

Derrick McHale
Senior Design I.
Individual Capstone Assessment
9/13/2024

The senior design project my team is working on is an app which will create personalized playlists based on a number of variables. The basic idea is that the user will input things like their current mood, what time of day it is, whether or not they feel like hearing something new, etc., and the program will generate a playlist of music that it thinks the user is most likely to enjoy given these factors. The app will likely have an AI component to help accomplish this goal. This app will be a companion app to spotify, and should be able to connect to spotify to create playlists on the user's profile. To accomplish this, we will be using Spotify's API in our project. The goal of our app is to create a personally tailored listening experience with as little effort on the part of the user as possible.

A decent amount of my previous coursework at UC will help me as I contribute to this project. I have gotten some experience with web development, specifically with react.js which I used for a project in my software engineering course. I have also taken an introductory AI course, which will likely help me when working with the AI component of our project. My work with SQL and databases in my database development course will also help me as I work on the backend for this app. Much of my experience with programming in general comes from previous courses I have taken, such as my data structures lab and python programming. The programming skills and theory I have learned in these courses will be crucial to the value that I bring to this team.

While I don't have experience with Spotify's API, I do have some experience working with APIs in general due to my experience as a Software Engineering co-op at KLH Engineers. In this role, I worked with the Revit API to help create and debug tools within a custom suite of engineering and 3D modeling tools. I learned many new skills at KLH, and sharpened previous skills which I acquired from my coursework. Being a full time developer for two semesters in a row, alongside having great co-workers and experienced mentors to collaborate with, allowed my general software development skills and knowledge to improve significantly. I also got more exposure to UI development in this role than I had previously, as I would frequently work with our XAML user interface code and the C# code behind it. I also learned to be a more effective member of a team at KLH, as I worked in a development team which used a two-week sprint agile structure.

This project is exciting to me because I think it will be a very useful tool if executed correctly, and because I think it will be an interesting programming challenge. I use spotify regularly to listen to music, and while I enjoy it, I think that the automatically generated

personalized playlists that spotify offers are a bit lackluster. There are playlists named for certain occasions and activities which are sometimes interesting, but generally these playlists either just contain songs from my liked playlist, or are not quite what I'm looking for. Additionally, while these playlists are personalized, there are a finite amount of them that you have to search for by name. I think that our concept will make finding the type of playlist one is looking for easier, as the user will be generating one from the same place every time rather than searching for one. Additionally, I think that user generation rather than a premade list of playlists will allow the vibe or idea behind the playlist to be more unique and specific.

Our general approach to make this app a reality involves using AI in the logic to determine playlists based on the user's input, as well as connecting to spotify to create a listenable playlist based on the output of our program. Ultimately, I want us to create an application where the user can enter certain criteria they want taken into account, click a button, and have a playlist created in their spotify page. I hope that our program will be able to produce playlists that will truly feel personalized to the user based on their input, and leave them satisfied. To ensure that I am making valuable contributions to this project, there are a few standards I want to hold myself to this fall and spring semester. First of all, I want to make sure I attend all meetings and am in constant communication with my teammates. I never want it to feel like I am out of reach or not participating when it's important. Secondly, I will always try to bring Ideas to the table as well as do the programming work involved, not just one or the other. Finally, I want to ensure that I am putting in as much effort as my teammates, and never making either of them do a disproportionate amount of work.