Hiring Challenge

FULL-STACK DEVELOPER

Language of choice : **Python** / **Javascript**

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Hiring Challenge

Make a simple proof-of-concept application which can store sensor data (eg. temperature sensor data) coming on a POST endpoint, expose the stored data on a GET endpoint.

Have a Frontend Application which can display to the enduser, stored sensor data as well as a graph of the stored data.

Objective

Create an API for an IoT sensor which will enable the sensor to report its reading and for any API client (frontend, reporting system) to query the sensor's historic data for time series of values, or simple statistics like Max/Min/Average values

Specification

 - Device sends data at certain intervals and can post the data in JSON format
 - Each POST request has field **reading** of type double, a field **timestamp** of type long, and string of **sensorType** containing the type of the sensor.

eg POST JSON payload
{reading: 26.0, timestamp: 1511161234, sensorType: "Temperature"}

- API should be able to store incoming sensor data for easy retrieval
- Queries could be date range queries
- Date queries would be asking for either
  - Time series of readings for a particular sensor type
  - or mean, maximum and minimum readings during that duration

TASK

Build a backend which adheres to the above specification.
Store the sensor data in any form of storage. Ease of development is of essence here. Storage could be just a plain JSON file saved to disk.
Bonus points for using SQL or NoSQL database as storage.
Build a frontend ui to show the values of a given sensor by daterange
 - As a table
 - As a line chart.

Bonus Points if the backend has a Dockerfile which can be used to build an image/run/deploy

Constraints

 - Use Python for backend, React/Plain Javascript/Jquery for frontend.

Interview Discussion Questions

- How would you secure this API. What strategies can be applied
- What are the scalability challenges for this API
- What data store would be ideal for such a data stream. List advantages or disadvantage of nosql bs sql databases for storing such a sensor dataset

DELIVERABLE

- Provide your solution as a public github repository with two folders. one containing the backend code, one containing the frontend code.

- Provide a readme file in the folder to describe steps needed to build and run your solution

- Screenshots of the working application.

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