Here I would suggest digging into these few lines of code, and evaluating the individual steps to make sure you understand exactly what they are doing to the result. It's certainly a somewhat complicated example, but understanding these pieces will give you the means to similarly explore your own data.

Pivot Tables

We have seen how the GroupBy abstraction lets us explore relationships within a dataset. A *pivot table* is a similar operation that is commonly seen in spreadsheets and other programs that operate on tabular data. The pivot table takes simple column-wise data as input, and groups the entries into a two-dimensional table that provides a multidimensional summarization of the data. The difference between pivot tables and GroupBy can sometimes cause confusion; it helps me to think of pivot tables as essentially a *multidimensional* version of GroupBy aggregation. That is, you split-apply-combine, but both the split and the combine happen across not a one-dimensional index, but across a two-dimensional grid.

Motivating Pivot Tables

For the examples in this section, we'll use the database of passengers on the *Titanic*, available through the Seaborn library (see):

```
In[1]: import numpy as np
       import pandas as pd
       import seaborn as sns
       titanic = sns.load_dataset('titanic')

In[2]: titanic.head()

Out[2]:
   survived  pclass     sex   age  sibsp  parch      fare embarked  class  \\
0         0       3    male  22.0      1      0    7.2500        S  Third
1         1       1  female  38.0      1      0   71.2833        C  First
2         1       3  female  26.0      0      0    7.9250        S  Third
3         1       1  female  35.0      1      0   53.1000        S  First
4         0       3    male  35.0      0      0    8.0500        S  Third

     who  adult_male deck  embark_town alive  alone
0    man        True  NaN  Southampton    no  False
1  woman       False    C    Cherbourg   yes  False
2  woman       False  NaN  Southampton   yes   True
3  woman       False    C  Southampton   yes  False
4    man        True  NaN  Southampton    no   True
```

This contains a wealth of information on each passenger of that ill-fated voyage, including gender, age, class, fare paid, and much more.