

# WanderWisely

Personalized itinerary for nationalpark traveling

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## Summary

While personalized trip plans are becoming more important, as travelers are increasingly seeking unique and personalized tourism experiences. However, planning a national park itinerary takes substantial effort in choosing the point of interest, visiting order, and the time of each visit, thanks to the internet information explosion.

Our web application - WanderWisely, is designed to provide ONE STOP service to generate interactive personal itinerary within the national parks of the United States based on users' interests.

## Approach

### API

- National Park Service (NPS) API to retrieve national park data.
- Google map API to calculate travel time and distance between POIs, and render routes and markers on an interactive map visualization.

### AWS

- Leverage RDS to store database.
- A helper function is created with PyMySQL and SQLAlchemy to provide connection to the database.

### Flask

- Based on a simple Flask web application framework, We created back-end application in python, set up relational database interaction, build interactive visualizations with JavaScript, HTML and CSS

### Algorithm

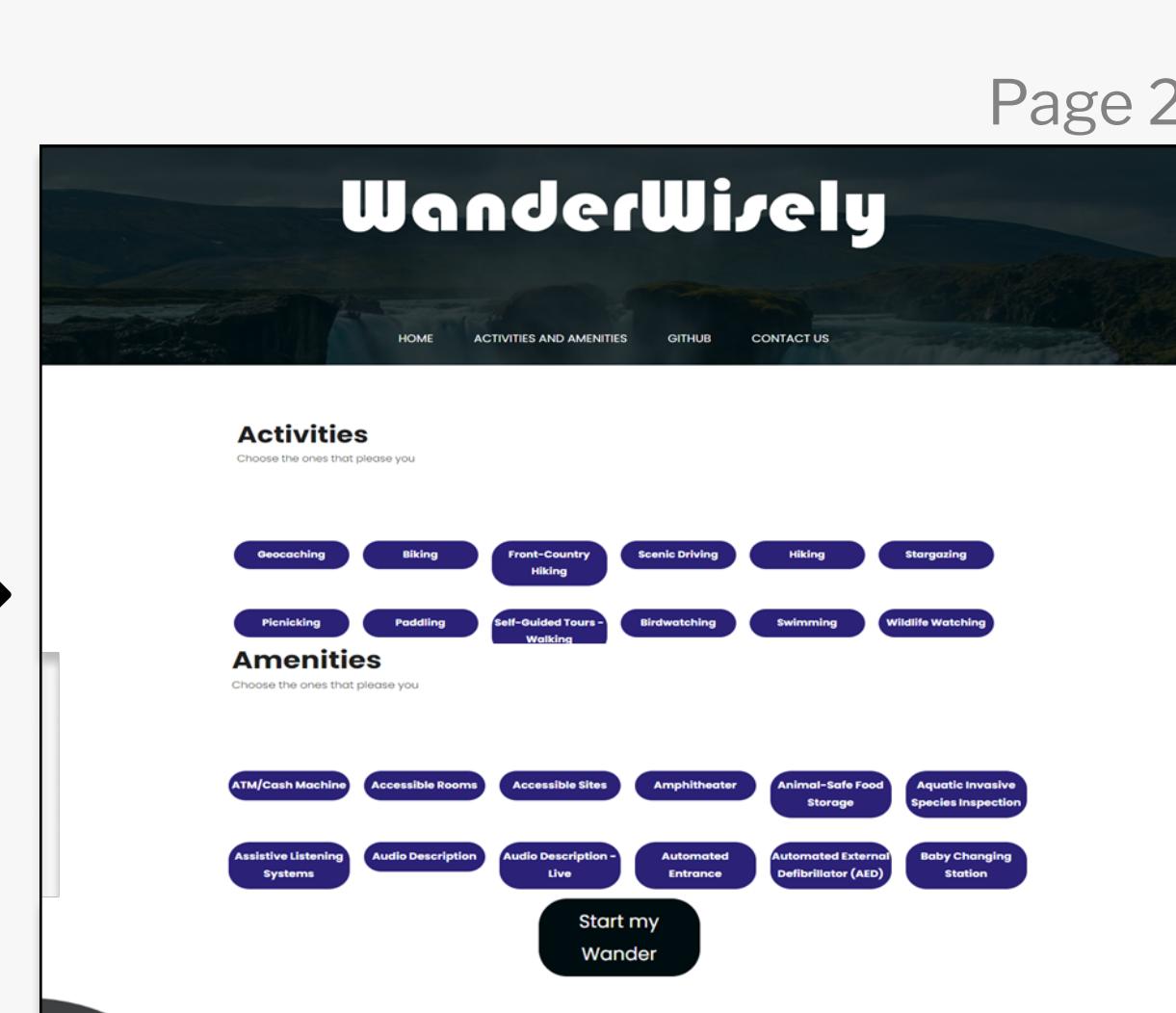
- Similarity score: evaluate how closely each park matches user's preference. Top three parks are presented to user.

### Similarity Score = Num of Matching/Total Interests

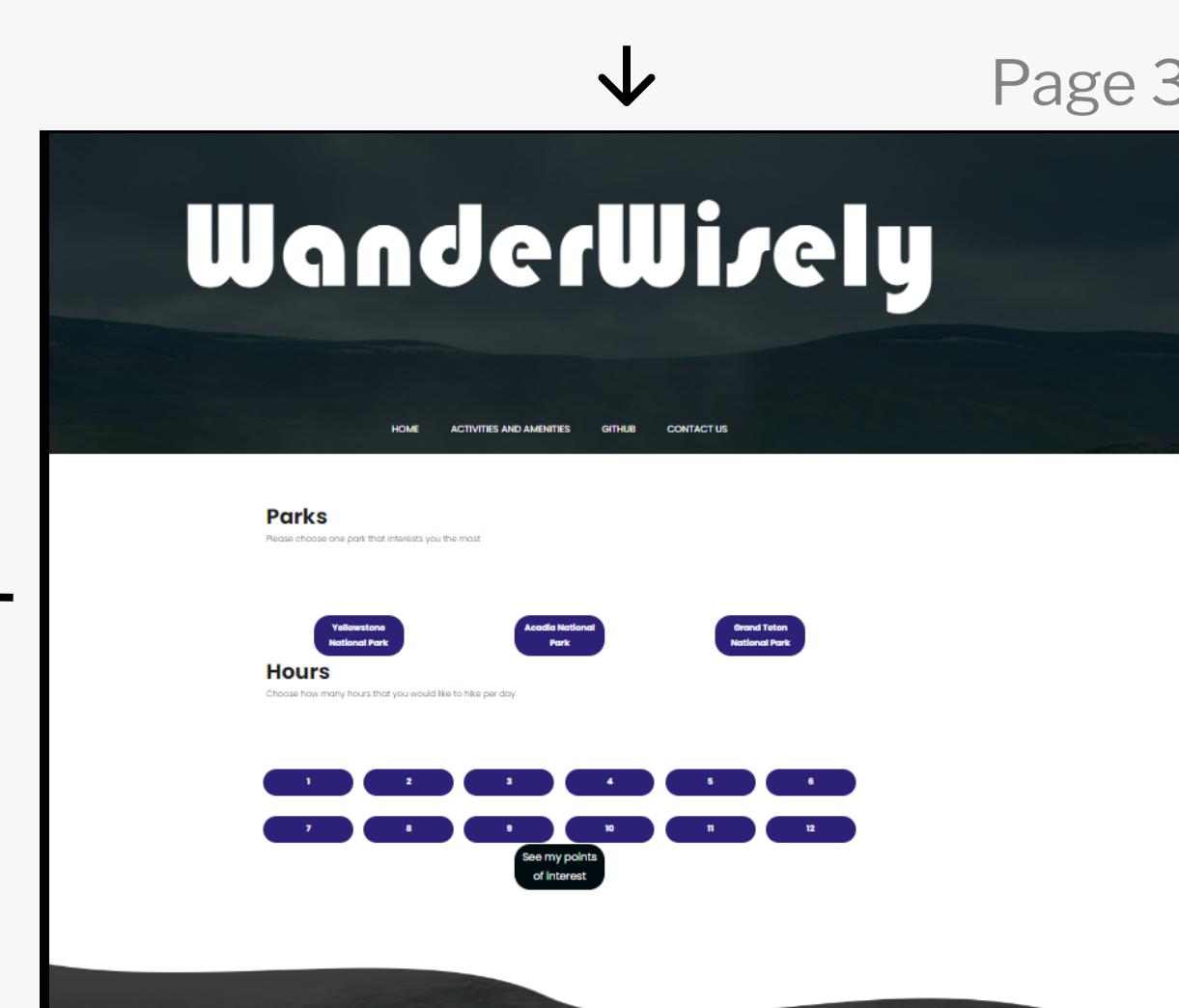
- Traveling salesman: firstly, google API to calculate travel time and distance between each two POIs. Secondly, iterate through each POIs visit order to find the route with the least travel time.

### Heroku

- Deploy on Heroku, which is a cloud platform as a service supporting Python.



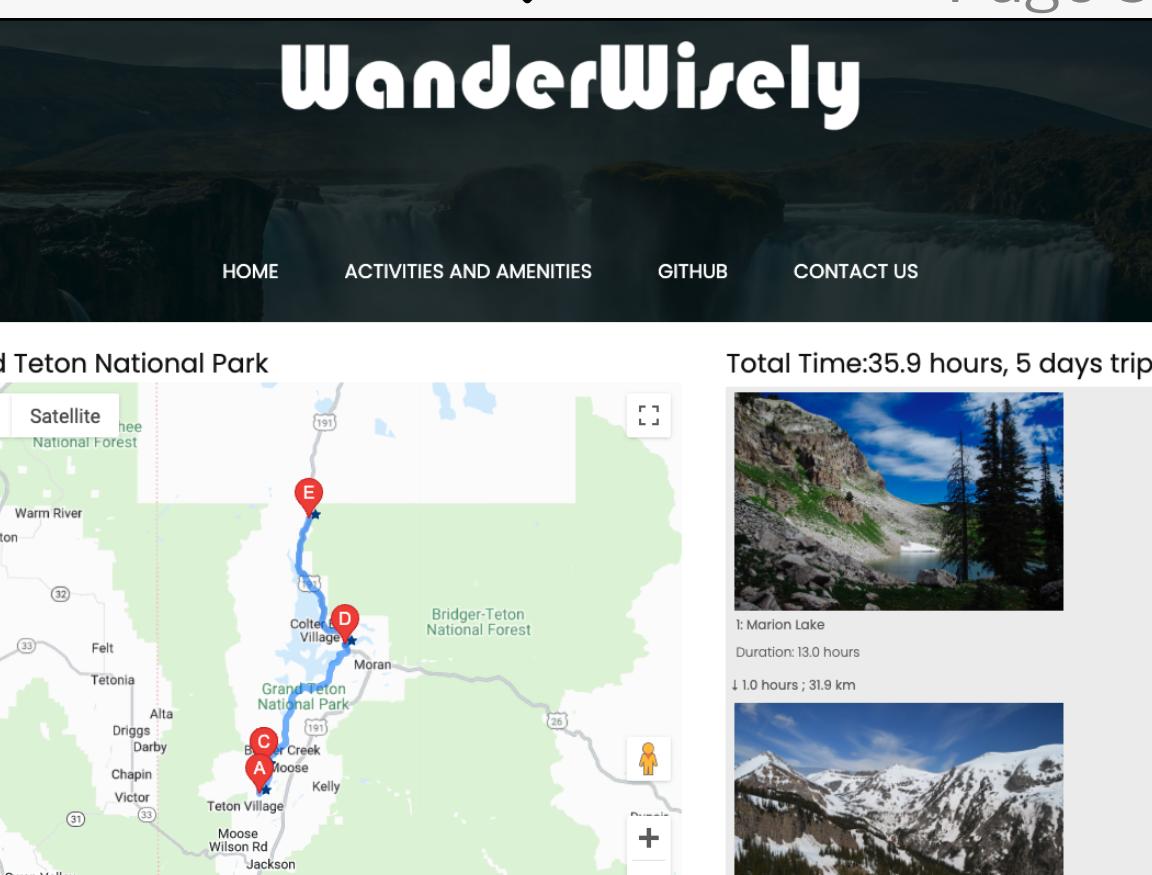
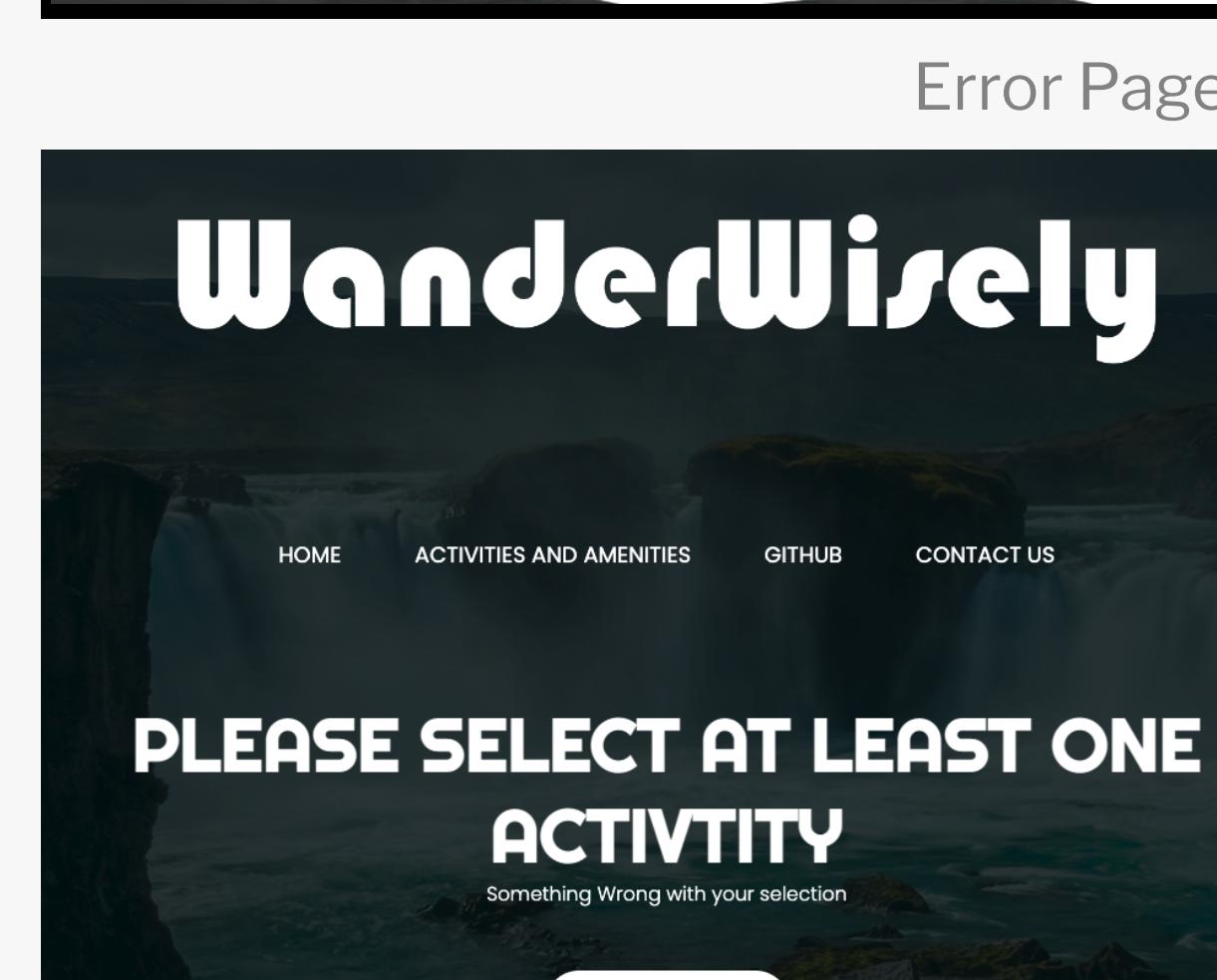
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## Data

### National park data

The national park data were retrieved from National Park Service (NPS) API, which offers a variety of methods to access park-related data, including park activities, amenities, and recommended activities for parks.

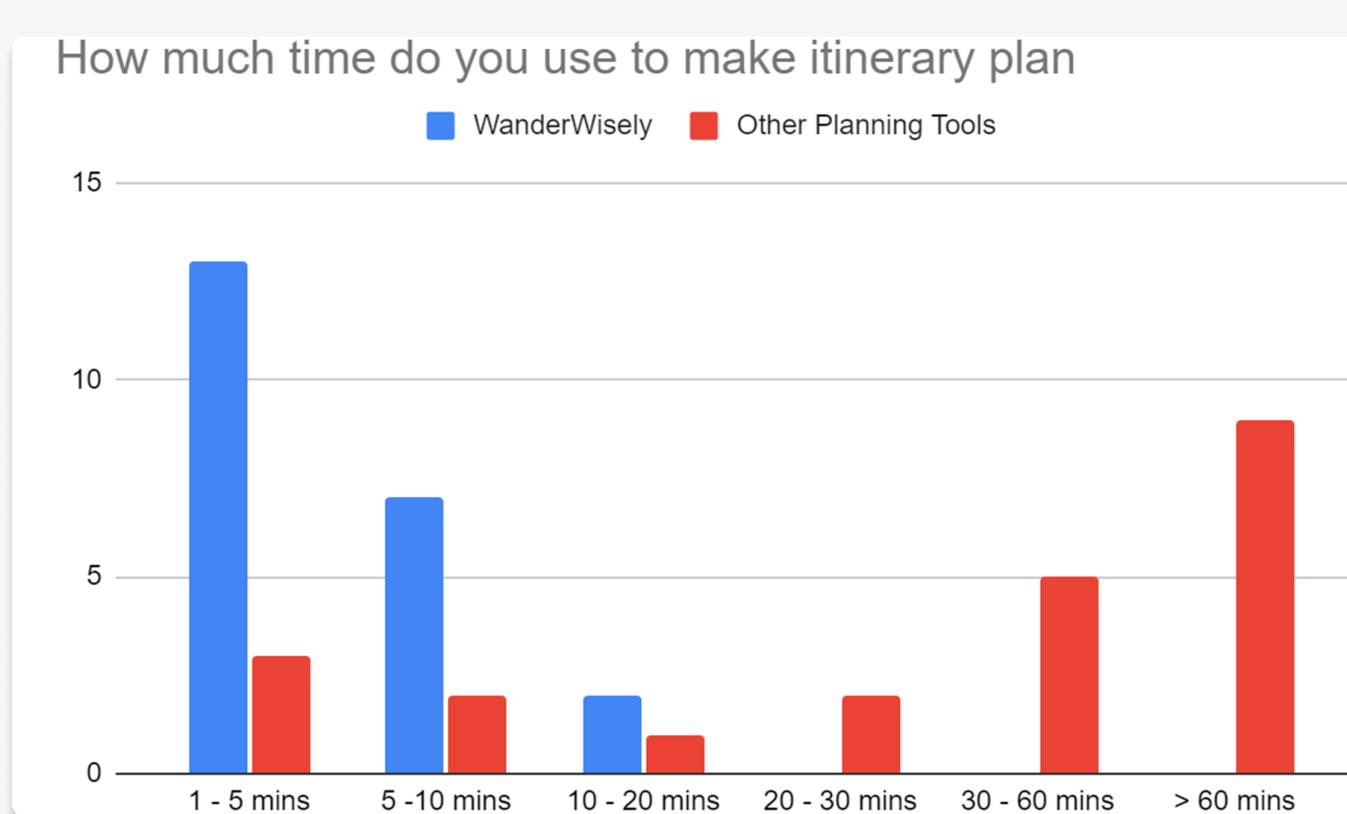
There are 45 national parks and 948 records of points of interests. There are also details about them including image urls, points of interest introduction, longitudes and latitudes etc. However, there are about 400 geographic information missing for points of interests.

### Geography data

We utilize Google map API to find the missing latitudes and longitudes of the points of interest. With Google maps API, we also calculated distance and travel time as well as visualization of the routes for itinerary, to provide the users a better understanding of the generated itinerary.

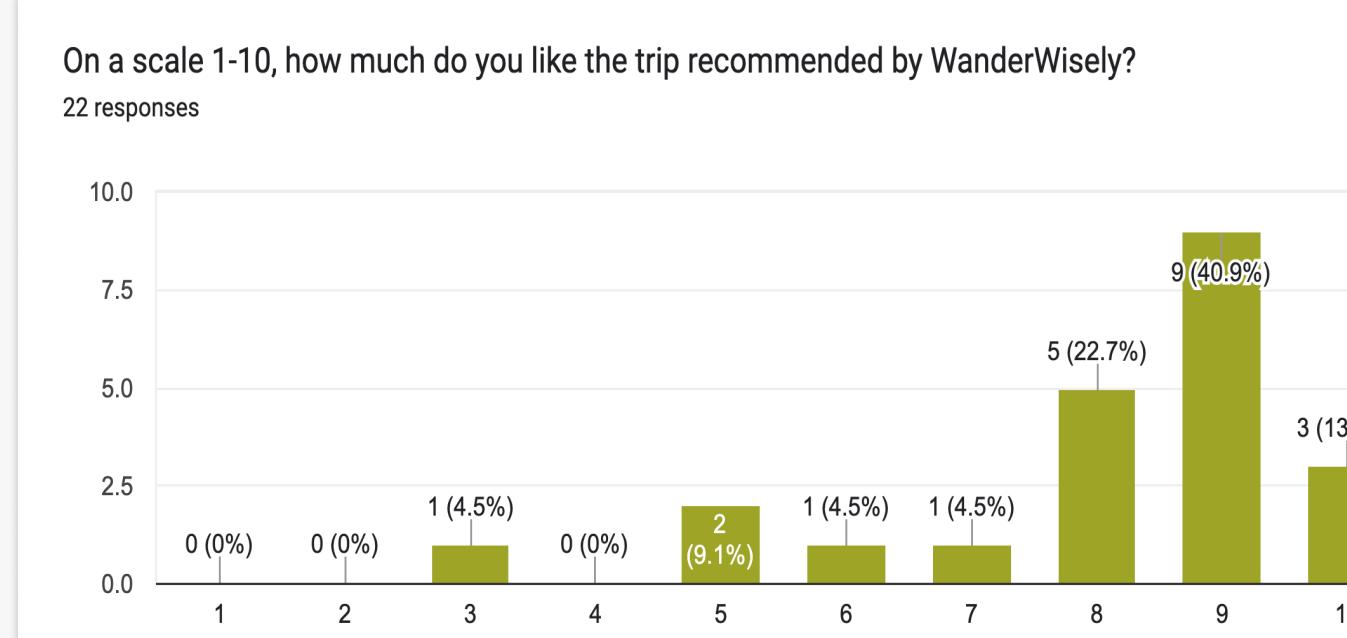
## Experiments & Results

After we deployed WanderWisely on Heroku, we shared the web link with a survey built in Google forms to friends. There are 9 questions in the survey and 22 people participated in the survey.



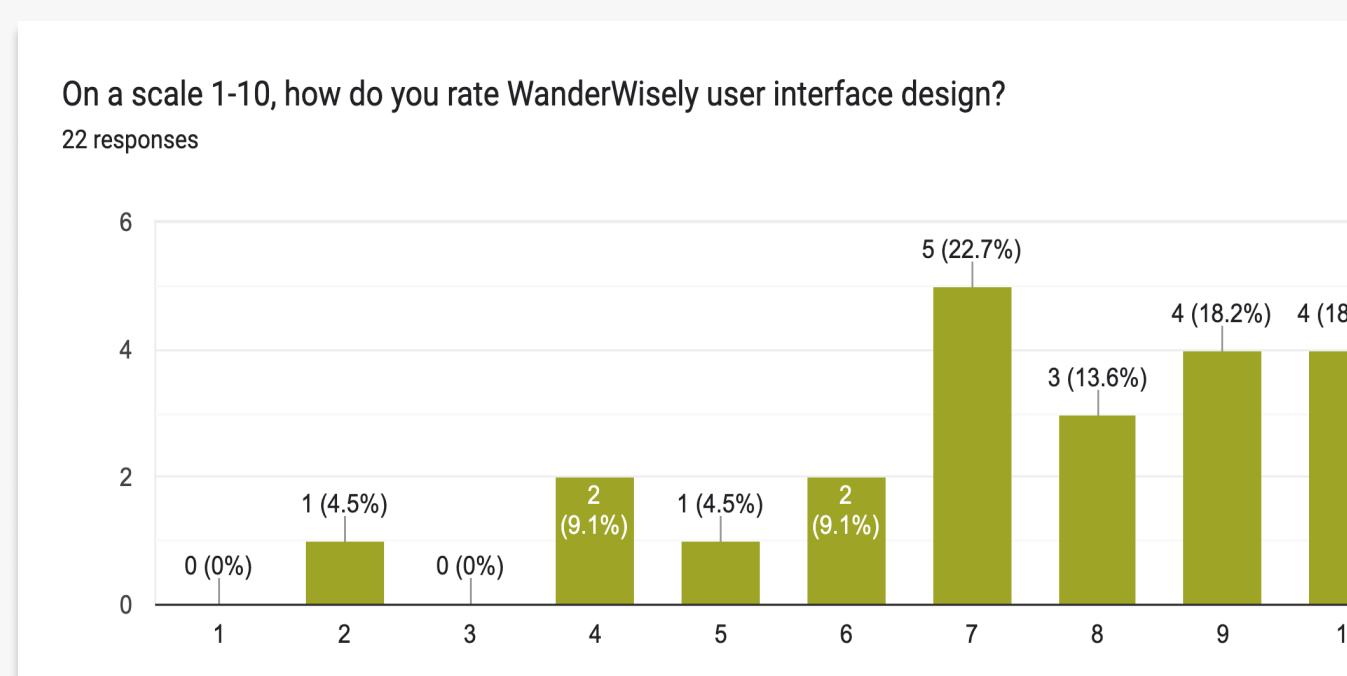
### Time-saving:

Significant reduction in time required to create itinerary plans compared to normal planning tools. Mostly of users have completed their itinerary plan with WanderWisely within 5 mins, while they usually spent more than 60 mins with normal planning tools.



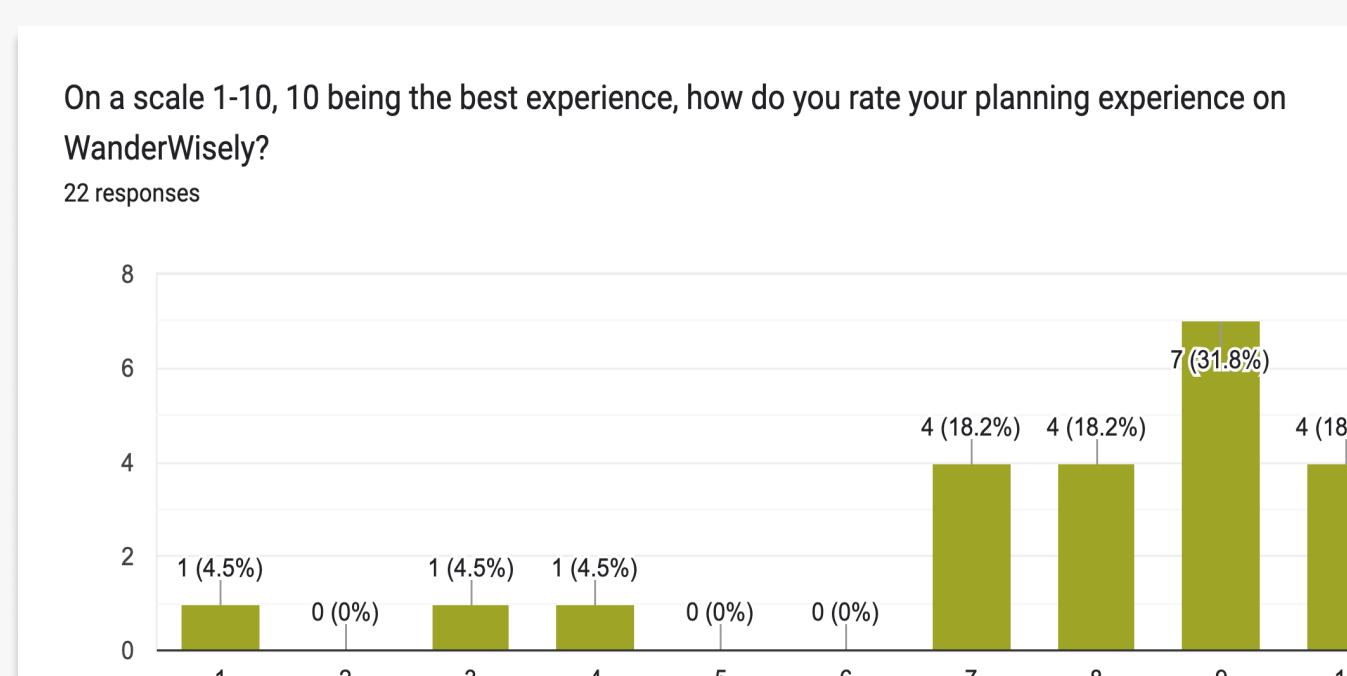
### User satisfaction:

- More than half of participants rated 9 and above for the trip recommended by WanderWisely.
- Average score for our interface design is 7.4.
- Average rate of planning experience is 7.8, suggesting good satisfaction at the initial stage of web app launching.
- 12 participants reported that they would like to use WanderWisely in the future with a score of at least 9. The average rating is 7.7.



### Positive feedback:

- Impressive business concepts to generate customized travel itineraries.
- The inclusion of landscape pictures as choices for places.



### Suggestions:

- Add clear guideline for the website.
- Desire for more national park options.
- Simplify and cluster activities and amenities options.
- Include descriptive titles for the places.