SMU

Vacation Planning & Climate Analysis using the

HAWAII WX APP

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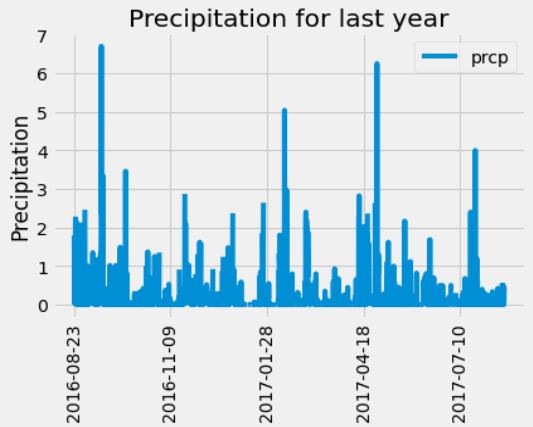
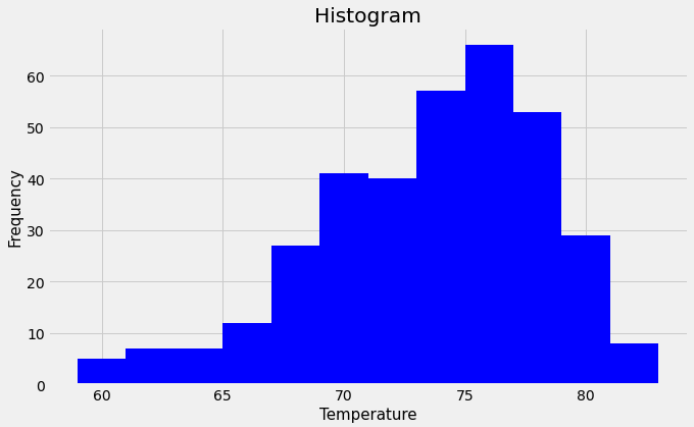
Background

This project uses SQL Alchemy and Flask to connect and query a database, providing the end-user with a web-based application that can extract useful weather planning data to facilitate holiday vacation planning and decision-making for Hawaii.

Climate Analysis

The chart and histogram below illustrate the weather pattern for one year. First, we notice that the least precipitation occurs between January and April, with occasional spikes during late summer to early fall. Secondly, we can see that the temperatures range from 58 to about 85 degrees. However, the majority of the temperatures fall between 70 and 79. We observed a total of nine stations. Station-ID USC00519281 was the most active station, with a total of 2,772 temperature observations. The minimum, maximum, and average temperature observations for this station were as follows: min(54.0), max(85.0), and average(71.7) degrees.





FLASK API Extractions

Below are examples of web-based outputs visible to the end user. These extractions show the returned JSON representation of dictionaries, JSON list of stations from the dataset, and temperature observations for a specified date or range of dates. The routes or endpoints are shown along with the corresponding output. Further, the minimum, maximum, and average temperatures are given when the user renders the last couple of endpoints.

127.0.0.1:5000

Aloha! Welcome to the Hawaii WX API//api/v1.0/precipitation/api/v1.0/stations/api/v1.0/tabs/api/v1.0/start/api/v1.0/start/end

127.0.0.1:5000/api/v1.0/precipitation


```
{
  "2016-08-23": 0.7,
  "2016-08-24": 1.45,
  "2016-08-25": 0.11,
  "2016-08-26": 0.01,
  "2016-08-27": null,
  "2016-08-28": 2.07,
  "2016-08-29": 0.9,
  "2016-08-30": 0.05,
  "2016-08-31": 2.46,
  "2016-09-01": 0.01,
  "2016-09-02": 0.03,
  "2016-09-03": 1.0,
  "2016-09-04": 0.44,
  "2016-09-05": 0.18,
  "2016-09-06": 1.0,
  "2016-09-07": 1.35,
  "2016-09-08": 0.15,
  "2016-09-09": 0.35,
  "2016-09-10": 1.16,
  "2016-09-11": 0.6,
```


127.0.0.1:5000/api/v1.0/stations


```
[
  "USC00519397",
  "USC00513117",
  "USC00514830",
  "USC00517948",
  "USC00518838",
  "USC00519523",
  "USC00519281",
  "USC00511918",
  "USC00516128"
]
```


127.0.0.1:5000/api/v1.0/tobs


```
[
  "81.0",
  "2016-08-23",
  "79.0",
  "2016-08-24",
  "80.0",
  "2016-08-25",
  "79.0",
  "2016-08-26",
  "77.0",
  "2016-08-27",
  "78.0",
  "2016-08-28",
  "78.0",
  "2016-08-29",
  "79.0",
  "2016-08-30",
  "80.0",
  "2016-08-31",
  "81.0",
  "2016-09-01",
```


127.0.0.1:5000/api/v1.0/start


```
[
  58.0,
  87.0,
  74.57894736842105
]
```


127.0.0.1:5000/api/v1.0/start/end


```
[
  58.0,
  87.0,
  74.59058295964125
]
```


Recommendation - As expected, the weather in Hawaii is quite lovely throughout the year, making it an ideal place to vacation.