# Requirements Document

## Tab2XML
## Group 7

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# 1.0 Introduction

## 1.1 Purpose

The purpose of this document is to cover all the software requirements for our "TAB2XML" program. The "TAB2XML" program allows users to convert music tablatures to MusicXML.

## 1.2 Intended Audience

This software system is designed to establish a common language through XML to allow varieties of music formats to communicate with each other. This will help music-related companies, music software developers, and scholars using MusicXML throughout their research.

## 1.3 Project Summary

Our objective is to develop a software system that allows the user to input a tablature of their choice and receive the MusicXML file for that particular text tab. This project will convert a text tab containing guitar, bass or drum tablature into a MusicXML file. The system is to ease file conversion and create a convenient application for music enthusiasts looking to convert text tablatures into MusicXML files.

## 1.4 Additional Resources

For further explanation on MusicXML, visit [here](#).

# 2.0 System Features

## 2.1 Functional Requirements

Users of the system should convert text tablatures into MusicXML code, available to copy or download as a file. The user should be able to complete the following functions:

- MusicXML code returned to the user must be able to turn into sheet music.
- Compute the difference between drums and guitar tabs.
- Identify which music notes/chords are playing and which finger is needed.
- Identify technique symbols.
    - Ex. "Hf," which means Hi Hat with Foot
- Allow the user to input and edit a tablature of their choice.
- Reject tablatures if our system does not support input.
- Allow users to resubmit if inputted tablature unaccepted.
- Indicate problems with the previous submission, if inputted tablature unaccepted
- Confirm the instrument of tablature before starting the conversion process
- Allow users to submit tablatures regardless of the number of frets in the tablature
    - Ex. Guitars can have up to 27 frets
- Provide an example of an accepted tablature format if user request assistance
- Allow the user to switch between tabs of the original text tablature and converted MusicXML code.
- Read multiple variations of tabs.
    - Users can input lyrics and tabs with notes and the parser will extract the tablature informations
    - User can have repeat symbols on tablatures such as a selection using |---repeatx(N)---| where N is the number to be repeated
    - Users can have the parser repeat a whole line by inputting xN where N is the number to be repeated at the end of the tablature.
- Allow the user to either paste their tablatures or select a text tab file that is on their computer.
- Gives user option to either download the MusicXML or copy the code

# 3.0 System Requirements

## 3.1 Non-Functional requirements

- Should be able to handle long tablatures without any issues or errors
- Should be able to support addition of new requirements/features and removal without affecting major components of the software
- Should be able to download master branch of program and run without any compiler errors

# 4.0 Use Cases

**Title:** File Conversion
**Primary Actor:** User
**Success Scenario:**
1) Musician inserts text tablature
2) System identifies tablature is for drums/guitar and confirms instrument with user
3) System starts reading the tablature
4) Information from the tab is converted to MusicXML code
5) Musician is given the option to either copy the code or download it for later use.

**Extensions:**
1. If the system cannot read tablature or identify the instrument, the user will be notified if there were any problems with the tab
2. User will then be given the option to enter tablature again
3. If the user requires further assistance, they can press a help button which will give an example of an accepted tablature format

**Title:** XML Viewer
**Primary Actor:** User
**Success Scenario:**
1) User confirms text tablature and clicks "Convert" button
2) System creates a new tab with the XML code
3) User can review the XML code and either copy or save the file

**Extensions:**

The user can modify original text tablature and re-convert into a new XML code. If the user requires further assistance, they can press a help button which will give an example of an accepted tablature format

**Title:** Uploading a File
**Primary Actor:** User
**Success Scenario:**
1) User clicks "Select File" from GUI
2) User locates their intended file to be converted and clicks "Open"
3) Uploaded file is shown in the text area of GUI and ready to convert

**Extensions:**
The user can modify original text tablature and re-convert into a new XML code. If the user requires further assistance, they can press a help button which will give an example of an accepted tablature format

**Title:** Pasting Text Input
**Primary Actor:** User
**Success Scenario:**
1) User copied their intended tab for conversion
2) User opens GUI and paste the text for conversion
3) Pasted tab appears as copied and is ready to convert

**Extensions:**
The user can modify original text tablature and re-convert into a new XML code. If the user requires further assistance, they can press a help button which will give an example of an accepted tablature format

**Title:** Editing Text Input
**Primary Actor:** User
**Success Scenario:**
1) User Selected File or Pasted tab of their choice into the text area
2) User reviews the tab and is able to edit as they like

**Extensions:**
If the user requires further assistance, they can press a help button which will give an example of an accepted tablature format

**Title:** Modifying a Measure of the Tab

**Primary Actor:** User
**Success Scenario:**

1) User already clicked "Convert" and can see their converted XML file
2) Inputting the desired Measure from "Measure List" and Clicking "Edit Measure" button will create a new section for further modifications
3) Changing Timing or Repeats and clicking "Save New" will reopen the XML code with the modified changes.

**Extensions:**

The user can modify original text tablature and re-convert into a new XML code. If the user requires further assistance, they can press a help button which will give an example of an accepted tablature format

**Title:** Clearing/Resetting GUI
**Primary Actor:** User
**Success Scenario:**

1) User already has their tab ready to convert or already converted in XML viewer.
2) Clicking "Clear" button on right side should reset and clear both text areas

**Extensions:**

The user can modify original text tablature and re-convert into a new XML code. If the user requires further assistance, they can press a help button which will give an example of an accepted tablature format

**Title:** Downloading XML File
**Primary Actor:** User
**Success Scenario:**

1) User already has their tab converted and sees XML code in the "XML" section
2) Clicking "Download" button will create a pop-up that asks the user where they want to save the file, as well as what to name it.
3) Opening the Users computer files, the downloaded XML file appears where it was downloaded

**Extensions:**

The user can modify original text tablature and re-convert into a new XML code. If the user requires further assistance, they can press a help button which will give an example of an accepted tablature format

## 4.1 User Stories

**Title:** Experienced Musician
**User Story:** As an Experienced Musician, I want to convert my tabs to XML files to combine similar files on different music software easily.
**Acceptance Criteria:** Given a music text tab, when putting into the Convertor system, then I should expect a downloadable ".xml" file.

**Title:** Music Teacher
**User Story:** As a High School Music Teacher, I want to share downloadable text tablatures online and distribute them to my students for their learning.
**Acceptance Criteria:** Given an instrument text tab from the web, when inputted into the Convertor system, then I should expect a readable XML code as well as a properly formatted XML file that can later turn into a piece of sheet music.

**Title:** Guitarist
**User Story:** As a Guitarist, I want to download varieties of guitar tabs and customize the text tabs.
**Acceptance Criteria:** Given a guitar text tab, when inputted into the Convertor system, then I should be able to edit the text tab, and XML code resembles it accordingly.