

Senior Design

Assignment 6 – Self Assessment

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Part A

I contributed greatly to the project over the course of the year. I created the original code and layout for the app that we built upon over the course of the semester and was solely responsible for setting up all API access for Spotify, OpenWeather, and OpenAI and handling the app's backend code. I created the Node.js server that handles all of the API calls and the AI portion of the app, and I helped implement the functions in the frontend that interact with the backend to make those API calls. I also added the ability to export your playlists to Spotify so users could listen to them after creating them in SoundScape. I also implemented many of the React components that we used in the final design of our UI and the logic that went with them. Some of these include the login/logout components, the checkboxes, the generate playlist button and loading animation, the plus, minus, and export buttons on the playlist page, the special instructions input, the weather conditions slider and card, the top artists logic and buttons, the export, back button, and name input field in the pop-up after clicking “export playlist”, and the generic buttons used around the app. Outside of the code, I also helped with all written assignments and presentations in both semesters. I also designed the project poster and handled most of the communication between our group and our project advisor and any other outside parties.

I applied and built upon all of the skills I identified in my initial assessment for the fall. For example, in my initial assessment, I stated that my experience in software engineering, user interface, and co-ops would be useful in the development of this project, and I used all of those skills greatly throughout. This project required a lot of time management and collaboration, which are skills I developed throughout college and while on my co-ops and which I used heavily when developing this project but also developed greatly as well. I also had to rely on my experience developing web apps to help develop the backend and my experience in user interface to help with the frontend. However, I had no React experience, so I was able to greatly develop my skills in that area through this project. I also developed my skills with AI and implementing that into an app through this project, which I had very little experience in beforehand. For our project, we developed an app called SoundScape that used contextual inputs and AI to generate very personalized music recommendations that the user could customize to create a Spotify playlist that they will not have to skip any songs on. For the frontend, we used React and developed

various components for the user to interact with to customize the parameters to create their playlist. We also had a Node.js server on the backend that handled all of the API calls and built the request to send to the AI and then processed it upon receiving it. We used the Spotify API to gather user listening history and export the finalized playlists, the OpenAI API as our AI model to handle the song recommendations, and the OpenWeather API to gather weather data. After the recommendations were gathered from the AI, they were processed in our Node.js server and then presented to the user on the playlist page, where they could swipe on each song to add it to their playlist. Once they were happy with their playlist, they could export it to Spotify, where they could listen to it. One success that we had with this project was that we were able to create an app that could use AI to make music recommendations and export to Spotify. We also felt that the UI was very good and the app looked good and performed its function well. One obstacle that we had with this project was working with the Spotify API and developing an AI model. We originally intended to develop our own custom AI model to handle music recommendations, but halfway through the project, Spotify removed the ability to get music metadata from its platform, which greatly hindered our ability to do that. As a result, we decided to use OpenAI to handle music recommendations. We also had some challenges with getting the UI to function in the way that we wanted, particularly with the swiping functionality on the playlist page. However, we were able to learn a lot, both from our challenges and successes, about UI work with React, building and implementing AI models, using APIs in an app, and working and collaborating in a group on a long-term project.

Part B

Our group was able to accomplish most of our goals with this project. We were able to learn a lot about development with AI, React, and various APIs. We were also able to create an app that made successful music recommendations based on the provided context, had a visually appealing and easy-to-use UI, and was able to give users the ability to customize their playlists and listen to them in Spotify. I would say that, overall, our project was successful, and I am proud of what we were able to learn and accomplish.

This project taught me a lot about group work. I learned that it can be difficult to work with others when everyone has their own way of managing time and dealing with large, long-term projects. I also learned that it is important to communicate with your teammates often and make sure everyone always has something to work on and is making consistent progress. One aspect of teamwork that was successful with our project was communication. We talked nearly every day and had meetings at least once a week to make sure everyone was on the same page, and we knew what everyone was working on

and what needed to be done. One aspect of teamwork that was not successful in our project was time management and dividing work evenly. Since we all had different schedules and ways of managing our time, it often became the case where I worked on a lot of the code and assignments and the other members of the group did less. I would say my efforts on the project were greater than those of my teammates, but that is not to take away from their contributions or to say that they were not helpful. I would just say that I was responsible for significantly more, including much of the frontend, all of the backend, the setup of the app and connections to the API, and a lot of the work on the written assignments and presentations. I also handled all of the bookkeeping, administration, and communication for the group. I think Joseph Schnizer deserves recognition for his work on the playlist page and for getting the swiping functionality working.