In [11]:
```python
import pandas as pd
import numpy as np
info=pd.DataFrame([[2,7,3]]*3,columns=['P','Q','R'])
print(info)
```

```
   P  Q  R
0  2  7  3
1  2  7  3
2  2  7  3
```

In [12]:
```python
print(info.apply(np.sqrt))
```

```
          P         Q         R
0  1.414214  2.645751  1.732051
1  1.414214  2.645751  1.732051
2  1.414214  2.645751  1.732051
```

In [13]:
```python
print(info.apply(np.sum,axis=0))
```

```
P     6
Q    21
R     9
dtype: int64
```

In [14]:
```python
print(info.apply(np.sum,axis=1))
```

```
0    12
1    12
2    12
dtype: int64
```

In [18]:
```python
print(info.agg(['min','max']))
```

```
     P  Q  R  s  S
min  2  7  3  1  1
max  2  7  3  3  3
```

In [20]:
```python
info['S']=[1,2,3]
print(info)
```

```
   P  Q  R  s  S
0  2  7  3  1  1
1  2  7  3  2  2
2  2  7  3  3  3
```

In [25]:
```python
e=info.assign(T=[4,5,6],U=[6,3,5])
print(e)
```

```
   P  Q  R  S  T  U
0  2  7  3  1  4  6
1  2  7  3  2  5  3
2  2  7  3  3  6  5
```

In [32]:
```python
print(e.sort_values(by='U'))
```

```
   P  Q  R  S  T  U
1  2  7  3  2  5  3
2  2  7  3  3  6  5
0  2  7  3  1  4  6
```

In [41]:
```python
a=pd.DataFrame([[1,91,90,95,91],[2,98,89,97,99],[3,91,93,89,71],[4,98,91,35
print(a)
```

```
   roll no  m1  m2  m3  m4
0        1  91  90  95  91
1        2  98  89  97  99
2        3  91  93  89  71
3        4  98  91  35  49
```

In [38]:
```python
b=pd.DataFrame([[1,'pass'],[2,'pass'],[3,'pass'],[4,'fail']],columns=['roll
print(b)
```

```
   roll no result
0        1   pass
1        2   pass
2        3   pass
3        4   fail
```

In [44]:
```python
c=pd.merge(a,b,on='roll no')
print(c)
```

```
   roll no  m1  m2  m3  m4 result
0        1  91  90  95  91   pass
1        2  98  89  97  99   pass
2        3  91  93  89  71   pass
3        4  98  91  35  49   fail
```

In [45]:
```python
print(c.loc[2])
```

```
roll no       3
m1           91
m2           93
m3           89
m4           71
result     pass
Name: 2, dtype: object
```

In [ ]: