat DataFrame

In [17]:
```
data1={'key':['K0','K1','K2','K3','K4','K5'],
       'Name':['Usama','Adan','Ahmad','Ali','Awais','AKmal']}
data2={'key':['K0','K1','K2','K3','K4','K5'],
       'Marks':[11,12,13,14,15,16]}
```

In [18]:
```
df1=pd.DataFrame(data1,index=[0,1,2,3,4,5])
df2=pd.DataFrame(data2,index=[0,7,9,7,4,5])
```

In [19]:
```
df1
```

Out[19]:

	key	Name
0	K0	Usama
1	K1	Adan
2	K2	Ahmad
3	K3	Ali
4	K4	Awais
5	K5	AKmal

In [20]:
```
df2
```

Out[20]:

	key	Marks
0	K0	11
7	K1	12
9	K2	13
7	K3	14
4	K4	15
5	K5	16

In [23]:
```
pd.concat([df1,df2],ignore_index=True)
```

Out[23]:

	key	Name	Marks
0	K0	Usama	NaN
1	K1	Adan	NaN
2	K2	Ahmad	NaN
3	K3	Ali	NaN
4	K4	Awais	NaN
5	K5	AKmal	NaN
6	K0	NaN	11.0
7	K1	NaN	12.0
8	K2	NaN	13.0
9	K3	NaN	14.0
10	K4	NaN	15.0
11	K5	NaN	16.0

Concat DataFrame in pandas

In [2]:
```
data1={"Name":["Usama","Haider","Ali"],
         "Marks":[93,33,45]}
data2={"Name":["Akhtar","Usman",'Ahmad','Zain'],
       "Marks":[90,33,54,65]}
df1=pd.DataFrame(data1)
df2=pd.DataFrame(data2)
```

In [3]:
```
df1
```

Out[3]:

	Name	Marks
0	Usama	93
1	Haider	33
2	Ali	45

In [4]:
```
df2
```

Out[4]:

	Name	Marks
0	Akhtar	90
1	Usman	33
2	Ahmad	54
3	Zain	65

In [5]:
```
data=pd.concat([df1,df2],axis=0,keys=['DF1','DF2'])
```

In [6]:
```
data
```

Out[6]:

		Name	Marks
DF1	**0**	Usama	93
	1	Haider	33
	2	Ali	45
DF2	**0**	Akhtar	90
	1	Usman	33
	2	Ahmad	54
	3	Zain	65

In [7]:
```
data.loc["DF1"]
```

Out[7]:

	Name	Marks
0	Usama	93
1	Haider	33
2	Ali	45

In [8]:
```
data1={"Name":["Usama","Haider","Ali",'Hammad'],
         "Marks":[93,33,45,80]}
data2={"Name":["Akhtar","Usman",'Ahmad','Zain'],
       "Marks":[90,33,54,65]}
df1=pd.DataFrame(data1,index=[0,1,2,3])
df2=pd.DataFrame(data2,index=[4,5,6,7])
```

In [10]:
```
df1
```

Out[10]:

	Name	Marks
0	Usama	93
1	Haider	33
2	Ali	45
3	Hammad	80

In [11]:
```
df2
```

Out[11]:

	Name	Marks
4	Akhtar	90
5	Usman	33
6	Ahmad	54
7	Zain	65

In [12]:
```
pd.concat([df1,df2],axis=0,verify_integrity=True)
```

Out[12]:

	Name	Marks
0	Usama	93
1	Haider	33
2	Ali	45
3	Hammad	80
4	Akhtar	90
5	Usman	33
6	Ahmad	54
7	Zain	65

In [13]:
```
data1={"Name":["Usama","Haider","Ali"],
         "Marks":[93,33,45]}
data2={"Name":["Usman",'Ahmad','Zain'],
       "Grades":["A","B","D"]}
df1=pd.DataFrame(data1)
df2=pd.DataFrame(data2)
```

In [14]:
```
df1
```

Out[14]:

	Name	Marks
0	Usama	93
1	Haider	33
2	Ali	45

In [15]:
```
df2
```

Out[15]:

	Name	Grades
0	Usman	A
1	Ahmad	B
2	Zain	D

In [16]:
```
pd.concat([df1,df2],sort=True)
```

Out[16]:

	Grades	Marks	Name
0	NaN	93.0	Usama
1	NaN	33.0	Haider
2	NaN	45.0	Ali
0	A	NaN	Usman
1	B	NaN	Ahmad
2	D	NaN	Zain

In [ ]:
```

```