

## 7.1 - Axis

April 11, 2017

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

```
In [2]: df = pd.DataFrame([[1, 1.5, 'a', 17]]*100)
```

```
In [3]: df
```

```
   0    1    2    3
0  1  1.5  a  17
1  1  1.5  a  17
2  1  1.5  a  17
3  1  1.5  a  17
4  1  1.5  a  17
5  1  1.5  a  17
6  1  1.5  a  17
7  1  1.5  a  17
8  1  1.5  a  17
9  1  1.5  a  17
10 1  1.5  a  17
11 1  1.5  a  17
12 1  1.5  a  17
13 1  1.5  a  17
14 1  1.5  a  17
15 1  1.5  a  17
16 1  1.5  a  17
17 1  1.5  a  17
18 1  1.5  a  17
19 1  1.5  a  17
20 1  1.5  a  17
21 1  1.5  a  17
22 1  1.5  a  17
23 1  1.5  a  17
24 1  1.5  a  17
25 1  1.5  a  17
26 1  1.5  a  17
27 1  1.5  a  17
28 1  1.5  a  17
29 1  1.5  a  17
```

```
... .. ... .. ..
70 1 1.5 a 17
71 1 1.5 a 17
72 1 1.5 a 17
73 1 1.5 a 17
74 1 1.5 a 17
75 1 1.5 a 17
76 1 1.5 a 17
77 1 1.5 a 17
78 1 1.5 a 17
79 1 1.5 a 17
80 1 1.5 a 17
81 1 1.5 a 17
82 1 1.5 a 17
83 1 1.5 a 17
84 1 1.5 a 17
85 1 1.5 a 17
86 1 1.5 a 17
87 1 1.5 a 17
88 1 1.5 a 17
89 1 1.5 a 17
90 1 1.5 a 17
91 1 1.5 a 17
92 1 1.5 a 17
93 1 1.5 a 17
94 1 1.5 a 17
95 1 1.5 a 17
96 1 1.5 a 17
97 1 1.5 a 17
98 1 1.5 a 17
99 1 1.5 a 17
```

```
[100 rows x 4 columns]
```

```
In [4]: df.dtypes
```

```
0      int64
1      float64
2      object
3      int64
dtype: object
```

```
In [5]: df.mean()
```

```
0      1.0
```

```
1      1.5
3     17.0
dtype: float64
```

```
In [6]: df.mean(axis=1)
```

```
0      6.5
1      6.5
2      6.5
3      6.5
4      6.5
5      6.5
6      6.5
7      6.5
8      6.5
9      6.5
10     6.5
11     6.5
12     6.5
13     6.5
14     6.5
15     6.5
16     6.5
17     6.5
18     6.5
19     6.5
20     6.5
21     6.5
22     6.5
23     6.5
24     6.5
25     6.5
26     6.5
27     6.5
28     6.5
29     6.5
...
70     6.5
71     6.5
72     6.5
73     6.5
74     6.5
75     6.5
76     6.5
77     6.5
78     6.5
```

```
79     6.5
80     6.5
81     6.5
82     6.5
83     6.5
84     6.5
85     6.5
86     6.5
87     6.5
88     6.5
89     6.5
90     6.5
91     6.5
92     6.5
93     6.5
94     6.5
95     6.5
96     6.5
97     6.5
98     6.5
99     6.5
dtype: float64
```

```
In [7]: #?
```

```
df.transpose().mean() == df.mean(axis=1)
```

```
-----
ValueError                                Traceback (most recent call last)
```

```
<ipython-input-7-0a841f6bb83d> in <module>()
```

```
1 #?
```

```
----> 2 df.transpose().mean() == df.mean(axis=1)
```

```
/home/pietro/nobackup/repo/pandas/pandas/core/ops.py in wrapper(self, other)
```

```
815         if not self._indexed_same(other):
```

```
816             msg = 'Can only compare identically-labeled Series objects'
```

```
--> 817             raise ValueError(msg)
```

```
818         return self._constructor(na_op(self.values, other.values),
```

```
819                                   index=self.index, name=name)
```

```
ValueError: Can only compare identically-labeled Series objects
```

```
In [8]: df.transpose().mean()
```

```
Series([], dtype: float64)
```

```
In [9]: df.transpose().dtypes
```

```
0      object
1      object
2      object
3      object
4      object
5      object
6      object
7      object
8      object
9      object
10     object
11     object
12     object
13     object
14     object
15     object
16     object
17     object
18     object
19     object
20     object
21     object
22     object
23     object
24     object
25     object
26     object
27     object
28     object
29     object
...
70     object
71     object
72     object
73     object
74     object
75     object
76     object
77     object
78     object
79     object
```

```
80    object
81    object
82    object
83    object
84    object
85    object
86    object
87    object
88    object
89    object
90    object
91    object
92    object
93    object
94    object
95    object
96    object
97    object
98    object
99    object
dtype: object
```