EECS2311: SOFTWARE DEVELOPMENT PROJECT

User Manual: MusicXML Player and Viewer

April 11, 2022

PREPARED FOR

Vassilios Tzerpos,
Students of Lassonde School of Engineering
&
Musicians

PREPARED BY
Hiba Jaleel - 215735020
Kuimou Yi - 216704819
Kamsi Idimogu - 216880288
Maaz Siddiqui - 216402927

Table of Contents

1. About TAB2XML

Intended Use

TAB2XML is a program to convert musical text-based tablatures into a readable music sheet. The music sheet can be adjusted and played, and exported as a PDF.

Features of the Product

TAB2XML currently focuses and is designed for guitar and drum text-based tablatures.

It has following the features:

- Converts text-based tablature into an XML file
- Converts text-based tablature into sheet music
- Allows editing of the generated sheet music
- Plays the text-based tablature as music

2. System Requirements

Operating System	Windows, MacOS
Disk Space	40 MB
RAM	256 MB
Java Version	java-17

3. Installation Instructions

Steps to getting the software on your computer are as follows:

1. Ensure you have java-17 installed on your computer. If you do not, please visit the following link for instructions on how to get java-17: https://www.oracle.com/java/technologies/downloads/

2. Access the link below, and download the newest release of the software from the GitHub repository. https://github.com/CCSCovenant/TAB2XML/releases

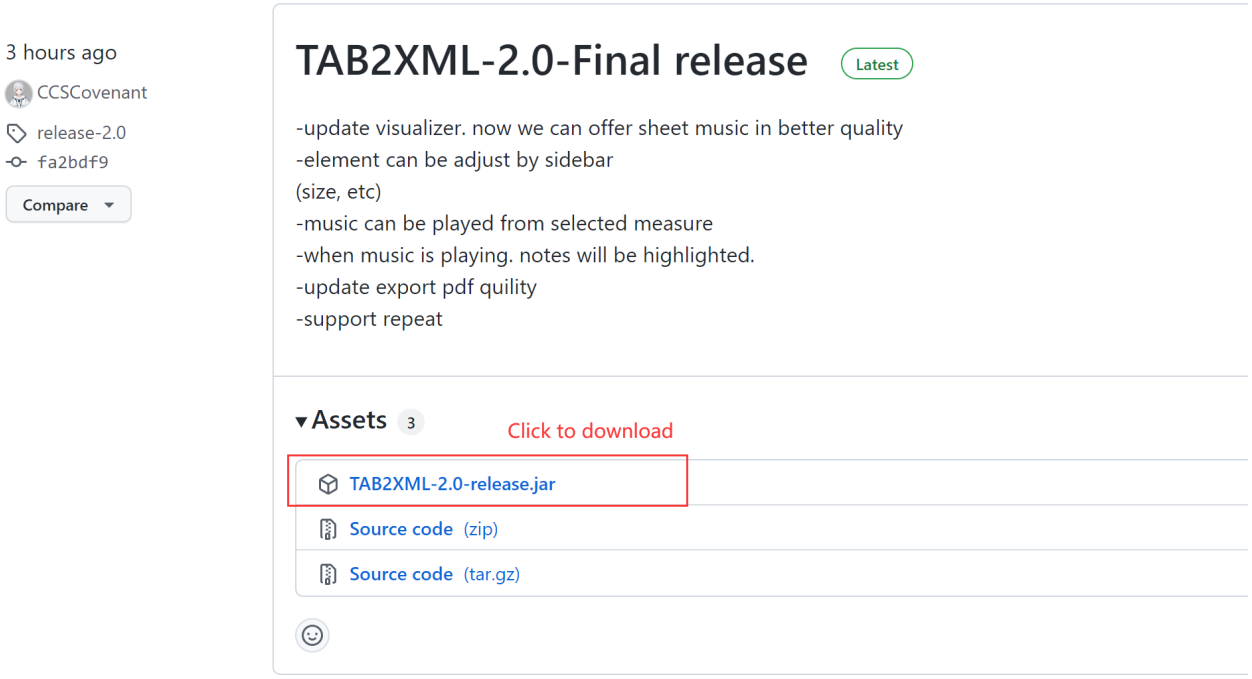


Figure 1: Latest release on the GitHub repository

3. After you download the .jar file, place it into the desired folder.

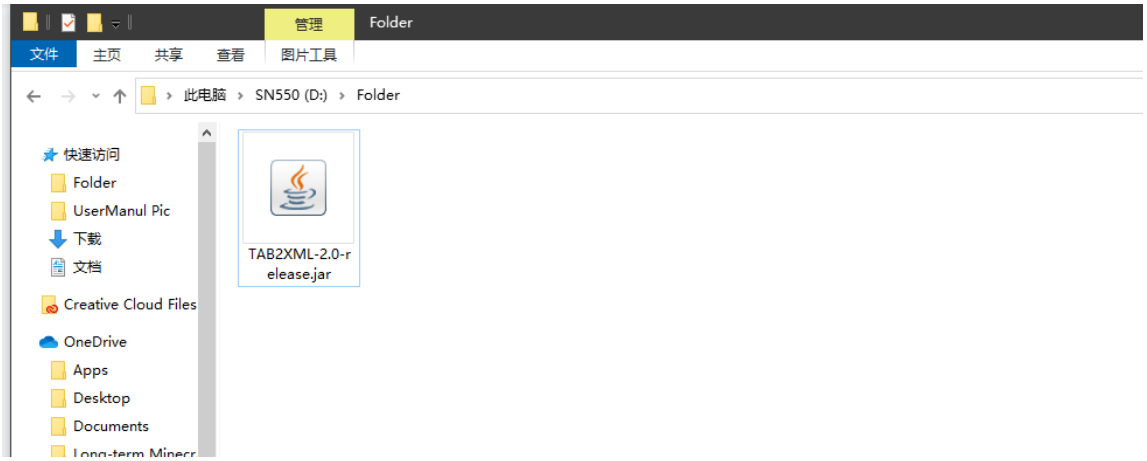


Figure 2: .jar file downloaded and in desired folder

4. Double click the .jar file to run the application and you should be ready to go.

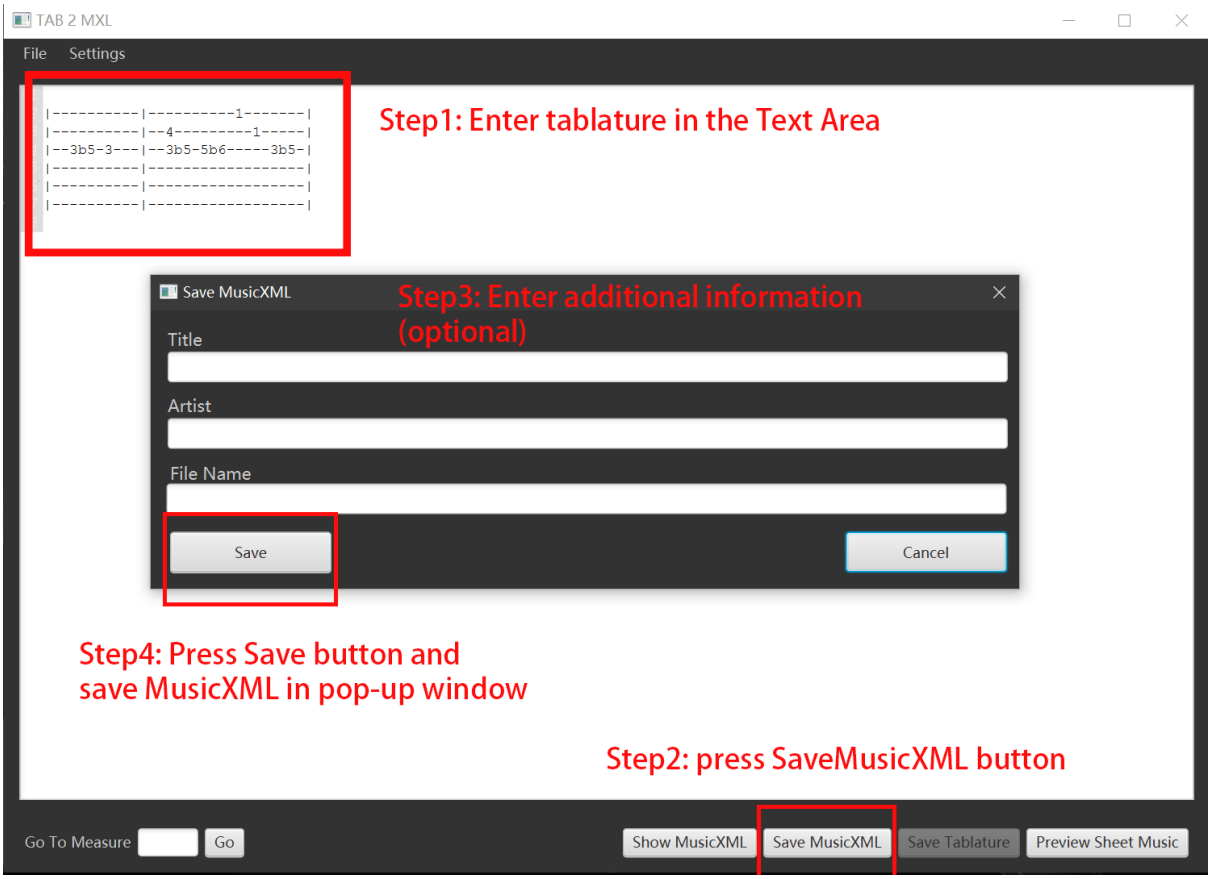
Figure 3: The loading screen when the software is beginning to run.

4. Getting Started:

The list below consists of the features that are provided by our program. Click on the feature below to get to the instructions on using the feature.

5. Common Usage Scenarios:

Convert Text-based Tablature into XML File



You can also check the video instructions on how to use this feature.

Step 1. Click ‘file -> open’ and choose your file, or copy and paste your text file into the text field.

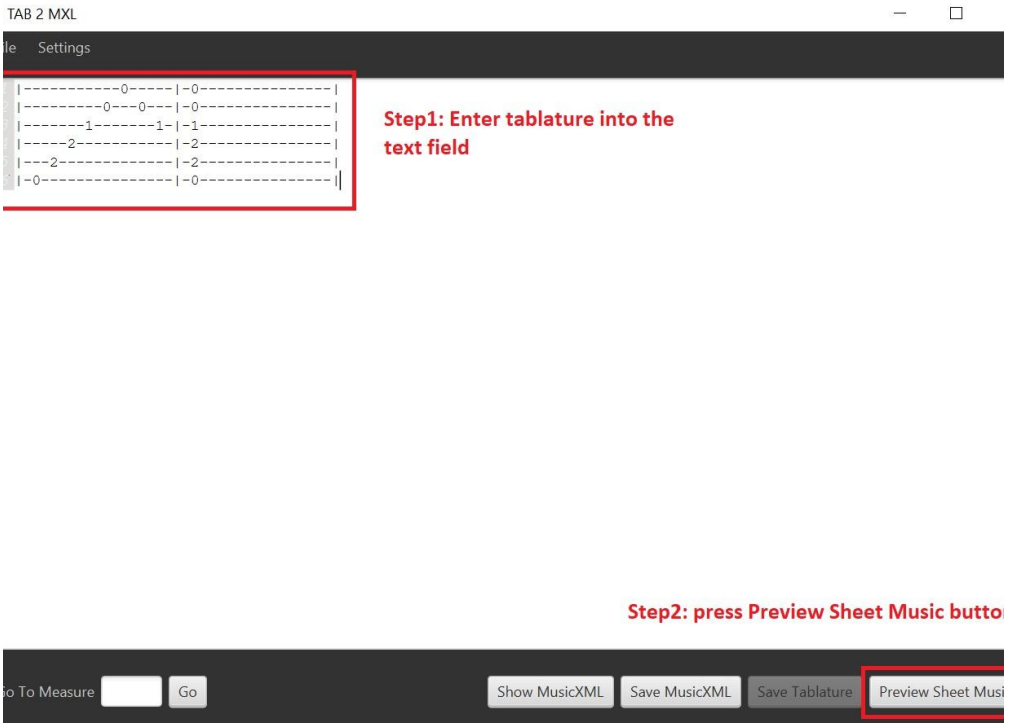
Note: if your text-based tablature is not recognized by the program and does not let you proceed to step 2, check the appendix for input requirement.

Step 2. Press the “Save MusicXML” button.

Step 3. (optional): add title, artist, or file name in the pop-up window.

Step 4. Save MusicXML in the pop-up window.

Convert Text-based Tablature into Sheet Music



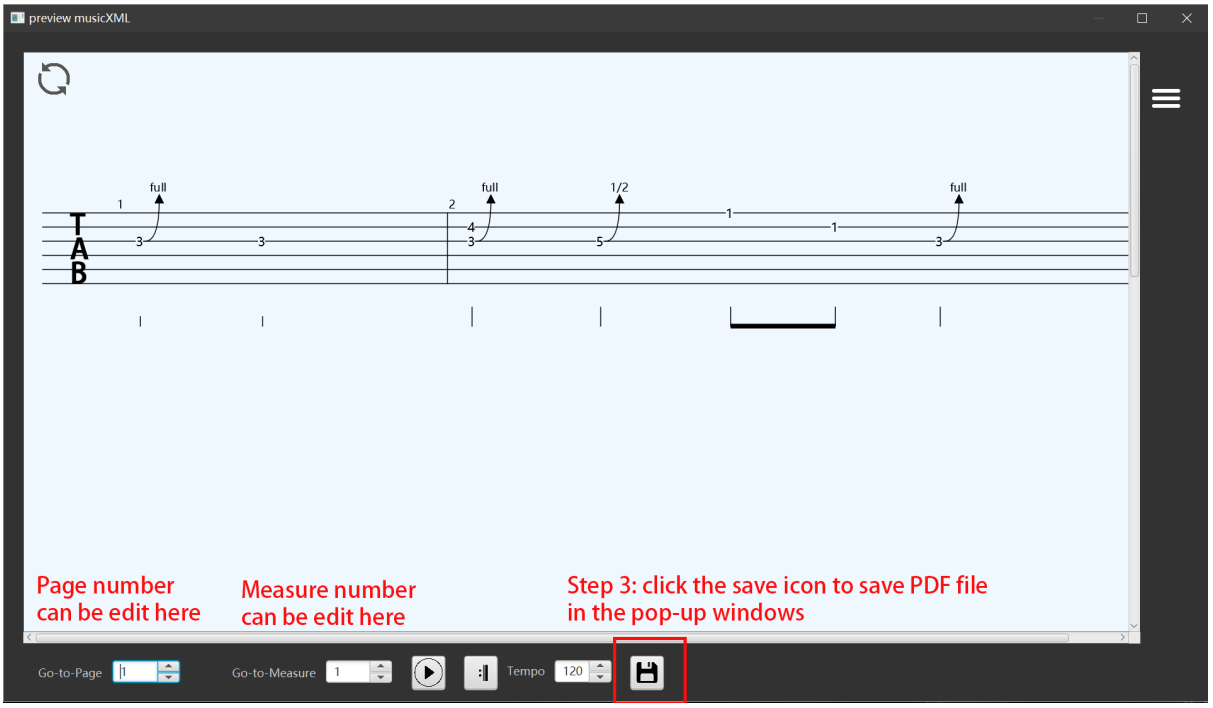
You can also check video instructions on how to use access this feature.

Step1. Open or paste your tablature in the Text area

> *Note: if your text-based tablature is not recognized by the program and does not let you proceed to step 2, check the appendix for input requirement.*

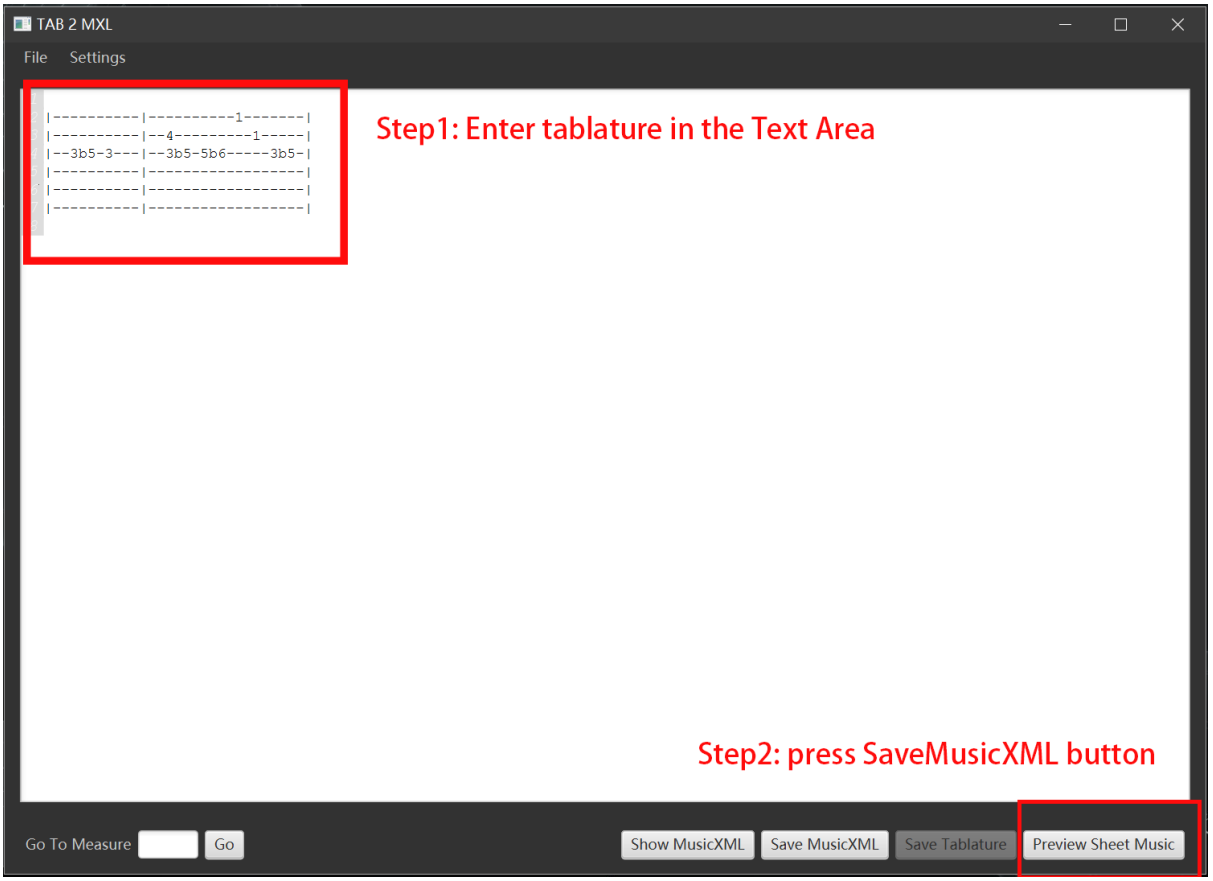
Step2. Press the “Preview Sheet Music” button

A window will pop up. you can preview the generated sheet music in this window.



Step 3. Click the save icon and save the PDF file in the pop-up windows.

Edit the Generated Sheet Music



You can also check video instructions on how to use access this feature.

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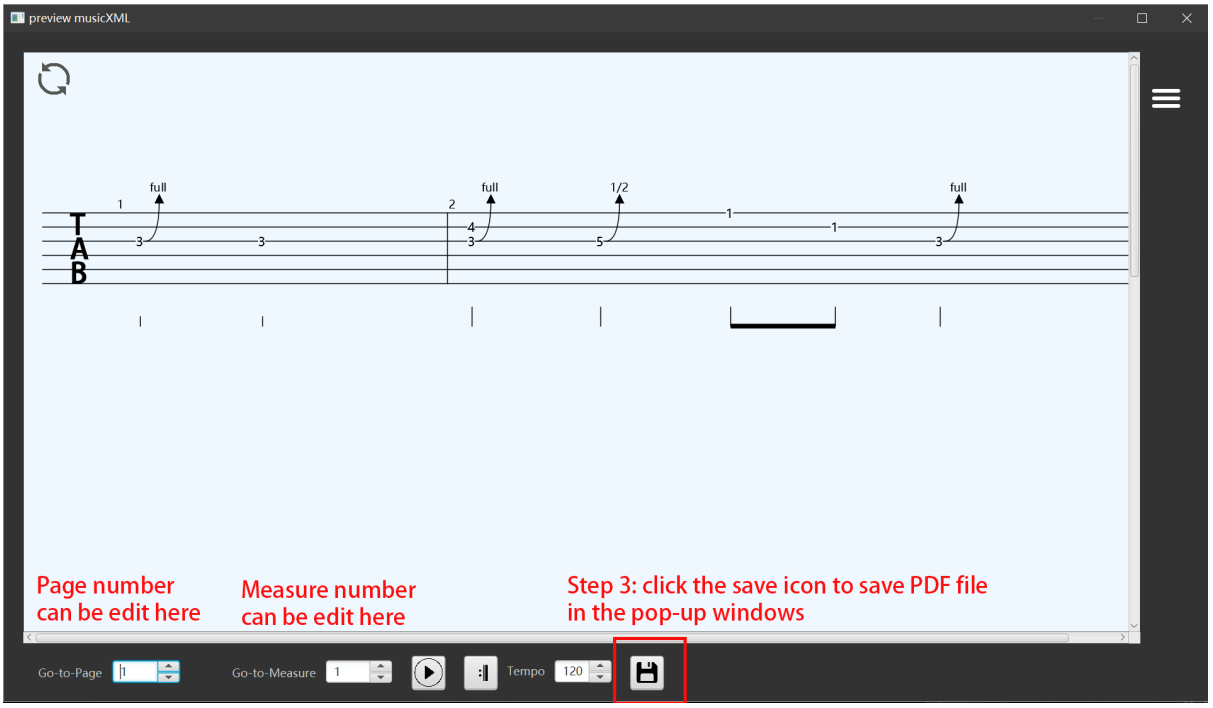


In this window, you can perform the following action:

-Adjusting display setting:

Zoom in/Zoom out with Ctrl+PageUp/Ctrl+PageDown hotkey

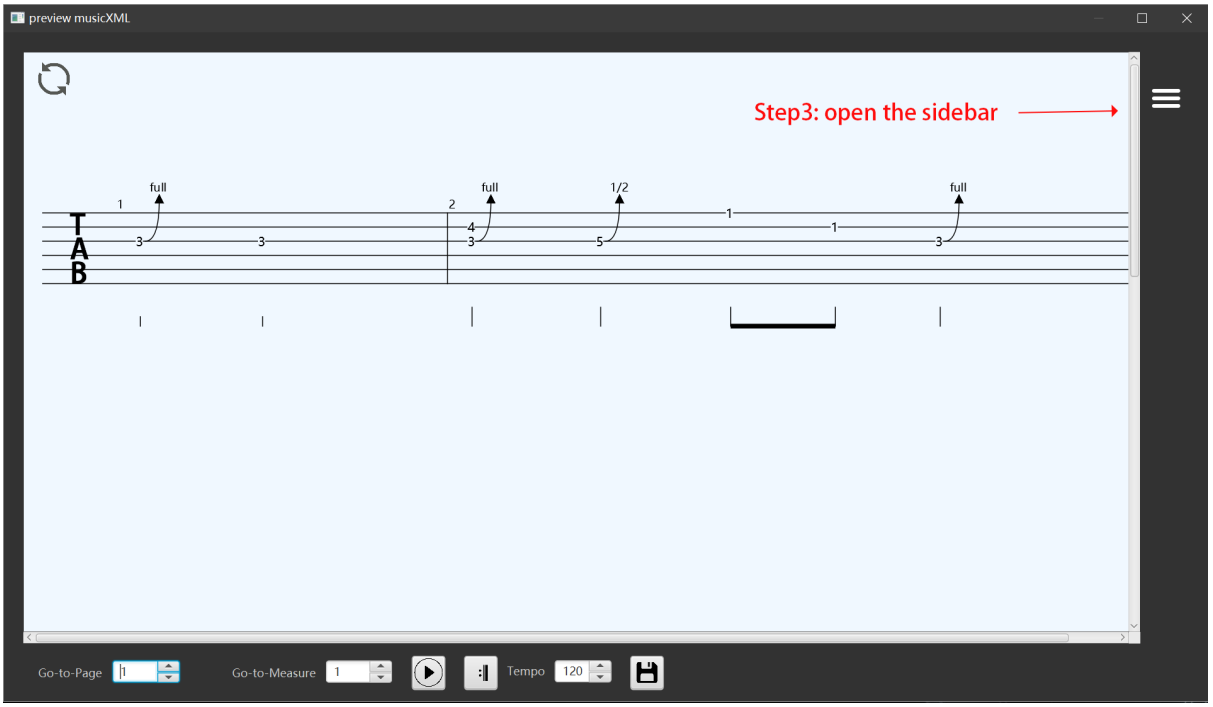
Scroll your viewport both horizontally and vertically.

A spinner label with “go-to-page” allowed you to go to the desired page.

A spinner label with “go-to-measure” allowed you to go to the desired measure and highlight it.

-Select an element

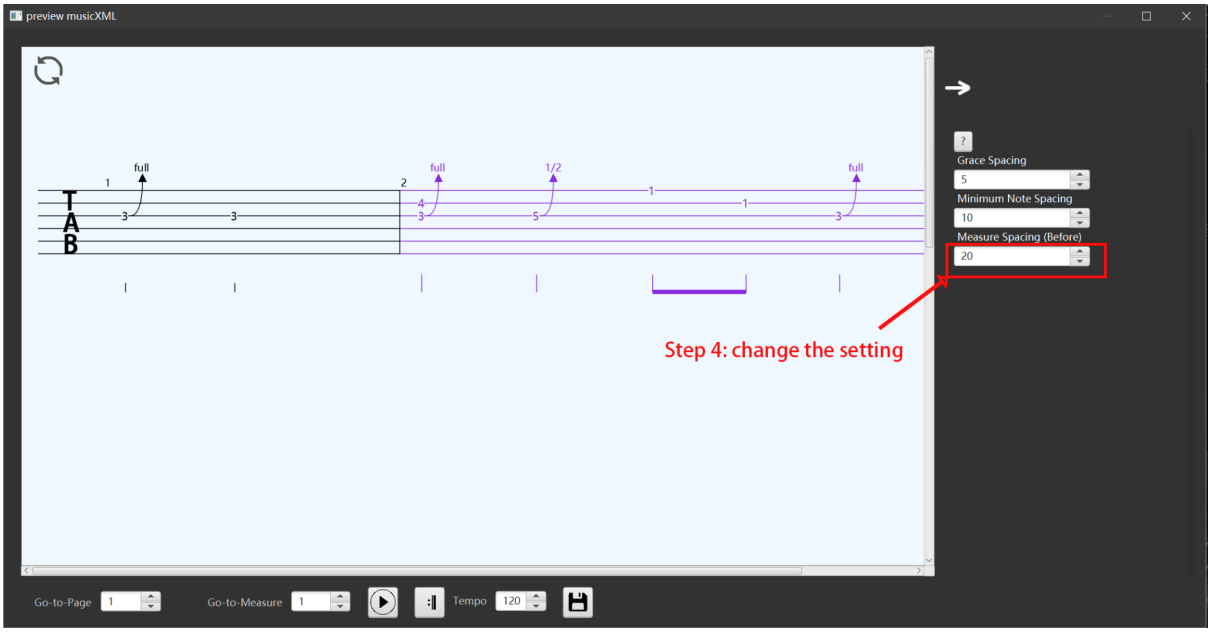
Left click on the note or measure. If it is highlighted, it means you selected it. Click it again to unselect it.



Step 3: Open the sidebar.

Click the icon in the left top corner. It will open a configuration sidebar.

The Sidebar will show the configuration of the element that you selected. If you don't select anything, the Sidebar will show you global configurations (which will apply to every measure/element)

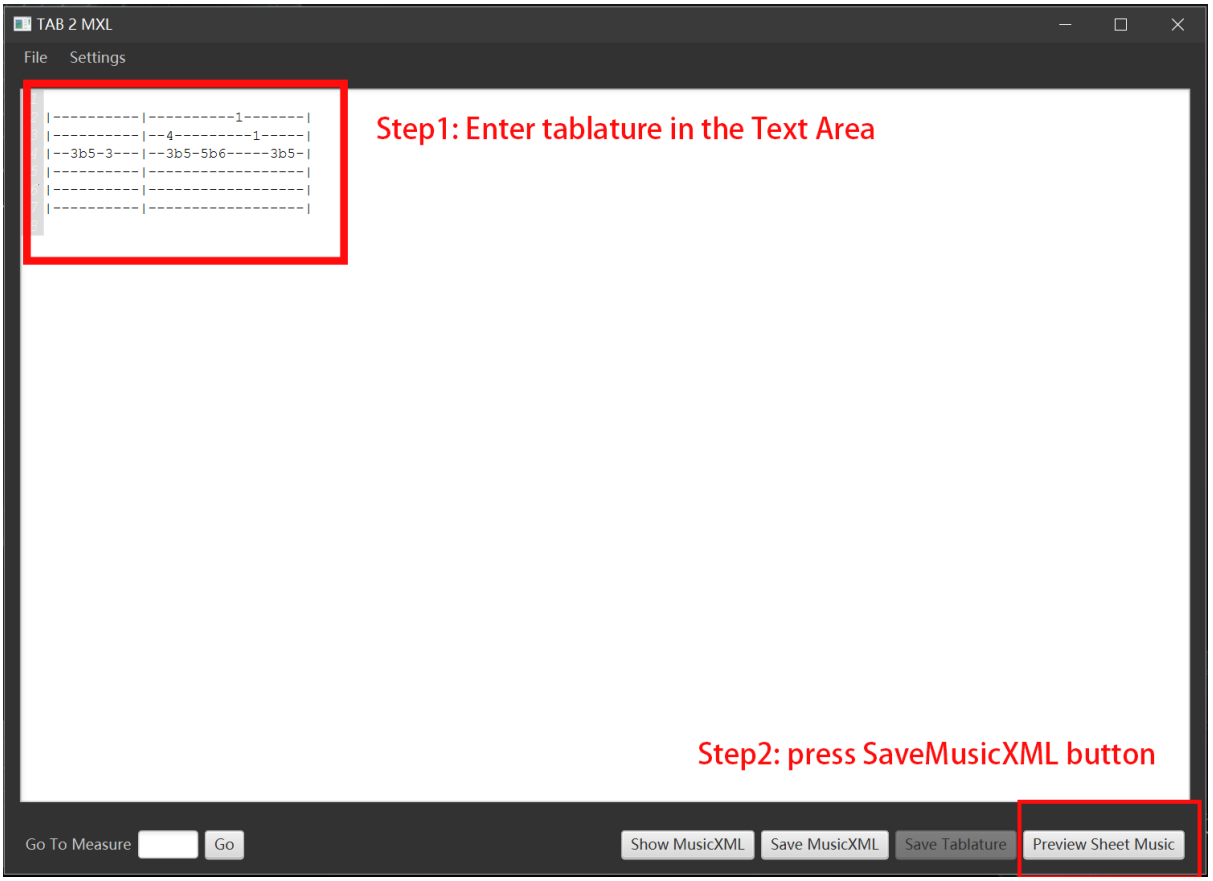


Step 4: adjust the values in the Sidebar

Change will be automatically applied once you enter a new value.

Visit the appendix for details about each value.

Play the Text-based Tablature



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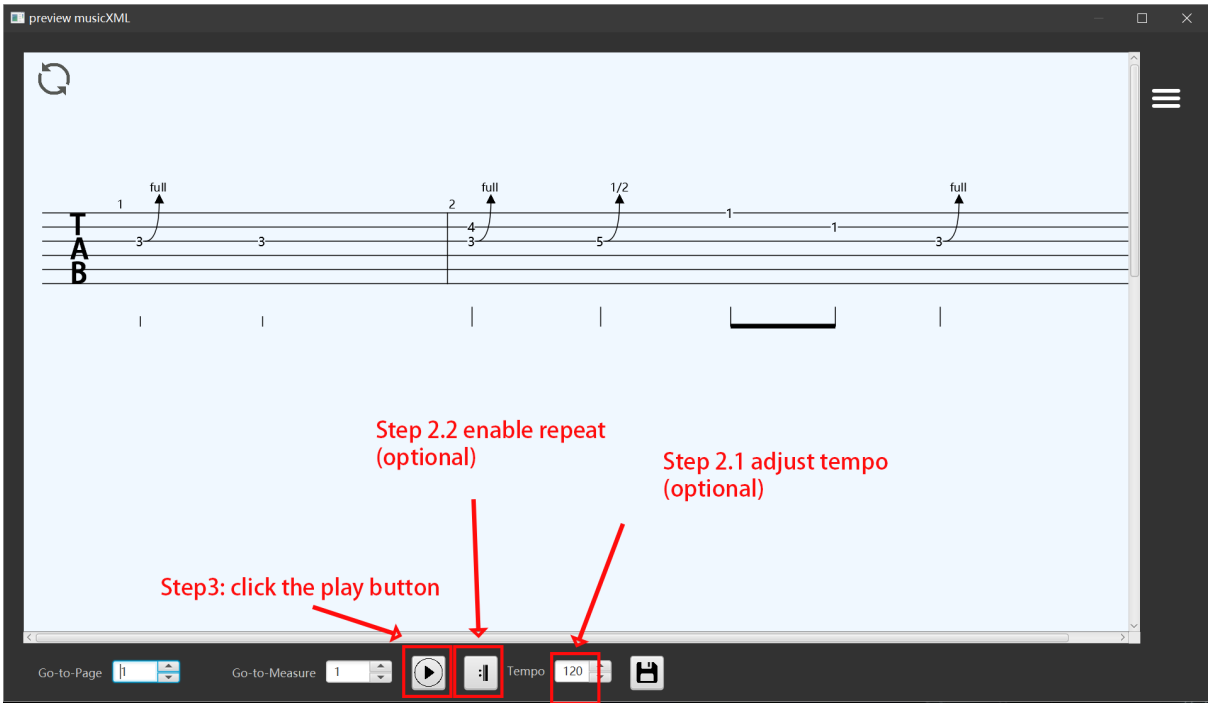


Step 2.1: Adjust the tempo. (optional)

Step 2.2: Enable/disable the repeat (optional)

Step 3: Click the play button

> Music will be played from the selected measure. If you don't select anything. It will play from the beginning. Current playing Notes will be highlighted when music is playing.

Step 4: (optional) stop music: Click the play button again in order to stop the music.

Appendix 1: Understanding Errors

(Source: https://github.com/Stan15/TAB2XML)

When you run the program, you will be able to see a text field at the center of the screen, shown below. This is where you paste your tablature .txt file.

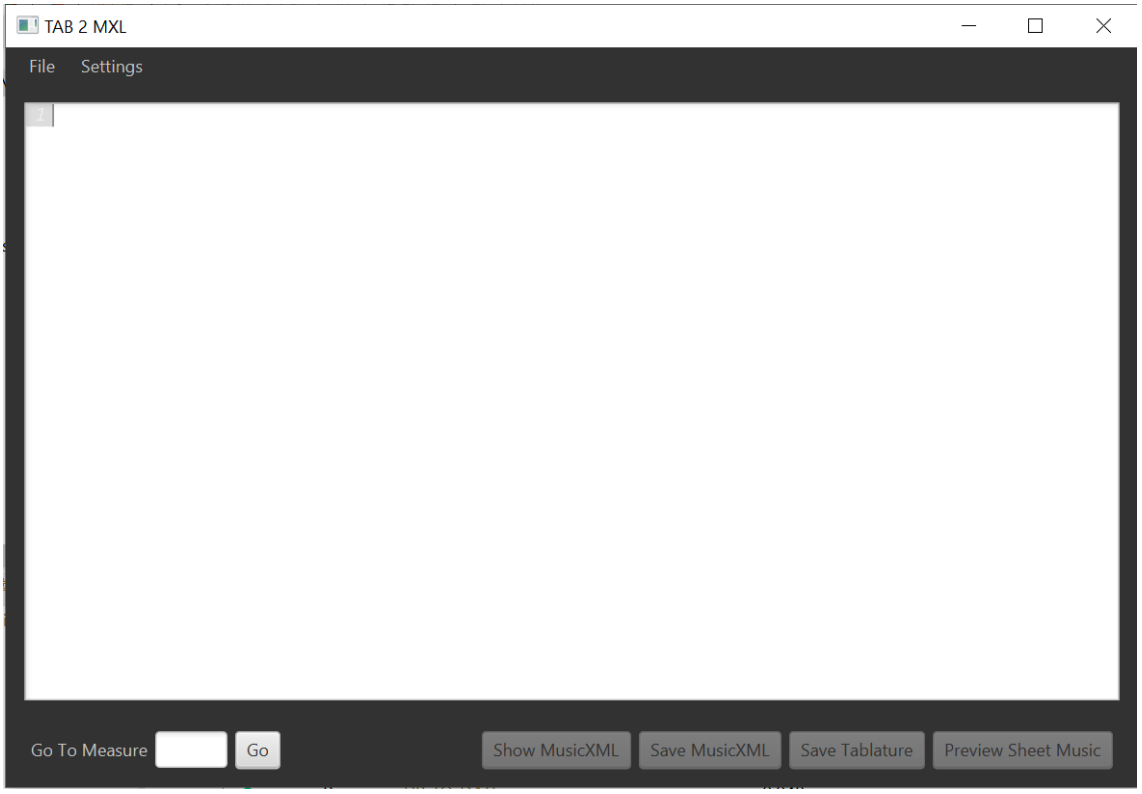


Figure 1: Initial Screen of the TAB2XML

1. To put your input, click ‘file -> open’ and choose your file, or copy and paste your text file into the text field.
2. Once your input is in the text field, the system lets you know if there is any unidentifiable information which should be corrected for optimal conversion.The system highlights the erroneous areas of your input and displays a message over the highlight when you hover over the highlight with your cursor.

   There are 4 levels of highlighting:

i. Red highlight: This is used to identify errors that may critically affect the output of the conversion.

ii. Yellow highlight: Errors with this highlight are less critical, but we do not guarantee an accurate output with these errors.

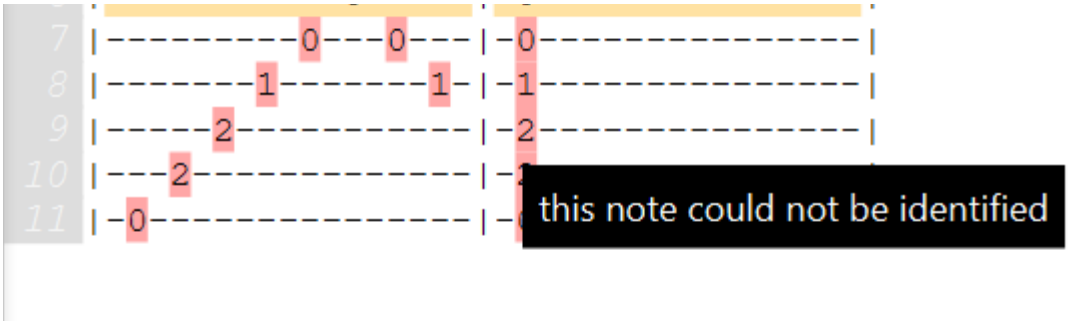
iii. Blue HIghlight: Errors with this highlight will likely still produce an accurate output but may lead to a different output than is expected.

iv. Grey highlight: This highlight is used to identify content that may have little to no effect on the output.

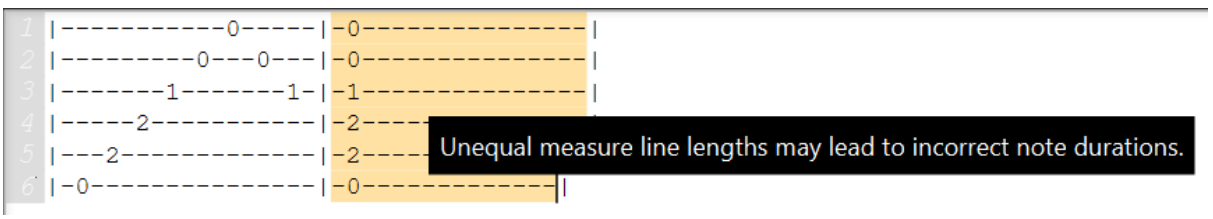
Error Examples

Detailed below are a few examples of different error highlighting scenarios:

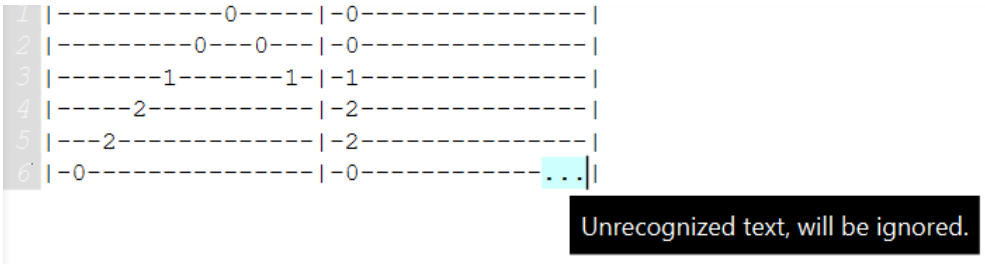
- Red highlight: “this note could not be identified” as shown in the image below.
- This is used to identify elements that are either not supported or not identified as valid measure annotations.

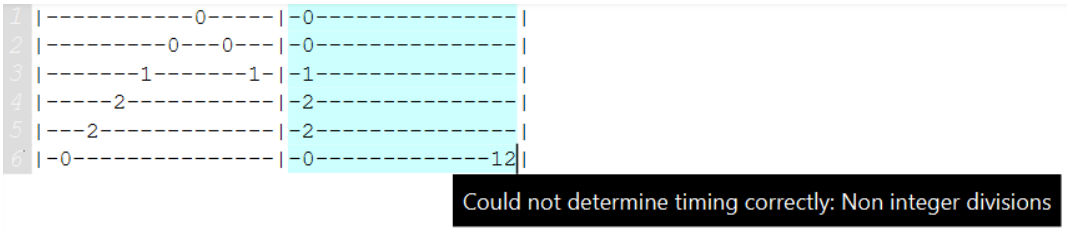


- Yellow highlight: "Unequal measure line lengths may lead to incorrect note durations." as shown in the image below.
- If you get such an error on a measure that seems to be accurate, make sure no text is written on the side of the measure as this makes the system identify it as two different measures.
- Otherwise, ensure that the measure line lengths match up and are equal.

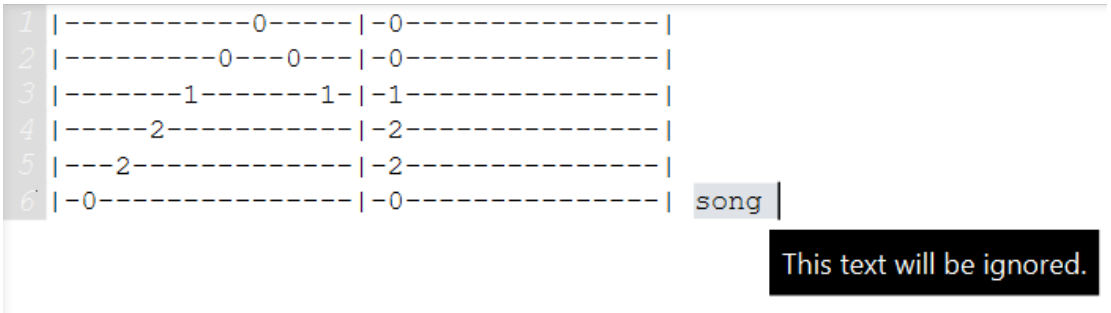


- Blue Highlight: “Unrecognized text, will be ignored." & "Could not determine timing correctly: Non integer divisions" as seen in the images below.
- This error is to inform the users that the objects do not have the same length, and mainly to inform users that the timing was not validated, meaning there may be some error with the input.





- Grey highlight: “This text will be ignored.” (shown in the image below).
- This error is to highlight anything outside the recognized tab sections. These will be ignored by the system, and not identified as a score object (i.e measure, note, repeat instruction, e.t.c.).



Note: There are more error scenarios that may occur, but they are all categorised into the three groups identified above.

4. For a proper output, make sure there are no red or yellow highlights in your tablature. It is recommended that you resolve blue highlight errors, but grey highlights can largely be ignored.

    - How to fix errors:

        Ensure that the number of lines in a measure is correct for the given instrument.

        Remove all unrecognisable notations in tablature and replace with dash '-'.

        Remove all texts which is placed around score bars except for key notation.

        (How to fix instruction video: https://drive.google.com/file/d/174oWzswHkvnTvyask_AUpYKRjKmuz3_m/view?usp=sharing

    Note: If you removed all yellow and red highlights, it is ready to be converted.

    (If there is no yellow and red highlight in score bars information, you can skip this step)

Appendix 2: Input Requirements

(Source: https://github.com/Stan15/TAB2XML)

1.1 Measure instructions (Repeats and time signature)

This program allows for the application of repeats and time signatures to individual measures. Here, we will go over the input restrictions governing these features.

Some sample tablature text files that meet the requirements can be found in the project folder in the directory TAB2XML/src/test/resources/test_tab_files.

For instructions in general, the following requirements are outlined:

1. For a line to be interpreted as having instructions, it must only be composed of valid instructions separated by spaces and nothing else.

2. The 'tab' button should not be used in your instruction lines as this might result in the system not applying the instructions to the correct measure.

3. For your instructions to be recognized, the line directly below the instruction line must be a measure line or another instruction line (instruction chaining is allowed).

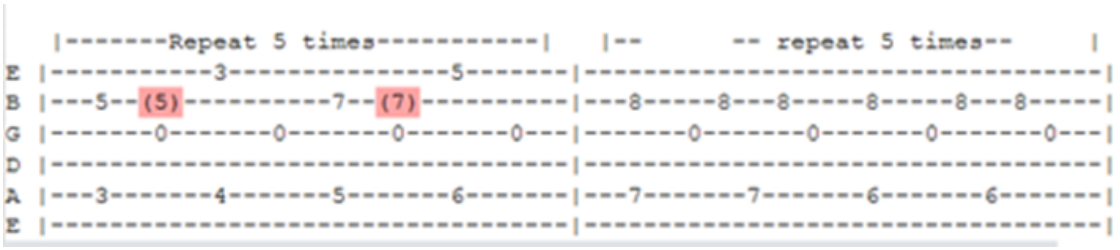
4. Lines of instructions are chained by connecting the lines by one new line.

5. The order of priority for applying instructions is left to right, up to down.

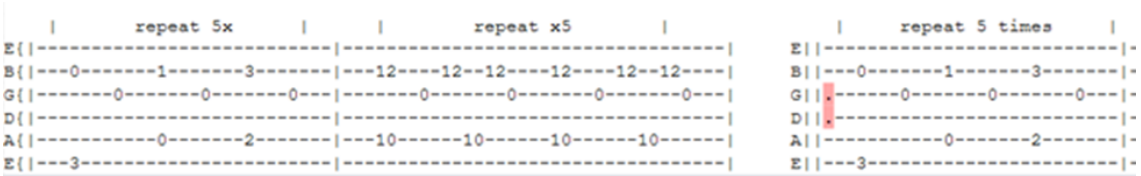
Repeats:

For repeats, the following input requirements must be followed for repeats to be correctly applied

1. Repeats must start and end with a vertical bar, and can have any combination of spaces or dashes "-" in-between, as seen below.



2. Repeats can be notated in any one of the three below-stated ways.



Time Signatures:

1. The list of possible time signatures has been artificially restricted to the following generally accepted time signatures: 2/4, 2/2, 3/8, 3/4, 4/8, 4/4, 4/2, 6/8, 6/4, 9/8, 9/4, 12/8, and 12/4.

2. If an invalid time signature is provided, the following error is received:

3. The default time signature is 4/4 if no time signature instruction is provided.

4. Time signatures with a beat or beat count consisting of three or more values are not recognized as instructions and will make the line of instructions invalid.

1.2 Measures

Some sample tablature text files that meet the below requirements can be found in the project folder in the directory TAB2XML/src/test/resources/test_tab_files. The tablature file input into the program must meet the following requirements:

5. The tablature file must start with a vertical line after the string name.

6. you may not have text by the side of a measure which itself is not a measure.

7. The line names must all be lower caps, except for the E string which can be lower caps to distinguish the lower e string from the upper E string.

Appendix 3: List of Settings

Grace Spacing

Distance between grace note and normal note.

Measure Spacing (Before)

Spacing before measuring

Minimum Note Spacing

Minimum spacing between notes. If measures can fit into line with this spacing, it will put in the next line.

Note Head Horizontal Offset

Note Size

Dot Offset

Beam Spacing

Beam Thickness

https://en.wikipedia.org/wiki/Beam_(music)

Drum Stem Height Guitar Stem Height (End) Guitar Stem Height (Start)

https://en.wikipedia.org/wiki/Stem_(music)

Dot Size

Size of dot

Page Width and Page Height

MagrinX and MarginY

https://en.wikipedia.org/wiki/Margin_(typography)

Distance b/w Measures

Distance between each line of measures.

Step

Distance between two-step. It will directly affect note size, the gap between staff lines, and the position of notations.