Exercise 6 Reading and Writing Data Files

Import the libraries

In [2]:
```
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns
```

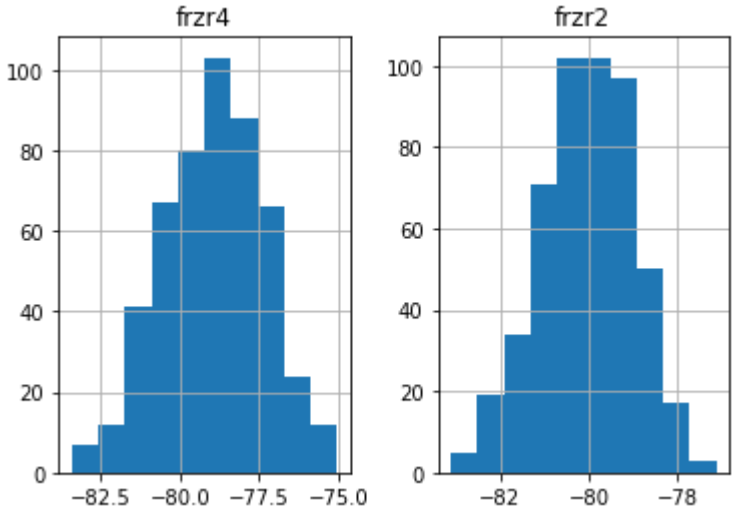
Load the data "006ExerciseFile.csv" into a pandas data frame

In [4]:
```
myData = pd.read_csv("datasets/006ExerciseFile.csv")
```

Make histograms of the 2 distributions

In [5]:
```
myData.hist()
```

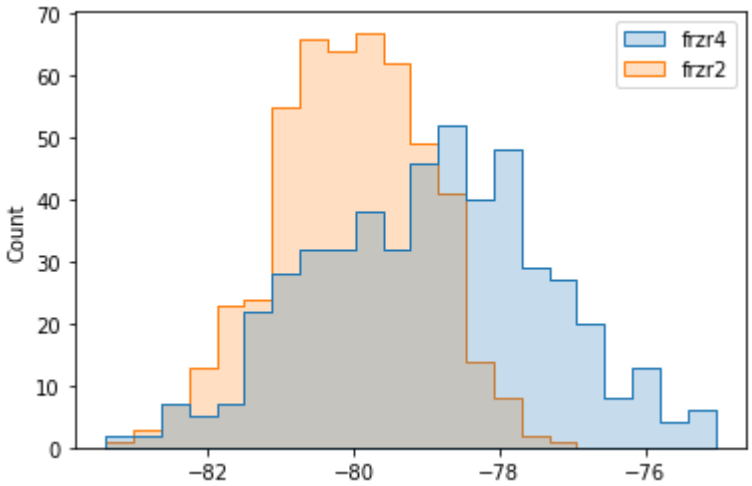
Out[5]:
```
array([[<AxesSubplot:title={'center':'frzr4'}>,
        <AxesSubplot:title={'center':'frzr2'}>]], dtype=object)
```



Prettier histograms

In [6]:
```
sns.histplot(myData, multiple="layer", element="step")
```

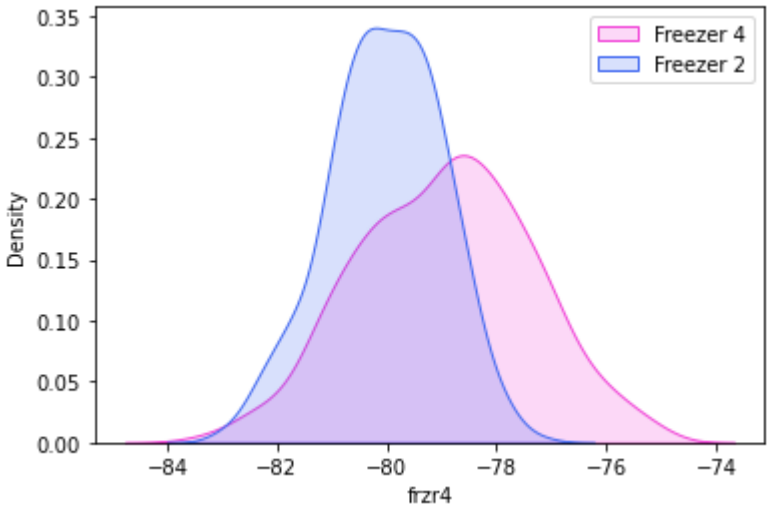
Out[6]:
```
<AxesSubplot:ylabel='Count'>
```



Make pretty KDE plots of the two distributions

In [25]:
```
sns.kdeplot(myData["frzr4"], color="#F13FD7", fill=True, alpha=0.2, label="Freezer 4")
sns.kdeplot(myData["frzr2"], color="#3F67F1", fill=True, alpha=0.2, label="Freezer 2")
plt.legend()
```

Out[25]:
```
<matplotlib.legend.Legend at 0x240d8549880>
```



Summarize the data

In [13]:
```
mySummary = myData.describe()
```

In [14]:
```
print(mySummary)
```

```
             frzr4       frzr2
count  500.000000  500.000000
mean   -78.950004  -80.042102
std      1.590001    1.052367
min    -83.397327  -83.105795
25%    -80.073219  -80.757600
50%    -78.861037  -80.010948
75%    -77.841418  -79.284328
max    -75.047915  -77.134292
```

Creating a new file with the data summary

In [15]:
```
mySummary.to_csv("ex6Summary.csv")
```

Read the summary back in and confirm the read was successful

In [16]:
```
mySummary2 = pd.read_csv("ex6Summary.csv")
```

In [17]:
```
display(mySummary2)
```

	Unnamed: 0	frzr4	frzr2
0	count	500.000000	500.000000
1	mean	-78.950004	-80.042102
2	std	1.590001	1.052367
3	min	-83.397327	-83.105795
4	25%	-80.073219	-80.757600
5	50%	-78.861037	-80.010948
6	75%	-77.841418	-79.284328
7	max	-75.047915	-77.134292

My thoughts on the freezers

Freezer 2 seems to be functioning well because the mean temperature is about -80 degrees F. The temperature of freezer 2 varies slightly, bu it never gets warmer than about -77.1 degrees F. However, freezer 4 is slightly warmer than it should be. The mean temperature is about -78.9 degrees, and it gets as warm as -75 degrees F. The warmest quartile of recorded temperatures for freezer 4 are warmer than -77.8 degrees F. While I'm not in the freezer business, I think that freezer 4 is warmer than it should be if it's average temperature is supposed to be -80 degrees F.