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Project Proposal: BC Ferries Web App

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OVERVIEW

BC Ferries is a privately owned and heavily subsidized corporation in British Columbia that owns and manages all ferry traffic in the province. Throughout the summer and on holidays, travel with a vehicle can be extremely time consuming, ferries typically cap reservations at 40% of ferry capacity, the remaining 60% is filled on a first come, first serve basis. With ferries typically leaving once every 2 hours, and 1+ ferry waits common, travelling to and from Vancouver Island can be especially stressful, expensive and time consuming.

To notify customers of scheduled sailings and current wait times, BC Ferries has a webpage devoted to “current conditions” (http://www.bcferries.com/current_conditions/). This page is hard to find and not mobile friendly. With people mostly checking this page on their drive to the ferry for up to the minute information, this page really should be optimized for the mobile user.

GOALS

1. Scrape the BC Ferries current conditions site and present the information collected on a mobile friendly site.
2. Scrape sailing data off the site at regular intervals to be stored in a database for analysis.
3. Use the database information to forecast when travelers should arrive at the terminal to avoid missing a ferry.

TECH STACK

First Party Tools

- Will be creating a React application for the front end with a Materialize interface.
- Will use Postgresql as a database platform.
- Node will be used to communicate data.

Third Party Tools

- Data will be collected by scraping the current site there are no API’s in place to perform this function.

- Sources
    - http://www.bcferries.com/current_conditions/terminals.html
    - http://www.bcferries.com/current_conditions/actualDepartures.html##TSA01

FEATURES AND DELIVERABLES

The first phase of this project will be an interactive web application available for public use online featuring mobile friendly information collected from the BC Ferries current conditions site. A database will be collecting information for phase 2.

After enough information on ferry capacity has been collected phase 2 of the web application will be implemented featuring recommended arrival times and likelihood that the ferry sailing will fill up. This will give people that are unable or unwilling to purchase a reservation a guideline on how early to arrive at the ferry terminal to ensure they make it on their desired sailing.

For the purposes of this project we will feature only high traffic routes between Vancouver area and Vancouver Island.

DATA

1. **Scheduled ferry sailings by day.**

    Ferry schedules are consistent and planned ahead of time, this information is readily available on the BC Ferries website. Will need to know:

    ```
    ➔ Date and Time of Scheduled Departure: Date
    ➔ Departure Terminal: String
    ➔ Arrival Terminal: String
    ➔ Name of Ferry: String
    ```

2. **Percentage of ferry capacity sold at a given time before the ferry is set to depart.**

    The percentage of ferry capacity sold at a given time is available up to the minute on the BC Ferries website. This information is not stored so our webscraper will need to be designed to perform a scrape every 5 minutes during the course of the day. We will need all this information to not only inform the user but to store in our database for analysis to build the ferry forecasting part of our app.

```
➔ Date and Time of Scrape: Date
➔ Date and Time of Scheduled Departure: Date
➔ Departure Terminal: String
➔ Arrival Terminal: String
➔ Name of Ferry: String
➔ Percentage of Ferry Filled: Number
➔ Car Waits: Number
➔ Oversize Waits: Number
```

3. **Actual departure times for ferry and status.**

   This scrape can be done much less frequently as it only needs to retrieve the data once a ferry sails. It is also available on the BC Ferries site. The information will be relayed to the user but also kept in a database to help us in creating our ferry forecasting app.

```
➔ Date and Time of Scrape: Date
➔ Date and Time of Scheduled Departure: Date
➔ Departure Terminal: String
➔ Arrival Terminal: String
➔ Name of Ferry: String
➔ Actual Time of Departure: Date
➔ ETA or Arrival Time: Number
➔ Status: Number
```