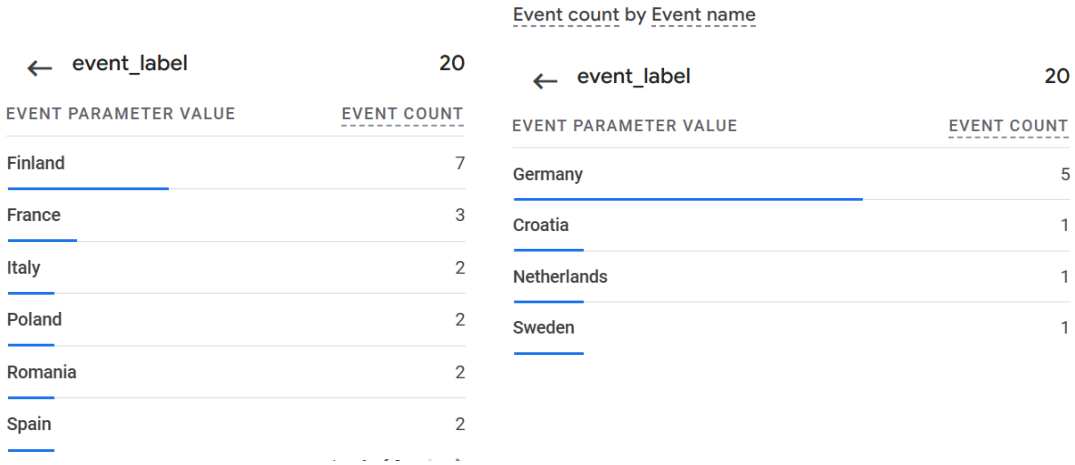
Reflection Report

In this project, I implemented Google Analytics 4 (GA4) tracking to gain insights into user interactions with my website. The primary focus was on capturing specific user actions additionally to the basic metrics already collected by Analytics, aka selecting dates and countries, which are central to the tool's functionality. By tracking the events *date_selected* and *country_selected,* and attaching relevant dimensions (selected date in dd/mm/yyyy format and country name), I aimed to understand user engagement patterns and analyse areas of improvement.

For instance, from the *selected_country* dimension a consistent pattern emerged in user behaviour: individuals tended to concentrate their activity on a single country, returning to it multiple times within a session. This was exemplified by two distinct sessions where Germany and Finland received most interactions.



The tracking of dimension labels—such as selected countries— is limited to a single 30-minute session. This is primarily because this way it is easier to understand immediate interactions making data analysis more straightforward. Moreover, this approach enhances user privacy by avoiding persistent identifiers. However, this constraint also means that longer-term patterns and user behaviour over multiple visits are lost which limits the depth of insights available.

To make it persistent a database with user id, the date and time of the session and the country and date selected. This way the database would be maintained and updated across sessions and more in depth, long-term analysis could be conducted.

Additionally, GA4's automatic metrics provided foundational engagement data that helped contextualize these custom events, offering a more complete picture of how visitors flowed through the website.

As anticipated, the homepage—featuring the calculator—was the most frequently visited page. Notably, a significant portion of users also explored the 'Why' page, indicating a strong interest in understanding the importance of trees and the context behind the tool.

The ‘Dataset’ tab, created for more academically focused users was the least visited page, as expected. However, the importance of references and credit attribution makes its presence essential to the fairness of the website, hence, regardless of the low engagement it provides, it will not be deleted but adjustments such as merging it with another page or making it accessible only from the ‘Methodology’ tab instead of the header could be considered.

User engagement > Page title

TITLE		% TOTAL
Carbon Calculator	47.8%	-
Why Trees Matter - C...	32.6%	-
Calculation Methodo...	10.9%	-
Carbon Footprint to ...	4.3%	-
Datasets - Carbon F...	4.3%	-

Benefits and Harms of User Tracking

User tracking offers significant benefits, including the ability to enhance user experience through data-driven decisions and optimize resource allocation by focusing on features users engage with most. However, it also poses potential harms, such as privacy concerns and the risk of data misuse. Users may be unaware of the extent of data collection, leading to trust issues, especially when third-party tools like Google Analytics are involved.

Implications of Data Collection

From my position as a student and developer, it's crucial to approach data collection ethically and transparently. To address this, I added this at the bottom of all the pages of the website:

This website uses Google Analytics to collect anonymous usage data, helping us improve the tool. No personal information is stored. Please note this site is not encrypted (HTTP only).

This message allows users to make informed decisions about their engagement with the site.

Using Third-Party Tools

Utilizing third-party tools like Google Analytics offers robust features and ease of implementation. However, it also means entrusting user data to external entities, which may have their own data handling practices. It's essential to weigh the convenience and capabilities of such tools against potential privacy implications and to ensure that their use aligns with ethical standards and user expectations.

The reasoning I followed to reach my decision was rooted in time constraints since Google Analytics offered widely adopted, well-documented and efficient alternative to building a custom tracking solution from scratch.

Conclusion

Implementing GA4 tracking provided valuable insights into user interactions, guiding improvements to the tool. While user tracking offers significant benefits, it must be balanced with ethical considerations and transparency. Informing users about data collection practices and being mindful of the implications of using third-party tools are essential steps in maintaining user trust and ensuring responsible data handling.