

# LML Marine Debris Map Data Visualization

Bridget Chew, Kaitlyn Liao, Noah Cantwell, Spencer Fulgham, Vinh Le, Zachary Miller

## Abstract

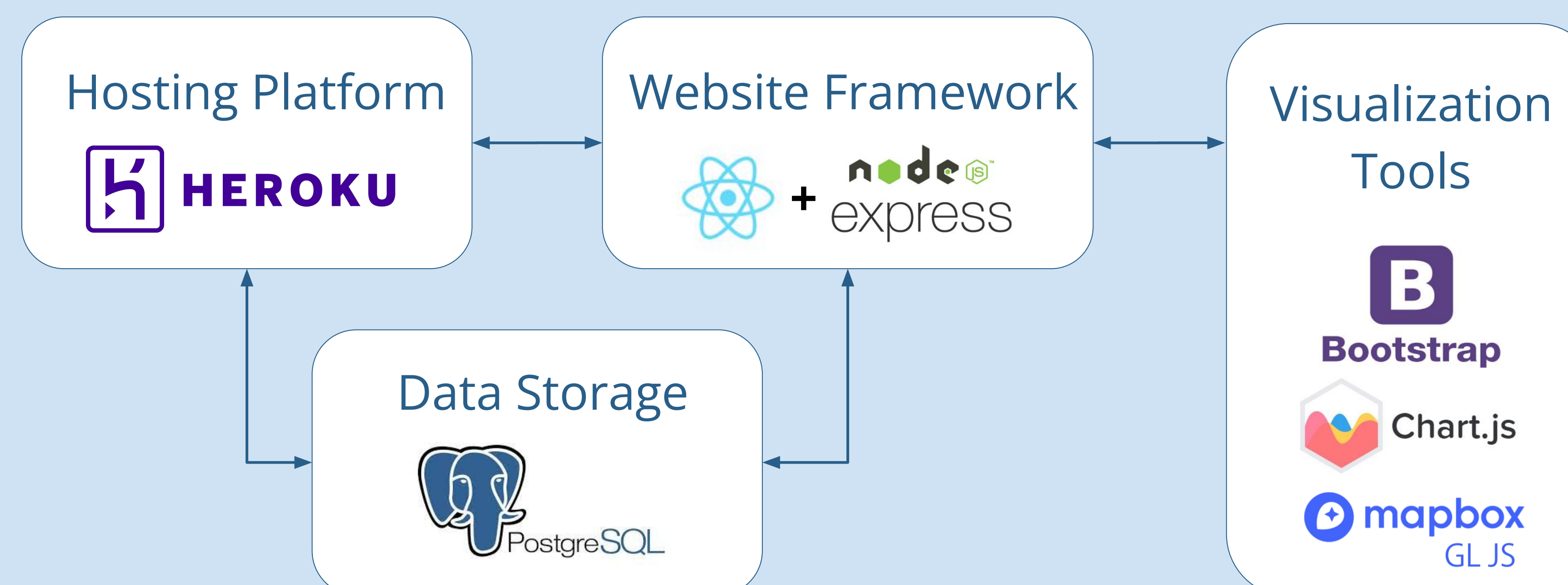
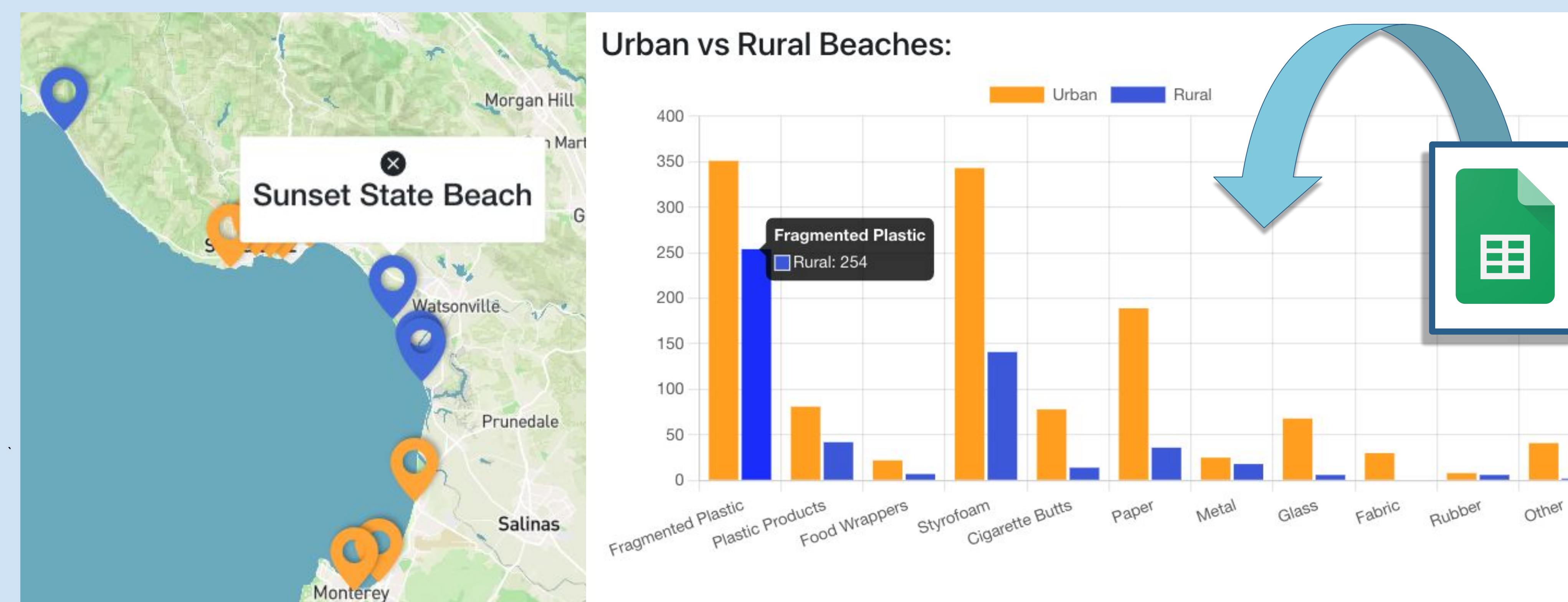
The Marine Debris Data Tool is a web application developed to visualize the data on debris found at select beaches in the counties of Santa Cruz and Monterey. This tool's features include data filtering, map markers, interactive data visualization, spreadsheet uploads, and admin security. This allows both the Long Marine Lab and the public to look at this data in more intuitive and flexible ways than previously possible!

## Approach

- **Website Framework:** React.js is the skeleton of our website. Node Express allows us to achieve fast querying of information from our database.
- **Database:** PostgreSQL holds admin login information and uploaded debris data for safe storage.
- **Visualization Tools:** Mapbox displays the locations of the 12 beaches. Chart.js takes the data for each beach and displays it for users on various graphs.
- **Hosting Platform:** Heroku hosts the website for all to see and share.

## Overview

UCSC Long Marine Lab (LML) contributes to scientific research and marine conservation by collecting data on ocean and beach pollution. The extensive marine debris data collected by LML using the NOAA protocol is gathered in spreadsheets, which is not a format accessible to the public. To remedy this, our website formats the data for visualization and analysis via maps and graphs. Hence, making the data available to be used as a tool to educate the public on ocean care and inform our behavior at the beach.

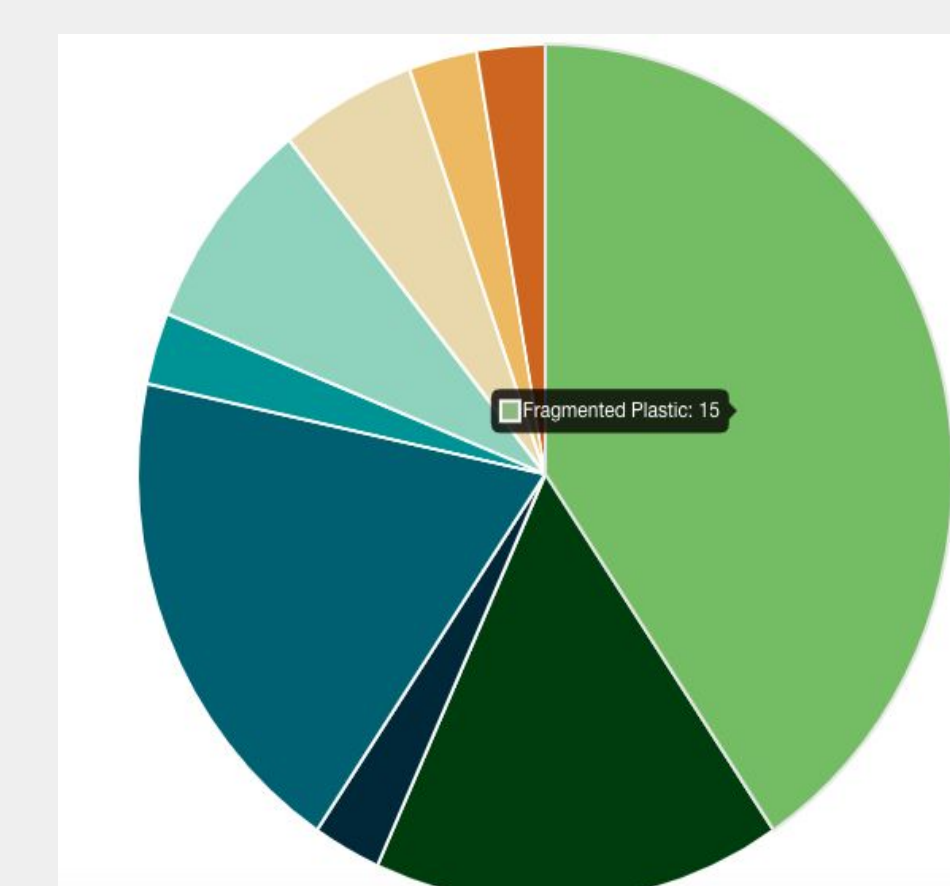
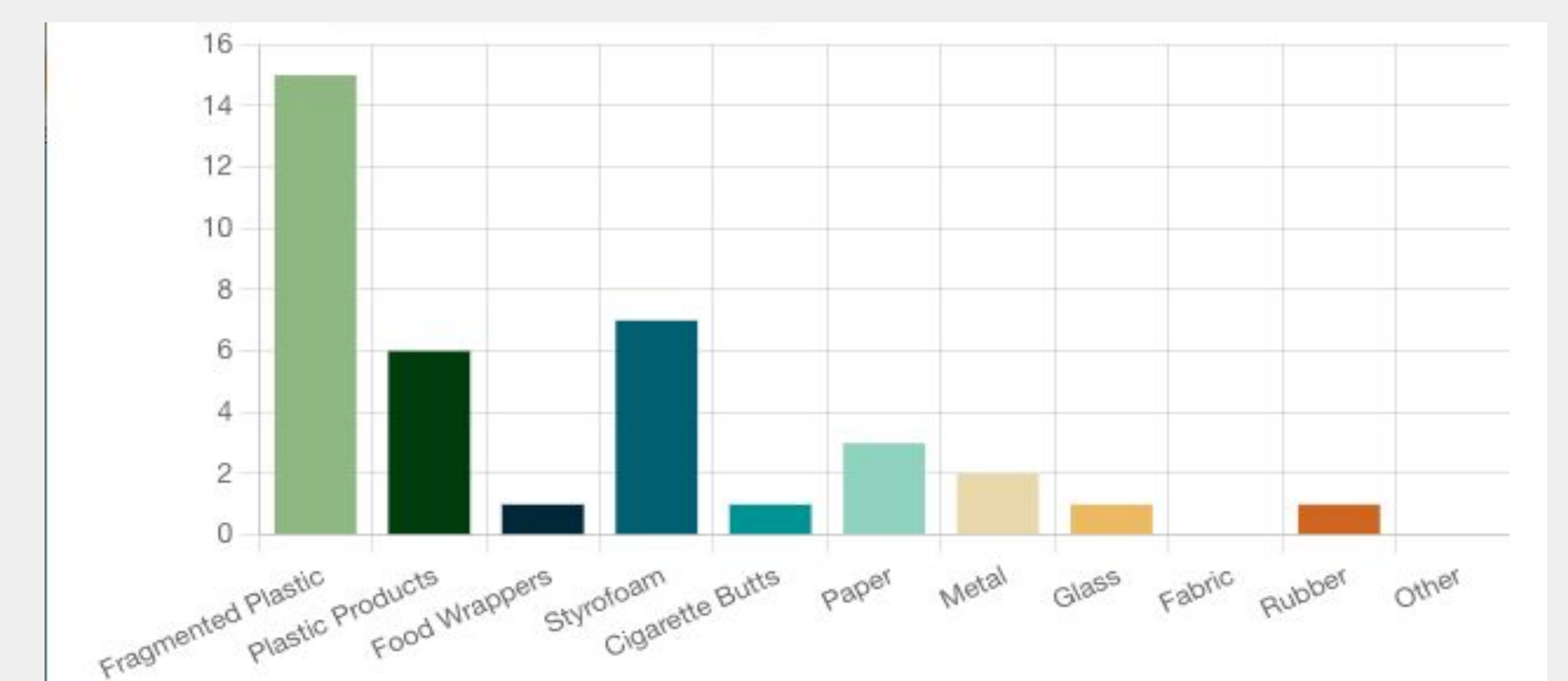


## Acknowledgments

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## Key Features & Results

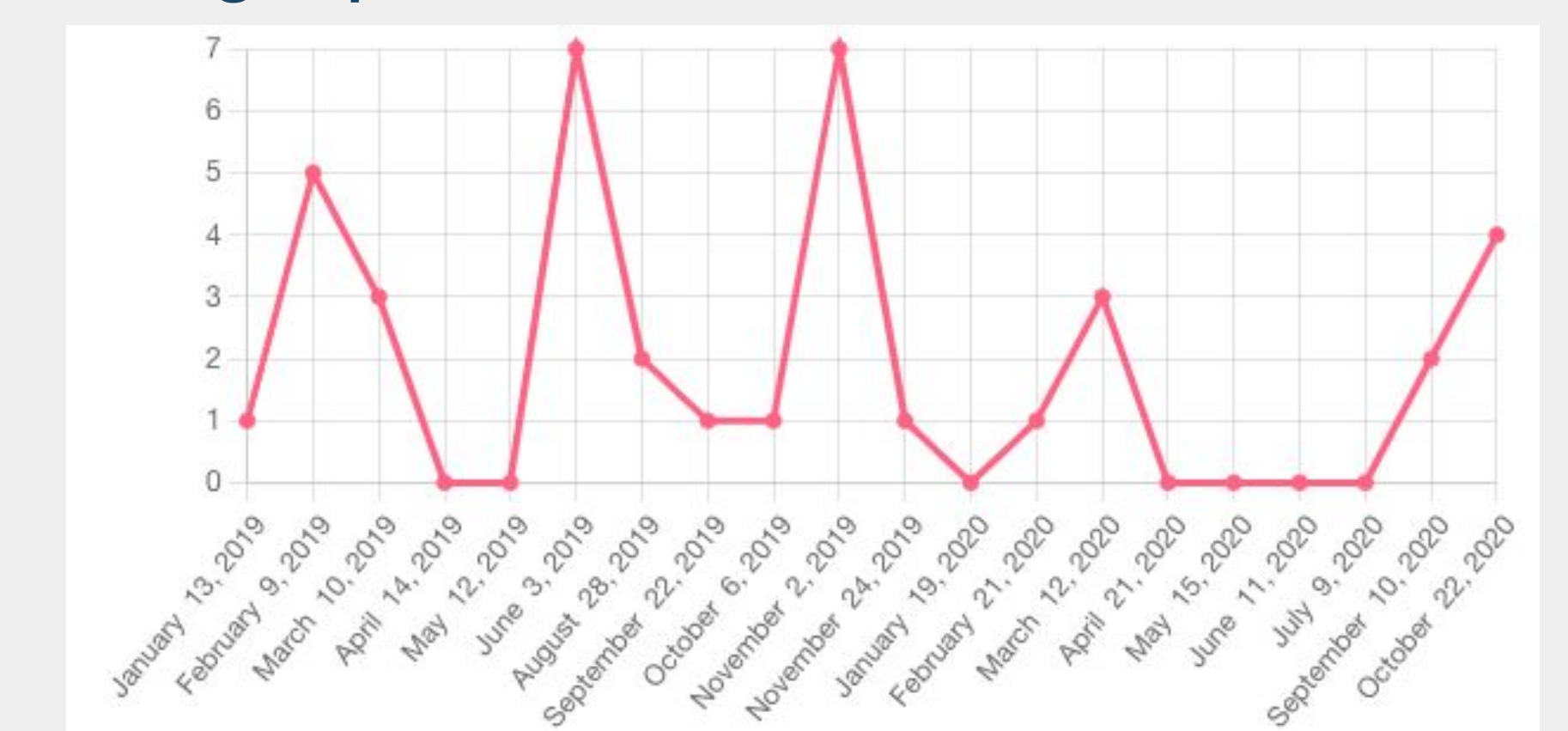
### Types Of Debris Data



Bar chart showing total units of each type of trash.  
Pie chart showing proportional value of each type of trash.

### Temporal Data

Line graph to show total trash over time



Bar graph to show seasonal data



### Login Page

### Upload CSV Data

Choose File No file chosen

SUBMIT

A way for admin to manage and update data