In [35]:

```
import pandas as pd
import numpy as np
exam_data={'name':['anastasia','dima','katherine','james','Emity','Maichel','mathew','laura
           'score':[12.5,9,16.5,np.nan,9,20,14,np.nan,8,19],'attempts':[1,3,2,3,2,3,1,1,2,1
           'qualify':['yes','no','yes','no','no','yes','yes','no','no','yes']}
lables=['a','b','c','d','e','f','g','h','i','j']
df=pd.DataFrame(exam_data,index=lables)
print(df)
```

```
        name  score  attempts qualify
a  anastasia   12.5         1     yes
b       dima    9.0         3      no
c  katherine   16.5         2     yes
d      james    NaN         3      no
e      Emity    9.0         2      no
f    Maichel   20.0         3     yes
g     mathew   14.0         1     yes
h      laura    NaN         1      no
i      kevin    8.0         2      no
j      Jonas   19.0         1     yes
```

In [36]:

```
import pandas as pd
import numpy as np
exam_data={'name':['anastasia','dima','katherine','james','Emity','Maichel','mathew','laura
           'score':[12.5,9,16.5,np.nan,9,20,14,np.nan,8,19],'attempts':[1,3,2,3,2,3,1,1,2,1
           'qualify':['yes','no','yes','no','no','yes','yes','no','no','yes']}
lables=['a','b','c','d','e','f','g','h','i','j']
df=pd.DataFrame(exam_data,index=lables)
print("names and scores columns in the data frame\n",df[['name','score']])
```

```
names and scores columns in the data frame
         name  score
a  anastasia   12.5
b       dima    9.0
c  katherine   16.5
d      james    NaN
e      Emity    9.0
f    Maichel   20.0
g     mathew   14.0
h      laura    NaN
i      kevin    8.0
j      Jonas   19.0
```

In [37]:

```
import pandas as pd
import numpy as np
exam_data={'name':['anastasia','dima','katherine','james','Emity','Maichel','mathew','laura
           'score':[12.5,9,16.5,np.nan,9,20,14,np.nan,8,19],
           'attempts':[1,3,2,3,2,3,1,1,2,1],
           'qualify':['yes','no','yes','no','no','yes','yes','no','no','yes']}
lables=['a','b','c','d','e','f','g','h','i','j']
df=pd.DataFrame(exam_data,index=lables)
print(df.shape)
print(len(df.axes[0]))
print(len(df.axes[1]))
```

```
(10, 4)
10
4
```

In [38]:

```
import pandas as pd
import numpy as np
exam_data={'name':['anastasia','dima','katherine','james','Emity','Maichel','mathew','laura
           'score':[12.5,9,16.5,np.nan,9,20,14,np.nan,8,19],'attempts':[1,3,2,3,2,3,1,1,2,1
           'qualify':['yes','no','yes','no','no','yes','yes','no','no','yes']}
lables=['a','b','c','d','e','f','g','h','i','j']
df=pd.DataFrame(exam_data,index=lables)
print(df[df['score'].isnull()])
```

```
    name  score  attempts qualify
d  james    NaN         3      no
h  laura    NaN         1      no
```

In [34]:

```
import pandas as pd
import numpy as np
exam_data={'name':['anastasia','dima','katherine','james','Emity','Maichel','mathew','laura
           ,'score':[12.5,9,16.5,np.nan,9,20,14,np.nan,8,19],
           'attempts':[1,3,2,3,2,3,1,1,2,1],
           'qualify':['yes','no','yes','no','no','yes','yes','no','no','yes']}
lables=['a','b','c','d','e','f','g','h','i','j']
df=pd.DataFrame(exam_data,index=lables)
print(df[(df['attempts']<2) & (df['score']>15)])
```

```
    name  score  attempts qualify
j  Jonas   19.0         1     yes
```

In [44]:

```
import pandas as pd
import numpy as np
df=pd.DataFrame({'Empid':[503,504,505,508,522,523,543,558],
                 'First name':['kasi','niharika','dharmesh','monika','Mohana','Manideep','M
                'Last name':['viswanadh','bandila','s','sri','Krishna','k','Pammi','sheik']
                'Phone':[1233211233,2344322344,3455433455,4566544566,5677655677,6788766788,
                'Age': [18,19,20,18,20,19,19,19],
                'salary':[40000,45000,50000,40000,55000,30000,33000,42000]})
print("the default index is \n",df)
```

```
the default index is
    Empid First name  Last name       Phone  Age  salary
0     503       kasi  viswanadh  1233211233   18   40000
1     504   niharika    bandila  2344322344   19   45000
2     505   dharmesh          s  3455433455   20   50000
3     508     monika        sri  4566544566   18   40000
4     522     Mohana    Krishna  5677655677   20   55000
5     523   Manideep          k  6788766788   19   30000
6     543     Mukesh      Pammi  7899877899   19   33000
7     558      basha      sheik  8900988900   19   42000
```

In [45]:

```
df1=df.set_index('Empid')
```

In [47]:

```
print("setting a column as an index\n",df1)
```

```
setting a column as an index
       First name  Last name       Phone  Age  salary
Empid
503         kasi  viswanadh  1233211233   18   40000
504     niharika    bandila  2344322344   19   45000
505     dharmesh          s  3455433455   20   50000
508       monika        sri  4566544566   18   40000
522       Mohana    Krishna  5677655677   20   55000
523     Manideep          k  6788766788   19   30000
543       Mukesh      Pammi  7899877899   19   33000
558        basha      sheik  8900988900   19   42000
```

In [48]:

```
df2=df.set_index(['Empid','Age'])
```

In [49]:

```
print(df2)
```

```
           First name  Last name       Phone  salary
Empid Age
503   18         kasi  viswanadh  1233211233   40000
504   19     niharika    bandila  2344322344   45000
505   20     dharmesh          s  3455433455   50000
508   18       monika        sri  4566544566   40000
522   20       Mohana    Krishna  5677655677   55000
523   19     Manideep          k  6788766788   30000
543   19       Mukesh      Pammi  7899877899   33000
558   19        basha      sheik  8900988900   42000
```

In [50]:

```
df3=df2.reset_index(['Empid','Age'])
print(df3)
```

```
   Empid  Age First name  Last name       Phone  salary
0    503   18         kasi  viswanadh  1233211233   40000
1    504   19     niharika    bandila  2344322344   45000
2    505   20     dharmesh          s  3455433455   50000
3    508   18       monika        sri  4566544566   40000
4    522   20       Mohana    Krishna  5677655677   55000
5    523   19     Manideep          k  6788766788   30000
6    543   19       Mukesh      Pammi  7899877899   33000
7    558   19        basha      sheik  8900988900   42000
```

In [ ]: