

# **Fireball Wizards**

## **Requirements Document**

**Software Requirements Specification**



CSCE 247-002: Software Engineering

Thomas Richardson, Simeon Hearrell, Landen Worthy, and Dylan  
Lesesne

January 26<sup>th</sup>, 2025  
Version 1.0

## **Table of Contents**

<b>Cover Page</b>	<b>1</b>
1. Introduction	<b>3</b>
2. Stakeholders	<b>3</b>
3. Constraints	<b>6</b>
4. Overall Description	<b>6</b>
9. Competitive Analysis	<b>7-9</b>

## **1. Introduction**

### **Purpose**

Music is a prominent part of society. Around the world it has many different groups of people who have their own specific reasons for enjoying music. Our application seeks out people who fall into the category of those who enjoy or are interested in the creation aspect of music. The reason we created this app is because we want to give these select people a way to learn how to play an instrument in an interactive, enjoyable, and helpful way. We make this a reality through our app by having an easy to use interface that makes it easy to navigate through it and find exactly what you need. You can select which instrument you would like which has our receptive system that shows the music you're playing as well as how to play it if needed.

### **Scope**

This document will cover:

- The personas of potential users and stakeholders invested into this project.
- Any constraints that have been applied to this project.
- A description of the website/app along with its business use cases.
- Shows both the functional and nonfunctional requirements of the app.
- A competitive analysis to outline the purpose of the project

## **2. Stakeholders**

- Musicians
  - New Musicians
  - Seasoned Bands
  - Expert Conductors

- Children

- Casual Learners



Gloria Smith

## Scenarios

Gloria loves reliving the music of her youth, but she now longer has her old record player or cassette tapes

Gloria needs a reliable way to practice songs for her local choir from home. She doesn't always have access to a piano, so she needs a something that helps her rehearse.

Gloria knows how important it is to keep moving at her age, but walking alone can feel quiet and boring. She wants ways stay motivated and energized by adding music to her daily walks.

### Interest

- Music from 1960s - 1980s
- Attending community choir practice
- Dancing
- Spending time with family

### Motivations

- Stay connected with her past through music
- Her family members
- Music

### Goals

- Organizing her songs to be easily
- Meet her favorite artists
- Use music to stay active



Lucy Foster

## Scenarios

Lucy gets home with her sheet music for her recital but notices she's having trouble remembering how to read sheet music. She wants a way to practice reading sheet music.

Lucy always has trouble being motivated and wants a small way for her to be reminded to get back to practicing. With a little competitive spirit, she thinks she can achieve her goal.

Lucy loves playing piano, but she only has a smaller keyboard piano at home which doesn't have all the notes. She wants to find a way to still know how to play, even if she is not directly practicing those keys.

### Interest

- Piano
- Pop music
- Socializing

### Motivations

Lucy loves to play piano, but finds it hard to learn without a teacher right there. She wishes to do very well on her upcoming piano recital, and would like any practice she can get! Lucy also wants to be able to learn pieces for herself to enjoy and maybe show off a little, why do it if you can't have fun with it?

### Goals

- To be able to learn any song she wants
- Wants to show her friends her improvement!
- Wants to consistently practice



### 3. Constraints

#### Monetary Constraints

- This project has an entire budget of \$0.

#### Time Constraints

- This project has a final date to be completed before March 26<sup>th</sup>, 2025.

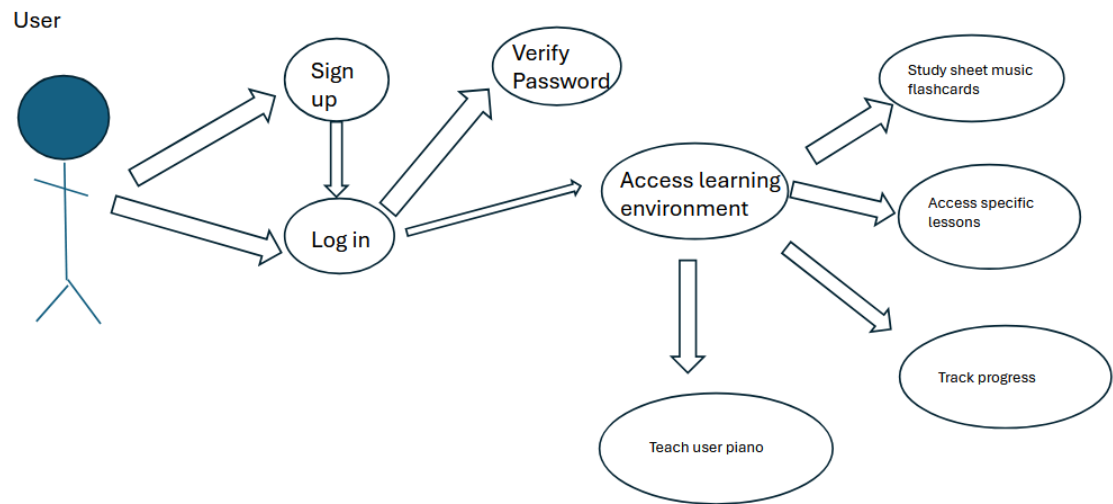
#### Technical Constraints

- This must be developed in Java.
- This must be accessible on a variety of devices

### 4. Overall Description

- This app must be accessible from multiple devices. The app should also allow the user to learn sheet music, have a visual aid for how to play, and be able to display sheet music that is uploaded. The app should also allow some organization to access the sheet music and find the desired functions.

## 5. Business Use Cases



## 6. Functional Requirements

### Spreadsheet

## 7. Non-Functional Requirements

### **Look and Feel Requirements**

- The user interface of the app shall allow for customizable themes for comfortable use.

### **Usability Requirements**

- The app shall provide step by step instructions for each lesson.

### **Performance Requirements**

- The app shall support real time feedback.

#### **Maintainability and Support Requirements**

- The app shall provide in-app support resources such as FAQs and tutorials.

#### **Security Requirements**

- The app shall securely store user data including personal information and progress.

#### **Legal Requirements**

- The app shall comply with any relevant copyright laws when using audio content.



## 9. Competitive Analysis

### 1. Simply Piano by JoyTunes

- Target Audience: Beginners looking to learn piano.
- Key Features: Step-by-step tutorials, real-time feedback, gamified lessons, and a focus on piano and keyboard learning.
- Strengths: Extremely user-friendly, tailored lessons for beginners, integrates seamlessly with keyboards.
- Weaknesses: Limited instrument variety, no collaboration features, and lacks advanced sheet music editing.

### 2. MuseScore

- Target Audience: Musicians and composers of all levels.
- Key Features: Extensive sheet music library, tools for creating, editing, and sharing sheet music, MIDI input support.
- Strengths: Free to use, robust sheet music editor, and a thriving online community for sharing compositions.
- Weaknesses: Lacks real-time feedback on performance, no integrated instrument learning tutorials, and minimal gamification.

### 3. GarageBand

- Target Audience: Musicians and producers interested in music creation and production.
- Key Features: Multitrack recording, virtual instruments, audio effects, and music production tools.
- Strengths: Free for Apple users, intuitive interface for beginners, and robust production capabilities for creating polished tracks.
- Weaknesses: Limited sheet music features, lacks gamified learning, and real-time performance feedback is absent.

<b>Feature/Aspect</b>	<b>Simply Piano</b>	<b>MuseScore</b>	<b>GarageBand</b>
<b>Target Audience</b>	<b>Piano beginners</b>	Musicians	Musicians/Producers
<b>Instruments Supported</b>	Piano/keyboard	Multiple	Multiple
<b>Real-time Feedback</b>	Yes	No	No
<b>Sheet Music editing</b>	Minimal	Robust	Minimal
<b>Music Creation tools</b>	Low	Low	High
<b>Gamification</b>	High	Low	None
<b>Community</b>	Low	High	Low
<b>Subscription Model</b>	Yes	No (mostly free)	Free for apple users

#### Summary:

An easy Combination of Education and Music Production, despite its superior production capabilities, GarageBand does not facilitate music education or gamified instruction. Including creativity tools alongside music lessons could be a differentiator. Advanced Editing and Sheet Music Features: MuseScore provides more extensive sheet music editing than Simply Piano or GarageBand. By serving customers who wish to edit, annotate, and practice sheet music while learning, your software could close this gap. Accessible Real-Time Feedback: Simply Piano has real-time feedback, however GarageBand and MuseScore do not. Putting this function into use can draw people who are motivated to do better. Gamification and Community Building: GarageBand and MuseScore miss out on a big chance to stand out by lacking gamified learning and collaboration tools.

