Computer Engineering and Computer Science
491A Senior Project Product Proposal

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Team Name: The Decision Tree

Team Members: Aiden Hock, Jacob Phillips, Nathan Wolski, Noah Daniels, Kihambo Muhumuza, Diego Garcia

Team Leader: Aiden Hock

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Product Name: Kara-Goke

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Product Outline:

Product's Value/Purpose:

The "Kara-Goke" Karaoke party planner aims to connect singing friend groups to each other anytime, anywhere. The goal of "Kara-Goke" is to bring singers together and revolutionize karaoke in a fun, viable, and painless process. With "Kara-Goke" you no longer must drive to a karaoke bar and hope to see your friends. Simply set up a "Kara-Goke" session in the app, invite your friends, customize your "Kara-Goke" game mode, and enjoy an exciting singing session with your friends anywhere you want! "Kara-Goke"'s value comes from its ubiquitous karaoke experience, highlighting our game-changing song voting system, real time pitch-analysis, tons of unique game modes, and real in-game highlights users can share amongst each other!

Vision:

Our vision for "Kara-Goke" is to create a meaningful user experience predicated around having fun, competing with your friends, and singing anywhere you want with anyone you want. Our app revolutionizes traditional karaoke conventions. We allow you to seamlessly integrate your own playlists, personalize your own unique singing challenges, vote on which song plays next, without ever having to step into a karaoke bar! Most of all, we want users to hold onto their unforgettable singing moments with their friends. That is why "Kara-Goke" would be incomplete without a highlight reel. This would allow users to keep their favorite memories from their funniest sessions as well as compile all the times they were "Pitch Perfect!" in their songs.

Features:

Kihambo

Medium to High Complexity Feature (Phase 1):

- **Inviting friends via share:** make a feature that lets users invite friends to their hosted karaoke party through sending invite links. This link can be copied or shared through email and text.

Low to Medium Complexity Feature (Phase 1):

- **Song catalog integration:** allows Spotify (or any music service) to access their profile and choose the songs they want to use for their karaoke session.

Feature for Next Release (Phase 2):

- **Song Suggestions:** Create a recommendation system for songs that allows for users to receive suggestions from user input such as their song history or their song preference with AI.

Aiden

Medium to High Complexity Feature (Phase 1):

- **Real time user pitch analysis scoring:** implement a scoring system that grades the user's performance in real time. Can be developed with Nathan's "feedback and tips" feature and Jacob's "Karaoke Party Highlight"

Low to Medium Complexity Feature (Phase 1):

- **Real time user song-queue voting system:** implement a real time song scoring system that gives users a list of options of potential next songs and allows them to vote on which song is up next turn. Users can change their votes until the next round starts, then the song is locked in.

Feature for Next Release (Phase 2):

- **Customizable Game Challenges:** Integrate a karaoke gamemode modification system that allows users to create challenges with specific rules and/or themes.

Nathan

Medium to High Complexity Feature (Phase 1):

- **UI Host/Guest Dashboard:** develop a dashboard for hosts to manage the "Kara-Goke" session and for guests to experience and participate in as well.

Low to Medium Complexity Feature (Phase 1):

- **Feedback and Tips:** Partner with Aiden's "pitch analysis" to give meaningful tips and singing feedback.

Feature for Next Release (Phase 2):

- **Party Leaderboard:** Introduce a leaderboard tab to the "Kara-Goke" session which allows users to compare and track their performance against their friends.

Noah

Medium to High Complexity Feature (Phase 1):

- **Game modes:** Develop classic and innovative karaoke game modes such as duets or thematic singing challenges for added entertainment.

Low to Medium Complexity Feature (Phase 1):

- **Karaoke Lyrics Display:** Implement a heads up display that is able to communicate to the user what lyrics are currently being played.

Feature for Next Release (Phase 2):

- **Karaoke Party Themes:** Integrate themes to the system by having multiple categories and filters to improve user experience.

Jacob

Medium to High Complexity Feature (Phase 1):

- **Queue Manager:** Create a queue management system to allow users to sufficiently manage song rotations

Low to Medium Complexity Feature (Phase 1):

- **Karaoke Profile Manager**: Create a system for users to create profiles with customization features involving profile pics, usernames, their bio.

Feature for Next Release (Phase 2):

- **Karaoke Highlights:** Implement a system for recording video/audio from karaoke sessions and mark parts of the session for top performances and funny moments for users to replay after each session.

Diego

Medium to High Complexity Feature (Phase 1):

- **Karaoke Party Chat:** this feature allows party members to communicate with each other through text chat during a live song session.

Low to Medium Complexity Feature (Phase 1):

- **Karaoke Party Reminders:** this feature reminds users who have previously been notified or set up a karaoke session that it will be starting soon. This gives them enough prep time to warm up their voice and do whatever they need to do to hit those high notes.

Feature for Next Release (Phase 2):

- **Party Voting Challenges:** at the end of every song, party members can vote who had the best performance if this feature is turned on. It can also have a unanimous voting so that no one's feelings are hurt.

User Types:

- **Root Admin (Super Admin):**
  - Responsibilities: Initialize general karaoke service, manage parties/party settings, manage user accounts, configure system settings, access karaoke session audio analytics.
- **Admin Delegates (Admin):**
  - Responsibilities: Controlling song selection queue, resetting passwords, general user management, assigning/removing permission sets, moderation of party chat, managing parties.
- **Normal Users:**
  - Responsibilities: Host karaoke sessions, invite friends to party, vote for songs, chat with others, have fun with karaoke, sing.

Target Audience:

- The target audience is anyone, and everyone who loves karaoke based games and a more immersive experience with friends and family. This is far more than just a karaoke application, it is for a community of people who want to expand on just plain old karaoke.

Scope:

- The scope of the web application involves creating a CDN that will be able to provide a variety of music gaming features. The CDN will have to be integrated so that users can connect with other users to improve the app experience.

Minimum Viable Product:

- User Registration
- Party chat w/ hosting and inviting functions
- Live Karaoke scoring and feedback
- Voting system for determining songs/queues
- Song catalog with API Integration with Spotify/Apple Music

Business terms:

- CDN: Content Delivery Network

Technical terms:

- LSTM NN: Long Term Short Term Neural Network (memory based algorithm)
- UI: User interface

Resources:

- Music files in backend: https://github.com/vitejs/vite/issues/7778