

# Computer Engineering and Computer Science

## 491A Senior Project Product Proposal

The Decision Trees, Section 4, 9/26/23

### **Vision**

In the music industry and community, there is no current easy way to find and meet up with fellow musicians and collaborate without resorting to barbaric websites such as Facebook or X and hoping to stumble on to someone as passionate as you are. We aim to provide such musicians a tool to find local artists to work with, as well as venues to perform at or even remote gigs they can do from the comfort of their own home. [name pending] will provide a variety of basic tools for beginners and intermediates such as simple track sharing and educational resources, all packaged in a manageable system so even the less tech-savvy can utilize it to its fullest.

### **Target Audience**

Our app [name]'s target audience is people in California who are familiar with music or that are interested in learning music. Anyone can be qualified to use our app as long as they can connect to an internet browser. Otherwise, user experience is our main priority. Any musician, songwriter, aspiring artist, or simply music enthusiast located on the west coast with an emphasis in Los Angeles, is encouraged to download our app.

This includes communities like:

- Local Musicians
- Venues/Event Organizers
- Music Students
- Music Teachers
- Older Non-Tech-Savvy Musicians

# Features

## Phase 1:

### Local Musician Search:

- As part of registration, users will be able to provide their zip code, then using this feature see other users who live nearby who want to collaborate.
- This can be for bands, covers, or other projects, users will be able to see specializations such as composer, producer, arranger, vocalist, or a specific instrument.
- Users can choose if they want to be visible to other users who live nearby.
- To protect user privacy, only a zip code will be used to determine locality. A drawback of this is exact distances won't be available, but establishing a local connection is the main goal.

### Portfolio:

- Section of profile for users to post tracks or clips of their choosing that they have worked on.
- Will be limited to 5-10 total.
- Can also hold a short demo reel, either through a provided youtube link or uploaded video.
- Other users (normal or client) will be able to view this portfolio at their discretion.

### Music Uploader:

- Users will be able to upload their audio files to either their account for it to be on their portfolio, or in messages with other users.
- Will have to be able to handle .mp3 and .wav files at minimum, as well as .mp4 for demo reels.
- Users will also be able to upload their files to bandcamp, soundcloud, youtube, or spotify by connecting their profiles, which will have security implications.

### Groups:

- Users will be able to form groups with other users, either ones whose account they already have the name of through other channels or ones they meet on the local search.
- Groups can be two or more members, and starting out will have a limit of 20.
- Group members will have a text chat they can communicate in, and a simple repository to post audio files to for sharing.

### Bingo Board:

- Non-musician users (referred to as clients) will have a bulletin-board-style section to post listings for gigs, such as music for a personal project or venue.
- Will contain information such as whether the job is per-diem or longer, pay range, and times.
- Other users can view this board and see listings that meet their requirements (composer, guitarist, etc.) that are either local (in the case of venues) or asynchronous (such as a backing track for a video)
- Users will be able to submit simple applications where they can list their qualifications or interest, and the poster can see those user's profile and portfolio

**Audition Applicant Managing:**

- Ties in with the Bingo Board:
- Client users will be able to see the applications from interested users, as well as their public portfolio.
- Will have the option to message the applicant back with details or alternate methods of contact.

**Artist/Venue Profile Calendar:**

- Artists and Venues can post gigs to their profile
  - Gigs will show relevant information such as
    - Time
    - Place
    - Performers
    - Links
- Users can see a calendar view of gigs on Venue/Artist profile screen.
  - tab/scroll down to see

**Tempo Tool:**

- For tracks, users can have a digital metronome enabled that will make a knocking noise on beat with their track, to ensure it is keeping time.
- This will be in 4/4 time by default, or 80 bpm, and can be changed by users for tracks they are playing.

**Audio Visualizer:**

- Simple waveform that changes with the audio, mostly just visual eye candy for users while they are listening to others tracks that don't have video of their own.

**Basic Track Editing:**

- Users will be able to tweak the volume of their tracks or the tracks in groups they are in in-app.
- Users will also be able to cut clips and splice clips together.

**Ear Practice Tool**

- Can test for perfect (exactly on-note) or relative(difference between two notes) pitch
- Will play one or two notes, then give a correct and incorrect answers to choose from.

**Beginner Educational Material:**

- Many beginner musicians aren't familiar with much music theory or even copyright and licensing laws.
- A small collection of pages containing information that would be helpful for beginners would be a great way to educate those who are hobbyists or new to the profession.
- At most this would be different tabs in a FAQ section.

### **Prospective Phase 2 Features:**

- **Song Analysis: Key Finder**
  - Identify the key of the song being played
- **6-Track Mixing**
  - Users will be able to edit multiple tracks at once, up to 6
  - This will remain relatively basic, only needing volume mixing, layering, and moving clips
  - The main downside is it might require a lot of memory to do this in-browser with 6 tracks, and that's on the lower end.
- **National Implementation**
  - Expand address and timezone functionality to the rest of the United States
  - Since we're mostly working with zip codes, it should be relatively easy to implement a way for other states to work if we've done the west coast.
  - For time zones, we can either use the user's computer time to display when messages are received or sent or, at bare minimum, have an option in settings for users to manually choose their timezone.
- **Audio Temp Transposition Tool:**
  - Create a tool to speed up audio by a certain percentage.
    - Must find a way to not destroy audio data in the process.