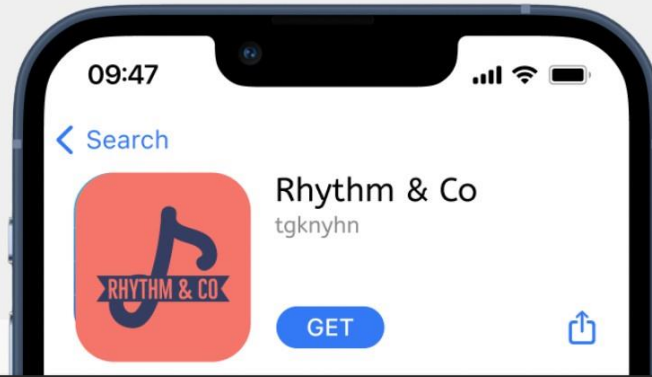




Guitar Player Assistant

CSE495 Fall 2022-2023 2nd MEETING PRESENTATION

Ahmet Tuğkan Ayhan
Student



Gökhan Kaya
Supervisor

Reminder of the Topic

Uploading a Song

User uploads the .mid version of the guitar track they want to play



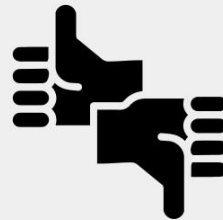
Playing the Song

User starts playing the guitar and Rhythm&Co tells which note or chord they need to play next



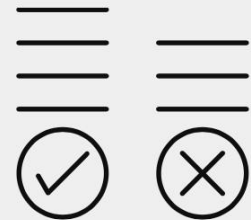
Giving a Feedback

If user fails playing a note or chord, then song pauses until user plays the correct sound



Showing the Results

Once user finishes the song, the application shows which part they played wrong




What I Have Done So Far?

- 01** Designed the user interface of the application using Figma.
- 02** Made a program which uploads a MIDI file and plays it tracks using Audiokit, AudiokitUI.
- 03** Made another program to receive incoming audio through microphone and converting it to notes in real-time. Used Audiokit, AudiokitUI, AudioKitEX, AudioToolbox, SoundpipeAudioKit.
- 04** Started to chord recognition in real-time. It is tricky because a lot of notes played at once and it requires(probably) an AI program.



Rhythm & Co

User Interface - Login Screen



Login to Rhythm & Co

E-mail


Password

☐ Remember Me [Forgot Password?](#)

Login

Or sign in with Google

Don't have an account? [Signup](#)



Sign-up to Rhythm & Co

First Name

Last Name


E-mail

Password

By signing up you agree to our [Terms & Condition](#) and [Privacy Policy](#).*

Continue

Already signed up? [Login](#)



Check your Mail

We've sent a 6-digit confirmation code to rhythmmandco@gmail.com. Make sure you enter correct code.

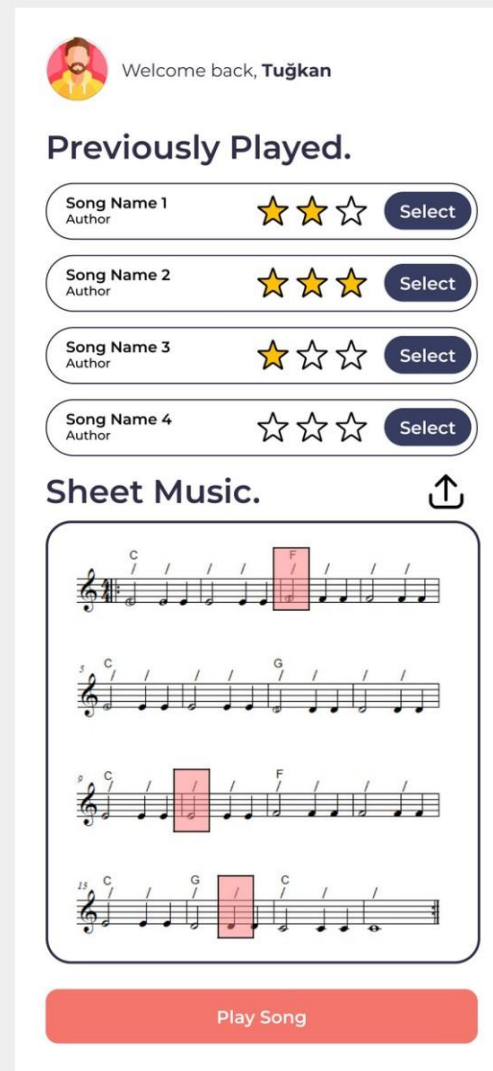
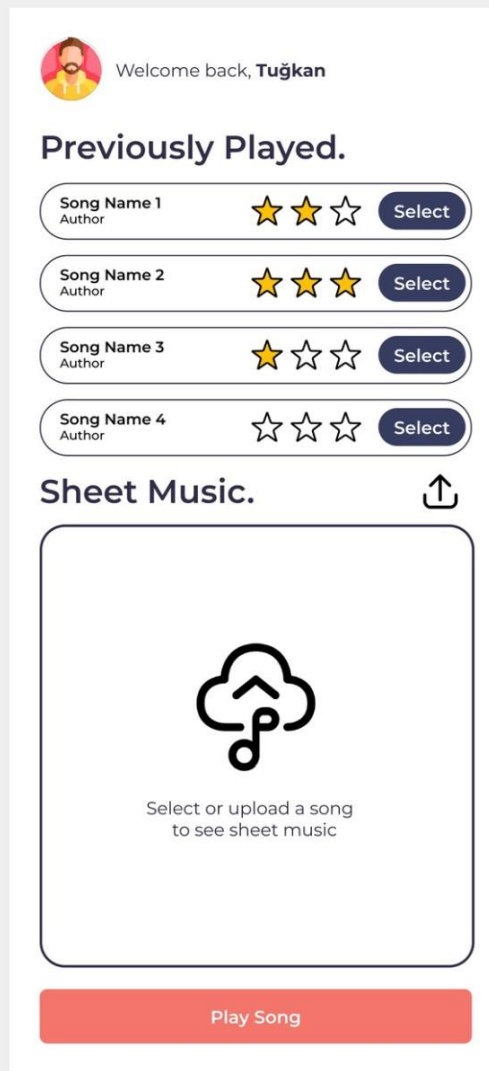
Verify

Didn't receive code? [Resend Code](#)



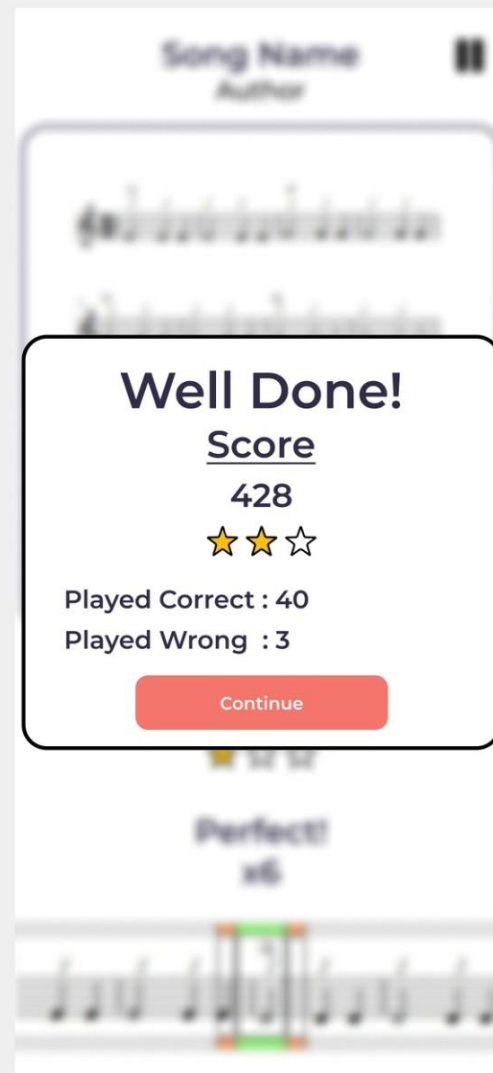
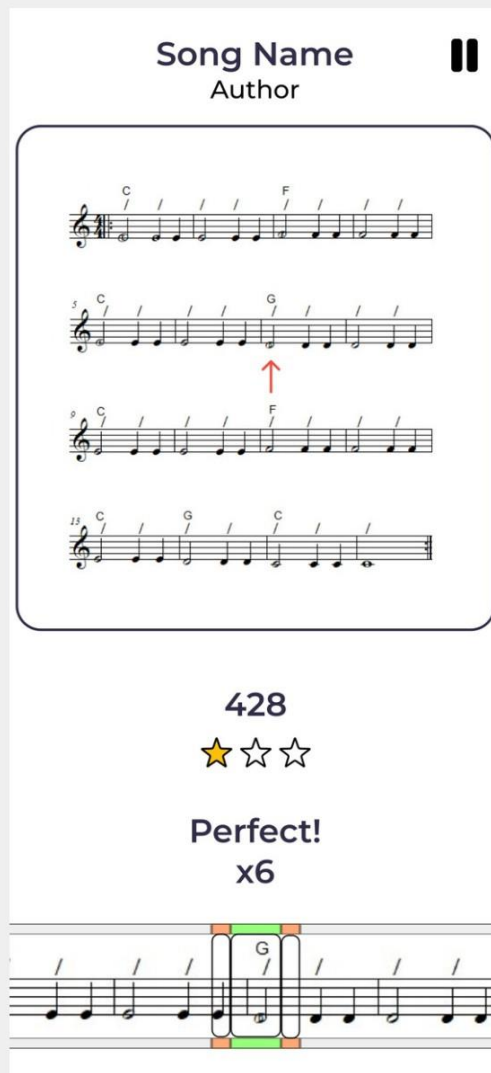
Rhythm & Co

User Interface Menu Screen



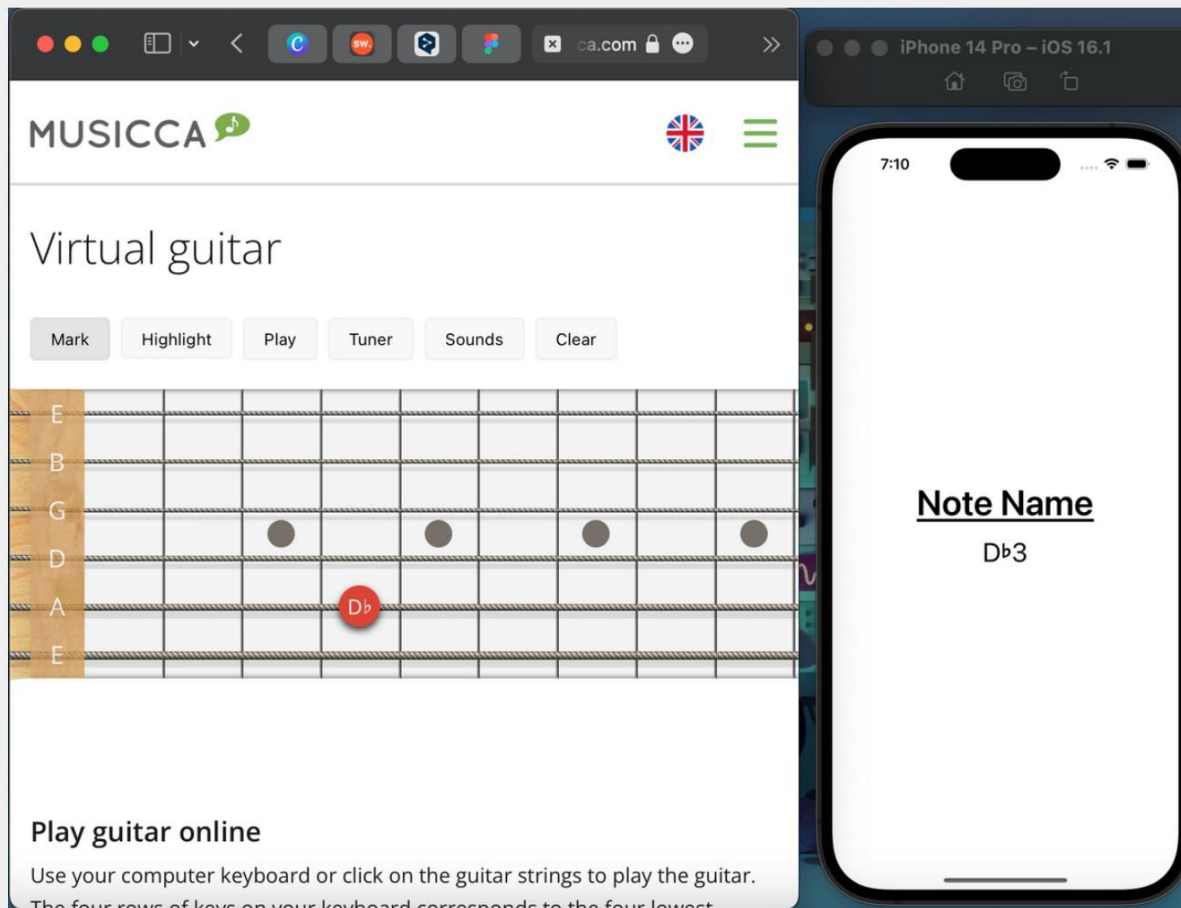
Rhythm & Co

User Interface Play Screen



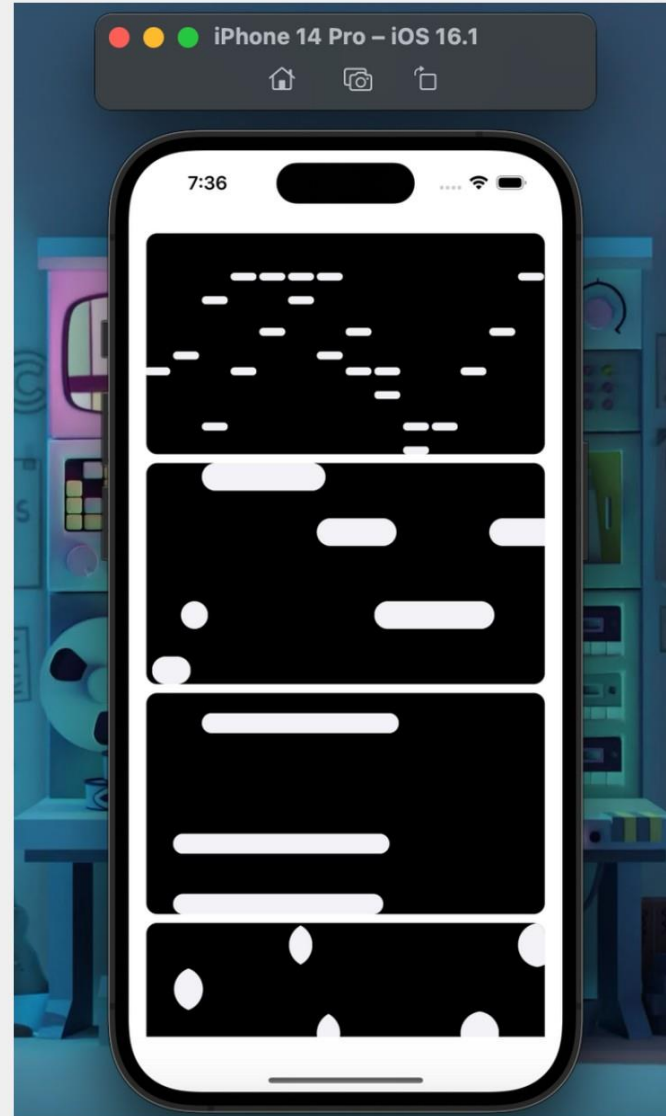
Rhythm & Co

Voice to Note App



Rhythm & Co

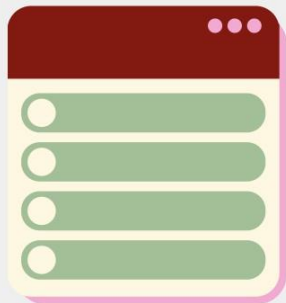
MIDI Track Player



What I Will Do Next?

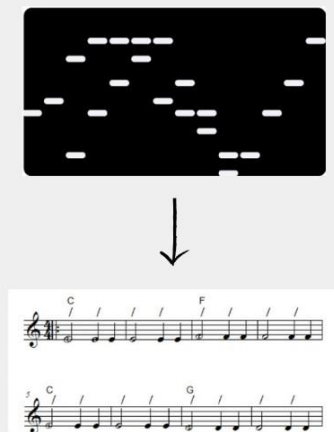
Implementing the UI

Login, register, main and song playing pages



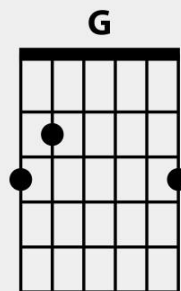
MIDI Player with Musical Notes

Previously MIDI player app shows buttons. These will be converted into musical notes



Chord Recognition

Note recognition is not that hard but chord recognition is a different story. Current attempts shows that an AI is needed for this part.



Synchronization

After completing every step, finally, I need to compare MIDI notes with the received audio. This is simple since I already acquired both information(except chord)

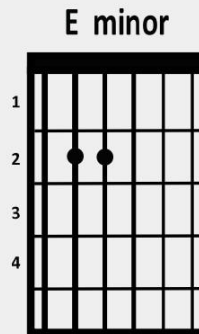


Success Criteria

- 01** The application must be able to run without delay. Therefore, the application will have near real-time detection and feedback generation.



- 02** The application should be able to recognize chords as well as notes.

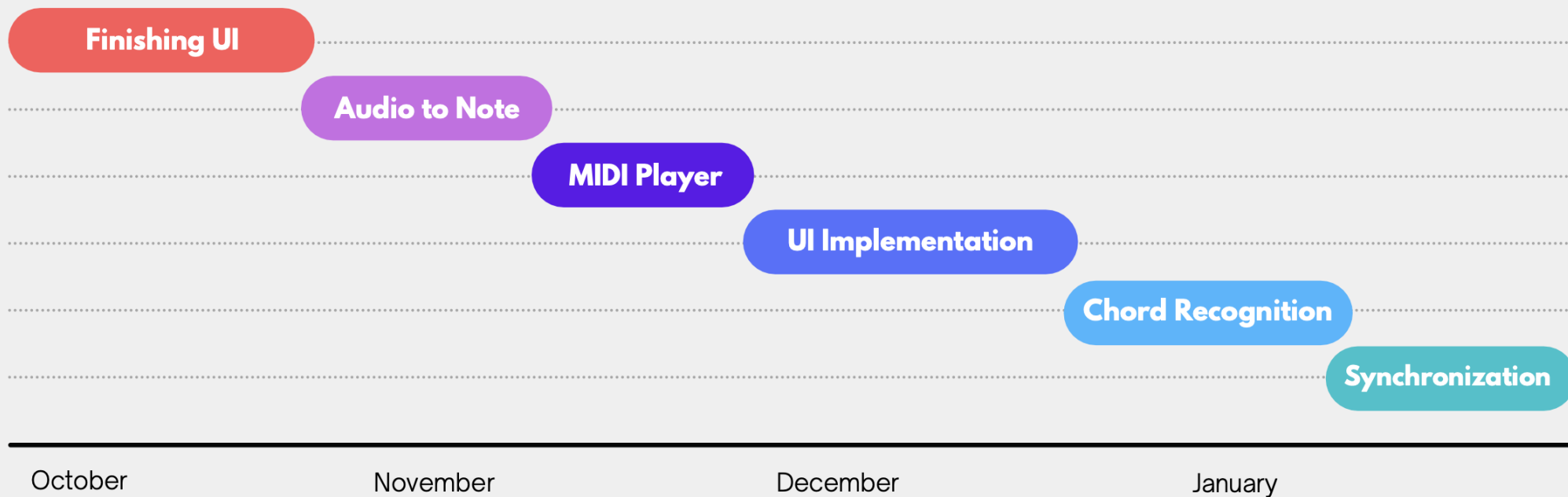


- 03** The app should be able to convert the received audio into a note or chord with at least 90% accuracy.



Roadmap

Expected delivery of each feature.





Thank You

References

<https://en.wikipedia.org/wiki/MIDI>

<https://github.com/AudioKit/AudioKit>

<https://www.adobe.com/express/create/logo/random>

<https://www.musicca.com/guitar?notes=a5&highlighted=&inverted=>

<https://www.figma.com/>