Software Requirements Document

Group 3 Midterm edition

Outline

1. Introduction

1.1. Purpose:

The purpose of this project is to create software which takes a piece of text-based tablature based on the instruments of guitar, bass or drums, converts it to MusicXML format, and visualises and prints it as sheet music or plays it by a virtual instrument using a java library.

1.2. Intended Audience and Intended Use:

The intended audience for this software is those who are interested in music and aspire to learn how to play and read music based on bass, guitar or drums.

This software is to be used to visualise and play the text-based tablature of a music piece.

1.3. Scope:

The goal of this application is to convert a ASCII tablature input of a user into a Music XML (sheet music) file and/or play it using the built in music player. Will be using principles of OOP to write this application.

1.4. Disclaimer:

The risks in this project can include errors, bugs, and the possibility of erasure of the project. In order to mitigate these risks, a proper team workflow will be put in place.

Compatibility issues associated with the use of libraries. The libraries used in this project were PDFBox and JFugue

Most common errors will include but are not limited to:

- Incorrect format or input of the ASCII tablature input
- Not guitar, base or drum instrument tab input

2. Overall Description

2.1. User Needs:

The people using this product will be those interested in learning to play a guitar, bass or drums. The user will use this product to translate the tablature input into sheet music and be able to download it or play it using the built in player for their own purposes.

Error checking system for the input of ASCII tablature so that the program will be able to interpret the input. Yellow indicates a minor error/ adjustment change and red indicates a misalignment and that the program will not be able read the input.

2.2. Assumptions and Dependencies:

System will use its libraries in conjunction with developer code to translate the file into a usable XML file of the music. Compatibility issues with PDFBox and JFugue are the only source of compatibility issues concerning libraries.

Java JDK 17 or better with gradle 7.1 or better. All needed dependencies will come bundled with Gradle import.

The program will run on windows 8/10 and Mac OS with the minimum dependencies met outlined in the user manual.

2.3. Use Cases

A user is able to input an ASCII tab of the following instruments :

- Guitar
- Base
- Drums

And is expected to be able to :

- Jump between different measures at will
- Preview what pdf sheet music will look like
- Play the tab inserted on software provided music player
- Download the sheet pdf

Deviation from this method will not guarantee success.

2.4. User Stories

“As a Guitar player, I want to be able to listen to the music as I play so that I can get better at my tempo and pacing of songs”

“As a Bass player, I want to be able to Read to the music as I play because I am new to both playing and reading. Being able to listen and read at the same time allows me to learn the notes faster.”

“As a Drums player, I want to be able to listen and read more complex works because I want to one day write my own music. This program allows me to both see and hear the music as I am making it."

3. System Features and Requirements

3.1. Functional Requirements:

- The system will…
  - Convert MusicXML format into sheet music to be visualised/printed
  - The user will be able to play back tablature input
    - Playback would include an option to skip to a certain measure
    - Be able to play back between two select measures
  - Be compatible with guitar, bass and drum instruments
  - Allow to navigate between sheet and MusicXML
  - Work without an internet connection
  - Alert the user if the ASCII tablature is not inputted correctly or when the program will not be able to read and process the input.
  - Terminate on program close
  - Use a music player that can rewind/ pause/ fast forward and adjust the volume of the virtual instrument.

3.2. Non-functional Requirements:

➔ The system should be …

- Available on any OS (Windows 8/10 or Mac OS)
- User-friendly navigation between pdf display window, Music XML save window and the ASCII tablature window.
- Error-free
- Quick to process user requests and inputs (less than 10 sec)
- Efficient in terms of space
- Appealing to look at