

Backend Engineering Challenge

Build an API-driven backend with DynamoDB.

This backend is intended to be used by a single-page react application.

The application will integrate this API to fetch earthquake data:

https://earthquake.usgs.gov/earthquakes/feed/v1.0/summary/all_week.geojson

More information can be found here [GeoJSON Summary Format](#).

This application will be written in node.js

Requirements

Primary

- Build an endpoint that fetches and stores the 100 most recent earthquakes into the database
- Build a paginated endpoint to list earthquakes from the database, where multiple filters can be applied to the result
- Build a reusable system for collecting data from API requests and storing it in the database.
 - Collect the date and time that the request was made.
 - Collect some additional data e.g parameters/request body/headers (e.g. filters), API response, or request metadata (e.g. geolocation, request execution time).
 - Apply the data collection system to the first two endpoints
- Build an endpoint to query the data collected from the previous task over a timescale.
 - Choose a single statistic of your choice e.g. most popular filter by day, number of requests by week, average magnitude returned per month
- Describe without implementing how this system could be refactored to handle 500 requests per second
 - Include database design including descriptions of design choices.
 - No code is required.
 - Weight the pros and cons of the solution and possible alternatives
 - This task is open-ended, there is no right or wrong answer
- Show error handling
- Enough testing to show your testing approach and methodology.

Bonus

Not required, however knowledge of these topics is aligned with our tech stack and is highly regarded

- NoSQL database design
- TypeScript
- JWT based authentication

- OpenAPI Documentation
- Performance tuning

Documentation

A narrative explaining your approach, including:

- How did you setup your development environment
- An explanation of your decisions applied principles and motivations
- Approach and thought process when testing an application
- If time is limited what you would have done given more time
- If you are not familiar with DynamoDB document your thought process

Submission

Once completed, please send a link to a public git repository, with instructions on how to build and run. This should include curl requests or a postman collection for us to test the application.

