Averías PR
Enhancing Infrastructure Accountability in Puerto Rico

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1 Problem Statement

The problem at hand revolves around Puerto Rico's deteriorating infrastructure, exacerbated by natural disasters and systemic neglect. The absence of a centralized monitoring system for infrastructure issues worsens the issue, leaving residents and public officials unaware of the full extent of infrastructure challenges and impeding accountability mechanisms.

2 Problem Background

Over the past decades, Puerto Rico's infrastructure has degraded due to its vulnerability to natural disasters and a noticeable lack of systemic investment, earning a concerning D- grade in the 2019 American Society of Civil Engineers Infrastructure Report Card [1]. Despite federal aid efforts like the 2021 Infrastructure Investment and Jobs Act—allocating $900 million for road and highway restoration and an additional $225 million for bridges [2]— the promised improvements are yet to materialize. Without a publicly accessible national monitoring system, it's hard to assess the full extent of infrastructure issues and ensure accountability.

3 Objectives

Averías PR endeavours to develop a comprehensive web application. This application serves as a vital centralized hub, consolidating reports of infrastructure issues from across the island and presenting them in an easily accessible format. Averías PR aims to:

1. Provide a platform for at least 150 simultaneous users to access an interactive map displaying reported infrastructure issues across the island.
2. Provide a process to receive, validate, and update the interactive map when receiving at least 50 reports within a 1 minute timeframe.

4 Technical Approach

In response to the absence of a centralized platform for reporting infrastructure issues across Puerto Rico, our project aims to develop a web application. This application will function as a centralized hub, aggregating all reported issues and presenting them to users in an easily accessible format. Through an intuitive island map interface, users will be able to navigate and explore reported problems, conveniently sorted by municipalities and by other categories.
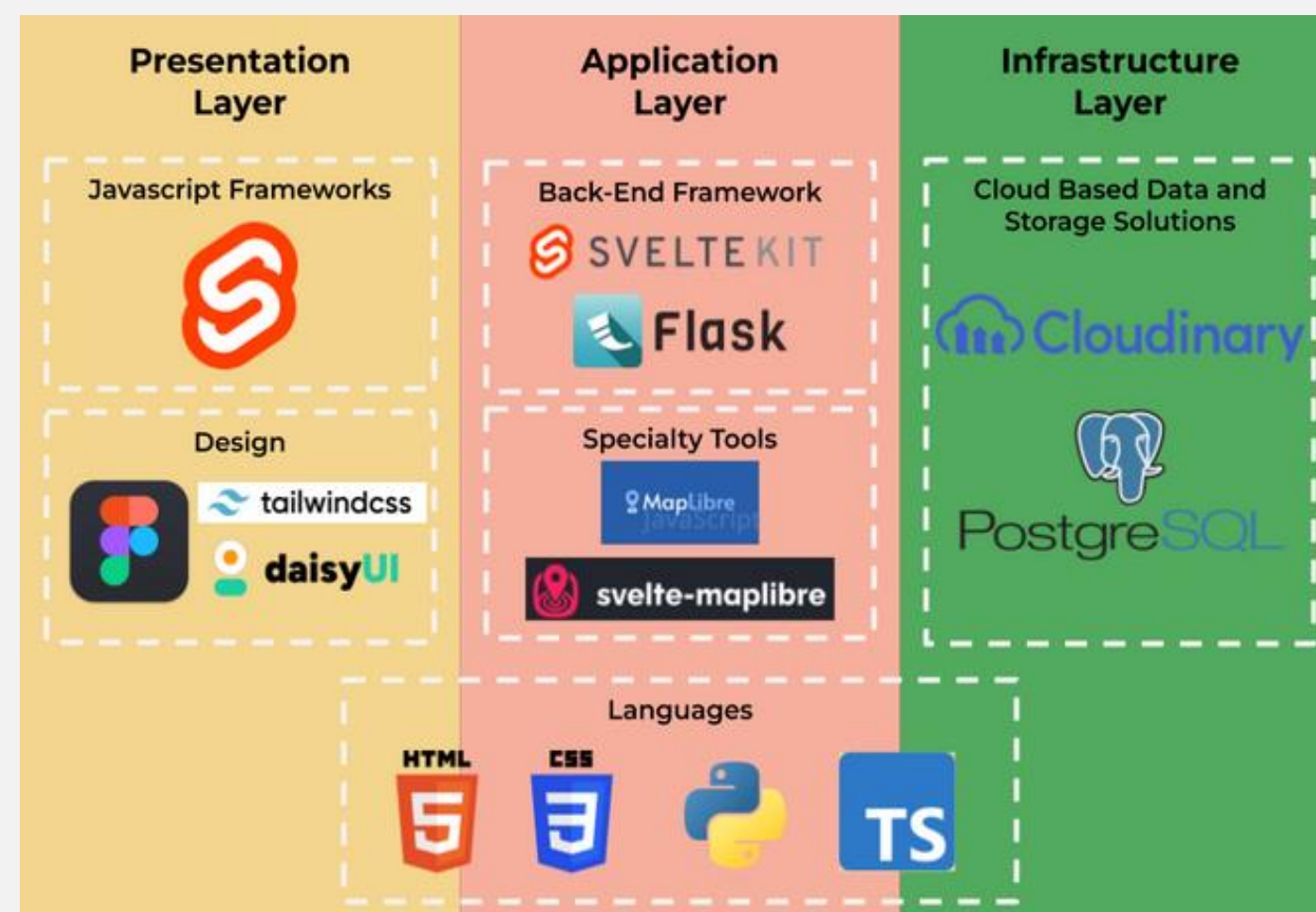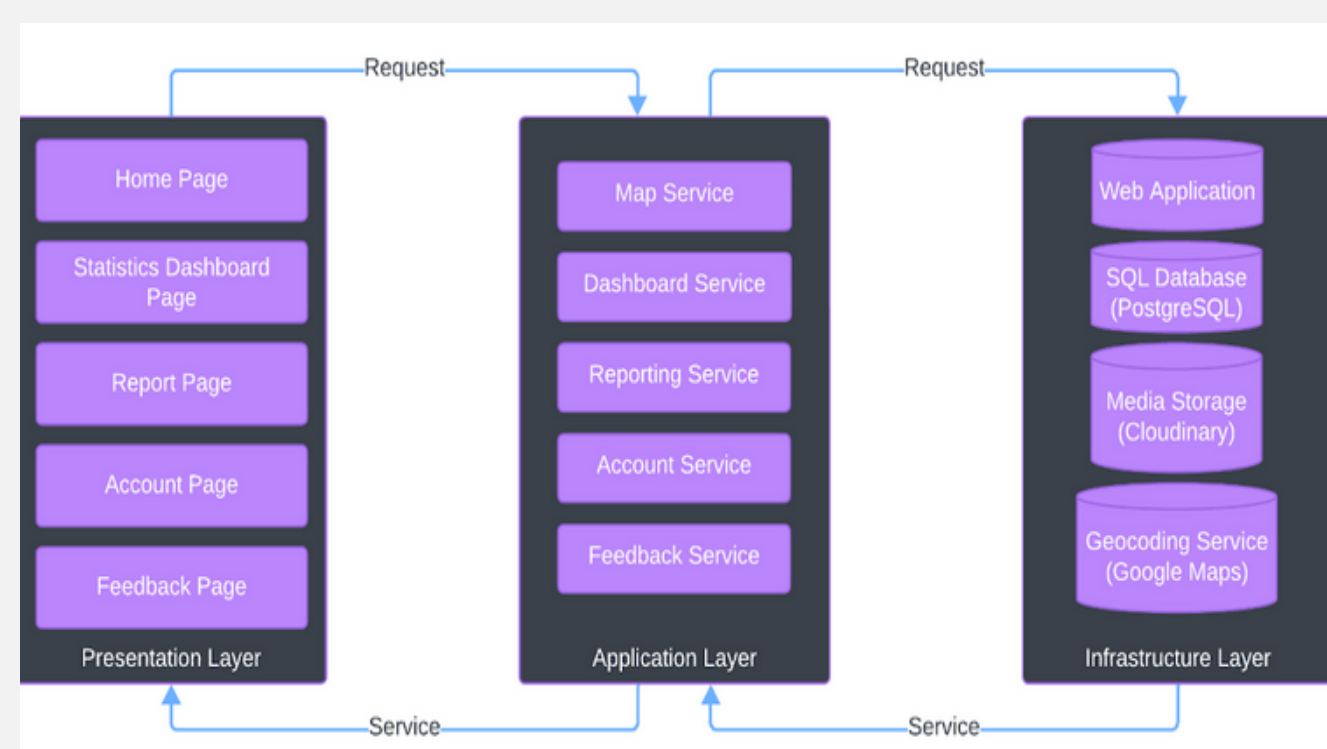

Fig. 1: Tools and Resources

Fig. 2: System Architecture Diagram

Averías PR adopts a robust architecture, leveraging frameworks like Svelte for the frontend and Flask for the backend. PostgreSQL serves as the backbone for data storage, ensuring scalability and reliability. Cloudinary integration facilitates efficient media storage, enabling users to upload images as evidence of reported issues.
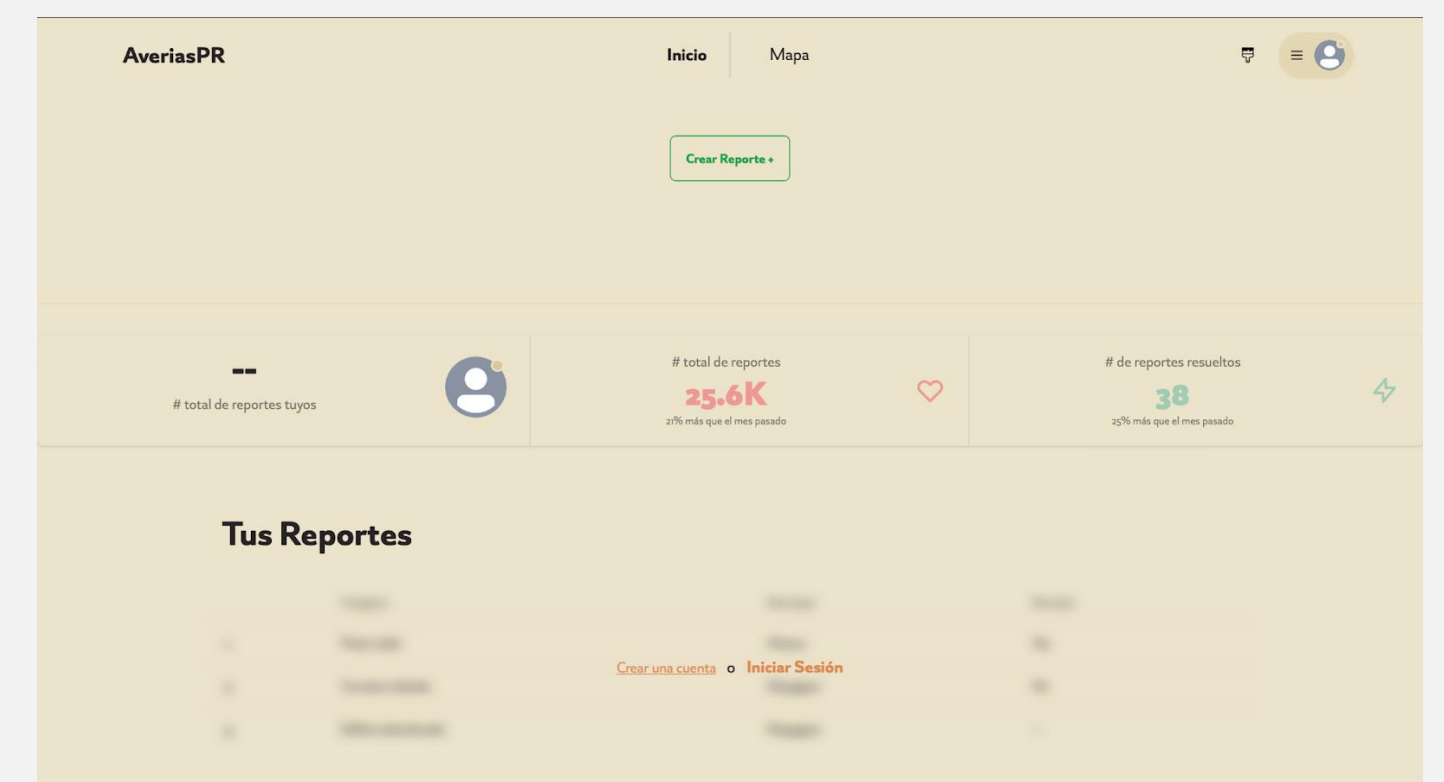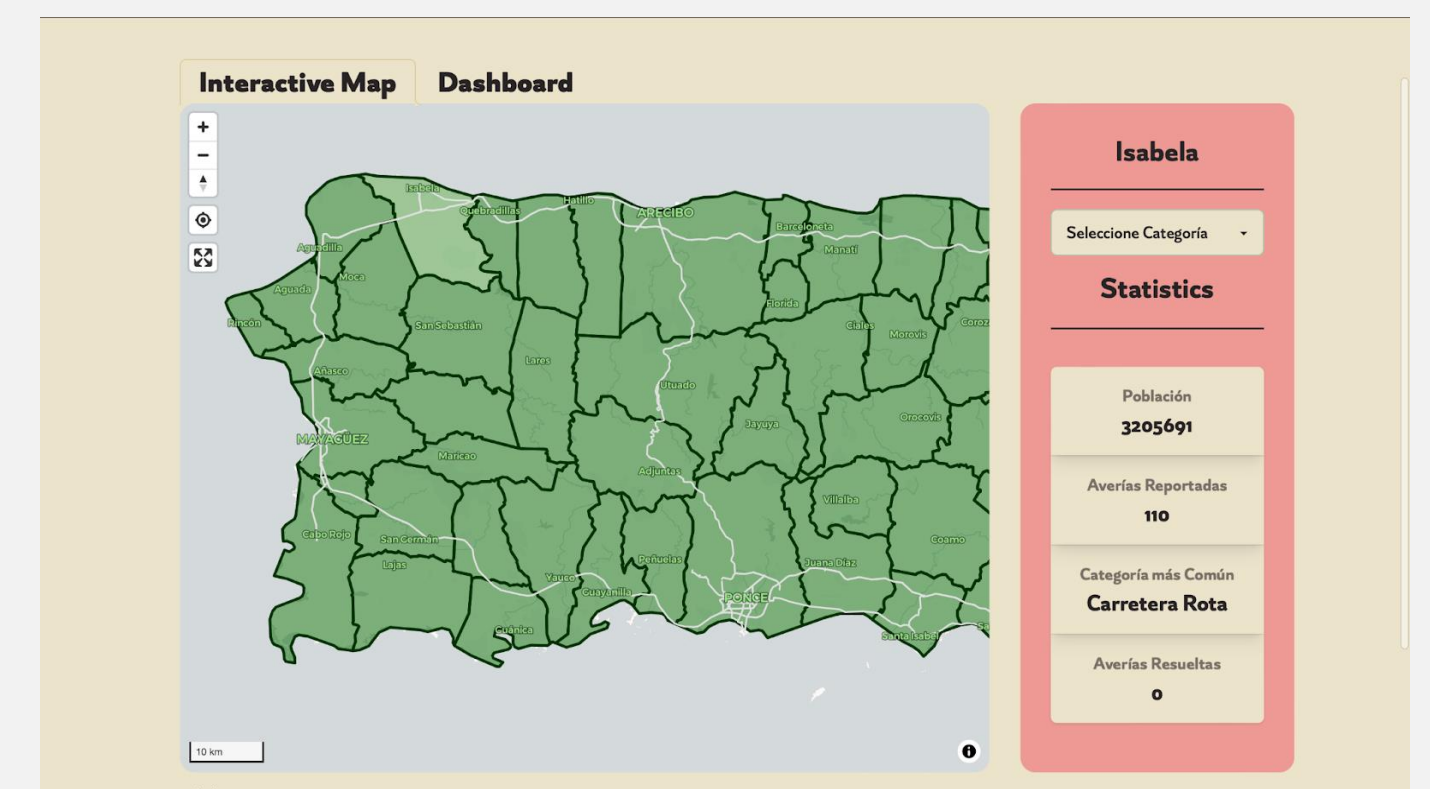
5 Results

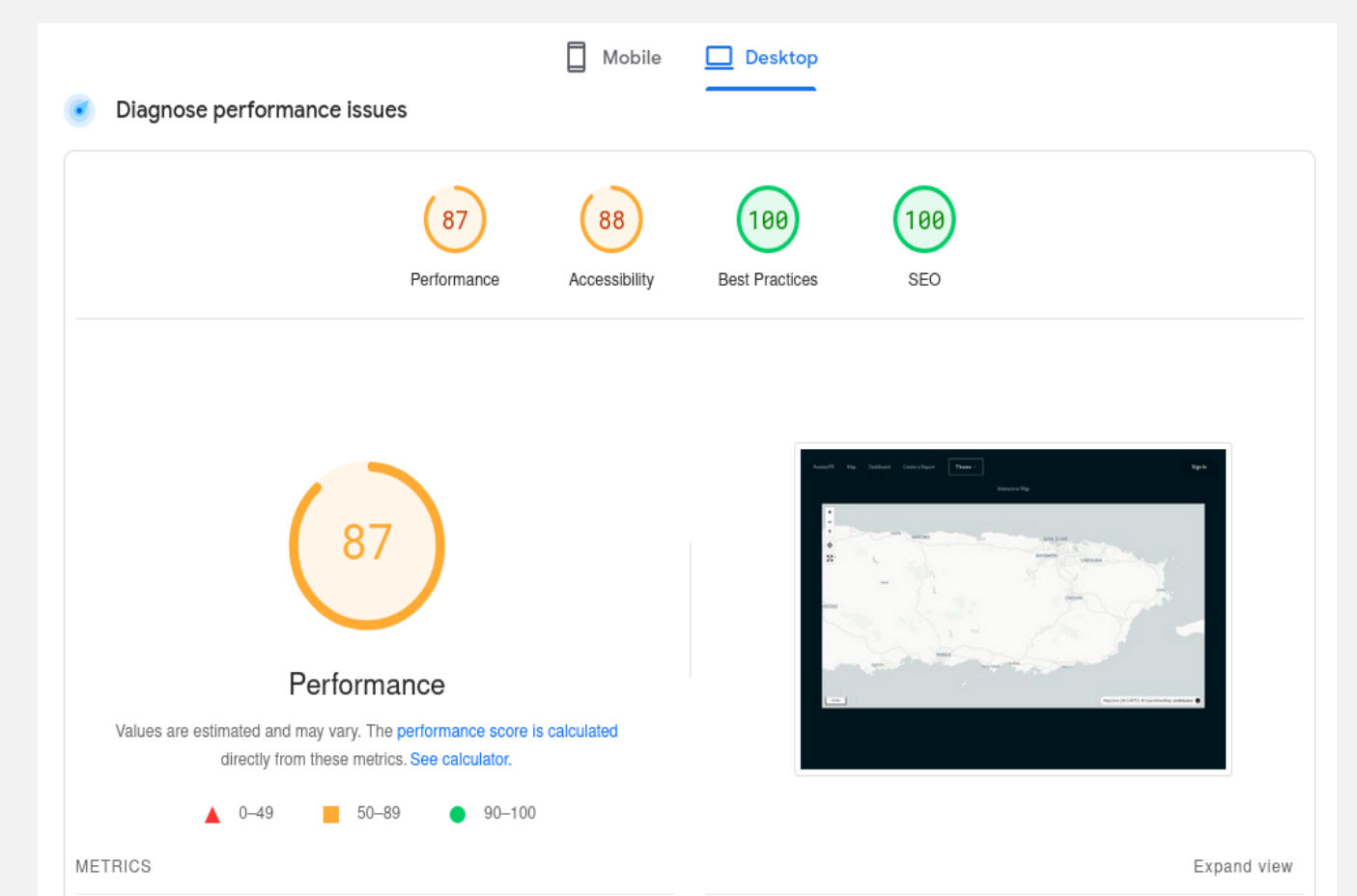Fig. 3: Profile screen

Fig. 4: Interactive Map view

Fig. 4: PageSpeed Insight Performance Score

6 Conclusion

The Averías PR platform provides a straightforward reporting interface, allowing users to quickly and easily report infrastructure issues in their area. The platform also provides an Interactive Map that allows users to select their municipality of interest and view relevant statistics for that region.

R References

1. "Puerto Rico Infrastructure: ASCE's 2021 infrastructure report card," ASCE's 2021 Infrastructure Report Card, https://infrastructurereportcard.org/state-item/puerto-rico/ (accessed Feb. 14, 2024).

2. "The Infrastructure Investment and Jobs Act will deliver for ...," The White House, https://www.whitehouse.gov/wp-content/uploads/2021/08/PUERTO-RICO_Infrastructure-Investment-and-Jobs-Act-State-Fact-Sheet.pdf (accessed Apr. 28, 2024).