# Surfs Up Analysis

## Project Overview

The purpose of this analysis is to persuade a potential investor, W. Avy, to invest in our Surf n’ Shake business. Mr. Avy is concerned about the impact that weather, especially rain, may have on the business. Mr. Avy worries about the amount of precipitation on Oahu. He apparently has had an unfavorable experience in an investment in a surf shop due to weather. Furthermore, there is the possibility that Mr. Avy will ask to duplicate the analytical process in the future, perhaps for future investment opportunities.

## Results

The initial analysis was focused on the temperatures in the months of June and December for the during the period January 1, 2010 through August 23, 2017, at Mr. Avy’s request. His thought may be that June and December represent the hottest and coldest months of the year, respectively.

Upon completing the queries, the following was observed:

1. The difference in mean temperature for either month was less than 4 degrees, with both in the mid-70’s.
2. The max temperatures for June and December were 85 and 83, respectively. Great weather for surf and ice cream.
3. The min temperatures for June and December were 64 and 56, respectively. A bit cool for ice cream, however, those were very likely nighttime temperatures. While not confirmed, these temperatures were likely recorded at high elevation locations on Oahu (e.g., Wahiawa), and not at locations being consider by Surf n’ Shake.

## Summary

The results were less than informative and uncompelling. More importantly, the queries did not provide comfort for Mr. Avy’s fear that rainfall would disrupt the business.

Further efforts were explored to query the available data to assuage Mr. Avy’s apprehension regarding weather.

The following queries were developed:

1. Rainfall statistics for June and December. This followed Mr. Avy’s focus on June and December, however, were also less than informative.
2. Temperature and rainfall statistics for the entire dataset as a whole. This was performed to obtain very high level statistics of the entire dataset to compare to the June and December statistics. No significant differences were noted.
3. Scatter plots for temperature and rainfall during the year ended August 23, 2017.

By reviewing the entire year, we were able to inform Mr. Avy that while June is the beginning of the warmer season, August appears to be the warmest. Warm temperatures continue through mid-October.

Precipitation is steady, but light to moderate, throughout the year. Excluding single-day outliers, January and April appear to experience the most days of rainfall of two to three inches.

1. User-input queries for temperature and rainfall, so that Mr. Avy could focus on the month of his choosing.

After reviewing the additional information provided by the new queries, it appears the weather on Oahu remains temperate throughout the year. Measurements of heavy (greater than five inches) rainfall are outliers. June and December may not be the optimal choices as indicators of either the hottest/coldest or wettest/driest months of the year.

In our discussions with Mr. Avy, we plan to share this information. We believe that weather may not be as negative a factor as he believes. However, we will also recommend that, once we identify potential locations, we analyze the weather data from stations located in those vicinities to ease his anxiety.