**Background**

W. Avy likes your analysis, but he wants more information about temperature trends before opening the surf shop. Specifically, he wants temperature data for the months of June and December in Oahu, in order to determine if the surf and ice cream shop business is sustainable year-round.

**What You're Creating**

This new assignment consists of two technical analysis deliverables and a written report. You will submit the following:

* Deliverable 1: Determine the Summary Statistics for June
* Deliverable 2: Determine the Summary Statistics for December
* Deliverable 3: A written report for the statistical analysis (README.md)

**Files**

Use the following link to download the Challenge starter code.

**Deliverable 1: Determine the Summary Statistics for June (40 points)**

**Deliverable 1 Instructions**

Using Python, Pandas functions and methods, and SQLAlchemy, you’ll filter the date column of the Measurements table in the hawaii.sqlite database to retrieve all the temperatures for the month of June. You’ll then convert those temperatures to a list, create a DataFrame from the list, and generate the summary statistics.

**REWIND**

For this deliverable, you’ve already done the following in this module:

* [**Lesson 9.2.1:**](https://courses.bootcampspot.com/courses/1687/pages/9-dot-2-1-retrieve-the-precipitation-data) Filter a sqlite table on a value from a column
* [**Lesson 9.2.1:**](https://courses.bootcampspot.com/courses/1687/pages/9-dot-2-1-retrieve-the-precipitation-data) Save query results as a DataFrame
* [**Lesson 9.2.5:**](https://courses.bootcampspot.com/courses/1687/pages/9-dot-2-5-generate-the-summary) Generate summary statistics

Follow the instructions below to complete Deliverable 1.

1. Download the SurfsUp\_Challenge\_starter\_code.ipynb file into your surfs\_up folder, then rename it SurfsUp\_Challenge.ipynb.
2. Use the instructions below to add code where indicated by the numbered comments in the starter code file. The starter code file includes all dependencies needed for this Challenge.
3. In Step 1, write a query that filters the date column from the Measurement table to retrieve all the temperatures for the month of June.
4. In Step 2, convert the June temperatures to a list.
5. In Step 3, create a DataFrame from the list of temperatures for the month of June.
6. In Step 4, generate the summary statistics for the June temperatures DataFrame.
7. After you run Step 4 in your SurfsUp\_Challenge.ipynb file, confirm that the summary statistics match the image below.

**Deliverable 1 Requirements**

You will earn a perfect score for Deliverable 1 by completing all requirements below:

* A working query is written to retrieve the June temperatures from the date column of the Measurement table. **(10 pt)**
* The temperatures are added to a list. **(10 pt)**
* ​The list of temperatures is converted to a Pandas DataFrame. **(10 pt)**
* Summary statistics are generated for the DataFrame. **(10 pt)**

**Deliverable 2: Determine the Summary Statistics for December (40 points)**

**Deliverable 2 Instructions**

Using Python, Pandas functions and methods, and SQLAlchemy, you’ll filter the date column of the Measurements table in the hawaii.sqlite database to retrieve all the temperatures for the month of December. You’ll then convert those temperatures to a list, create a DataFrame from the list, and generate the summary statistics.

**REWIND**

For this deliverable, you’ve already done the following in this module:

* [**Lesson 9.2.1:**](https://courses.bootcampspot.com/courses/1687/pages/9-dot-2-1-retrieve-the-precipitation-data) Filter a sqlite table on a value from a column
* [**Lesson 9.2.1:**](https://courses.bootcampspot.com/courses/1687/pages/9-dot-2-1-retrieve-the-precipitation-data) Save query results as a DataFrame
* [**Lesson 9.2.5:**](https://courses.bootcampspot.com/courses/1687/pages/9-dot-2-5-generate-the-summary) Generate summary statistics

Follow the instructions below to complete Deliverable 2.

1. Use the instructions below to add code where indicated by the numbered comments in your SurfsUp\_Challenge.ipynb file.
2. In Step 6, write a query that filters the date column from the Measurement table to retrieve all the temperatures for the month of December.
3. In Step 7, convert the December temperatures to a list.
4. In Step 8, create a DataFrame from the list of temperatures for the month of December.
5. In Step 9, generate the summary statistics for the December temperatures DataFrame.
6. After you run Step 9 in your SurfsUp\_Challenge.ipynb file, confirm that the summary statistics match the image below.

### Deliverable 2 Requirements

You will earn a perfect score for Deliverable 2 by completing all requirements below:

* A working query is written to retrieve the December temperatures from the date column of the Measurement table **(10 pt)**
* The temperatures are added to a list. **(10 pt)**
* ​The list of temperatures is converted to a Pandas DataFrame. **(10 pt)**
* Summary statistics are generated for the DataFrame. **(10 pt)**

## Deliverable 3: A written report for the statistical analysis (20 points)

### Deliverable 3 Instructions

For this part of the Challenge, write a report that describes the key differences in weather between June and December and two recommendations for further analysis.

The analysis should contain the following:

1. **Overview of the analysis:** Explain the purpose of this analysis.
2. **Results:** Provide a bulleted list with three major points from the two analysis deliverables. Use images as support where needed.
3. **Summary:** Provide a high-level summary of the results and two additional queries that you would perform to gather more weather data for June and December.

### Deliverable 3 Requirements

#### Structure, Organization, and Formatting (6 points)

The written analysis has the following structure, organization, and formatting:

* There is a title, and there are multiple sections. **(2 pt)**
* Each section has a heading and subheading. **(2 pt)**
* Links to images are working and displayed correctly. **(2 pt)**

#### Analysis (14 points)

The written analysis has the following:

1. Overview of the statistical analysis:
   * The purpose of the analysis is well defined. **(3 pt)**
2. Results:
   * There is a bulleted list that addresses the three key differences in weather between June and December. **(6 pt)**
3. Summary:
   * There is a high-level summary of the results and there are two additional queries to perform to gather more weather data for June and December. **(5 pt)**

## Submission

Once you’re ready to submit, make sure to check your work against the rubric to ensure you are meeting the requirements for this Challenge one final time. It’s easy to overlook items when you’re in the zone!

As a reminder, the deliverables for this Challenge are as follows:

* Deliverable 1: Determine the Summary Statistics for June
* Deliverable 2: Determine the Summary Statistics for December
* Deliverable 3: A written report for the statistical analysis (README.md)

Upload the following to your surfs\_up GitHub repository:

1. The SurfsUp\_Challenge.ipynb file.
2. The hawaii.sqlite file.
3. An updated README.md that has your written analysis

To submit your challenge assignment for grading in Bootcamp Spot, click Start Assignment, click the Website URL tab, then provide the URL of your surfs\_up GitHub repository, and then click Submit. Comments are disabled for graded submissions in BootCampSpot. If you have questions about your feedback, please notify your instructional staff or the Student Success Manager. If you would like to resubmit your work for an improved grade, you can use the **Re-Submit Assignment** button to upload new links. You may resubmit up to 3 times for a total of 4 submissions.