

t-test

April 10, 2022

```
[1]: import pandas as pd

[2]: xjx_1=[]
xjx_2=[]
ypw_1=[]
ypw_2=[]
users_1=[]
users_2=[]

with open('xjx_average1.txt',mode='r') as f:
    for lines in f:
        a=lines.strip()
        xjx_1.append(float(a))

with open('xjx_average2.txt',mode='r') as f:
    for lines in f:
        a=lines.strip()
        xjx_2.append(float(a))

with open('ypw_average1.txt',mode='r') as f:
    for lines in f:
        a=lines.strip()
        ypw_1.append(float(a))

with open('ypw_average2.txt',mode='r') as f:
    for lines in f:
        a=lines.strip()
        ypw_2.append(float(a))

# print(xjx_1,xjx_2,ypw_1,ypw_2)

with open('ypw_user.txt',mode='r') as f:
    for lines in f:
        a=lines.strip().split(',')
        users_1.append(a)

with open('xjx_user.txt',mode='r') as f:
    for lines in f:
```

```

        a=lines.strip().split(',')
        users_2.append(a)

# print(users_1,users_2)

# df=pd.
↳Dataframe(columns=['name','age','gender','job','1st_average_rating','2nd_average_rating'])
df1=pd.DataFrame(columns=['name','age','gender','job'])
df2=pd.DataFrame(columns=['1st_average_rating'])
df3=pd.DataFrame(columns=['2nd_average_rating'])
for user in users_1:
    add={}
    add['name']=user[0]
    add['age']=user[1]
    add['gender']=user[2]
    add['job']=user[3]
    df1=df1.append(add,ignore_index=True)
for r1 in ypw_1:
    add={}
    add['1st_average_rating']=r1
    df2=df2.append(add,ignore_index=True)
for r1 in ypw_2:
    add={}
    add['2nd_average_rating']=r1
    df3=df3.append(add,ignore_index=True)
df_1=pd.concat([df1,df2,df3],axis=1)
df_1

```

<ipython-input-2-d62e2990e76b>:52: FutureWarning: The frame.append method is deprecated and will be removed from pandas in a future version. Use pandas.concat instead.

```
df1=df1.append(add,ignore_index=True)
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    df2=df2.append(add,ignore_index=True)
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    df3=df3.append(add,ignore_index=True)
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```
df3=df3.append(add,ignore_index=True)
```

```
[2]:
```

	name	age	gender	job	1st_average_rating	2nd_average_rating
0	a1	22	male	undergraduate	3.5	3.833333
1	a2	23	male	undergraduate	4.0	4.333333
2	a3	22	male	undergraduate	3.666667	4.666667
3	a4	21	female	undergraduate	3.0	3.833333
4	a5	22	female	undergraduate	3.833333	3.333333
5	a6	25	male	engineer	3.666667	4.333333
6	a7	22	male	undergraduate	3.333333	4.166667
7	a8	26	male	postgraduate	3.333333	4.5
8	a9	22	female	undergraduate	4.333333	4.166667
9	a10	24	male	undergraduate	4.166667	3.833333

```
[3]: df1=pd.DataFrame(columns=['name','age','gender','job'])
df2=pd.DataFrame(columns=['1st_average_rating'])
df3=pd.DataFrame(columns=['2nd_average_rating'])
for user in users_2:
    add={}
    add['name']=user[0]
    add['age']=user[1]
    add['gender']=user[2]
    add['job']=user[3]
    df1=df1.append(add,ignore_index=True)
for r1 in xjx_1:
    add={}
    add['1st_average_rating']=r1
    df2=df2.append(add,ignore_index=True)
for r1 in xjx_2:
    add={}
    add['2nd_average_rating']=r1
    df3=df3.append(add,ignore_index=True)
df_2=pd.concat([df1,df2,df3],axis=1)
df_2
```

<ipython-input-3-5410a5514def>:10: FutureWarning: The frame.append method is deprecated and will be removed from pandas in a future version. Use pandas.concat instead.

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

<ipython-input-3-5410a5514def>:10: FutureWarning: The frame.append method is deprecated and will be removed from pandas in a future version. Use pandas.concat instead.

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

<ipython-input-3-5410a5514def>:10: FutureWarning: The frame.append method is deprecated and will be removed from pandas in a future version. Use

pandas.concat instead.

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

<ipython-input-3-5410a5514def>:18: FutureWarning: The frame.append method is deprecated and will be removed from pandas in a future version. Use pandas.concat instead.

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

<ipython-input-3-5410a5514def>:18: FutureWarning: The frame.append method is deprecated and will be removed from pandas in a future version. Use pandas.concat instead.

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

<ipython-input-3-5410a5514def>:18: FutureWarning: The frame.append method is deprecated and will be removed from pandas in a future version. Use pandas.concat instead.

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

```
[3]:
```

	name	age	gender	job	1st_average_rating	2nd_average_rating
0	b1	24	male	student	2.666667	3.666667
1	b2	24	male	student	2.333333	3.333333
2	b3	22	male	student	2.166667	3.666667
3	b4	23	male	student	3.0	3.0
4	b5	25	male	student	2.8	3.0
5	b6	26	male	clerk	4.0	3.0
6	b7	26	male	clerk	2.833333	2.4
7	b8	23	male	student	2.2	2.833333
8	b9	22	male	student	2.8	3.5
9	b10	24	male	student	3.166667	3.166667

```
[4]: from scipy.stats import ttest_ind
from scipy.stats import ttest_rel

#Paired t-Test
ttest_rel(ypw_1,ypw_2)
```

```
[4]: Ttest_relResult(statistic=-2.256213140985701, pvalue=0.05048808610932411)
```

```
[5]: #Paired t-Test
ttest_rel(xjx_1,xjx_2)
```

```
[5]: Ttest_relResult(statistic=-1.5163382155771266, pvalue=0.16374083103228607)
```

```
[6]: #Two-sample t-Test
ttest_ind(ypw_1,xjx_1)
```

```
[6]: Ttest_indResult(statistic=4.1355477927363316, pvalue=0.0006211161195087347)
```