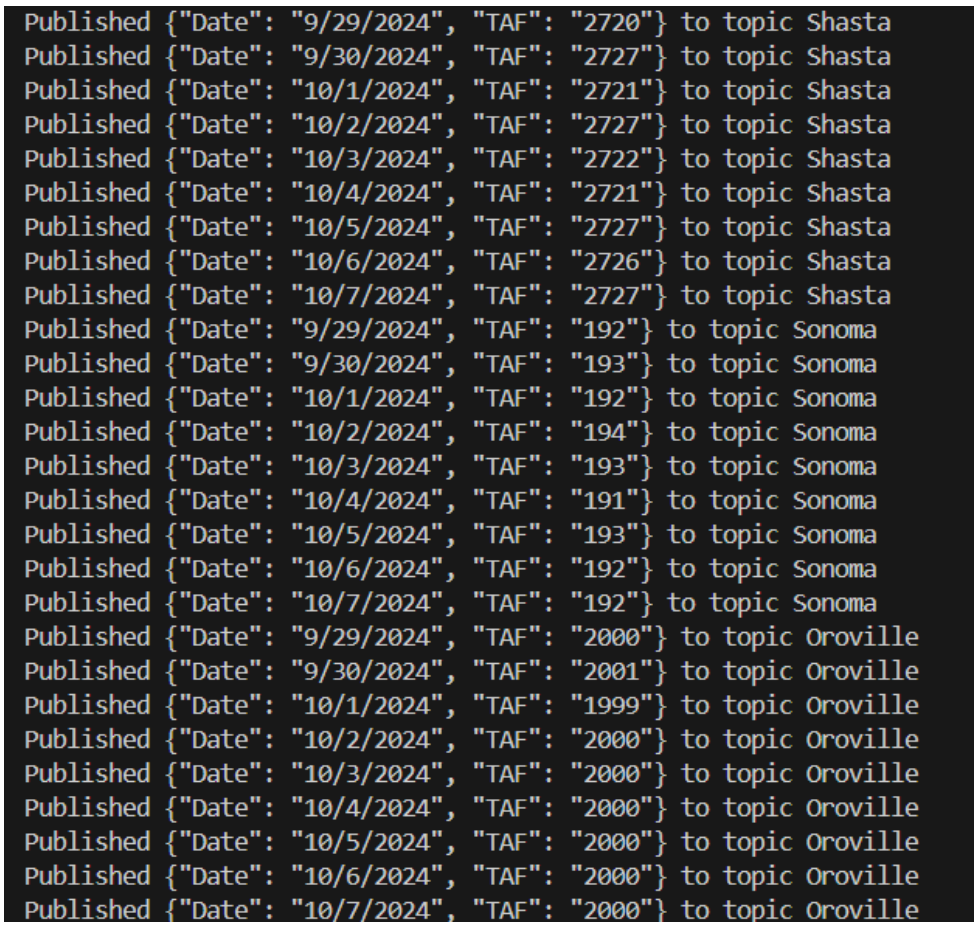
MQTT Reservoir Data Assignment Report

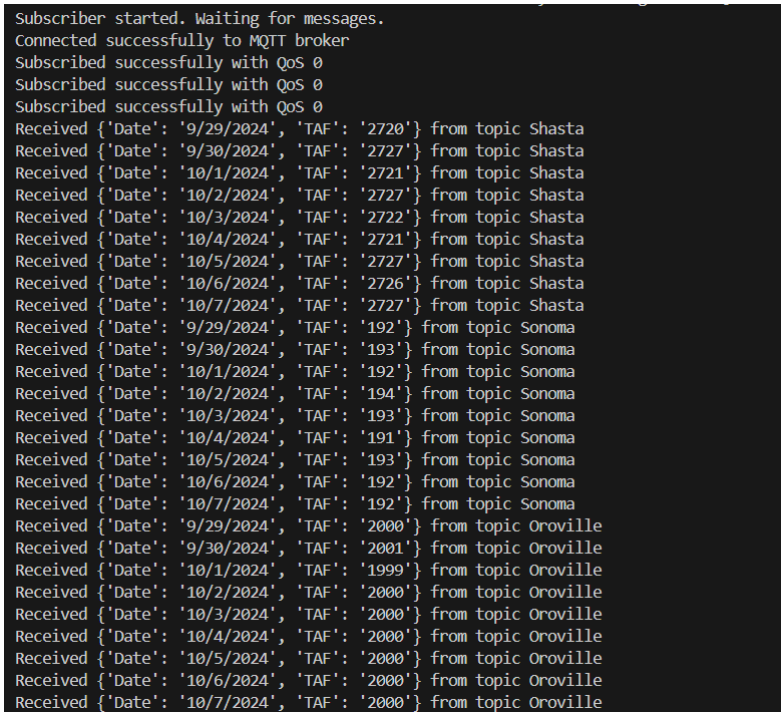
I implemented a basic pub-sub model application that collects and displays water levels for each reservoir. In this scenario, the reservoirs act as publishers and we act as subscriber. The data from each reservoir is sent via MQTT broker to the common subscriber, and it is aggregated to create reports and visualizations for each.

For our use case, the data is present in the data folder from which the publisher application reads and publishes to the particular reservoir's MQTT topic, which is its own name. It publishes data for each row containing the date and water levels on that particular date to its topic. The subscriber application is listening on all the topics. In our use case, there are three topics – Shasta, Sonoma, and Oroville. Once the publisher has published the data to all 3 topics, the subscriber application (which was also running) immediately reads the data from all topics it has subscribed to. After collecting the data, it generates the report for the same and creates a simple time-series visualization to show how the water levels have varied over the past few days.

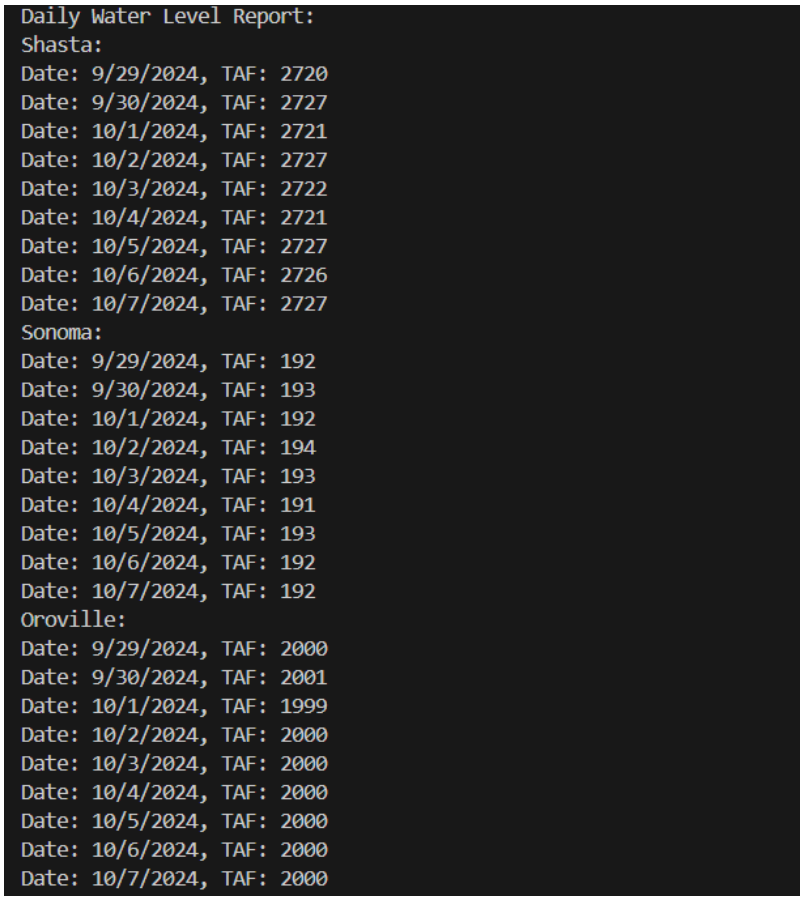
As shown in the image below, the publisher application publishes data to the three topics (Shasta, Sonoma, and Oroville) for each reservoir resepectively.



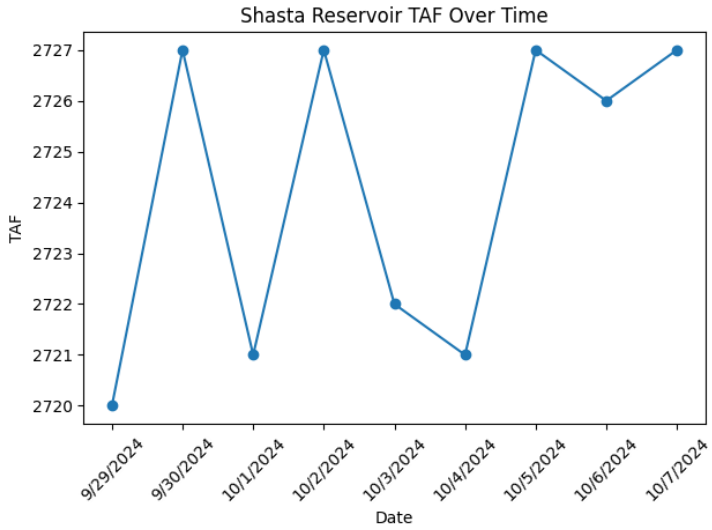
The subscriber application first consumes the data from all 3 topics.

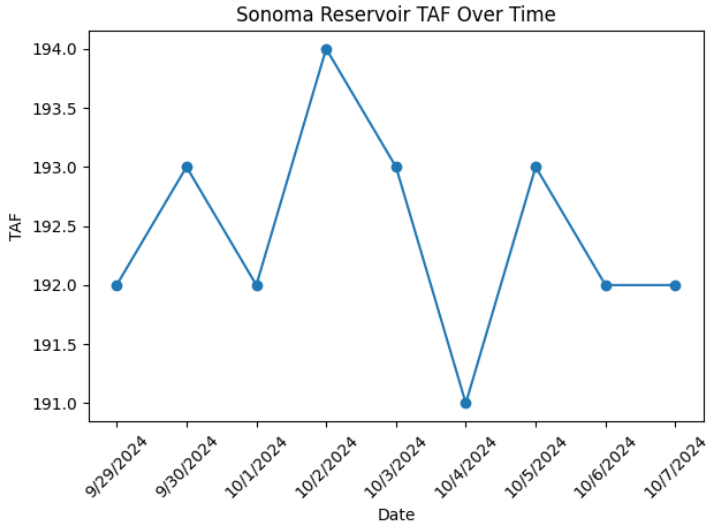


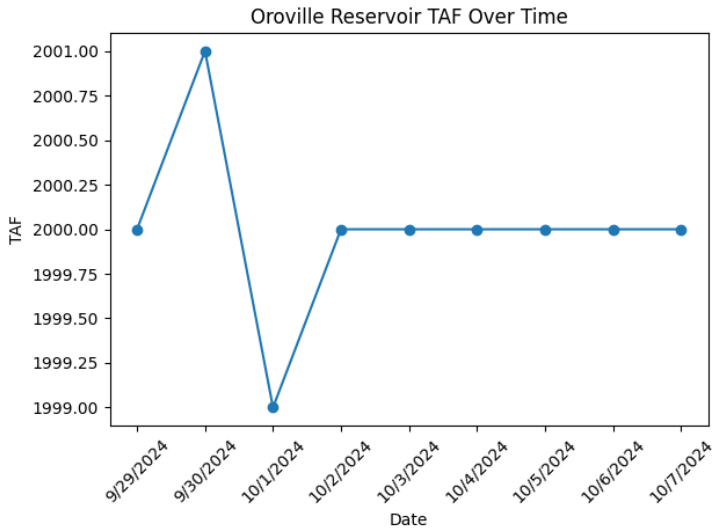
After consuming the data, it generates the report for the same.



Finally, with the report generated, it also creates time-series visualization for further analytics.







The code for the same can be found on GitHub.