BestPlace: An Event Recommendation Web Application

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Kellogg Honors College Capstone Project

Summary

- The purpose of this capstone project is to offer a one-stop site web application which helps users search for nearby events based on the user's interest, location, and selection.
- The web application fetches events from other ticket selling websites, such as Ticketmaster, and shows a list that can be sorted by date, location, and price.
- Users can create an account to save favorite upcoming events.
- The recommendation algorithm is based on user's favorite genres, locations, and categories.
- Designed using Node.js, Express, MongoDB, and Bootstrap, this full-stack web application is viewable on both desktop computers and mobile devices.

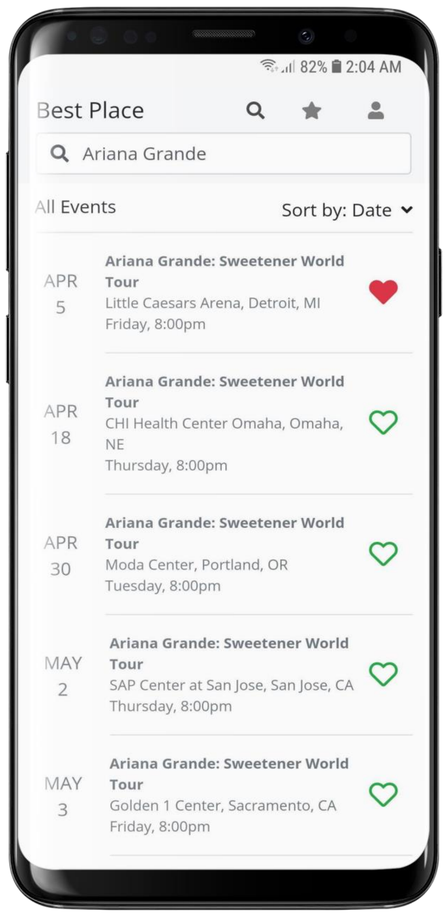

Figure 1. Mobile User Interface

System Design

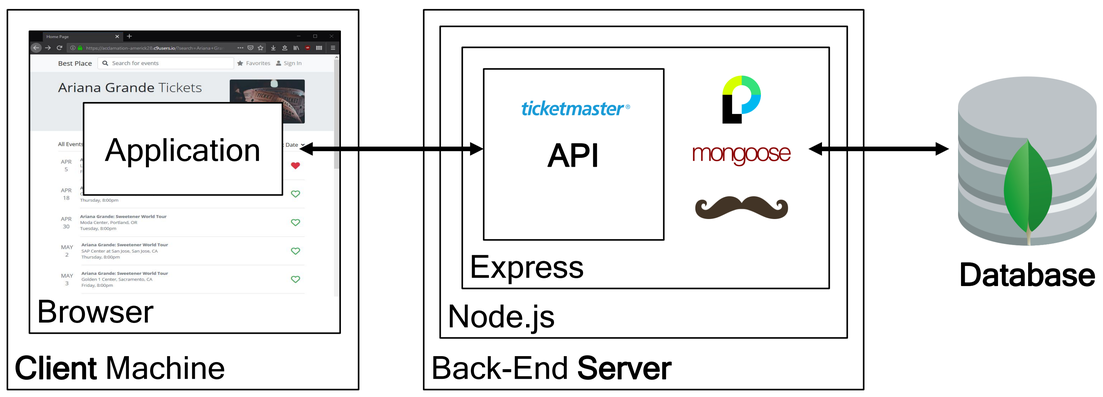

Figure 2. System Design

- The system consists of four main parts: **client, server, API, and database.**
- The **client** is a user that uses a web browser to connect to the system. After a user request, the server sends a response back to the client using HTML, CSS, and JavaScript.
- The back-end **server** links the client, API, and database.
- The server communicates with the **Ticketmaster API** in order to retrieve data based on the user's specifications and returns event information in a JSON file format.
- The returned JSON data contains all relevant information about specific events (Figure 3).
- MongoDB, the nonrelation **database** used, stores information about users, such as account information and favorited events.
- For users who created an account on the web application, the database is also used for user authentication.
- The **recommendation algorithm** uses the database to retrieve a user's search history and past favorite events to determine new events that the user may be interested in.

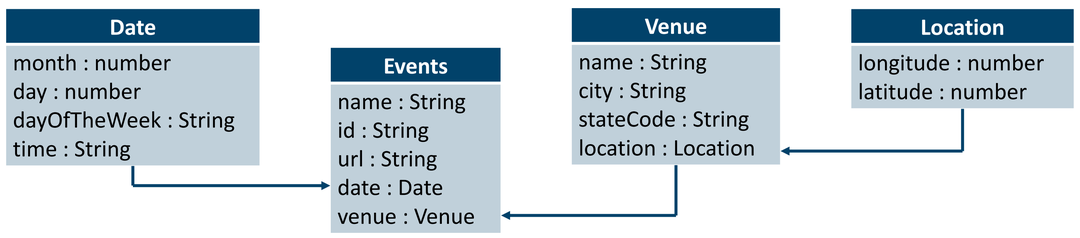

Figure 3. Simplified Ticketmaster Data Model

Tools

- **Bootstrap**, an open-source front-end web framework, facilitated building the portion of the application that users interact with.
- **Node.js** is the environment used to code the server in JavaScript. It also controls communication between several packages used for back-end development.
- **Cloud 9,** an online integrated development environment (IDE), allowed working on this project using any internet-connected computer.
- **MongoDB** is the online database used to store and retrieve user and event information.
- **Heroku** is a cloud application platform that hosts the web application and allows users to access it at any time.

Future Development

- Currently, the web application fetches data only from the Ticketmaster API. Future work may include allowing data retrieval from other ticket-selling and event-organizing websites.
- Improve the recommendation algorithm to provide users with better and more relevant results.
- Add alerts, either through text or email, which notify users when events they may be interested in go on sale.

Conclusion

Through the course of this project, I was able to learn how to develop a web application. This full-stack web application required knowledge of HTML, CSS, and JavaScript. These languages are the building blocks of all websites. Working with application programming interfaces (APIs) and databases also helped me understand servers and how they operate. Although the area is not greatly covered in my major, I believe this experience is an important and crucial skill for my future engineering career.