

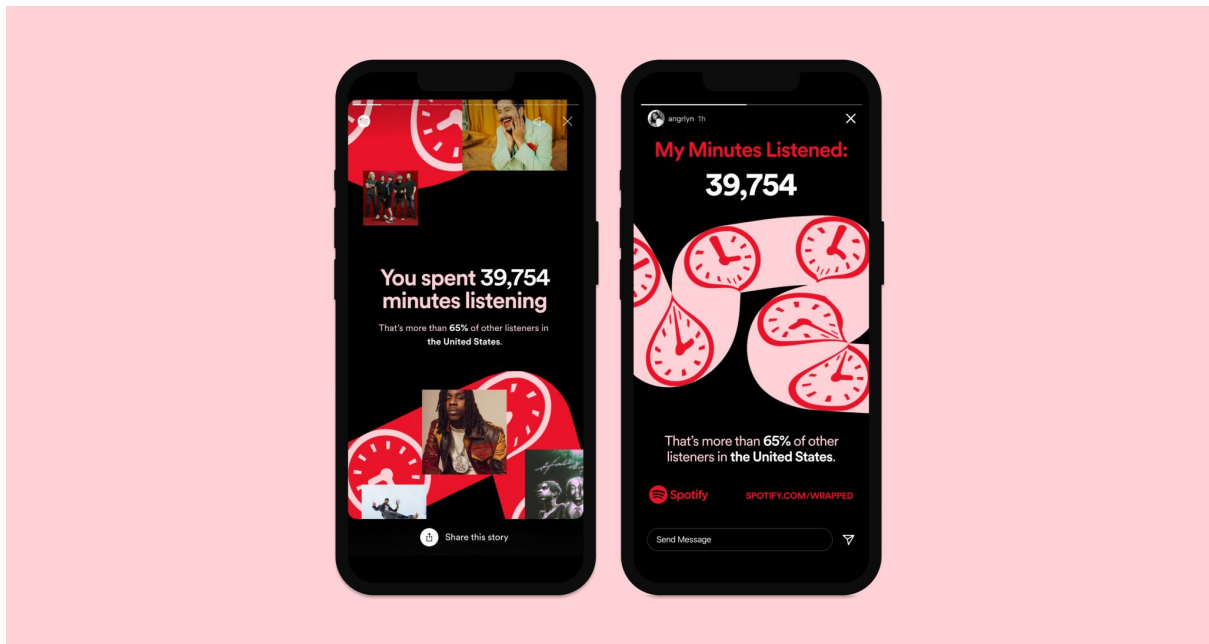
Documentation

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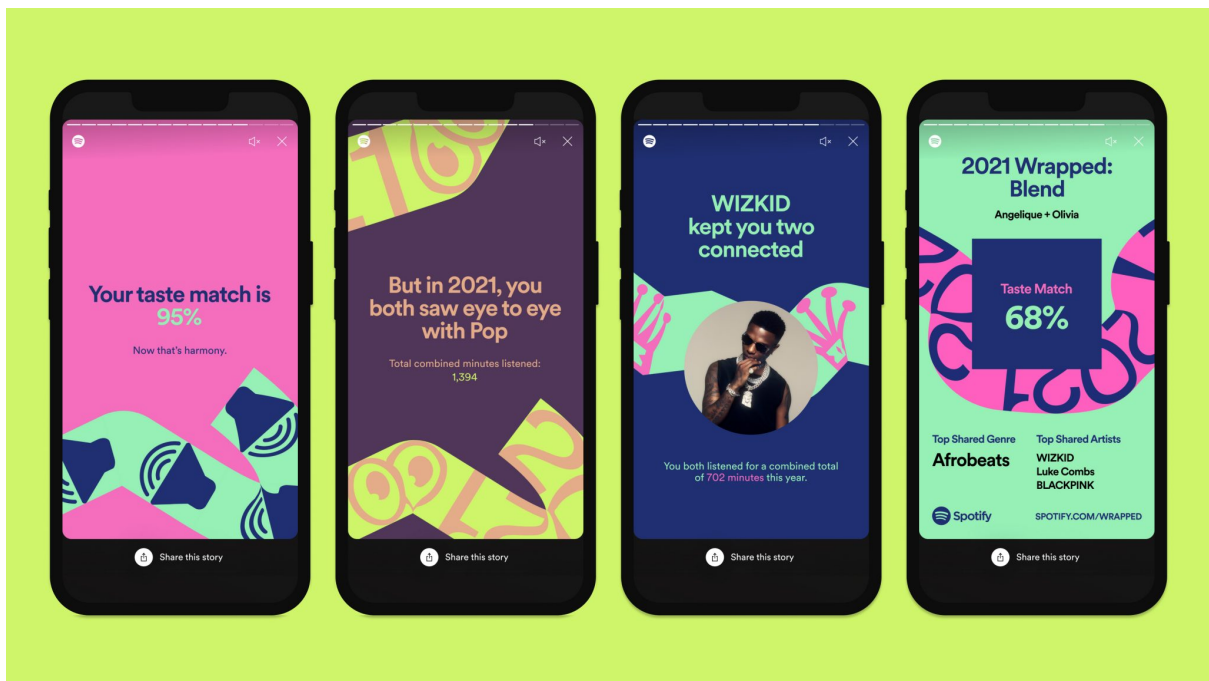


INTRODUCTION

I'm an avid music listener. Opening Spotify is probably the first thing I do every morning. My excessive music listening habits generate a lot of data for Spotify. They found a way to make users excited about their data being collected, because every year, usually in December Spotify releases a personalized slideshow with all the data they collected over the year. They call it "Spotify Wrapped". This slideshow goes viral every year. People share their most streamed songs and make fun of their most-listened music. This gave me the idea for "Our Planet Wrapped". Take the visualisation aspect of Spotify and combine it with something close to my heart: **The climate crisis.**



Spotify Wrapped 2021 (courtesy of Spotify)



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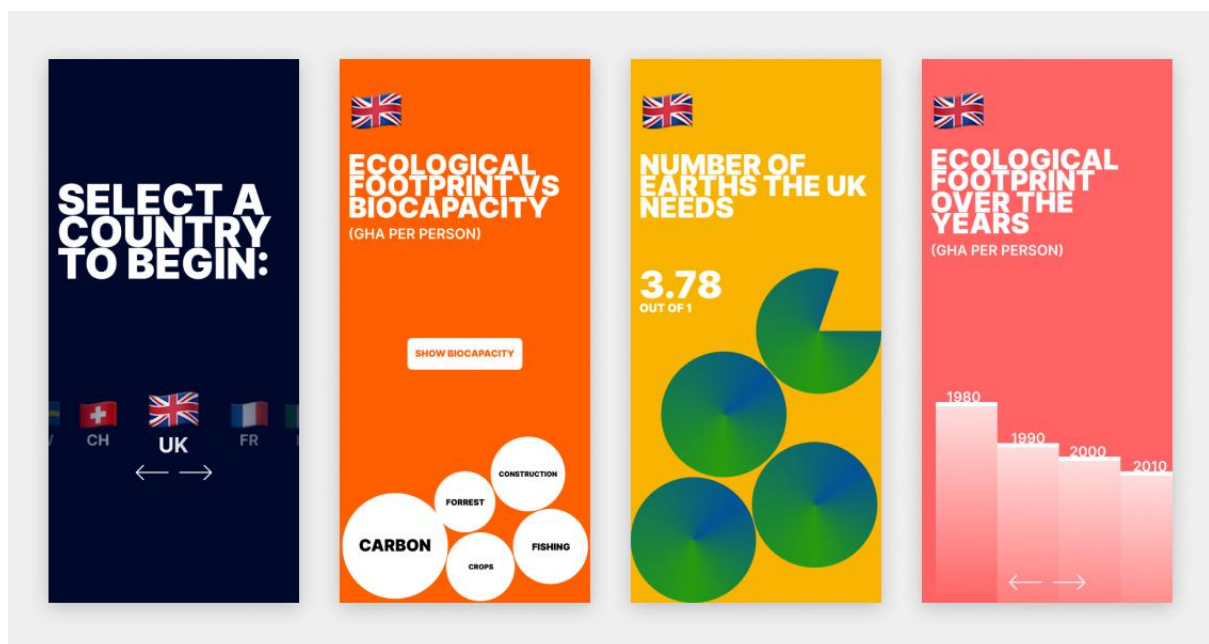
There is a ton of data out there about the climate crisis and global warming, it can easily get very overwhelming. That's why I focused on one concept because the goal was to convey a simple message and not confuse the user with a lot of data. The concept I choose is the [Ecological footprint](#). The concept was initially developed in 1992 by Mathis Wackernagel and William Rees. Wackernagel now runs the Global Footprint Network, an international nonprofit organization focused on ending ecological overshoot by making ecological limits central to decision-making. For this project, I got in touch with Wackernagel and I was able to ask him a few questions about the data they are gathering and how to display it in the best way. The footprint network provides

a free dataset with all the necessary data points I needed. They have an excellent free API that allowed me to query data from different countries.

My primary audiences for this project are people that are on social media and have a certain technical affinity. When they interact with the product they should feel comfortable using it because they are already familiar with the look and feel and the navigation patterns. The idea was that the project could be highly shareable, so someone could send the link to the website to a friend and they would be instantly hooked.

DESIGN

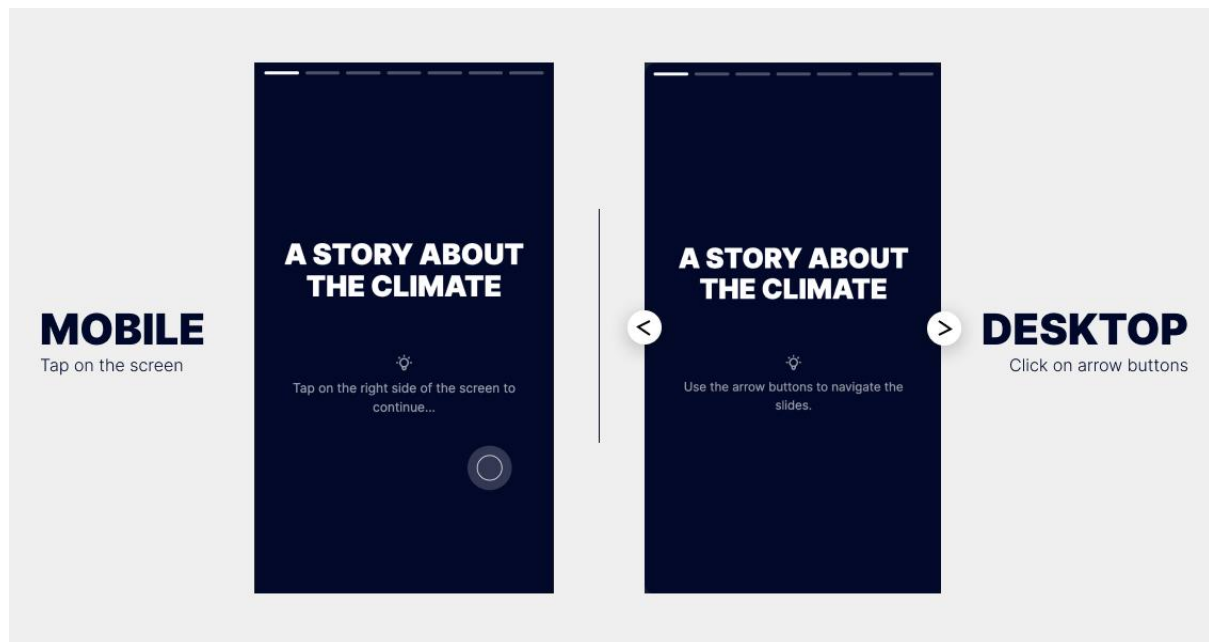
For the design I had a clear vision in mind. Big bold font style with high contrast to the background. The design should be structured but also feel fun and accessible. The design is inspired by Spotify Wrapped, but still has its own design components and colour palette. The information a graph shows should be clear just from just a quick glance.



Early designs

A big challenge was to get the navigation right. The web app is mobile-first but desktop users should still have a good experience with the product. First, I wanted to implement a swipe navigation for mobile. This proved to be very tricky and hard to build. There were too many edge cases I had to consider so I copied the entire navigation pattern from Instagram stories. For mobile, the user now has to tap on the right side of the screen to go to the next slide or tap on

the left side to go to the previous slide. For desktop users, I added some arrow buttons.



Difference between navigation patterns

DEVELOPMENT

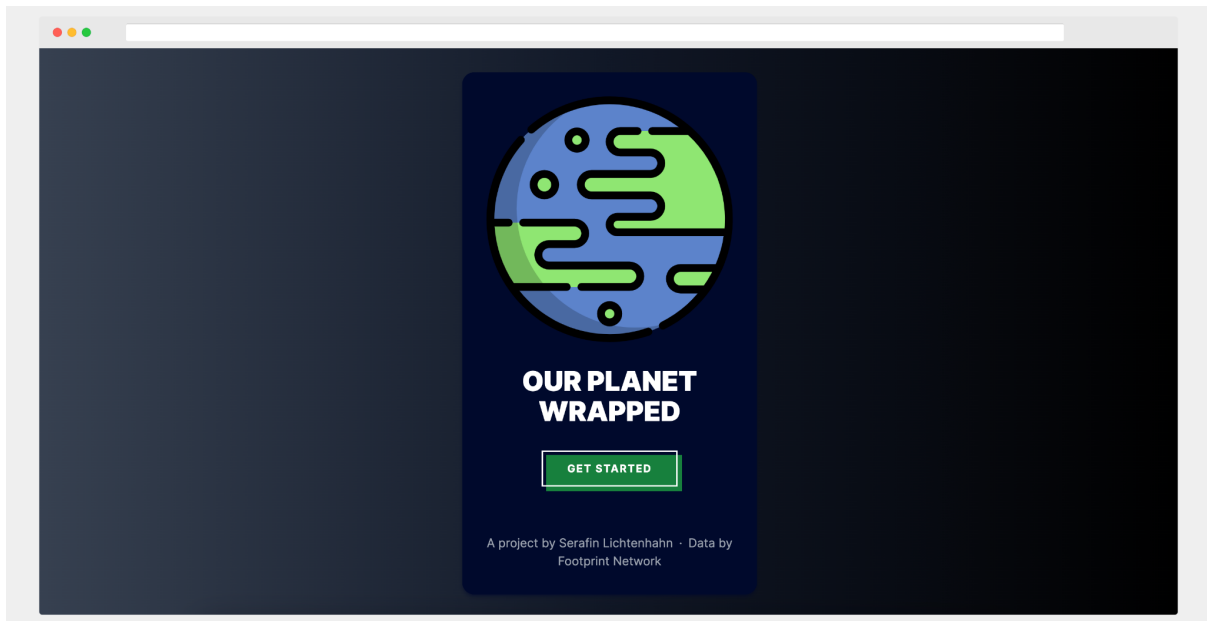
For the website, I used a framework called Nextjs. Nextjs is a framework for building server-side rendered React applications. It includes features such as automatic code splitting, server-side rendering, and static site generation. I also wanted the website to be as immersive as possible. That is why I built the site as a Progressive web app. A Progressive web app (PWA) is a type of web application that delivers a native app-like experience to users. It is a web app that is installed on the user's device and can be accessed offline. I designed the web app to be a fast, reliable, and engaging experience for users. It uses modern web technologies to deliver a user experience that is similar to a native app. It can be installed on a user's device just like a native app. It can be added to the home screen and can be accessed offline.

Nextjs offers API routes which are serverside rendered. It uses these features to build my own API on top of the Footprint Network API. This allowed me to keep my API key private and also format the data serverside which should result in faster load times. Initially, I didn't want to use the Footprint Network API, but rather the public dataset Excel files. I switched to the API at some point because the public downloadable dataset is somewhat limited and didn't give me the data I needed to tell the complete story.

For the graphs and visualizations, I used d3.js. d3.js is a powerful JavaScript library for manipulating data-driven documents. It is often used in combination with other libraries, such as Framer-Motion, to create sophisticated and interactive visualizations. d3.js allows developers to bind data to DOM elements and then manipulate those elements

based on the data. This gives developers great control over how data is displayed, making it possible to create sophisticated visualizations. Framer-Motion is a library that makes it easy to create animations and transitions in React. It provides a declarative API that makes it easy to describe complex animations. When used together, d3.js and Framer-Motion can create amazing visualizations that are both informative and visually appealing.

PROTOTYPE



Final result

The web app is hosted on Netlify as a statically generated React Nextjs application. Netlify is connected to the GitHub Repository so when I now commit to the repository, Netlify will fetch the code from Github and serve the most recent version of the app.

The application is available on <https://our-planet-wrapped.netlify.app/>

APPENDIX

5 Questions for Mathis Wackernagel:

Q: Assuming someone only has the time to look at one graph or data set the Footprint Network publishes, which would it be?

A: <https://data.footprintnetwork.org/#/countryTrends?cn=5001&type=earth>

Q: What do you think makes a good "data story" or data visualization?

A: Is it relevant to decision-makers? Does it help them to recognize their skin in the game? Does it motivate (produce desire, sense of agency, and stimulate curiosity?)

Q: What is one action everyone can take to reduce their Ecological Footprint?

A: We never say "footprint reduction" as people think we want to take their chocolate away. We advocate for resource security. Here examples how it can be achieved -

<https://www.overshootday.org/solutions/> with more ideas here:

<https://www.overshootday.org/power-of-possibility/> explained as well here

<https://www.swissinfo.ch/ger/mathis-wackernagel---privilegien-und-resignation---ein-toxisches-gemisch-/47433028> (German and English)

Q: Follow-up question: Is this the right approach at all, or does policy need to change fundamentally first?

A: Countries need to recognize that resource security is essential for maintaining economic prosperity. Few countries worry currently about their resource imbalance (I am in NL now, they use 7.5 Netherlands, and seem unconcerned).

Q: I imagine it is often rather depressing to work out the rather shocking data. But is there a trend or graph that makes you hopeful?

A: I am an engineer. Overshoot is not the biggest risk, the biggest risk is not to look and not to address it (we could, but do not seem to want sufficiently). So data is not shocking, but empowering to me. It allows us to take our fate into our hands. I am more surprised how companies, cities and countries do not see their self interest in protecting themselves from the forces of the predictable future...