9.3.3 Find Low, High, and Average Temperatures

W. Avy tells you that he's interested in the most active station; he believes it will provide the most data and help you determine the best location for the surf shop. However, you know that more data doesn't necessarily equate to more accurate results. But W. Avy is passionate about the location—he's convinced that it will provide the best weather for surfing and eating ice cream. So you tell him that you'll investigate this location further.

It occurs to you that he hasn't asked for an analysis of the temperature yet, so you decide to dive into temperature data.

Let's get to work on our temperature analysis! We'll be using the results from our last query, which gave us the most active station, to gather some basic statistics. For our most active station, we'll need to find the minimum, maximum, and average temperatures.

Like our previous queries, we'll begin with this line of code:

```
session.query()
```

Next, we will calculate the minimum, maximum, and average temperatures with the following functions: `func.min`, `func.max`, and `func.avg`. Add these functions to your query, like this:

```
session.query(func.min(Measurement.tobs), func.max(Measurement.tobs), func.a
```

With the minimum, maximum, and average in our query, we now need to add one filter. We'll be filtering out everything but the station W. Avy is interested in. If you look at the outcome of the previous query, you can see that the most active station is USC00519281. Therefore, we will need to add this station ID to our filter below.

```
session.query(func.min(Measurement.tobs), func.max(Measurement.tobs), func.a
filter(Measurement.station == 'USC00519281')
```

Finally, add the `.all()` function to return our results as a list. Here's what your final query should look like:

```
session.query(func.min(Measurement.tobs), func.max(Measurement.tobs), func.a
filter(Measurement.station == 'USC00519281').all()
```

Go ahead and run the query. Your results should look like the following:

```
[(54.0, 85.0, 71.66378066378067)]
```

The results show that the low (minimum) temperature is 54 degrees, the high (maximum) temperature is 85 degrees, and the average temperature is approximately 71.7 degrees.

We have the minimum, maximum, and average temperatures for our station—great work! W. Avy has asked for us to share the results, so let's go above and beyond and create a visualization for him. Visualizing our data will allow us—and W. Avy—to notice trends, as well as draw more accurate conclusions from it. Let's plot our data!