

TROMBONE TRAINER

TROMBONAFIDE

Software Requirements Specification



CSCE 247: Software Engineering

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Trombone Trainer

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1. Introduction

Purpose

Many individuals aspire to learn how to play a musical instrument, but are unsure where to begin. This music tutorial app provides an interactive experience on the fundamentals of playing an instrument and offers diverse genres of songs to practice and enhance your skills.

The goal of this project is to make learning music more accessible and engaging for people of all skill levels, removing barriers such as the need for expensive private lessons or difficulty finding beginner-friendly resources.

The business problem we are trying to solve is the lack of accessible, affordable, and comprehensive tools for learning musical instruments such as the trombone. This app bridges the gap between traditional music lessons and technology, providing a modern, accessible solution for those who want to pursue their musical aspirations.

There are many people who want to learn how to play an instrument but don't know where to start. Using this music tutorial app, it will show you the basics on how to play the instrument as well as having a wide variety of songs to practice with.

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

Professionals

- Performers
- Music Artists

Client

Students

- University Students
- People attending music classes
- Beginners

Personas

Jimmy Gordon

age: 37

residence: Augusta, Georgia

education: Bachelor's Degree in Music

occupation: Professional Jazz Trombonist

marital status: Single



"Jazz music is my life."

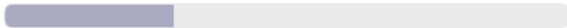
Jimmy fell in love with jazz music as a child and played the trombone in his middle and high school bands. He decided to go to college for music, and there he honed his trombone playing skills. After graduating, he joined a jazz band and now he spends his days traveling the country playing music with his band.

Comfort With Technology

INTERNET



SOFTWARE



MOBILE APPS



SOCIAL NETWORK



Needs

- Reliable travel across the country.
- Venues/Restaurants to perform at.

Values

- Artistic expression
- Improvisation
- Collaboration

Criteria For Success:

To feel successful, Jimmy puts his heart and soul into his performances and shares his love for jazz with the world.

Wants

- To become a rich and famous trombonist.
- To eventually settle down, find a wife, and start a family.

Fears

- He is getting old and may miss the opportunity to start a family.
- If he starts a family, he will have to quit his band.

Michelle Roberson

age: 19

residence: Orlando, Florida

education: High School

occupation: Receptionist

marital status: Single



"I want to learn a new instrument"

Michelle has a busy schedule of exercising, working, and taking care of her younger siblings. She wants to pursue her interest in music during the evenings.

Comfort With Technology

INTERNET



SOFTWARE



MOBILE APPS



SOCIAL NETWORK



Criteria For Success:

To feel successful, Michelle needs to explore new interests and not spend all her time focused on work.

Needs

- Personal time
- Consistent salary

Wants

- A career change
- To join new social circles

Values

- Learning
- Discipline

Fears

- Judgement
- Wasting time

Marcus Brown

age: 20

residence: Columbia, South Carolina

education: Sophomore in college

occupation: Student

marital status: Single



"C's get degrees"

Marcus is a sophomore at the University of South Carolina. He is going to school for business and he plays the trombone in the marching band. He is not the ideal student, but he is determined to graduate and start his own business.

Comfort With Technology

INTERNET



SOFTWARE



MOBILE APPS



SOCIAL NETWORK



Criteria For Success:

Marcus's idea of success is owning his own business and getting rich.

Needs

- Friends and family to support and motivate him through school
- Free time to enjoy his hobbies

Wants

- To start his own business
- Make a lot of money

Values

- Ambition
- Financial independence

Fears

- Flunking out of school
- Being poor

3. Constraints

Time Constraints

- This project is to be completed within a time span of one semester at the University of South Carolina.

Monetary Constraints

- This project's development has been allocated a budget of \$0.00.

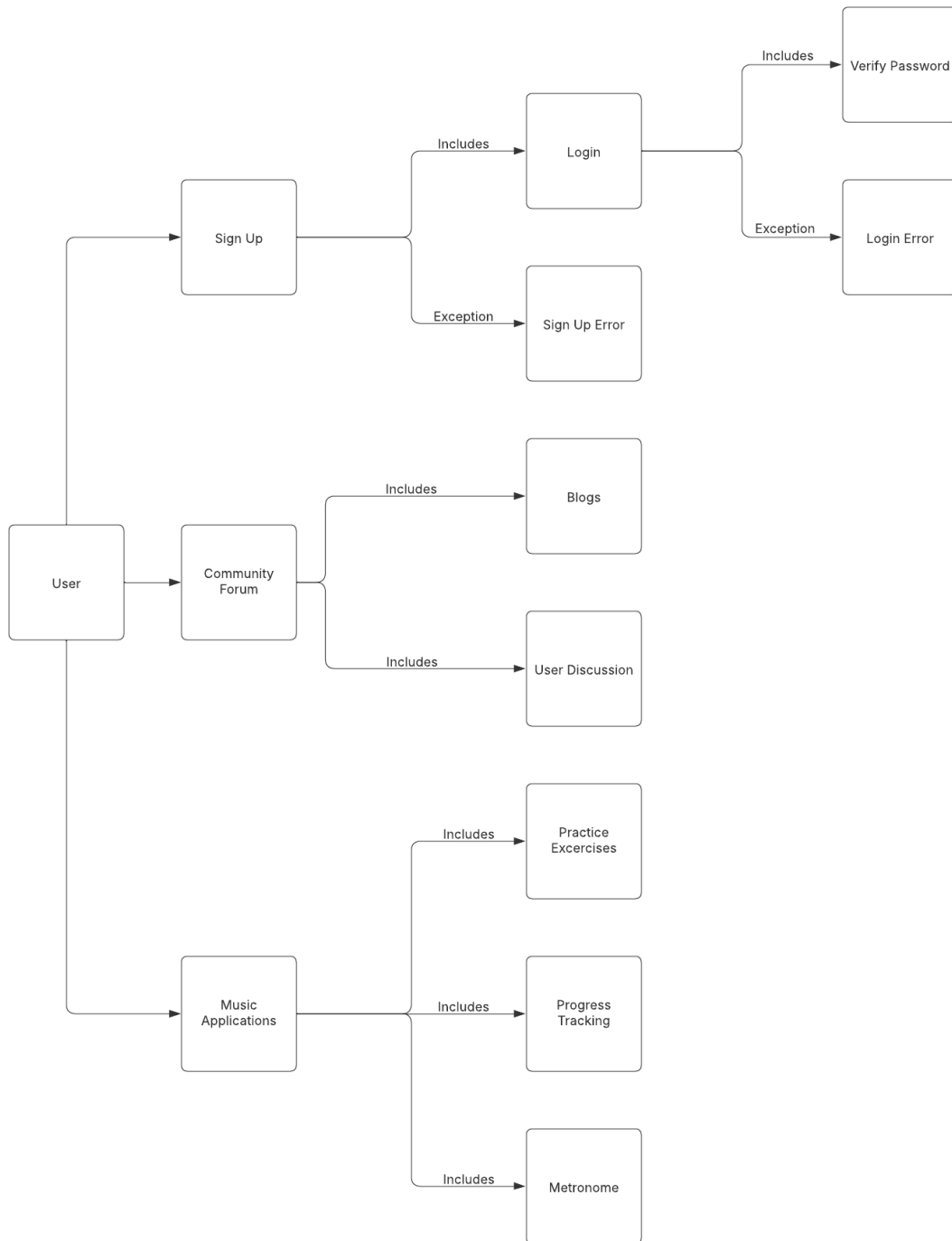
Technical Constraints

- This code must be done in Java.
- All progress/work must be submitted to the client through BlackBoard.
- This website must be accessible on a variety of different devices including PC, laptops, and mobile devices.

4. Overall Description

This app must be accessible through Apple's AppStore, Google Play, and able to be downloaded to laptops, PC's, etc. Users will need to have a secure connection to the internet to access the library of songs, unless they choose to download any to their device. The user will be able to indicate his current skill level, or choose to take a placement test on our app that will indicate whether they are at a beginner, intermediate, or advanced level. Their song choice and content should differ based on their current skill level. Users will have an account that can be logged into on multiple devices. Users will be able to make comments on songs and share their progress with other users. This is to encourage community and to give users the opportunity to assist others.

5. Business Use Cases



6. Functional Requirements

- [Requirements Spreadsheet](#)

7. Non-Functional Requirements

Look and feel requirements

- The user interface of the system shall be implemented in a way for users of all skill levels to understand what they are looking at.

Usability requirements

- The system shall be used by users with a wide range of capabilities.

Performance requirements

- The system shall be able to run on any device that is connected to the internet.

Maintainability and support requirements

- The system shall be able to run on Windows, Linux, Mac, Android, and IOS systems.

Security requirements

- The user's information shall be stored in a secure manner.

Legal Requirements

- The system shall comply with all state and local law.

8. Definitions

- **Functional Requirements** – Features and capabilities the app must include, such as accessibility across devices and user login functionality.
- **Non-Functional Requirements** – Performance and usability aspects of the app, such as security, compatibility, and responsiveness.
- **User Interface (UI)** – The visual and interactive components of the app that users interact with.
- **Usability** – The ease with which users can learn and operate the application.
- **Cross-Platform Compatibility** – The ability of the app to function on multiple operating systems, including Windows, macOS, Android, and iOS.
- **Secure Connection** – A protected internet connection required for accessing online content within the app.

9. Competitive Analysis

Yousician, Simply Piano, Simply Guitar

	Yousician
<u>Strengths</u>	Yousician excels at providing a fun and engaging learning experience for beginner guitar players. It gauges a user's skill level and appropriately tailors lessons accordingly. It's an interactive tool that allows users to progress at their own pace. There are game-like aspects that turn guitar lessons into fun challenges.

<u>Weaknesses</u>	Yousician is not well-suited or enjoyable for an advanced guitar player. Its lessons lack the complexity and challenge that would be necessary for higher-level learning. Additionally, the app requires a high-cost subscription for full access to all features, making it limited for users on a budget.
<u>Audience/Focus</u>	This app is specifically designed for beginner and lower level intermediate guitar players who are looking for an interactive, fun way to learn/practice guitar. It is ideal for users who want quick access to lessons that match their skill level.
	Simply Piano
<u>Strengths</u>	Simply Piano offers a straightforward and beginner-friendly interface, making it easy for new learners to navigate and use. Its library of engaging, fun songs keep learning fun and help to maintain motivation and interest throughout the learning process. The app's simplicity makes it accessible for those who are new to playing piano or who aren't very tech savvy.
<u>Weaknesses</u>	Simply Piano has little variety with their paid subscription options. Advanced players are likely to find it less beneficial to use due to the lack of advanced features and opportunities for growth. The app also can't provide detailed feedback on mistakes, which would be a disadvantage for users who want more personalized guidance.
<u>Audience/Focus</u>	Users who are new or beginning to learn how to play the piano will have a more "simple" and fun experience. It is best suited for users who want a simple, straightforward learning experience without much guidance or advanced features. If someone prefers to learn by trial and error by themselves, this is the app for them.
	Simply Guitar

<u>Strengths</u>	Simply Guitar is an easy to use, interactive platform that makes learning guitar enjoyable. It has a very user-friendly design that ensures beginners can easily navigate the app and follow lessons. The app also places an emphasis on engagement that keeps users interested and excited to learn and practice.
<u>Weaknesses</u>	Simply Guitar has one significant limitation and that is its inability to provide feedback when users make mistakes, which hinders the learning process for those who need correction and guidance.
<u>Audience/Focus</u>	Users who are new or a beginner will have a fun experience on getting to know how to play the instrument. It's an excellent choice for users who are looking for a straightforward learning experience with little to no interference or guidance along the way.

Summary

	Strengths	Weaknesses	Focus
Yousician	+Fun +Interactive	-Costly -Not for higher level learning	Beginner guitar players

Simply Piano	+Simple +Wide variety of music	-Few subscription options -No feedback for mistakes	Beginner piano players
Simply Guitar	+Simple +Interactive	-No feedback for mistakes -Not for high level players	Beginner guitar players

Following the competitive analysis above, we have identified several key takeaways that will guide the development of our product. We have learned that while apps like Yousician, Simply Piano, and Simply Guitar succeed in creating interactive, beginner-friendly learning environments, they each have weaknesses that we can address in our app to create a more well-rounded user experience for our product. Yousician excels in engagement, but lacks accessibility for advanced users. Simply Piano and Simply Guitar provide simplicity and fun but fall short in offering meaningful feedback and options for growth. Our product will aim to combine the strengths of these apps while addressing their weaknesses. It will feature a highly interactive and engaging interface that adapts to users' skill levels like Yousician, but will continue to keep advanced users engaged and interested. Additionally, we will incorporate structured feedback mechanisms to help users correct mistakes and progress more effectively, an area where both Simply Piano and Simply Guitar falter.

By building on the interactive and user-friendly designs of these apps and introducing features such as feedback and advanced user options, we aim to create a product that appeals to both beginners and advanced learners. This combination of features will provide a more comprehensive and enjoyable learning experience, setting our product apart from existing options.

10. References

Guitar World – "Simply Guitar vs. Yousician: Which Online Guitar Lesson App is Best?" Guitar World, <https://www.guitarworld.com/features/simply-guitar-vs-yousician>.

La Touche Musicale – "Simply Piano vs Yousician: Which Piano App Is Best?" La Touche Musicale, <https://latouchemusical.com/en/comparaisons/simply-piano-vs-yousician/>.

YouTube – "Simply Piano vs. Yousician - Honest and Non-Sponsored Review," YouTube, <https://www.youtube.com/watch?v=pAv98K0AtLY>.

11. Appendices

A. Music Learning Environment

Online instruction in music is in growing demand with its ease and inexpensiveness. There are a variety of programs, such as Yousician and Simply Guitar, that use real-time feedback and gaming in a quest to simplify instruction. AI-powered feedback is becoming a characteristic feature in new programs in growing demand.

B. Target Audience Factors

To serve beginners, intermediate, and expert-level learners, organized lessons, personalized courses, and tracking of learner progression must be present in the app. Community feature options such as commenting and tracking of shared songs and progression will contribute to a rich user experience.

C. Key Principles of Design

The application will have to prioritize usability, compatibility with platforms, and personalized experiences for learners. It will have to feature simple guides for novice learners, with additional sophisticated content for ongoing stimulation for experienced learners.

D. Competitive Landscape

Most current music software is deficient in providing rich feedback for mistakes and is not capable of challenging high-level learners. TromBONAFIDE aims to overcome such weaknesses through guided feedback, adaptability, and a greater diversity of content for all skill sets.

E. Security and Personal Data Confidentiality

User authentication, secure data storage, and compliance with applicable privacy laws (e.g., GDPR, CCPA) must occur in protecting user information and providing a safe environment for students to learn in.