ParkScape Tech Report (Phase 1)

Motivation

Our idea behind the website was to help people in planning their future trips. Parks, airports and cities come in together very often, as most people have to fly in order to visit a specific park, and most of the time they have to fly to a city first. In addition, people who are already visiting parks/cities may want to visit other parks/cities nearby. Our website essentially connects these three models and shows a good amount of information and multimedia of them. In addition, we plan to implement searching/sorting, which will make trip planning even easier.

User Stories

User Stories Written by Us

- Splash page
    - *“As a website user, I want an aesthetically pleasing splash page. I want it to explain the purpose of the website and guide me through how to use it. The splash page should direct me to the other pages where information is stored.”*
        - Response: This has been completed and added to the website.
- Search page for models
    - *“Implement search page for all three instance models. This should be done using HTML and Bootstrap. Instances need to be presented in cards.”*
        - Response: This has been completed and added to the website.
- About page
    - *“As a user, I want to learn about the website and how it was created. More specifically, I'd like to know what tools were used (any pre-existing platforms and APIs). I also want to know who the members of the team are, and what they contributed through GitLab statistics.”*
        - Response: This has been completed and added to the website.
- Create instance pages for cities
    - *“I am traveling to Denver next month and I want to learn a bit more about the city before I go. As a website user, it would be helpful to have some basic information about the city, such as costs, nearby airports, climate, etc. I also would like a map and picture of the city.”*
        - Response: This has been completed and added to the website.
- Create instance pages for parks
    - *"As the website user, I'd like to see not only the different nearby parks, but also information about them. More specifically, I'd like to know the state in which they're located, the amenities they provide, the activities available, and the cost of entry per person. Additional information like days of operation would also be helpful.”*
        - Response: This has been completed and added to the website.
- Create instance pages for airports

    - *“When using the website, I would like to see information about different airports in the area. I would like to know information about the airport, such as where it’s located and different attributes. I would also like to see visuals, such as a map.”*
        - Response: This has been completed and added to the website.

User Stories Written by Our Customer

- Filter cities based on money range
    - *“I'm traveling to California next month with my family of six and am unsure about which cities to visit. We're limited on money but are still interested in traveling for my children. I think it would be easier for us to use your site if I could filter cities based on a certain range of money it may cost to go to that city.”*
        - Response: This is outside the scope of this phase of the project, but it will be a feature added later.
- Language support
    - *“Hello, I am a foreigner from France planning on visiting America. I would like to use your website to plan my visit around New York and Florida, but my English is not very good. Are there plans to provide language support for languages that is not English like French?”*
        - Response: This feature is out of our scope for this phase 1 of the project, but could be considered in the future.
- City accessibility for disabilities
    - *“Hi, I have a disability that affects my movement and stumbled upon your site while looking for travel planning apps. I'm in need of an app that could tell me some sort of idea of how accessible cities are for people like me. Is that something that you guys are planning to implement or could implement?”*
        - Response: Hi, this functionality is out of the scope of this Phase of the project, as our data source for cities doesn't include accessibility information. In the future, we will try to implement this functionality and help you in planning your trips.
- Park image
    - *“I'm a visual learner and want to learn more about specific parks. I'd love to see an image of the parks that are available on your website. It'll give me more insight into the parks I'm considering traveling to.”*
        - Response: That's a great idea. We have added a picture for each of the parks when you view the Parks page and each park has more pictures when you click Learn More. Hope that helps!
- Airport ratings
    - *“I'm a frequent flier and want to make sure that I go to the best airport. I'd like to see ratings on your website of the best airports so I know which ones I should go to.”*
        - Response: Currently, our data for the airports does not include ratings, but we can definitely look into that in the future and add the information to the website.

User Stories Written by Us to Our Developer

- Filter campsites by amenity
    - *“I want to go camping next weekend, but I am new to camping and am not confident in my abilities. It would be easier for me if I had a campsite with running water and electricity. I would like to filter the campsite search to include only those that include both of these two features.”*
        - Response: Thanks for the feedback! We agree that this would be a helpful and practical feature and hope to implement it in a future phase. This type of information is actually included under the amenities section of the campgrounds API so it is definitely a good idea. However, not every campground might have detailed information about water and electricity so this might be a challenge.
- Deploy website on AWS/GCP
    - *“I'm a user who's trying to access your website in order to plan my incoming trip. However, I couldn't find your website anywhere on the web. Could make sure that the website is deployed so that I can access it?”*
        - Response: This is a great idea! While we did not have a website before, at the time of writing this we have deployed and hosted our website at https://www.re-park-able.me/ so that anyone can access it for an upcoming trip!
- Sorting trails by activity
    - *“Depending on my mood, sometimes I'd like to go on biking trails and other times I'd like walking or hiking trails. However, not all trails are equally biking or running friendly. As a user, I'd like some way of differentiating which trails are more popular/suitable for biking, running, walking, or hiking.”*
        - Response: This seems like a helpful feature for users! While for the current phase it is out of scope, we will implement it in Phase III. The APIs have some helpful and interesting information about trails that could be helpful in sorting or filtering them to the above criteria. This might be challenging since all trails might not have the appropriate information, but it will be interesting to implement!
- Sort national parks by state/city/distance
    - *“Sometimes I am traveling to a certain state and want to visit a national park. However, it would not be feasible to travel far from where I am staying to visit the national park. I would like to be able to sort the national parks based on location (or possibly even distance from certain cities) so that I can determine which parks I can visit.”*
        - Response: This is a great idea! We have the latitude and longitude of parks along with addresses, so we could implement a feature that does this. For the current phase that we are in, however, this feature is out of our scope. It will be implemented in Phase III.
- Filter/Sort campsites by weather overview
    - *“I want to visit a campsite soon but while viewing the different campsites I see a lot of campsites with poor weather overview. It would be easier for me to find a*

campsite that has a good weather overview if I could sort them or filter them based on good weather."

- Response: This is definitely a helpful feature! With the current API, we are using we can pull information about a general weather overview for a campsite that users will find helpful. However, this is currently out of scope for Phase I and will be implemented in Phase III.

RESTful API

API Documentation
Endpoints:

- Single Park
  - GET api.parkscape.me/parks/:parkID
- Single City
  - GET api.parkscape.me/cities/:cityID
- Single Airport
  - GET api.parkscape.me/airports/:airportID
- List of Parks
  - GET api.parkscape.me/parks
- List of Cities
  - GET api.parkscape.me/cities
- List of Airports
  - GET api.parkscape.me/airports

Single objects can be obtained by their unique IDs. Lists can be filtered using parameters.

Models

- Cities
  - One of our models revolves around cities. Users will be able to browse and compare cities by many attributes. Some of these attributes include population, average rating, travel cost, safety score, and COVID score. Users will also be able to easily access AirBnB listings, city walkability reports, and browse walking trails through provided external links. Users will also be presented with information regarding the nearest airports and parks. To retrieve information about Cities we are using the RoadGoat Cities API, which Synthesizes information to provide the richest and most accurate context about over 4.3+ million destinations.
- Airports
  - Another one of our models is airports. Users will be able to browse and compare airports. Each airport instance will contain information regarding the name, location, phone number, and ICAO code. Users will be able to see nearby cities and parks to plan out their travel if they know which airport they are going to. To retrieve information about Airports we are using the Airport Info API, which is an

extensive database of airport codes and data, including address, phone number, website and more.

- Parks
    - Our last model is parks. Users will be able to browse and compare parks according to their opening hours, activities, topics, fees, and location. They will also be presented with contact information such as phone number and email and will be able easily access nearby cities and airports to plan their travel. To retrieve information about Parks we are using the National Park Service
    - API, which provides authoritative National Park Service (NPS) data and content about parks and their facilities, events, news, alerts, and more.

Tools

- GitLab
    - We used GitLab for our git repository and CI/CD pipeline, making sure to utilize GitLab's issues feature to keep track of our tasks and user stories. Our edits were pushed to a 'dev' branch before being merged to the 'main' branch of the repository.
    - We also used GitLab's API for the dynamically fetched repository data on the about page
- Amazon Web Services
    - We used Amplify to host our website's frontend.
- Visual Studio Code
    - We used VSCode as our main IDE for creating and modifying our files (html, json, js, makefile).
- Bootstrap
    - We used Bootstrap's css framework in all of our html files to create a sleek and cohesive look for our website.
- Postman
    - We used Postman to document an API of our calls to each of our models' APIs which we scraped our data from (see RESTful API section).

Hosting

The website is hosted on AWS Amplify. There's essentially no build scheme for now, since the website is static. We have also created a hosted zone on AWS Route 53 in order to redirect users from the domain (www.parkscape.me) to our Amplify application. The name servers from AWS have also been added to NameCheap, the hosting service that we obtained our domain from. Lastly, we used AWS IAM in order to ensure the highest standard of security for our website.

How it Works

ParkScape compiles information about United States airports, nearby cities, and their local state/national parks by scraping data from existing APIs for each of these models.

Challenges

Perhaps the biggest challenge we encountered was navigating and learning the tools as we worked, since some of us were rather unfamiliar with web development. For the “About” page specifically, we hadn’t used APIs, Postman, or Bootstrap, and had little experience with Javascript prior, so figuring out where to start was a challenge. To overcome this struggle, we broke down the larger goals into smaller subtasks after lots of research about each tool – starting with the simpler Bootstrap and HTML design before moving onto using Postman and calling the GitLab API in Javascript. A smaller challenge we faced was finding free APIs with sufficient data that would fit our needs.