



## Data Scientist: Take home challenge

The next stage of the process is a take home test, which can involve some data analysis, visualization, or API work depending upon your preferences. We've left the brief intentionally vague, because we're a startup: we can offer you a fast paced environment, clever people to learn from, and interesting problems, but we're not going to be able to monitor you closely or provide very detailed guidance. We're looking for self-starters who can take an idea and make something great happen.

### The challenge

The European Union requires ships larger than 5000 tons that dock in the EU to declare their emissions to the MRV system, which is made available [here](#).

On that page, you can find a download of all the data for 2018, 2019, 2020 and 2021.

We'd like you to work with this data to complete one of the options below.

At CarbonChain the Data Science team mainly works with Python, so we recommend using Python for your solution, although you may use any tools you see fit.

#### Option A: Data Analysis & Visualization

Please answer the following questions about the dataset:

- How many ships of each type are there?
- How do the emissions profiles differ for the different ship types?
- What is the relationship between ship Deadweight and emissions intensity?
- How many miles did each vessel in the database travel?

You're invited to present your work however you would prefer. Our only requirement is that you also provide the code you used to perform the analysis.

Feel free to point out anything else you find in the dataset that you think is interesting or useful. We're keen for you to show us things we didn't know in this dataset.

#### Option B: Build an API

Construct an API which returns information from this dataset, organized by vessel, and expose whatever endpoints make sense to you.

Please either deploy this service or make it easy for us to run locally, and send us a link to a repo where we can access the code or a zip.

### Submission

After you have completed the challenge, please let us know and we'll arrange for a session where you will present your approach and discuss it with some of our team.

If you have any questions please email me at [georgie@carbonchain.com](mailto:georgie@carbonchain.com).