

The Music Assistant

Milestone 6 • April 20, 2020

Overview

- No new features
- Extensive documentation
- Code cleanup
- Poster
- E-book page
- Video

A scenic view of a university campus featuring a large pond in the foreground. The water reflects the surrounding greenery and the sky. In the background, several multi-story brick and white buildings are visible, including one with a prominent dome. The sky is clear and blue. The overall atmosphere is bright and sunny.

Milestone 6 Tasks

Website Documentation

- Used JSDoc
 - Using an extension to document React code
- JS Metrics
 - 94 files
 - 6,200 lines of code
 - 4,500 lines of comments
- CSS Metrics
 - 48 files
 - 1,900 lines of code
 - 300 lines of comments

Server Documentation

- Used JSDoc
- JS Metrics
 - 38 files
 - 8,874 lines of code
 - 1,844 lines of comments

End-User Manual

- We tried to keep the website simple
- No need for an extensive manual

User Testing

Background

- Our client is the Director of Choral and String Studies at Florida Tech
- Our website was given to the Florida Tech choir and EFSC choir
- Total Number of Users: ~40

Difficulties

- Our first release was buggy
- Very few users ($\sim 2/\text{day}$)
- COVID-19
- Can't get in touch with our client (see above point)

Results

- Not enough data to show results
- Recent Daily Active Users: ~ 3
- Cleansing algorithm was not doing enough data smoothing
 - The ML library is very good at picking up all sounds
- Performance analysis algorithm still needs some tweaking

A scenic view of a university campus featuring a large, calm pond in the foreground. The water reflects the surrounding greenery and the clear blue sky. In the background, several multi-story brick and white buildings are visible, including one with a prominent white dome. Lush trees and bushes frame the scene on both sides.

Lessons Learned

Lessons

- A lot of the software exists, weaving it together is difficult
- Sometimes, people are not as excited about your project as you are.
- Keeping functionality separate from the tools themselves is important.
- Learning new tools and technologies takes time and combining multiple new technologies together at a time is difficult.

Documentation

The Music Assistant

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Faculty Advisor: Dr. Thomas Eskridge, Dept of Computer Science, Florida Institute of Technology

Summary

- The Music Assistant is a tool that assists students in practicing music for their choir outside of class time. The Music Assistant also helps instructors by identifying where the students need guidance.

Motivation

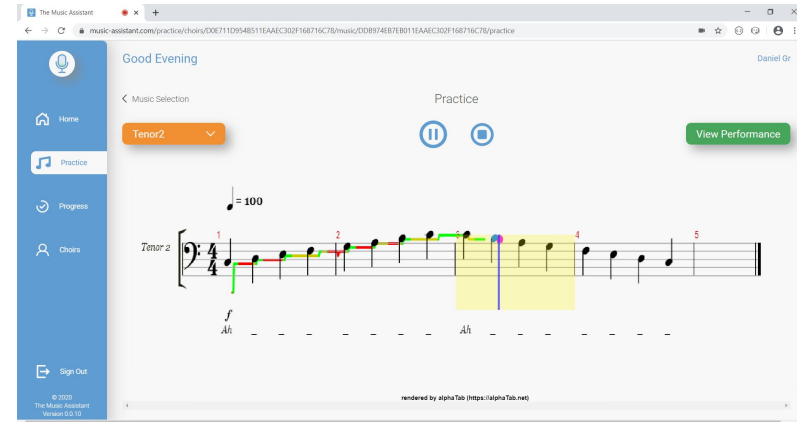
- Choir students need to practice their performances outside of class, but it can prove difficult to know whether or not they are improving

Accomplishments

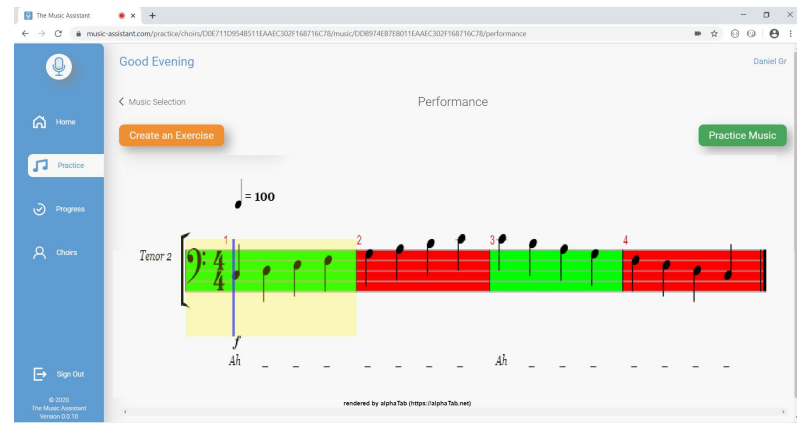
- Created a complete experience that includes a website, server, and database
- Provide real-time feedback to students as they sing along with sheet music
- Present the user with a performance progress summary for each piece of sheet music

Future Improvements

- Detect similarities in sheet music to better identify problematic patterns for students
- An OCR that can digitally encode sheet music for a choir
- Create statistical summaries for students and instructors that show where improvements can be made



Real-Time Feedback



Progress Summary



NORTHROP GRUMMAN

Engineering & Science
Student Design Showcase
at Florida Institute of Technology



Documentation

- Web App Docs
 - <https://dgriessler.github.io/The-Music-Assistant/files/web-app-docs/>
- Server Docs
 - <https://dgriessler.github.io/The-Music-Assistant/files/server-docs/>
- E Book
 - <https://dgriessler.github.io/The-Music-Assistant/files/e-book-page.pdf>
- End-User Manual
 - <https://dgriessler.github.io/The-Music-Assistant/files/end-user-manual.pdf>
- Demo Video
 - <https://dgriessler.github.io/The-Music-Assistant/files/demo-video.mp4>



Senior Design 2019/2020

A Special Thank You

- Dr. Thomas Eskridge
 - Associate Professor of Computer Engineering and Sciences at Florida Tech
 - Our faculty sponsor
- Prof. Elizabeth Dopira
 - Director of Choral and String Studies at Florida Tech
 - Our client
- Mr. Daniel Graves
 - Founder/President at Database-USA.com
 - Our capstone coach
- Dr. Robert Lamb
 - Director of Choral Activities at Eastern Florida State College
 - Our “second client”
- Dr. Philip Chan
 - Associate Professor of Computer Engineering and Sciences at Florida Tech
 - Head of CS/SE senior design
- Choir Students
 - Includes ~40 students at Florida Tech and EFSC

A Note to Senior Design Students

- Our team has been very impressed – and a little concerned – about our competition this year
- Best of luck to those who are graduating this semester

Questions?

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