Our client has installed an Internet-enabled temperature sensor in an office to monitor conditions. You have been provided with a REST API which connects to the sensor and provides the latest readings. The client would like us to write software to interrogate the API to get the temperature of the office and ultimately display this on a web page for their building managers.

1.

To get data from the API, a user needs to log in first. This requires an HTTP POST to the following URL: <http://informedactiontsapp:8080/login>, with the body of the request containing a JSON object:

{"user": "user123 ", "password": "l0g1n"}

Write some code to connect to the API and login. You can use Javascript/Node.js or any coding language/libraries you like, as long as the code is simple and readable.

2.

The above call if made correctly will respond with a JSON object containing a login token as follows: {"token":"abcdef123"}

Extend your code, so that after login, the code calls the API every minute to take the latest temperature reading. This is a GET request against this URL: <http://informedactiontsapp:8080/temp>, with the request containing the bearer token as returned by the login request.

The response will be a JSON object as follows: {"temp": *some\_value*}. Ultimately, we will store and display this value, but for now just log to the console. Again, your choice of language.

3.

Assume your code has been extended to store the temperature readings in a database. We need to provide our own API for providing the temperature readings so our client can produce a plot of the temperature for an arbitrary 24 hour period. However, given the large number readings, it’s not practical for the API to send all the readings in a 24 hour period across the Internet.

Write a method that takes a time series of temperature readings of the form {timestamp: *some\_time*, temp: *some\_temp*} and averages across five minute intervals to produce a smaller set of data that can be served across our API.

Then extend the method so that the calling code can specify any length of input time series and any interval duration.