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# **Software Requirements Documents**

**for**

**<TAB2XML\_G14>**

**Prepared by Abdelrahman Altamimi**

**Hieu Le**

**Mahdiar Shoraka**

**Prabjot Dhaliwal**

**Yongjie Ba**

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# **1. Introduction**

TAB2XML is a software tool used to convert text-based tablature files to MusicXML files with its corresponding visual representation in downloadable sheet music, and playable audio of the music itself. The MusicXML file can be easily used by many other music programs due to its high compatibility. The visual sheet music feature is currently supported for Guitar, Bass and Drums tablatures.

The intended user can start using the software by selecting the text-based tablature in their computer then the program will output the MusicXML. Before using the software it is necessary for the user to check that the text-based tablature is written in the standard musical notations to ensure that the program successfully converts the file.

This program is mainly aimed to help musicians or any individual who's looking to translate their tablature file to a musicXML file which can easily be played or edited on various music software.

## **2. System Requirements:**

### **2.1 Functional:** The system must...

- Convert tablature to MusicXML and view the converted MusicXML code.
- Save converted MusicXML code to a text file.
- Convert tablature to sheet music:
  - Convert text guitar/bass tablature to staff-based guitar/bass tabs.
  - Convert text drum tablature to standard musical notation.
- Allows users to preview the Sheet Music of given tablature.
- Allows users to save and download converted sheet music.
- Notify the user for invalid input.
- Display specified measures on the sheet music.
- Updating the Sheet Music by changing the tablature
- Provide an option for users to display tablature underneath Sheet Music
- View sheet music as one continuous page or multiple pages of fixed size.
- Play sheet music from the start or from a specified measure.
- Pause the music playback and resume the playback if paused.
- Be able to increase or decrease the speed and volume of the music playback.
- Supports three different instruments (Guitar, Bass, Drums).

## 2.2 **Non-Functional:** The system should ...

- *Reliability*: Work with zero bugs.
- *Reliability*: Never crash or freeze abruptly.
- *Reliability*: Notify immediately (low latency) when:
  - Invalid input is provided.
  - Prohibited actions are attempted.
  - An error has occurred.
- *Security*: No user file will be accessed, written, or read unless explicitly done by the user themselves.
- *Performance*: The sheet music should render within 30 seconds given the tablature is of reasonable length.
- *Dependencies*: Run entirely locally on the user's device without requiring any network connection once installed.

### **3. Use Cases:**

#### **Case 1:**

**Title:** Show MusicXML

**Primary Actor:** User

**Success Scenario:** The user inputs a text-file containing tablature for supported instruments. The tablature is converted to a MusicXML sheet. The MusicXML sheet is displayed to the user.

#### **Case 2:**

**Title:** Preview sheet music

**Primary Actor:** User

**Success Scenario:** User inputs a text-file containing tablature for supported instruments. The user chooses to view the sheet music. The tablature is converted to sheet music and the sheet music is displayed to the user.

#### **Case 3:**

**Title:** Save MusicXML

**Primary Actor:** User

**Success Scenario:** User inputs a text-file containing tablature for supported instruments. The user selects to save the converted MusicXML. The user selects the location of the file on their device. The user specifies the name of the score and the author. The MusicXML is saved on the user's device at the specified location.

## Case 4:

**Title:** Play music

**Primary Actor:** User

**Success Scenario:** User inputs a text-file containing tablature for supported instruments. The user chooses to play the music. The music plays from the start. The user pauses the music, and the music stops playing. The user resumes the music and the music continues where it last stopped. The music plays until the whole tablature has been played. The music playback stops.

**Note:** The “User” can be any human (or programmed bot) as anyone can access music tablatures online. But the most pertinent user will be a music composer.

## 5. User Stories:

- As a *musician*, I want to *play music*, so that *I can listen to the music I just edited*.
- As a *musician*, I want to *print sheet music of my tablature* so that *I can share my sheet music while only having to write tablature which is easier for me*.
- As a *composer*, I want to *listen to specific measures in my music* so that *I can check if my changes to the tablature sound good*.
- As a *student*, I want to *preview sheet music without saving it to my computer* so that *I have a good reference for the sheet music that should be printed by the application I am developing which should convert MusicXML files to sheet music*.
- As a *user*, I want to *play the music*, so that *I can listen to the music I just downloaded*.
- As a *musician*, I want to *save my work*, so that *I can save the file on my computer*.
- As a *musician*, I want to *open the file I just downloaded*, so that *I can convert it to XML format*.
- As an *upcoming guitar player*, I want to *play guitar tabs at slow speeds* so that *I can easily learn how to play new songs*.
- As a *customer*, I want to *preview the sheet music*, so that *I can see the tablature of that .txt format file*.