



NATIONAL PARK SERVICE

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# Visualizing America's National Parks.

A DATA PROJECT BY >

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# Overview



We started with an idea to build a website to help people determine which of America's National Parks to visit.

We wanted to show activities, distance, states, directions, and weather.

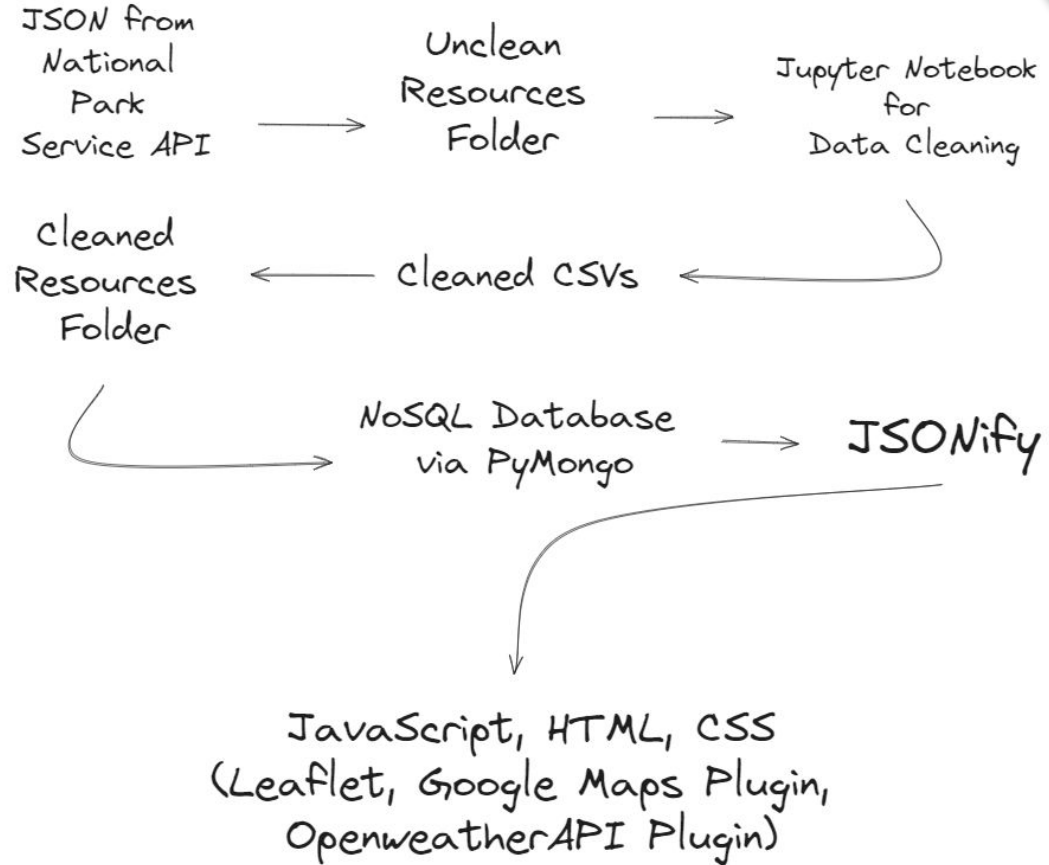
This project aims to create a valuable resource for individuals interested in exploring and learning about the diverse national parks across the United States.



# Thought Process

To the right, is a sketch of the overall process.

This helped focus the project and understand the various steps needed to reach a final product.





# Data Collection, Cleaning, and Storage

**Extract:** We pulled 5 data sets from the NPS API: Activities, Park Activities, Fees and Passes, Parks List, and Visitors Centers.

**Transform:** Of the 5 data sets, we decided to drop the Park Activities and Visitors Centers, joined Fees and Passes with Parks List, and kept Activities as a lookup table.

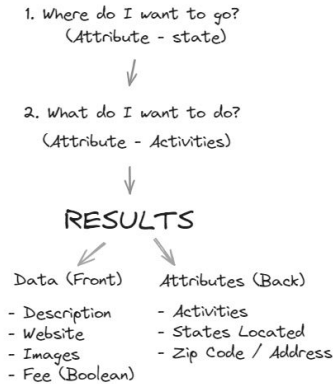
**Load:** After conducting EDA, and creating cleaned CSVs, our data was uploaded into a MongoDB Database.



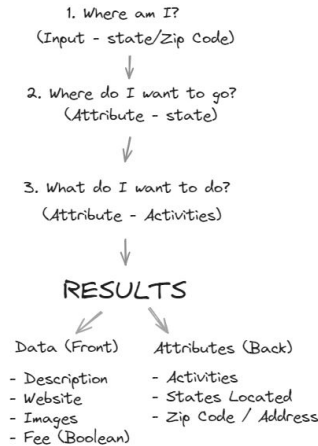


# Website Design Process

## 1. Easy



## 2. Medium



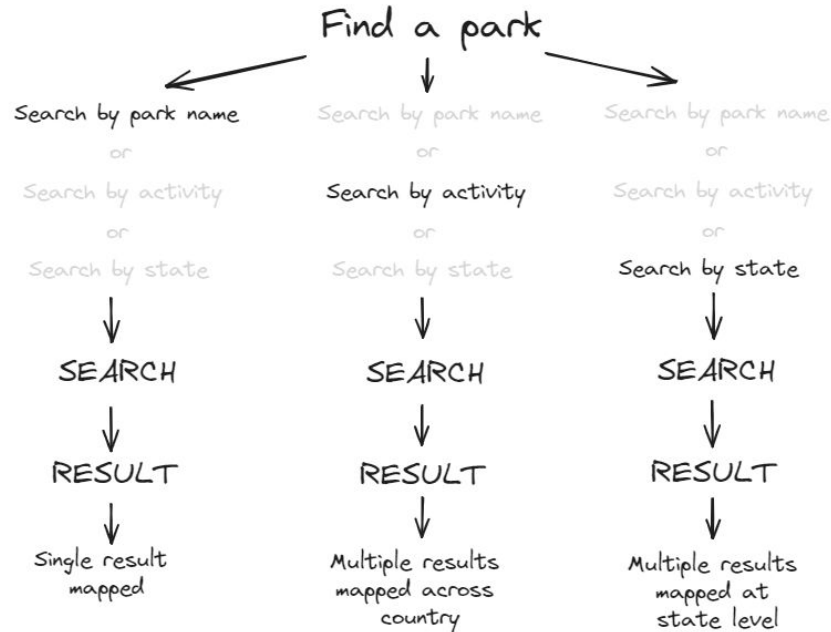
## 3. Hard



During a collaborative brainstorming session, we systematically organized various ideas into three distinct versions of a potential website. These iterations spanned from basic elements to the incorporation of more advanced features, necessitating intricate coding and seamless plugin integration.



# Final Website Concept



The final idea resulted in a user-friendly website featuring dynamic search functionalities.

Users can effortlessly search by park name, yielding a pinned location for the specified park.

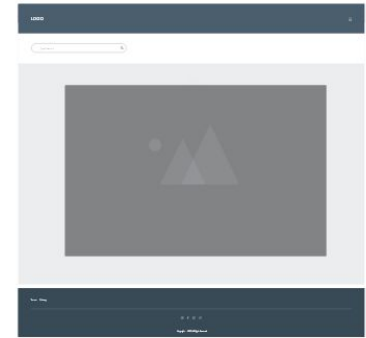
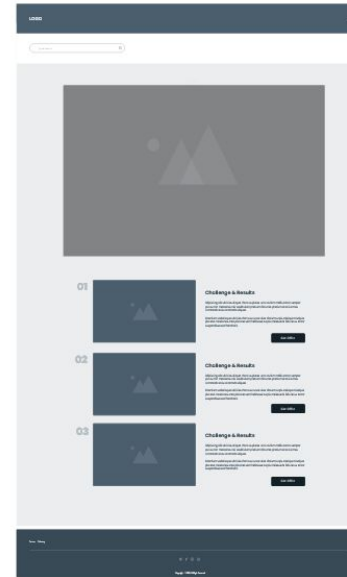
Additionally, the platform enables searching by activity, providing a comprehensive map with all parks offering the selected activity.

Furthermore, users can refine their search by state, unveiling a mapped display of all parks situated within the chosen state.



# Website Design Process

Leveraging Adobe XD, three visual prototypes were crafted based on the features to be included. This process served as a foundational step to begin building the html code around, offering guidance for final placement of visualizations.





# Visit the American Treasure of your dreams!

We've been talking about this website a lot... wanna see it?







# Bonus!

As a challenge, we implemented directions between a starting point and the users park of choice.

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# From here to out there.

PARK SEARCH ACTIVITY SEARCH STATE SEARCH

GET DIRECTIONS

STARTING ADDRESS:

Raleigh NC

END ADDRESS:

Bent's Old Fort National Historic Site

RESET SEARCH

Map showing the route from Raleigh, NC to Bent's Old Fort National Historic Site. The route is highlighted in black on a map of the United States. The starting point is marked with a blue pin in Raleigh, NC, and the ending point is marked with a blue pin in Bent's Old Fort, NC. The map includes labels for major cities and states.

North Carolina State Capital: Raleigh, NC

Coordinates: N38.0373, W103.4263

Distance: 2569.7 km, 30 h

Head east on West Morgan Street

Turn left onto South Wilmington Street

Turn left onto East Edenton Street

Continue slightly right onto Hillsborough Street

Enter the traffic

Distance: 2568.5 km, 31 h

Head east on West Morgan Street

Turn left onto



# Challenges and Considerations

This project posed a significant challenge given the substantial volume of data and the intricate integration requirements.

- Efficiently managing and later integrating the extensive dataset.
- Recognizing the need to enhance the computation time for distance calculations by implementing speed-optimized algorithms.
- Addressing scaling issues, map optimization becomes essential to enhance marker precision and resolve slight inaccuracies in displayed coordinates.
- Employing consistent Leaflet logic across different functionalities, all utilizing the same map container added complexity in the integration process.



# Future Enhancements

The sky's the limit with this project. Along the way we thought of some potential enhancements, such as:

- Including user accounts, to save searches or directions.
- Personalized trip planning features, like adding in waypoints to route to multiple parks for the road trip fans.
- Adding in additional data to include other pertinent information like whether the park has a fee or free entry.
- Integrate additional plugins to show weather forecasts or updates.
- Reformat to one search bar that can handle the various features to search by.

What do you think we could add?



# Citations and Resources

## Data

National Park Service API - <https://www.nps.gov/subjects/developer/api-documentation.htm>

MongoDB Database - [www.mongodb.com](http://www.mongodb.com)

## Website

Leaflet - <https://leafletjs.com/>

Leaflet Routing Machine - <https://www.liedman.net/leaflet-routing-machine/>

Leaflet Control Geocoder - <https://github.com/perliedman/leaflet-control-geocoder>

## General

ChatGPT - <https://chat.openai.com/>