**Surfs-UP Analysis:**

**Jupyter Notebook & SQLite**

**Overview:**

We have been working with W. Avey to get investors to invest in a “Surf & Ice Cream” shop in Oahu Hawaii. Since weather is a key factor in the success of such a business, we are going to use data from nine weather station to determine the feasible of operating a surf shop year around in Oahu. We have already provided W. Avey with a precipitation analysis to show the average amount of rainfall amounts by day. Now W. Avey wants a statistical comparison of the temperatures for the months of June & December. The thought being that by comparing these months we can determine if a “Surf & Ice Cream” shop would be successful and sustainable year around.

**Results:**

**Statistical Analysis:**

Below are the statistical results from the temperature data for the months of June and December from the provided data. The data set contained temperature recordings from nine weather stations recorded over eight years from 2010 to 2017. Analysis includes all reported values.

| **June Statistics** | **December Statistics** |
| --- | --- |
|  |  |
|  |  |

**Observations:**

There were fewer data points for December, only 1517 vs 1700 for June; but that should not be significant since we are using the mean for comparison.

* The average daily temperature for December was 3.9 degrees lower than June
* Likewise, the quartile average daily temperatures are 3 to 4 degrees cooler in December than in June
* The Max and Min average daily temperatures were 2 degrees and 8 degrees cooler, respectively.

**Summary:**

As expected, the December temperatures are lower than June’s but not significantly in most respects. With only the December’s minimum temperature of 56 degrees being the only comparison point more than four-degrees different. However, the higher standard deviation for December indicates that the spread of the temperatures in December is greater than in June. Which means that there were more days with the average daily temperatures being further from the mean of 71.04 in December than in June.

While average temperature is a good start for our analysis it is only one determining factor in our business’s success. It would be better if we could get sales data of some kind to combine with the weather data to see how the change in weather effects sales, but even without that additional data we could get a better picture with a couple of additional queries.

* While W. Avey only requested a statistical comparison for June and December we should run the same thing for all twelve months to get an annual look. In fact, as we had we see that January, February and even March have colder daily average temperatures than December.

Table

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* Instead of getting a monthly daily average we could calculate a daily average and then plot a line graph to show all the days the temperature falls below 70 degrees. This would be a good visual for investors to see. From this chart you can see the concern should be the first three months of the year.

Chart, line chart

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* Finally, we could combine the precipitation data with the temperate data since a cold rainy day would have more of an impact than a warm rainy day.