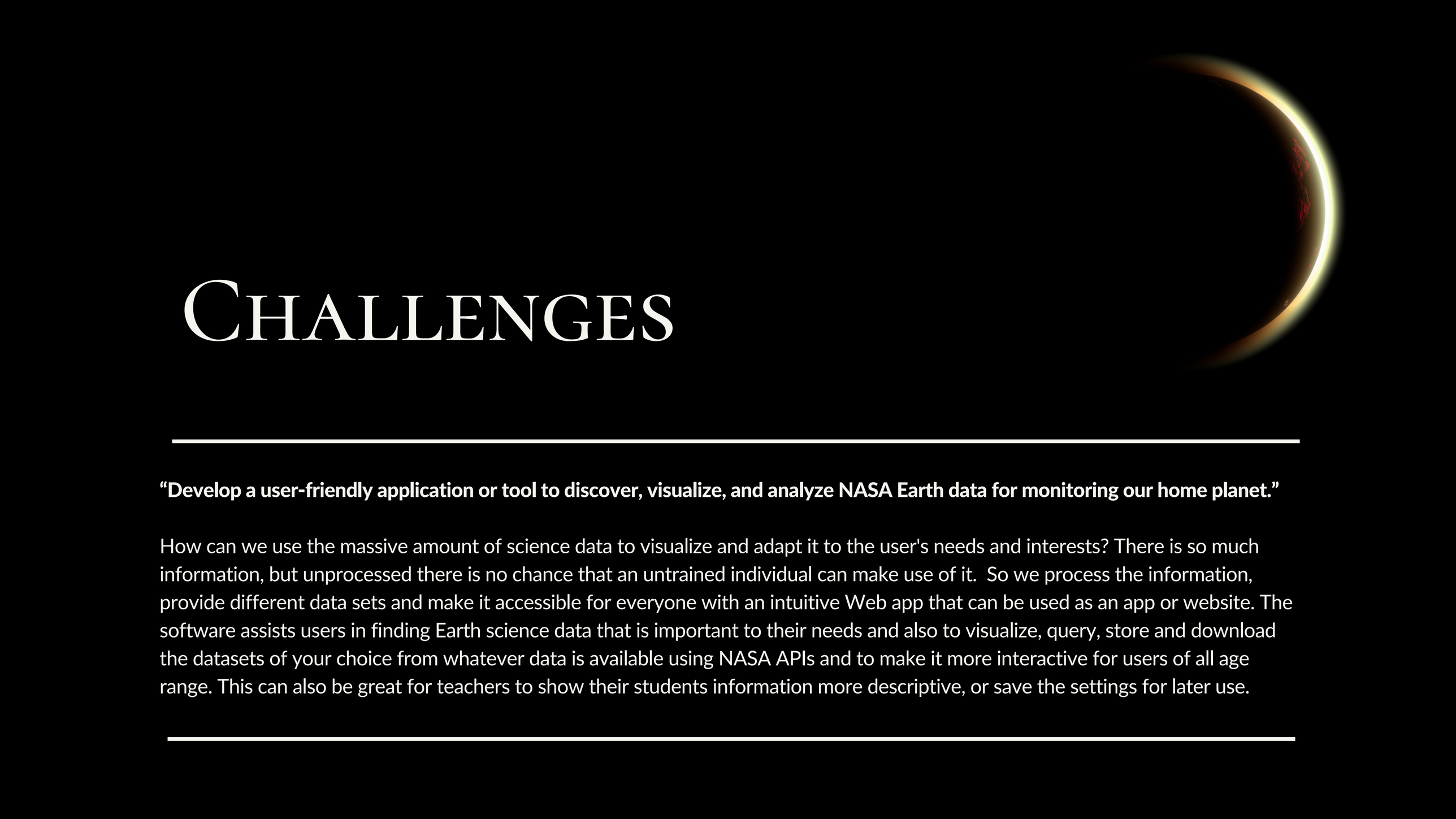

OUR HOME PLANET AT
YOUR FINGERTIPS
by Orbital Penguins

Today's Agenda

Challenges



“Develop a user-friendly application or tool to discover, visualize, and analyze NASA Earth data for monitoring our home planet.”

How can we use the massive amount of science data to visualize and adapt it to the user's needs and interests? There is so much information, but unprocessed there is no chance that an untrained individual can make use of it. So we process the information, provide different data sets and make it accessible for everyone with an intuitive Web app that can be used as an app or website. The software assists users in finding Earth science data that is important to their needs and also to visualize, query, store and download the datasets of your choice from whatever data is available using NASA APIs and to make it more interactive for users of all age range. This can also be great for teachers to show their students information more descriptive, or save the settings for later use.

Purpose of the project

Inspire people to explore the world using data-science

Strengthen awareness of climate crisis

self-explanatory tool for everyone on this beautiful planet

Roadmap

A brief overview of our Milestones

Conception

Develop a concept for this callenge

Design and Mock up

Layout of the web app

Setup Development Enviorment

Production preperations

First Prototype

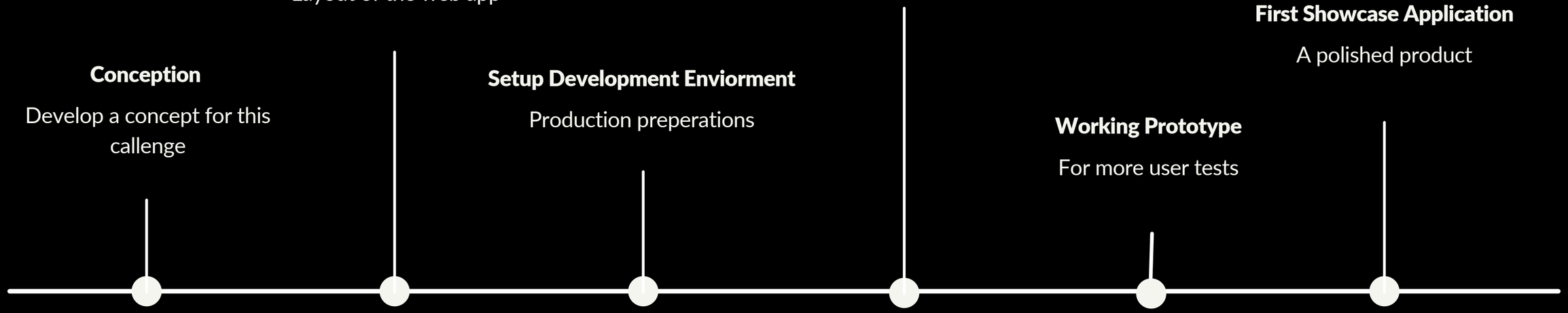
For user tests, check for needed modifications

Working Prototype

For more user tests

First Showcase Application

A polished product



Division of work

Benjamin

Data Pipelining and Data Interfacing

Daniela

Data Preparation, Calculation and Filtering

Elias

Head of Development

Fabian

Backend Operations and Backend Development

Lena

Frontend Development

Tamara

Design Conception and Project Management

Data and Pipeline

POST http://localhost:3000/categories Send

Query Auth Headers 2 Body 1 Tests

Text Json Xml Form Form-encoded Graphql

Json Content

```
{
    "categorie": "co2",
    "date": "2020-03-13"
}
```

Format

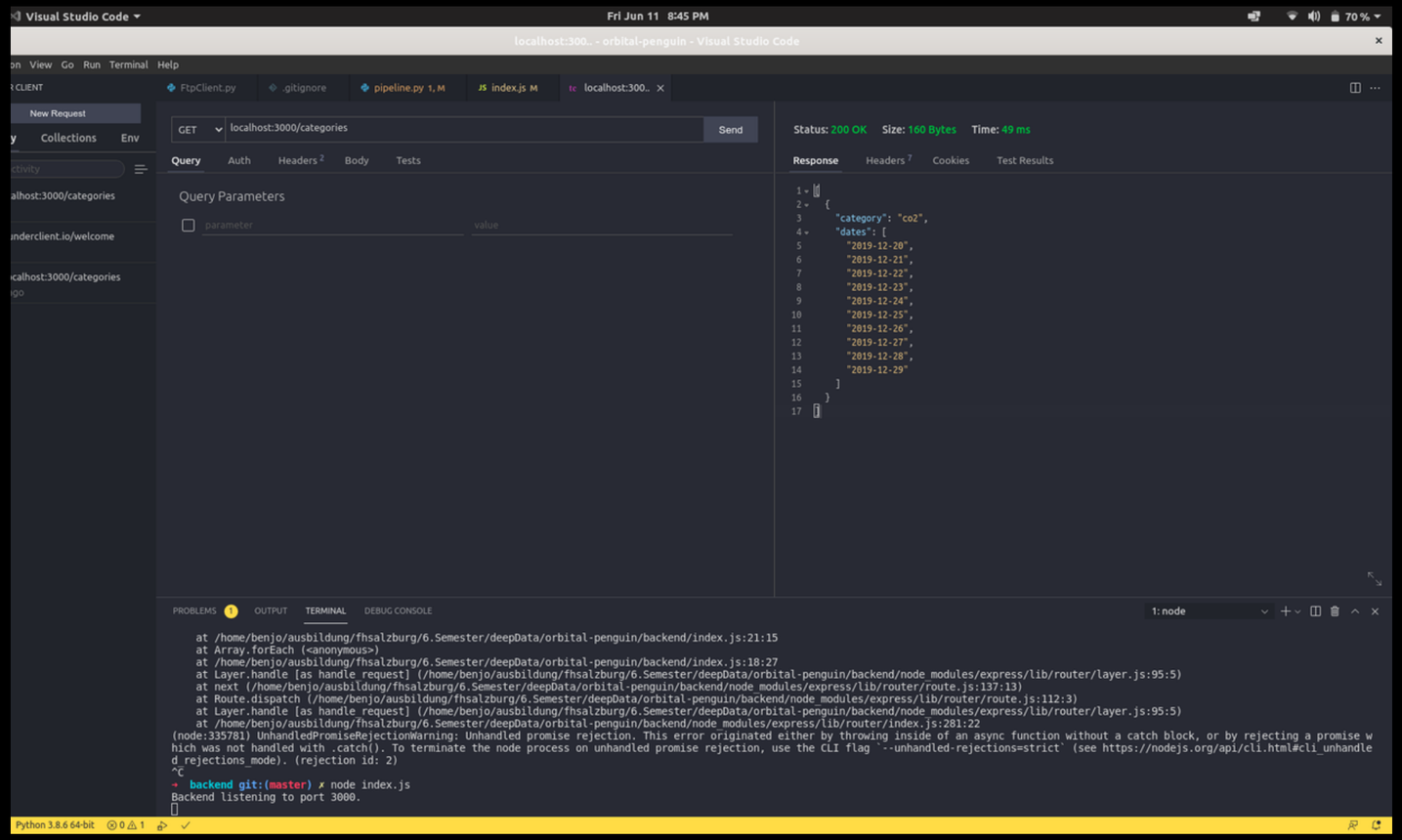
Status: 200 OK Size: 13.66 MB Time: 407 ms

Response Headers 7 Cookies Test Results


```
{
  "date": "2020-03-13",
  "data": [
    {
      "value": 1452310000000000000,
      "lng": 153.868,
      "lat": -4.688
    },
    {
      "value": 1865190000000000000,
      "lng": 154.395,
      "lat": -4.34952
    },
    {
      "value": 1437510000000000000,
      "lng": 154.426,
      "lat": -4.13478
    },
    {
      "value": 1324910000000000000,
      "lng": 154.775,
      "lat": -4.86558
    },
    {
      "value": 1496570000000000000,
      "lng": 154.865,
      "lat": -4.23753
    },
    {
      "value": 1103710000000000000,
      "lng": 155.195,
```


- NASA collects data
- Provides data via FTP endpoints
- Created ftp client
- Downloaded geolocation data sets
- Transformed data to fit to the backend

Backend

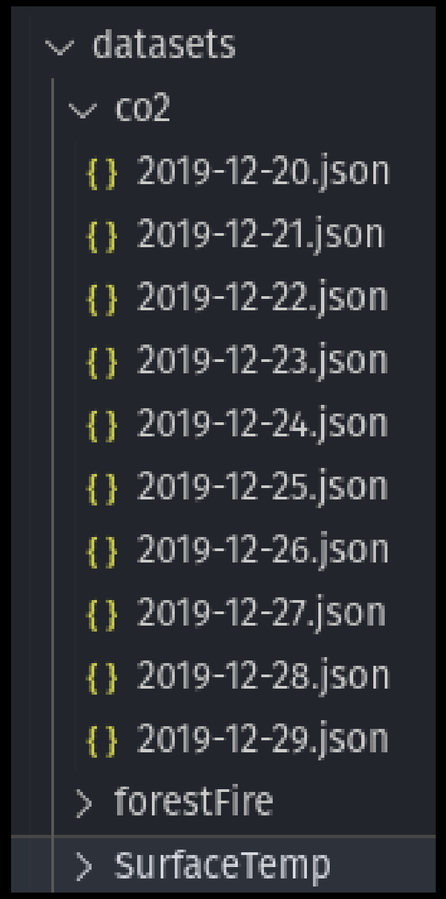


Requests

Request that shows all available datasets with their available days

Request that loads all data for a specific day from the server

Backend

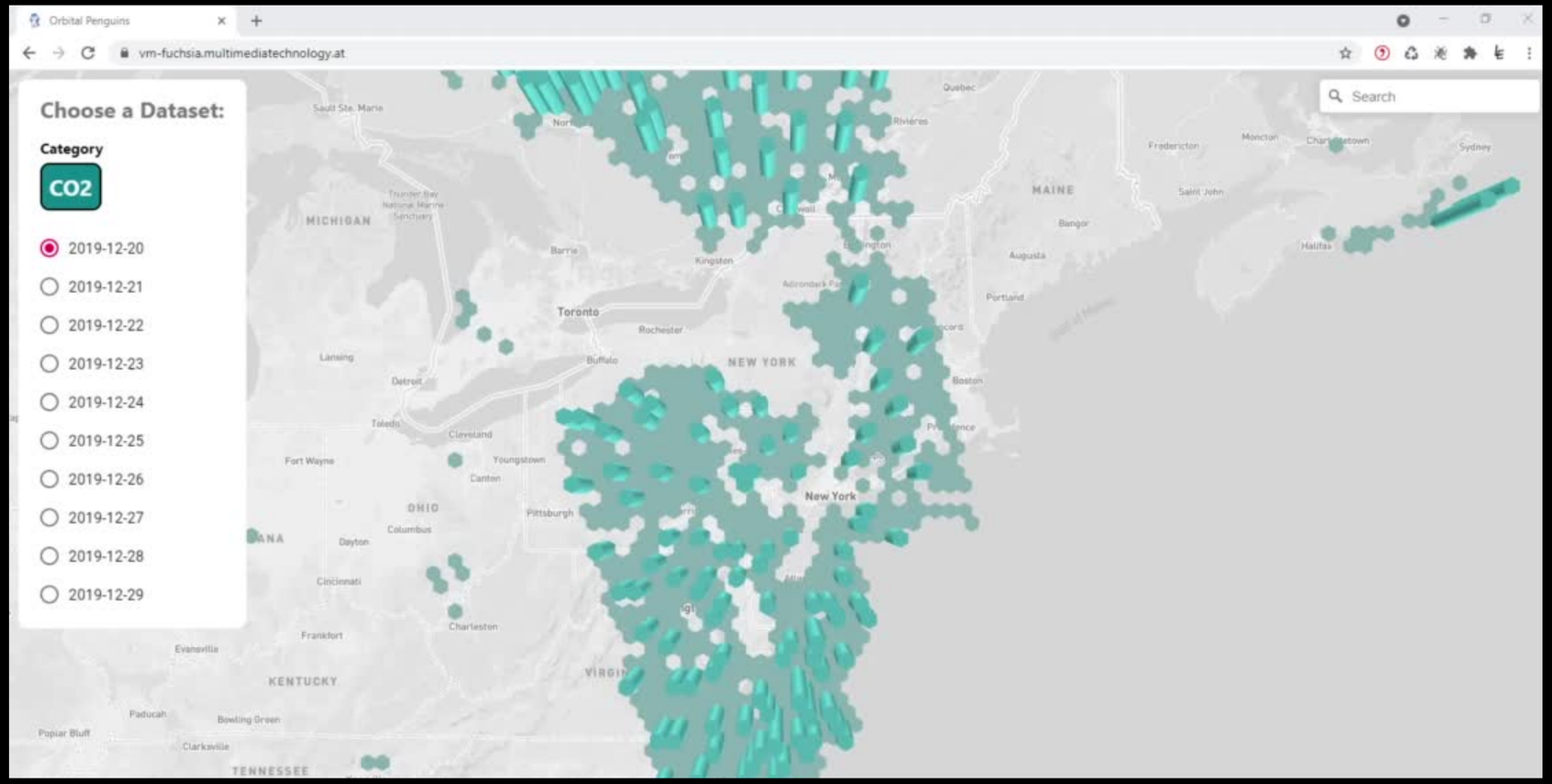


Modular insertion of new datasets

A dataset is a directory on the backend server

Each day is saved as a file

Frontend

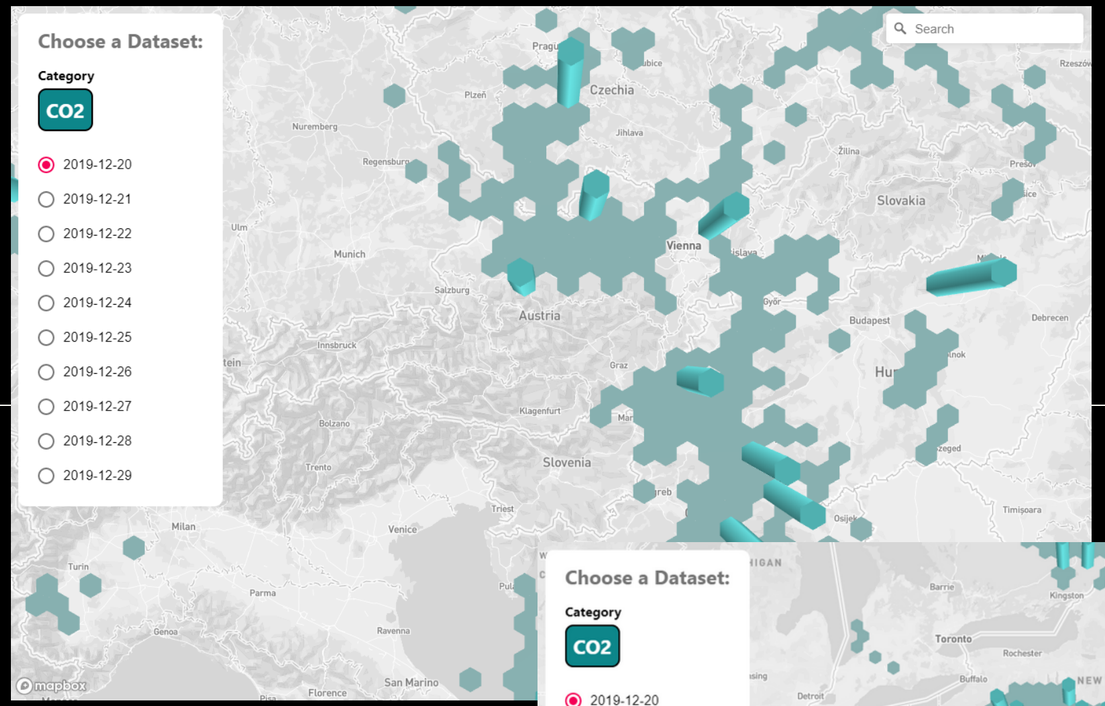


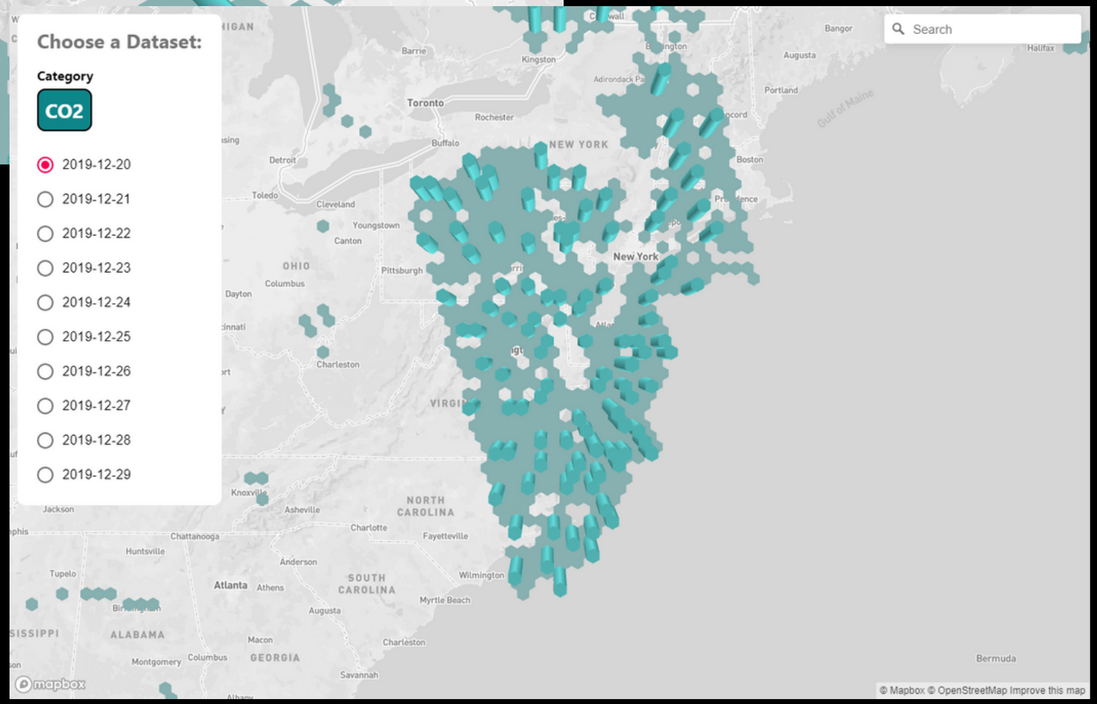
Data gets mapped according its coordinates

and visualised in a component-based Redux-React application

build upon Deck.gl and Mapbox

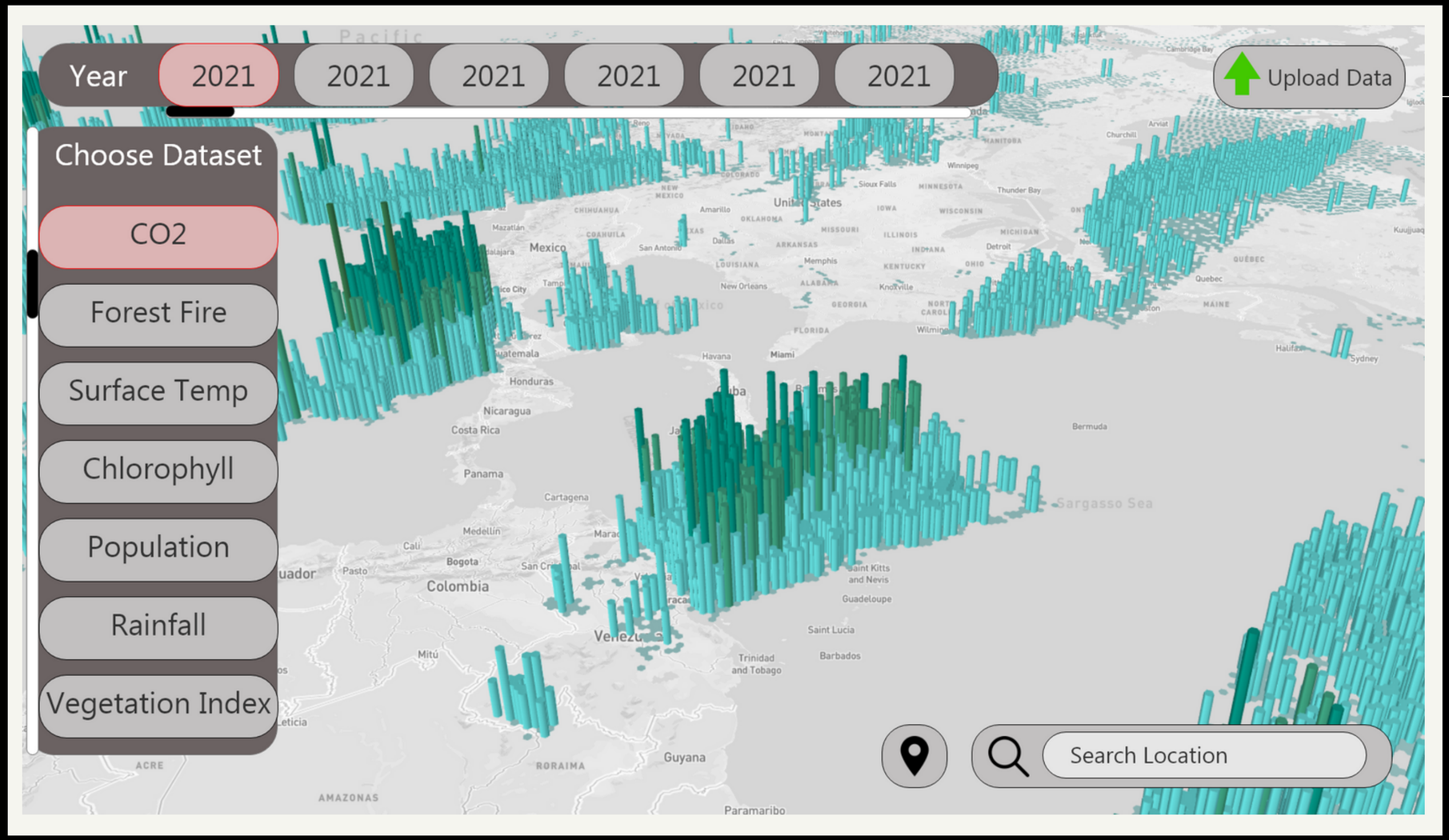
Our Result

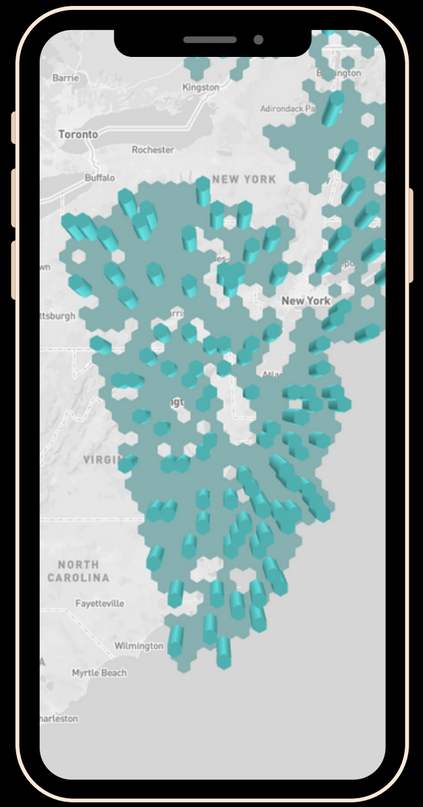




https://vm-fuchsia.multimediatechnology.at/

Future Features





— Thank you

Benjamin Halilovic, Daniela Wollmarker, Elias Bader, Fabian Bliem, Lena Ebner, Tamara Moss

Sources

Git Repository: https://github.com/development-with-benjamin/orbital-penguin

CO2 Data: ftp://asc-csa.gc.ca/users/OpenData_DonneesOuvertes/pub/

Technologies:
https://reactjs.org/
https://deck.gl/
https://www.mapbox.com/
https://expressjs.com/de/

Over and Out now!
THANK YOU for being part of our mission!