**Grouping and filtering with .apply()**

By using .apply(), you can write functions that filter rows within groups. The .apply() method will handle the iteration over individual groups and then re-combine them back into a Series or DataFrame.

In this exercise you'll take the Titanic data set and analyze survival rates from the 'C' deck, which contained the most passengers. To do this you'll group the dataset by 'sex' and then use the .apply() method on a provided user defined function which calculates the mean survival rates on the 'C' deck:

def c\_deck\_survival(gr):

c\_passengers = gr['cabin'].str.startswith('C').fillna(False)

return gr.loc[c\_passengers, 'survived'].mean()

The DataFrame has been pre-loaded as titanic.

**INSTRUCTIONS**

* Group titanic by 'sex'. Save the result as by\_sex.
* Apply the provided c\_deck\_survival function on the by\_sex DataFrame. Save the result as c\_surv\_by\_sex.
* Print c\_surv\_by\_sex.

# Create a groupby object using titanic over the 'sex' column: by\_sex

print(titanic.head())

by\_sex = titanic.groupby('sex')

# Call by\_sex.apply with the function c\_deck\_survival and print the result

c\_surv\_by\_sex = by\_sex.apply(c\_deck\_survival)

# Print the survival rates

print(c\_surv\_by\_sex)