

# MetroTune Software Development Plan Document

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#### **4.1 Plan Introduction:**

This Software Development Plan provides the details of the planned development for the MetroTune project which provides user with a web app to access a selection of tools for musicians including a tuner, metronome, and series of reference notes. Each tool will be fully functional and customizable for the user. Compared to most other sites for musicians' tools, MetroTune will be an all-in-one stop for learning and practicing. Although broken down further in this document, deliverables during this development will include a requirements document, biweekly status reports, and demonstrative presentations. The resources required for this development and planned timetable are detailed within this document.

##### **Deliverables:**

- Written Status Report: EOW Starting Week 8
- Updated Software Development Plan Document: Week 12
- Updated Requirements Specification Document: Week 13
- Demonstration Presentation: Week 13/14
- Poster: Week 14
- Final Presentation / Final Product Delivery: Week 16

#### 4.1.1 Project Deliverables:

\*timeline begins in week 8\*

- Written Status Report: EOW Starting Week 8

The written status reports will cover the notable progress over each two week time period. There will be three sections. The first section will detail the accomplishments that were made in the developmental process over the two week span. The next section will detail the plans for development over the next two weeks. Lastly, the final section will detail any struggling or concerning areas of development that may be delaying the schedule.

- Updated Software Development Plan Document: Week 12

This refined version of the initial SDP will be an updated look at the timeline for the MetroTune development. It will have multiple sections covering the important steps in the process. The sections include: Plan Introduction, Project Deliverables, Project Resources, Hardware Resources, Software Resources, Project Organization, Project Schedule, PERT / GANTT Chart, Task / Resource Table. These sections individually will provide detailed explanations of how MetroTune is developed.

- Updated Requirements Specification Document: Week 13

The updated RSD will list the requirements for the user to successfully use MetroTune. It will detail multiple requirements for the project including: function, performance, and environment requirements. It will list these requirements from a waterfall development perspective.

- Demonstration Presentation: Week 13/14

The demonstration presentation will be a chance to show the development of MetroTune in action. This presentation will be a preparatory opportunity for the final presentation a couple weeks later.

- Poster: Week 14

The poster for MetroTune will outline its features in a sleek and efficient way. With graphics of the web app in action in addition to explanatory text, the audience will gain an understanding of MetroTune's goal and usability.

- Final Presentation / Final Product Delivery: Week 16

The final presentation will be a culmination of the MetroTune project's development. This will be the final opportunity to showcase the work put into this project. This will be when the audience will see first-hand the effort put into the project as well as how it works.

\*All deliverable will be uploaded to the deliverables section of the MetroTune repository.\*

## **4.2 Project Resources:**

In the following subsections, the software and hardware resources will be detailed.

#### **4.2.1 Hardware Resources:**

- MacBook Air with M1 chip and 16GB of memory

The only piece of hardware that will be used to develop this web app will be a 2020 MacBook air. This project will be developed and tested locally so only one computer is needed to build it.

#### **4.2.2 Software Resources:**

- Visual Studio Code
- Google Chrome
- GitHub Desktop
- MacOS Monterey 12.6.7

### 4.3 Project Organization:

Tuner:

- Refinement of UI/UX
- Move Reference Notes to their own page

Metronome:

- Refinement of UI/UX
- Create control buttons (+/- BPM, +/- BPB, Play/Stop)
- Number input for BPM instead of incrementing by 1 with buttons (quicker input for bigger numbers)
- Text content to give visual cue for current beat
- Create queue for notes to play
- Add a stopStart function to update BPM or BPB being edited while playing
- Access Web Audio Clock to time beats
- Play click sound for audio cue for BPM

Reference Notes:

- Refinement of UI/UX
- Create personal JS file for Reference Notes
- Option for different tuning references (Standard, Drop D, E flat, etc.)
- Set up separate audio context for notes within JS file

Stretch Goals:

- Tapable tempo feature
- Add a feature to metronome for emphasized beats
- Add more options for reference tunings
- SUPER STRETCH: add a page for ear training to test pitch recognition

#### **4.4 Project Schedule:**

This project will follow a waterfall developmental process. Each section listed in 4.3 Project Organization will follow the waterfall format. While features within the metronome and reference note tools could be developed simultaneously for example, their individual development will be cascading tasks. This developmental process will be detailed further in the next section: 4.4.1 Gantt Chart.



#### **4.4.1 Gantt Chart:**

Available in repo as SDP Gantt file

\*Schedule is designed with the hopes of being able to work on stretch goals\*

#### 4.4.2 Task / Resource Table:

\*All tasks will require use of a Mac, VS Code, and Chrome to develop locally\*

Task	Resources
All tasks (Deatiled in 4.3)	Mac, VS Code, and Chrome
Push to GitHub	Mac, GitHub Desktop