Cascade Energy Inc

We want to first acknowledge that interviewing for software engineering jobs is hard and time consuming. That being said, we'd like to get an idea of what your holistic approach to writing software, with the thinking being that this might be the best indicator of how you'd approach solving challenges on our team. Granted, a real codebase and application is larger and more complicated than any technical exercise can capture; nonetheless, we have found the technical exercise to be a good indicator of helping us figure out what you will add to our team. We are open to viewing code samples you may already have, if not here is a guide to an architecture design exercise that may help us determine your style and philosophy. This exercise is indicative of a project that we recently worked on at Cascade Energy.

Evaluation Criteria:

- **Functionality**: A simple solution that might get the job done is valued more highly than complicated architecture that is hard to understand and keep track of. We value developer experience as well as a functional architecture.
- **General**: The solution should be geared towards showcasing your skills and your philosophy on how you approach figuring out a solution to a given problem. The job posting highlights several technologies relevant to the job's day-to-day tasks. If you are able to use any of these technologies to arrive at or deliver your solution, it will help us to better see how your skill set matches our hiring needs.
- **Conscientiousness**: For Cascade Energy, working on a collaborative team means writing code, tests and documentation that are easy for others to read. We look forward to submissions that demonstrate a system thinking and how you would approach design, development, test, and deployment.

Time Estimation:

You can take up to a week to submit a solution.

Study Room:

Acknowledging that not every candidate may have a quiet space with a computer and Internet connection to complete this exercise, candidates are welcome to come to the Cascade Energy Portland office and complete their submission with a company laptop

and Wi-Fi. Send an e-mail to `jinsy.oommen@cascadeenergy.com` or call 866-321-4573 to arrange the space.

Submission Requirements:

Send an e-mail to `jinsy.oommen@cascadeenergy.com` containing your solution or a link to your solution along with any instructions on how to view your results.
Have fun with this! We will happily provide feedback on your solutions.

Scenario

We have a legacy weather system that is based on the Darksky API service. This service was acquired by Apple and they are shutting down their API service. To provide continuity of weather data, we need to switch to a new service. We also thought this might be a good time to examine our legacy weather data pipeline and make improvements where we can. We chose VisualCrossing as our new weather source. We have about a thousand locations and many more to come that would need hourly weather data on a daily basis. This new data needs to go into the same storage (Elasticsearch) as the old data, but we need to ensure that none of the old data gets overwritten. We also need traceability for each data point to trace back to the origin in case something goes wrong when presenting data to the customer.

The Task:

Design a system that can retrieve weather data for all required locations on a daily basis. This system may need to support in-flight data transformations and the ability to trace data back to the source. It might also be useful to know when a retrieval process failed and what needs to be done to overcome the failure.

Results

You can present pseudo-code, draw boxes, architecture diagrams, or a presentation that gets your thinking across. You can ask us clarifying questions ahead of time or come with a solution that we can evaluate together.