**Hawaii Trip Climate Analysis**

I got the SQLLite database from GitLab that contained temperature and precipitation data for 9 Hawaii stations between years 2010 and 2017. In addition, the data has latitude, longitude, and elevation information. Two tables, Measurement and Station contain this information. I used SQLAlchemy to map tables to classes. I used both session based queries on these classes and engine based SQL queries to retrieve and analyze the data.

Enclosed a few observations from the climate analysis below.

* The latest 12 months of measurement data was plotted using a bar chart between precipitation and date. Noticed only four high precipitation points that are greater than or equal 4 over this date range. The months of February, April, July in 2017, and September 2016 recorded these precipitations.

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| --- | --- | --- |
| USC00516128 | 7/22/2017 | 4 |
| USC00519523 | 4/29/2017 | 6.25 |
| USC00519523 | 2/11/2017 | 5.04 |
| USC00516128 | 9/14/2016 | 6.7 |

* Station USC00519281 recorded the highest number of temperature observations at 2772. The latest data point for this station was calculated. A previous twelve month range was taken from this latest data point for the station. The resulting temperature observations were plotted on a histogram. Temperatures between 75 and 77 had the highest frequency and temperature 60 recorded the lowest frequency.
* An error bar was plotted using a min temperature of 61 and average temperature of 69.755.
* Calculated total rainfall for my trip between February 28 and March 5, 2011. MANOA LYON ARBO 785.2, HI US recorded highest precipitation and PEARL CITY, HI US recorded the lowest.
* Utilized FLASK API and designed routes to access this data. The routes include precipitation, stations, tobs using the same date range criteria in the climate analysis. By designing these routes data was retrieved over the web conveniently using http making it easy for a business user to retrieve and visualize this data in a JSON format.

**Conclusions**

I would like to visit the PEARL CITY, HI that has the lowest precipitation. Furthermore, most of the precipitations in Hawaii are low making it safe place to visit almost any time of the year. This dataset also contains latitude, longitude, and elevation information. We can further plot temperatures and precipitations by latitude and longitude. We can also query for cities based on these latitudes and longitudes using OpenWeatherMap API.