Fullstack Engineer Take-home Challenge

Owner	Verification	Tags
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⏳ **Duration:** There is no time limit; you decide what's enough.

✅ This exercise does not contribute to our product or codebase; it is purely hypothetical.

ℹ️ The best way to share the results are to share a GitHub link with your hiring contact.

Overview

At SINAI, we are all about taking a numerical approach to carbon management. As part of that effort, we have to compute the carbon footprint of everyday activities. While we focus on business processes, you can apply similar methodologies to personal activities.

The exercise

Build a full-stack personal carbon footprint calculator:

- Implement **two or more categories** from this guide
  - You can use the list of emissions factors in the references below or any other factors you find on the internet
  - If you need some inspiration, check out the EPA's household calculator (use zip code 94114)
- Emissions calculations should be performed by the backend and exposed via APIs
  - We use NodeJS/Express, but you can use any framework
  - We use GraphQL, but feel free to use REST or any other standard
  - **No need to store data in the backend, just expose the calculations**
- The frontend should be in React
  - Use `create-react-app` or `next.js` to bootstrap your app
  - Use Material UI Components instead of creating your own UI components

What we look for:

ℹ️ Our focus is on the code abstractions, structure and testing, and less on the accuracy of the calculations themselves.

- Clean, simple APIs
- Well-documented, consistent, stable, and well-abstracted code
- Tests

Reference files

https://www.epa.gov/system/files/documents/2023-03/ghg_emission_factors_hub.pdf

https://shrinkthatfootprint.com/calculate-your-carbon-footprint/

⁉️ **Questions?** Email kyle@sinai.com