LML Marine Debris Data Visualization

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What is LML?

UCSC Long Marine Lab Contributes to scientific research and marine animal conservation by collecting data from living or dead stranded mammals.

Survey Slugs a program under UCSC LML that exposes undergrads to collecting stranded marine mammal carcasses and marine debris data

- Performs data visualization and analysis
- Make data available to educate

Goal: One day use this as a tool to cause interventions on beach/ocean care behavior

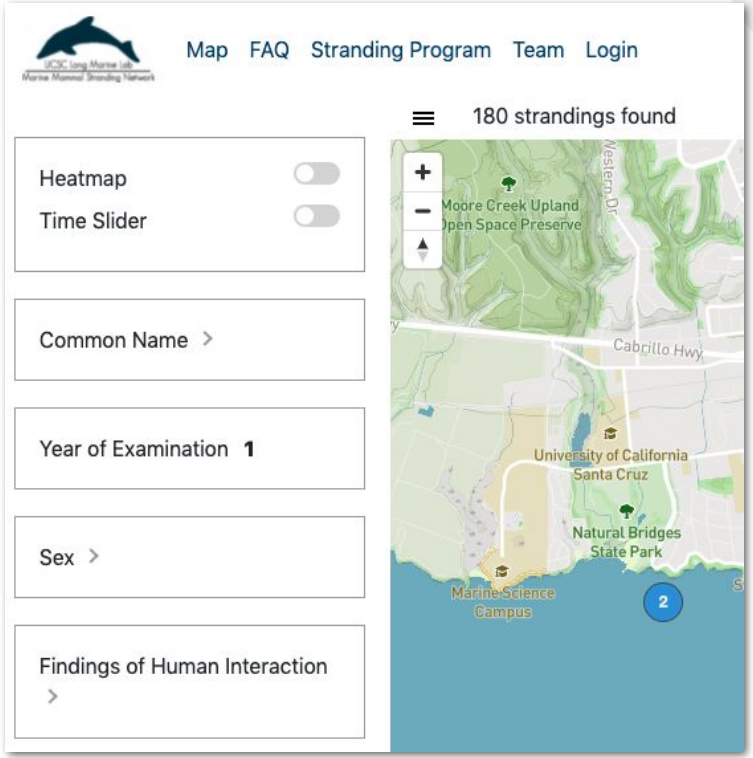
What is Our Role in LML?

As ***PROUD*** developers we are here to make a web application...

- Educate and spread awareness
- Target audience: general public
- Simple Map UI
- Display a lot of information but make it concise
- Variety of ways to view data

What is Our MVP?

- A layout similar to the Marine Mammal Stranding Map
  - Built by other students in previous quarters
  - Should be aesthetically consistent
- Filters for different kinds of debris
- Switching between map and graph display
- Pins to locate data on the map and a legend to identify them
- Allow users to upload/update data with a login



Release Plan

Sprint 1

Jan 26 - Feb 9

Set up boilerplate code

Set up documentation and groundwork for later sprints

Sprint 2

Feb 10 - Feb 23

Implement the topology of our application

Parsing user files into database

Sprint 3

Feb 24 - Mar 9

Displaying database on UI in a meaningful way

API implementation

Sprint 4

Mar 10 - Mar 30

Host and deploy the prototype application

Fix bugs deployment may have created

Release Plan

Sprint 5

Mar 31 - Apr 13

"Safety Net" to accommodate for larger stories from Sprints 1-4

Sprint 6

Apr 14 - Apr 27

Implement database fields as filters for map visualization

Sprint 7

Apr 28 - May 11

Add security features to protect LML database

Finalize styles to match updated LML site

Sprint 8

May 12 - May 26

"Wrap up" to catch any unfinished MVP requirements.

Prepare for transfer of ownership

Technologies

PostgreSQL

- Relational database
- Marine debris data is stored in the database
- Using node-postgres to interface with the PostgreSQL database

React.js

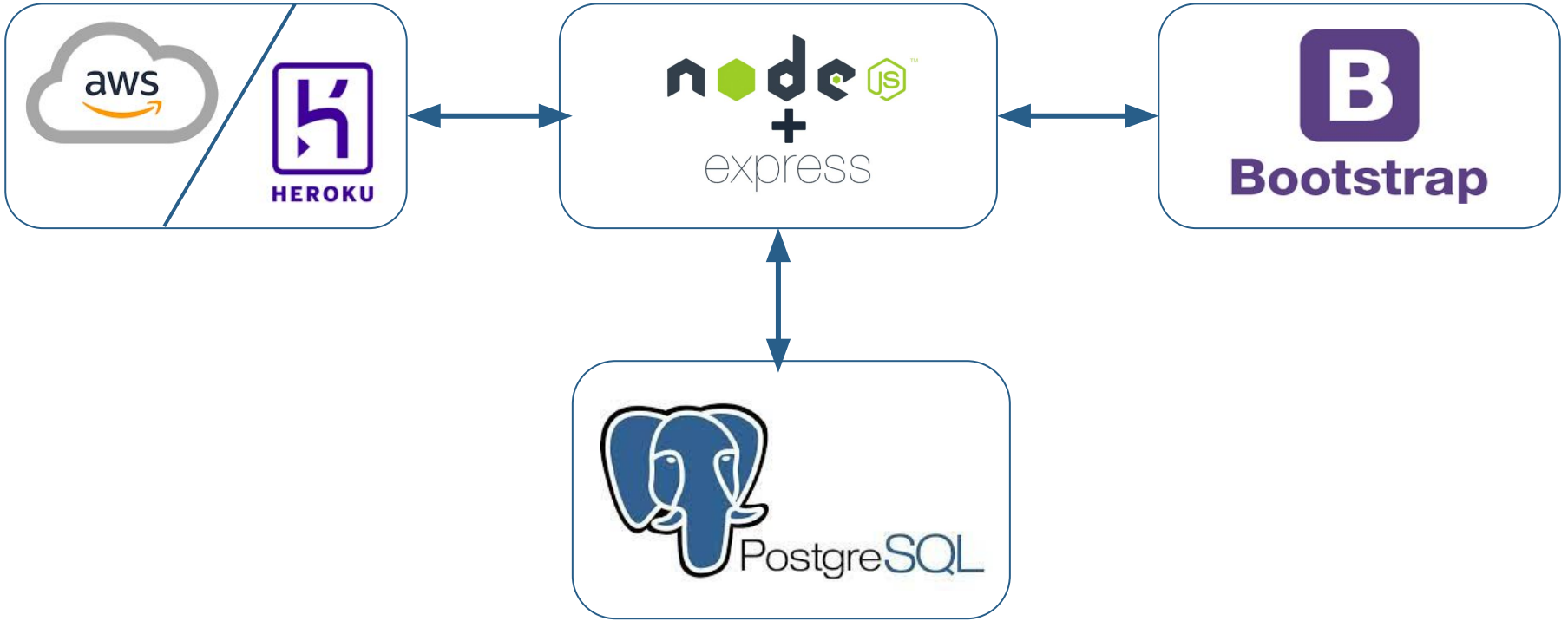
- Javascript framework for creating user interfaces
- Lets us visualize and interact with the debris data

Bootstrap

- CSS framework for our website design
- Using the same CSS framework as the previous LML team for design consistency

- Still researching ideal map APIs and hosting options

Architecture



Challenges

- Learning and adapting to new technologies and design tools

- Consistent and appealing design
  - Maintaining an appealing aesthetic that bridges
    - a website that is currently being designed
    - project that has already been completed

- Creating a sustainable project
  - Ease of data entry
  - Designed for long term support

Thanks for Listening!