

# MetroTune



By Jayden Craig

4/3/2024

# Description

- All in one place for musicians to access tools
- Allows for musicians to tune their instrument, play in time, and practice their note / interval recognition
- Utilizes the Web Audio API
- Includes:
  - Tuner
  - Metronome
  - Reference notes / tunings
  - Ear Training Practices

# Project Goals

- Simplify the UI for the user
- Place important tools in one web-app for easy use
- Add more customization to the metronome for the player
- Gain practice with Web Audio API and signal processing

# Project Justification

- I have had ample experience with tools such as GuitarTuna (tuner) and Pulse (metronome) that I do not find entirely effective
- They often lack the opportunity for the user to customize their usage of the app such as tuning in nonstandard tunings
- I wanted to challenge myself to design and build this web app as it would give me the chance to create an app for musicians by one
- It was also a chance to work with audio processing which is something that I find very interesting

# UI Layout



[HOME](#) [TUNER](#)

**METRONOME**

BPM: 120

-

PLAY

+

-

BPM: 4

+

--

Accent First Beat: [ON](#)



[HOME](#) [METRONOME](#)

**TUNER**

Cents: --

Hz: --

[START TUNER](#)

[Reference Notes](#)



[HOME](#) [BACK](#)

**INTERVAL RECOGNITION**

Click on both note buttons to hear the interval. Select one of the answer options below and if it lights up green, you are correct! Then you can click next to move on. Have fun!

C

F

1

2

3

4

5

6

7

8ve

[NEXT](#)

**Demo**

# Project Challenges

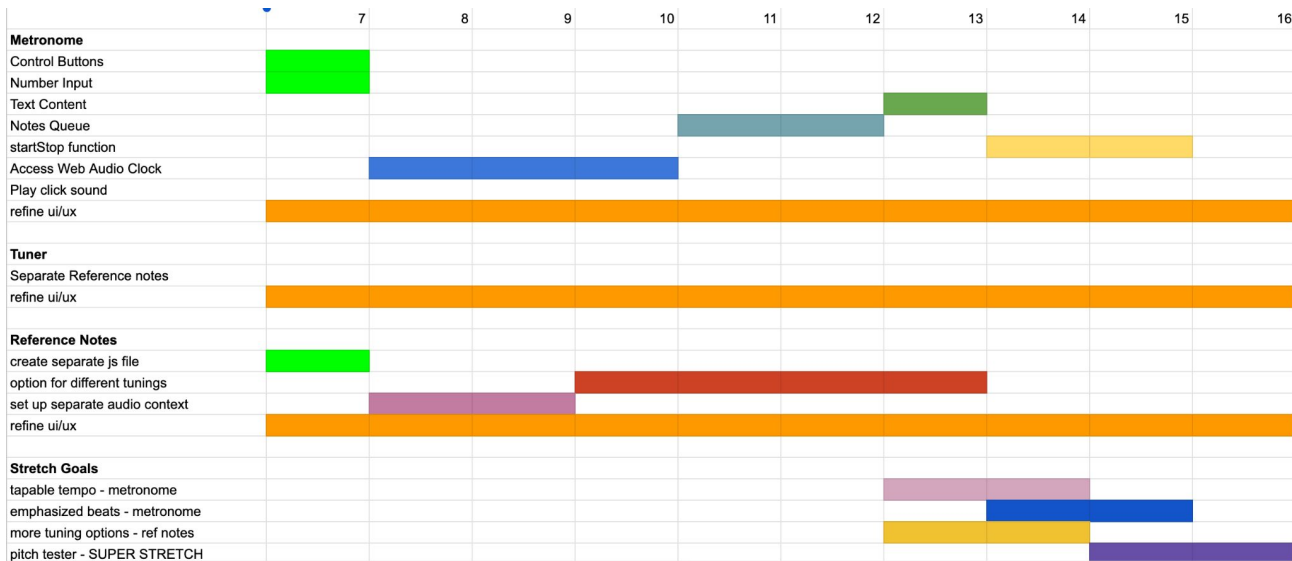
- Throughout development, there has been multiple variations of the UI
- Reworking how the app was going to feel and operate took more time than initially intended
- Getting the Web Audio API to work was at times difficult as it requires certain parameters for it to function such as a user input
- Getting the metronome's timing to function properly
- There is a learning curve to the Web Audio API as much of its implementation is centered around technical music and audio terms
- Took a while and tried a handful of different ways to operate the pitch detection tests correctly

# Punch List

- Buttons / Slider to adjust BPM
- Play/Stop Metronome
- On tuner: display note, cents, hz, and change needed
- Standard, drop D, and Half step down tunings
- Accent first beat
- Button to adjust BPB
- Additional tuning references
- Pitch Detection Tests



# Status Update



Currently ahead of schedule and working on pitch detection stretch goals as well as additional UI tweaks.

**Thank you**