In [36]:

```
import pandas as pd
df1=pd.DataFrame({'student_id':['S1','S2','S3','S4','S5']
                  'name':['Daniella Fenton','Ryder Storey'
                  'marks':[200,210,190,222,199]})
print(df1)
```

```
  student_id             name  marks
0         S1  Daniella Fenton    200
1         S2     Ryder Storey    210
2         S3     Bryce Jenson    190
3         S4        Ed Bernal    222
4         S5      Kwame Morin    199
```

In [2]:

```
df2=pd.DataFrame({'student_id':['S4','S5','S6','S7','S8']
                  'name':['Scarlette Fisher','Carla Willia
                  'marks':[201,200,198,219,201]})
print(df2)
```

```
  student_id              name  marks
0         S4  Scarlette Fisher    201
1         S5  Carla Williamson    200
2         S6       Dante Morse    198
3         S7    Kaiser William    219
4         S8   Madeeha Preston    201
```

In [3]:

```
df1.join(df2,lsuffix='_df1',rsuffix='_df2')
```

Out[3]:

	student_id_df1	name_df1	marks_df1	student_id_d
0	S1	Daniella Fenton	200	
1	S2	Ryder Storey	210	
2	S3	Bryce Jenson	190	
3	S4	Ed Bernal	222	
4	S5	Kwame Morin	199	

In [4]:

```
df1.append(df2)
```

Out[4]:

	student_id	name	marks
0	S1	Daniella Fenton	200
1	S2	Ryder Storey	210
2	S3	Bryce Jenson	190
3	S4	Ed Bernal	222
4	S5	Kwame Morin	199
0	S4	Scarlette Fisher	201
1	S5	Carla Williamson	200
2	S6	Dante Morse	198
3	S7	Kaiser William	219
4	S8	Madeeha Preston	201

In [5]:

```
df1.append(df2,ignore_index=True)
```

Out[5]:

	student_id	name	marks
0	S1	Daniella Fenton	200
1	S2	Ryder Storey	210
2	S3	Bryce Jenson	190
3	S4	Ed Bernal	222
4	S5	Kwame Morin	199
5	S4	Scarlette Fisher	201
6	S5	Carla Williamson	200
7	S6	Dante Morse	198
8	S7	Kaiser William	219
9	S8	Madeeha Preston	201

In [7]:

```
df3=pd.DataFrame({'student_id':['S6'],
                  'name':['Scarlette Fisher'],
                  'marks':[205]})
print(df3)
```

```
  student_id              name  marks
0         S6  Scarlette Fisher    205
```

In [9]:

```
df1.append(df3,ignore_index=True)
```

Out[9]:

	student_id	name	marks
0	S1	Daniella Fenton	200
1	S2	Ryder Storey	210
2	S3	Bryce Jenson	190
3	S4	Ed Bernal	222
4	S5	Kwame Morin	199
5	S6	Scarlette Fisher	205

In [14]:

```
dic={'student_id':'S6','name':'Scarlette Fisher','marks':
print(dic)
df1.append(dic,ignore_index=True)
```

```
{'student_id': 'S6', 'name': 'Scarlette Fis
her', 'marks': 205}
```

Out[14]:

	student_id	name	marks
0	S1	Daniella Fenton	200
1	S2	Ryder Storey	210
2	S3	Bryce Jenson	190
3	S4	Ed Bernal	222
4	S5	Kwame Morin	199
5	S6	Scarlette Fisher	205

In [17]:

```
df1.merge(df2,how='outer',left_on='student_id',right_on='
```

Out[17]:

	student_id	name_x	marks_x	name_y	marks_y
0	S1	Daniella Fenton	200.0	NaN	NaN
1	S2	Ryder Storey	210.0	NaN	NaN
2	S3	Bryce Jenson	190.0	NaN	NaN
3	S4	Ed Bernal	222.0	Scarlette Fisher	201.0
4	S5	Kwame Morin	199.0	Carla Williamson	200.0
5	S6	NaN	NaN	Dante Morse	198.0
6	S7	NaN	NaN	Kaiser William	219.0
7	S8	NaN	NaN	Madeeha Preston	201.0

In [19]:

```
df4=pd.DataFrame({'Key1':['K0','K0','K1','K2'],
                  'Key2':['K0','K1','K0','K1'],
                  'P':['P0','P1','P2','P3'],
                  'Q':['Q0','Q1','Q2','Q3']})
print(df4)
```

```
  Key1 Key2   P   Q
0   K0   K0  P0  Q0
1   K0   K1  P1  Q1
2   K1   K0  P2  Q2
3   K2   K1  P3  Q3
```

In [20]:

```
df5=pd.DataFrame({'Key1':['K0','K1','K1','K2'],
                  'Key2':['K0','K0','K0','K0'],
                  'R':['R0','R1','R2','R3'],
                  'S':['S0','S1','S2','S3']})
print(df5)
```

```
  Key1 Key2   R   S
0   K0   K0  R0  S0
1   K1   K0  R1  S1
2   K1   K0  R2  S2
3   K2   K0  R3  S3
```

In [25]:

```
df4.merge(df5,how='left',on=['Key1','Key2'])
```

Out[25]:

	Key1	Key2	P	Q	R	S
0	K0	K0	P0	Q0	R0	S0
1	K0	K1	P1	Q1	NaN	NaN
2	K1	K0	P2	Q2	R1	S1
3	K1	K0	P2	Q2	R2	S2
4	K2	K1	P3	Q3	NaN	NaN

In [39]:

```
df6=df1.append(df2,ignore_index=True)
df6['rank']=df6['marks'].rank(ascending=1)
print(df6)
```

```
  student_id                name  marks  rank
0         S1   Daniella Fenton    200   4.5
1         S2      Ryder Storey    210   8.0
2         S3      Bryce Jenson    190   1.0
3         S4         Ed Bernal    222  10.0
4         S5       Kwame Morin    199   3.0
5         S4  Scarlette Fisher    201   6.5
6         S5  Carla Williamson    200   4.5
7         S6       Dante Morse    198   2.0
8         S7    Kaiser William    219   9.0
9         S8   Madeeha Preston    201   6.5
```

In [ ]:

```

```

In [ ]:

```

```