

# User Manual

---



MXLify

EECS 2311 - Group 9

Zach Ross

Christopher Moon

Erika Grandy

Yasser Al Zahed

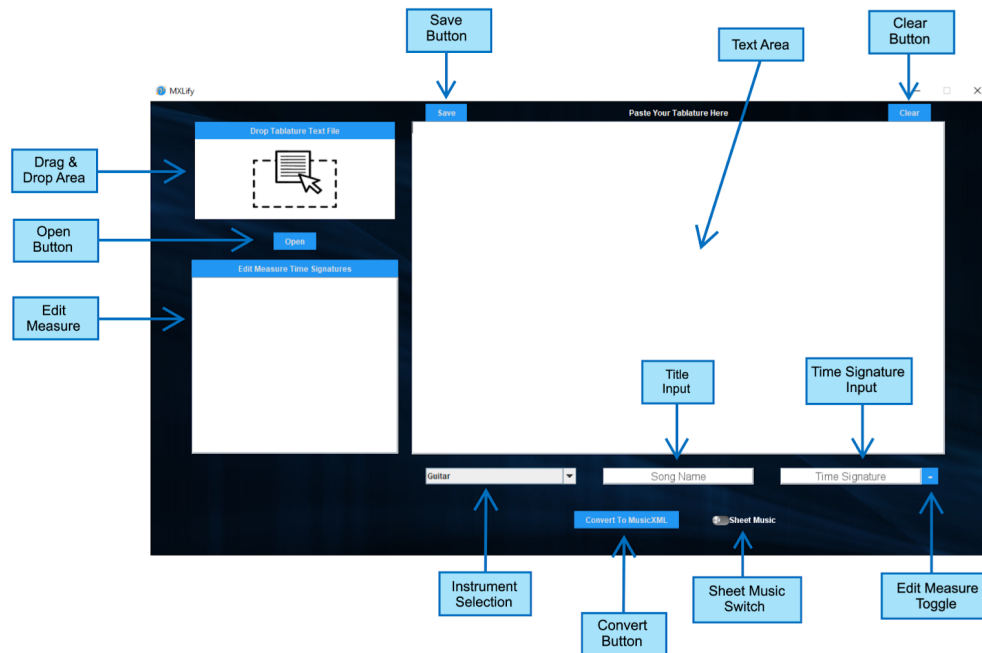
Faruq Afolabi

04/13/2021

# Table of Contents

<b>1. Application Interface</b>	<b>3</b>
Drag & Drop Area:	3
Text Area:	3
Open Button:	3
Instrument Selection:	3
Title Input:	3
Time Signature Input:	3
Convert Button:	3
Save Button:	3
Clear Button:	3
Sheet Music Switch:	3
Edit Measure Toggle:	3
Edit Measure:	4
<b>2. Install Instructions</b>	<b>4</b>
2.1 Download:	4
2.2 Eclipse Install:	4
<b>3. Usage Instructions</b>	<b>6</b>
3.1 Input Text Tablature:	6
3.2 Edit Tablature:	7
3.3 Customize Tunings:	7
3.4 Customize MusicXML Settings:	7
3.5 Save/load tablature & metadata:	7
3.6 Edit Custom Measure Time Signatures:	7
3.6 Convert to MusicXML:	8
<b>4. Common Usage Scenarios</b>	<b>8</b>
4.1 Your First Conversion:	8
4.2 Modifying Text Tablature:	8
4.3 Changing The Time Signature:	8
<b>5. Supported Formats</b>	<b>9</b>
5.1 Defining Measures:	9
5.2 Defining Notes:	9
5.2.1 String Notes:	9
5.2.2 Drums:	9
5.2.3 Drum Notes:	9
5.3 Defining Hammer On:	9
5.4 Defining Harmonics:	10
5.5 Defining Grace Notes:	10
5.6 Defining Flams:	10
5.7 Defining Repeats:	10
5.7.1 String Repeats:	10
5.7.2 Drum Repeats:	10
5.8 Defining Tuning:	10
5.8.1 String Tuning:	11
5.8.2 Drum Tuning:	11
5.9 Defining Octaves:	11
5.10 Defining Note Durations:	12
<b>6. Troubleshooting</b>	<b>13</b>
6.1 Empty Text area:	13
6.2 No Valid Tablature:	13
6.3 Tune/Octave Not Recognized:	13
6.4 Measure Length Incorrect:	13
6.5 Measure Amount Incorrect:	13
6.6 MacOS Sheet Music Permissions:	14

## 1. Application Interface



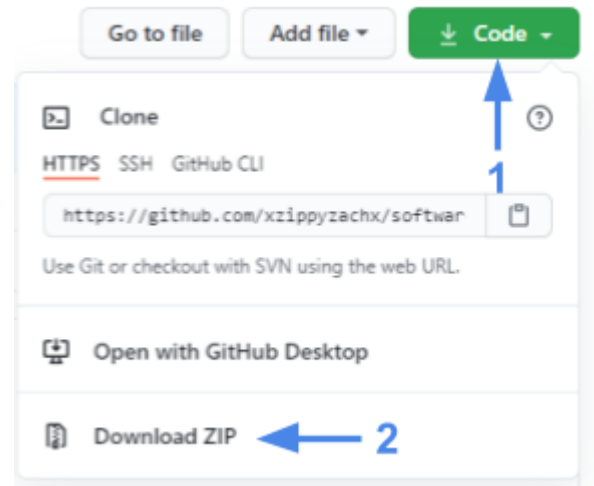
- Drag & Drop Area:** Drag and drop your tablature text file to upload
- Text Area:** Copy and paste your text tablature to upload
- Open Button:** Opens the file explorer to select your text file to upload
- Instrument Selection:** Select which instrument your tablature is for: Guitar, Drums, or Bass
- Title Input:** Input the name of the song
- Time Signature Input:** Input the time signature for the song (In the form beat/beat-type, e.g 4/4)
- Convert Button:** To convert your uploaded tablature to MusicXML
- Save Button:** To save your text tabulate and metadata to a “.mxlify” file
- Clear Button:** To clear the text area
- Sheet Music Switch:** To toggle whether a visual sheet music file should be generated
- Edit Measure Toggle:** To open and close the edit measure section
- Edit Measure:** To edit custom measure time signatures

## 2. Install Instructions

### 2.1 Download:

Download the projects master branch from github ([Link](#)).

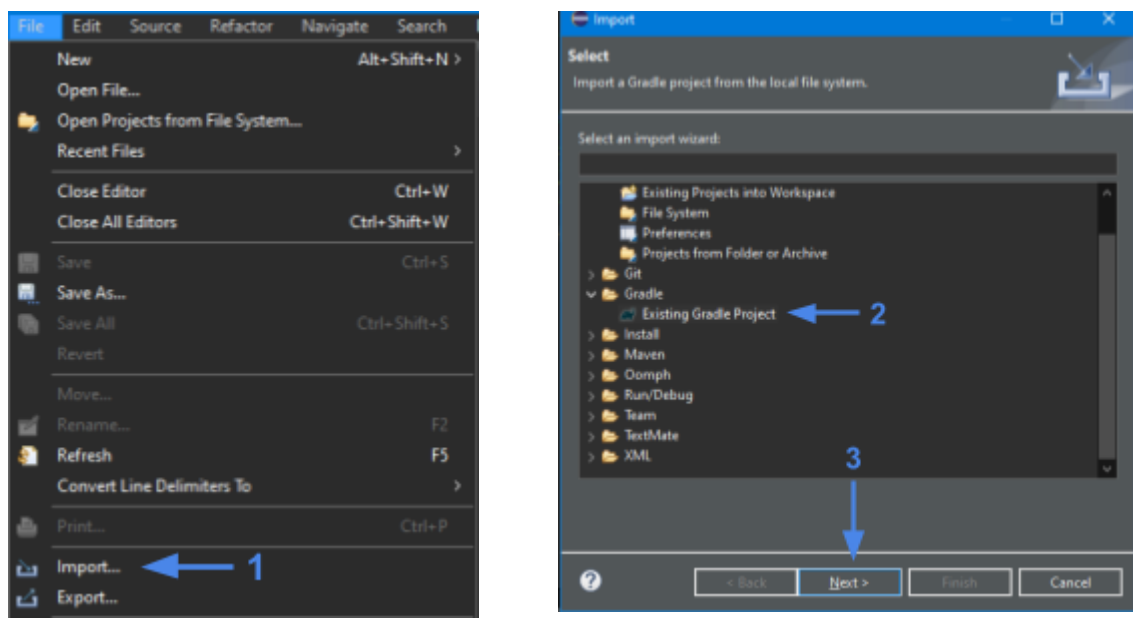
Select download zip in the code dropdown.



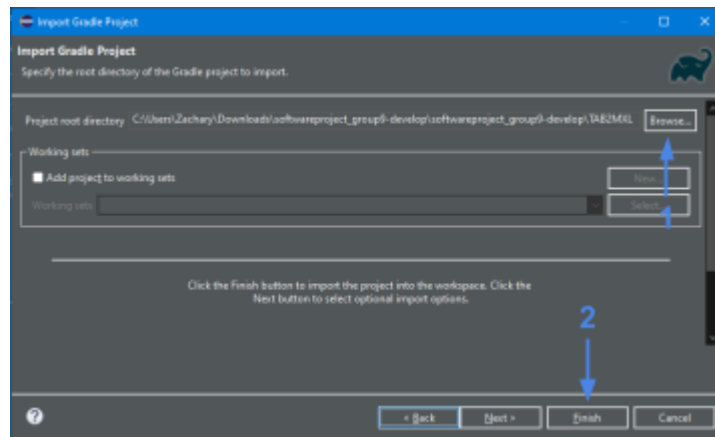
### 2.2 Eclipse Install:

Unzip the downloaded file to a location of your choosing.

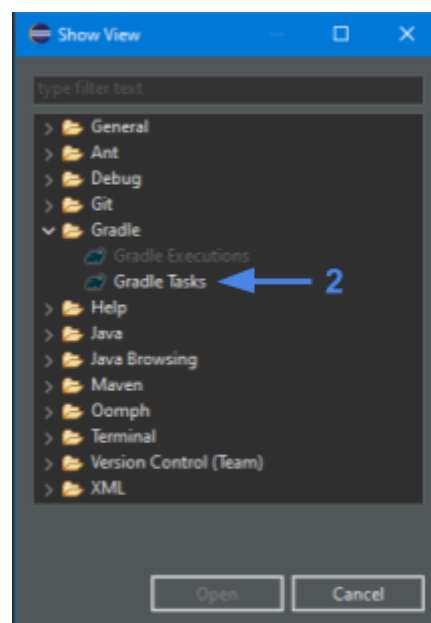
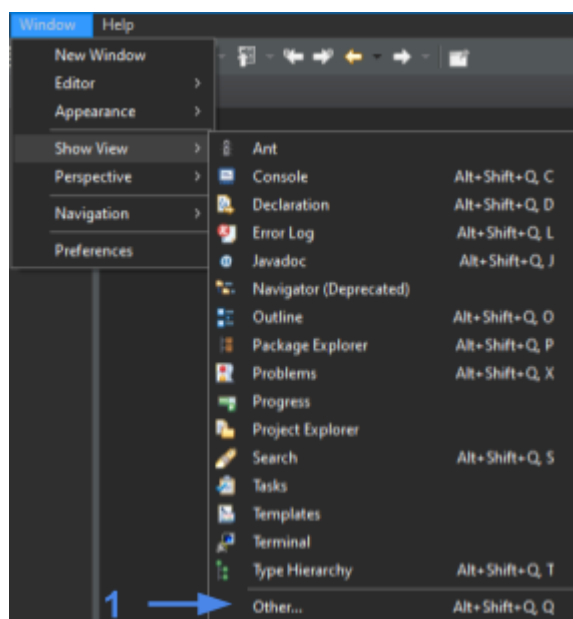
In eclipse, navigate to File > Import > Existing Gradle Project. Then click next.



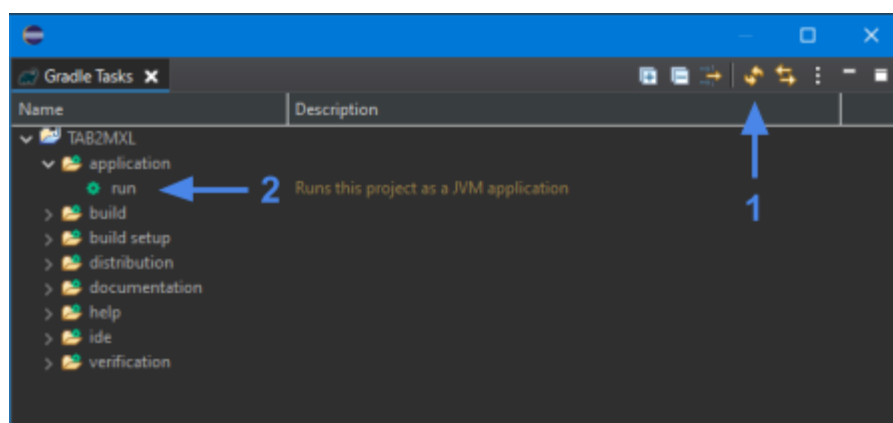
Use browse to select the TAB2MXL folder from the unzipped project file. Then click finish.



Navigate to Window > Show View > Other > Gradle > Gradle Tasks



In gradle tasks, refresh the tasks. Then navigate to TAB2MXL > Application > run. Finally double click the run to start the software.



### **3. Usage Instructions**

#### **3.1 Input Text Tablature:**

There are three possible methods to input text tablature.

Method A: Using the [open button](#) an open file menu will appear. Select the text file you wish to input. The contents of the file will then populate the text area.

Method B: Drag the file you wish to input into the [drag & drop area](#). The contents of the file will then populate the text area.

Method C: Copy and paste your text into the [text area](#). The contents of your clipboard will then populate the text area.

#### **3.2 Edit Tablature:**

Using the [text area](#) you can modify/add to your text tablature. Make sure the tablature follows the [supported formats](#). The [text area](#) can be cleared using the [clear button](#). Holding alt while drag selecting the [text area](#) will allow box selection/highlighting of the text tablature.

#### **3.3 Customize Tunings:**

Within the [text area](#) you can modify/add letters at the start of the tablature representing the string tunes. Make sure the letters are one of the [supported tunes](#).

#### **3.4 Customize MusicXML Settings:**

Using the [instrument selection drop-down](#) you can select what instrument the tablature is.

Using the [title input](#) you can input the song name of the tablature.

Using the [time signature input](#) you can input the time signature of the tablature. Inputting just a number will set the beat to that value and the beat type to the default value of 4. Inputting a number followed by a slash "/" and another number will set the beat and beat type to the number values respectively.

#### **3.5 Save/load tablature & metadata:**

Use the [save button](#) to save the tablature in the [text area](#) and the metadata in the [instrument selection](#), [title input](#), and [time signature input](#) fields to a ".mxlify" file. You can then use the [open button](#) to select the ".mxlify" file you wish to load. The saved tablature and metadata will then be loaded into the application.

### 3.6 Edit Custom Measure Time Signatures:

The textbox for editing individual measure time signatures can be displayed by clicking the [+ icon](#) located next to the [Time Signature input field](#)

Custom time signatures can be defined for each measure by typing the measure and its modifications into the [“Edit Measure Time Signatures” textbox](#).

The input typed must be of the following format:

*The word “Measure” followed by the measure number/s, a colon, and then followed by the time signature for the measure/s.*

Example of accepted inputs:

- Measure 4: 6/8
- Measure 1-8: 2/8
- Measure 9-: 1/4

A single measure number will give that measure the new time signature provided.

2 measure numbers separated by a “-” will give all the measure between those numbers (inclusive) the new time signature provided

A measure number followed only by a “-” will give all the measures from the number provided to the end of the tab the new time signature.

Examples of unaccepted input:

- Measure : 6/8      *A measure number must be provided*
- 4: 4/4      *The input must begin with the word “measure”*
- Measure 5: 4/ 4      *Spaces in the time signature are not accepted*
- Measure 9-4: 4/4      *Measures separated by a “-” must have the smaller number on the left*

Multiple Lines of input are accepted and will work independently of each other.

### 3.6 Convert to MusicXML:

Use the [convert button](#) to convert your text tablature to a MusicXML file. Ensure that your text tablature is in a [supported format](#) before converting. If you’re prompted with an error when attempting to convert, look at the [troubleshooting](#) section for possible solutions. Lines that are not parsed and are seen as comments/text will be highlighted in grey. If you want to preview your tablature in the standard music sheet format. Toggle the [sheet music switch](#) to also generate a visual representation of your tablature.

## **4. Common Usage Scenarios**

### **4.1 Your First Conversion:**

For your first conversion start by [inputting your text tablature](#). Your text tablature should now appear in the [text area](#). Select the proper instrument via the [instrument selection](#) dropdown. Input the song name via the [title input](#) field. Input the time signature via the [time signature input](#) field. Lastly, select the [convert to MusicXML](#) button to convert and save the MusicXML file.

### **4.2 Modifying Text Tablature:**

Inferring that your text tablature has already been added to the [text area](#). You can modify your text tablature in the [text area](#) as defined in the [edit tablature](#) section. When you're finished your modifications you can then [customize the MusicXML settings](#) and then select the [convert to MusicXML](#) button to convert and save the MusicXML file.

### **4.3 Changing The Time Signature:**

After selecting the tablature you want to create the MusicXML format for, in [time signature input](#) field you input the time signature you want for your tablature (in the format beat/beat-type). If the time signature is not in the right format, then the default time signature '4/4' will be used.

## **5. Supported Formats**

### **5.1 Defining Measures:**

The start of a measure is defined by a straight vertical line made up of "|" characters in the [text area](#). The last measure may also end with this.

### **5.2 Defining Notes:**

#### **5.2.1 String Notes:**

Notes are defined by a number on the strings that represents the fret. Refer to [defining note durations](#) to understand how these numbers should be placed.

#### **5.2.2 Drums:**

The drums are specified by the symbols stated at the beginning of the tablature e.g. (BD, CC, HH, T, T2, MT etc.)



### 5.2.3 Drum Notes:

The notes in this case are used to specify the placement of the note on the staff, they do not affect the sounding of the tablature/MusicXML. The notes are set by default based on the drums specified at the beginning of the tablature and they cannot be modified or set by the user, but they can be viewed in the MusicXML output under the 'display-step' tag.

### 5.3 Defining Hammer On:

A hammer-on is a technique performed on a stringed instrument by sharply bringing a fretting-hand finger down on to the fingerboard behind a fret, causing a note to sound. In tablature a hammer on is represented by a fret followed by an h and another another fret that is higher than the first fret.

Eg: 3h6, 9h10, 10h14

Hammer ons can be chained together to create longer hammer ons

Eg: 3h6h10, 10h14h15h16

The durations of all notes in a hammer on are equal to the duration of the last note in the hammer on.

### 5.4 Defining Harmonics:

Harmonics are defined by [n], where n is a number. These are found in the tablature where you would find frets. The number in the brackets indicates what fret the string should be played.

### 5.5 Defining Grace Notes:

Grace notes are defined by the character g which is in front of a slur. A slur is created by a hammer-on or pull off. Eg. g0h1 is an example of grace note being utilized in this software.

### 5.6 Defining Flams:

Flams are defined by the character f for drums or open hi hats, in place of o's. Flams are supported both standalone and within chords.

### 5.7 Defining Repeats:

#### 5.7.1 String Repeats:

String repeats are defined by double pipe/vertical bar columns and two stars indicating the start and finish of the measure repeat. The number at the top of the repeat end indicates the amount of times the measure should repeat. This example shows a measure that will repeat 4 times.

```
| |-----4 |
| |----- |
| |*-----1-----* |
| |*-----4-----* |
| |-----2----- |
| |--0----- |
```

## 5.7.2 Drum Repeats:

Drum repeats are defined by an additional line above the repeated measures. This line must include pipes/vertical bars to indicate the measures that the repeat is applied to. The repeat is defined by the word "repeat", followed by the number of times to repeat and a 'x'. Nested repeats are not supported. Only the line directly above the tablature section will be considered.

This example shows the first and second measure are grouped together and repeat 6 times. The third measure repeats 7 times. The 4th measure only plays once.

```
|---repeat-6x-----|---repeat-7x---| | |
|x-----x-----|x-----x-----|
|-x-x-x-x-x-x-x-|-x-x-x-x-x-x-x-|
|---o-----o---|oooo-----|---o-----o---|oooo-----|
|-----|---oo-----|-----|---oo-----|
|-----|---oo-----|-----|---oo-----|
|o-----o-----|o-----o-----|-----|---oo-----|
```

## 5.8 Defining Tuning:

### 5.8.1 String Tuning:

Tuning is defined by the letters at the beginning of the tablature, and if the tuning is not specified, a default tuning(e, B, G, D, A, E) will be set. The supported tunes are E, B, G, D, A, C, F, F#, C#, G#, A#, and D#.

{NOTE: When you indicate your tuning and you have two notes that are the same but one has a lower octave, indicate the one with lower octave with lowercase}

#### Ex 1:

```
B|-0-----|
D|---3-1-3-|
E|-----|
A|-----|
F|-----|
D|-----|
```

#### Ex 2:

```
e|-0-----|
a|---3-1-3-|
G|-----|
D|-----|
A|-----|
E|-----|
```

#### Ex 3:

```
C|-0-----|
B|---3-1-3-|
D|-----|
A|-----|
F|-----|
E|-----|
```

## 5.8.2 Drum Tuning:

The tuning is defined based on the instrument specified by the drum symbol at the beginning of each line of the tablature. Each drum is mapped to a specific tuning that cannot be modified, as the tuning is mainly used to specify the note location on the staff, so if you want a different tuning, you have to change the drum, thereby changing the sound of your tablature.

**Ex 1:**

```
CC | x-----|
HH | --x-x-x-x-x-x-|
SD | --o-----o--|
HT | -----|
MT | -----|
BD | o-----o-----|
```

**Ex 2:**

```
CC | x-----|
T  | --x-x-x-x-x-x-|
HH | --o-----o--|
HT | -----|
T2 | -----|
B  | o-----o-----|
```

## 5.9 Defining Octaves:

Just as you can define the tuning, you can also define the octaves for the set tuning by typing the tuning-octave number for the string after the string name e.g.(E1, A#5, B3, etc.). Also remember to put the higher octave on the string you want with the higher octave if you have two strings with the same name e.g.(b3, B5, e5, E8).  
{Note: The octave numbers should range from 0 to 9}.

**Ex 1:**

```
e5 | -----0-----|
B4 | -----3-----|
G2 | -----|
D5 | -----2-0-2-----|
A2 | -----3-----0-----|
E8 | -----3-----|
```

**Ex 2:**

```
b3 | -----0-----|
F2 | -----3-----|
G3 | -----|
D2 | -----2-0-2-----|
A3 | -----3-----0-----|
B5 | -----3-----|
```

## 5.10 Defining Note Durations:

Whole notes take N beats



Half notes take N/2 beats



Quarter notes take N/4 beats



Eighth notes take N/8 beats



Sixteenth notes take N/16 beats



These are the standard note durations you will most likely encounter when converting tablature to MusicXML format. In the [text area](#) the duration is indicated by “-” characters. How durations are defined can be best explained through examples.

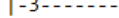
**Ex 1:** This is a measure that uses a 4/4 time signature, there are 2 notes that have one dash on their left and on their right, these notes last N/4 beats.

The final note has 3 dashes on the right side indicating it lasts longer.

Knowing this we can say that this note is a half note which sums the number of beats to 4, satisfying the time signature.

**Ex 2:** Like the previous example this measure uses a 4/4 time signature. There are 4 beats in this measure and all of which have a dash on their left and on their right. Knowing that this measure can only have 4 beats and all the beats are the same duration we can say that these are all quarter notes.

**Ex 3:** This example there are only 2 notes in the measure and both notes have 3 dashes on one side and one on the other, knowing that there are only 4 beats in the measure, we can say that both of these are half notes.



## 6. Troubleshooting

### 6.1 Empty Text area:

This error indicates that no tablature has been provided to the software. This can be resolved by either uploading your tablature, copying and pasting your tablature into the text field or dragging your tablature into the specified field. Refer to the [input text tablature](#) section for more information.

### 6.2 No Valid Tablature:

This error indicates that no valid tablature has been provided to the software. This can be resolved by either uploading your tablature, copying and pasting your tablature into the text field or dragging your tablature into the specified field. Refer to the [input text tablature](#) section for more information. Also refer to the [editing the tablature](#) section to follow the proper formatting indicated in the [supported formats](#) section.

### 6.3 Tune/Octave Not Recognized:

This error indicates that the tuning/octaves are not supported. The tune that is not recognized will be highlighted in red. This can be resolved by changing the tune/octave to a supported tune listed in the [defining tuning](#) section and [defining octaves](#) section.

## 6.4 Measure Length Incorrect:

This warning indicates that the formatting of the text tablature in the [text area](#) is wrong due to measure lengths being incorrect. The measure lines that are incorrect lengths will be highlighted in yellow. This can be resolved by [editing the tablature](#) to follow the proper formatting indicated in the [supported formats](#) section. This is just a warning and the tablature will still convert but the generated MusicXML may be incorrect.

## 6.5 Measure Amount Incorrect:

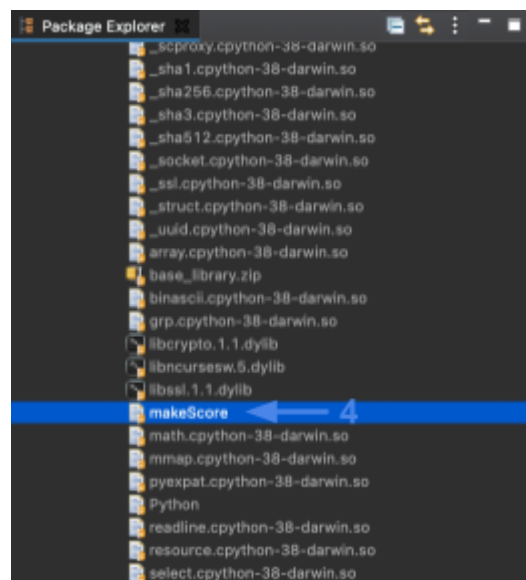
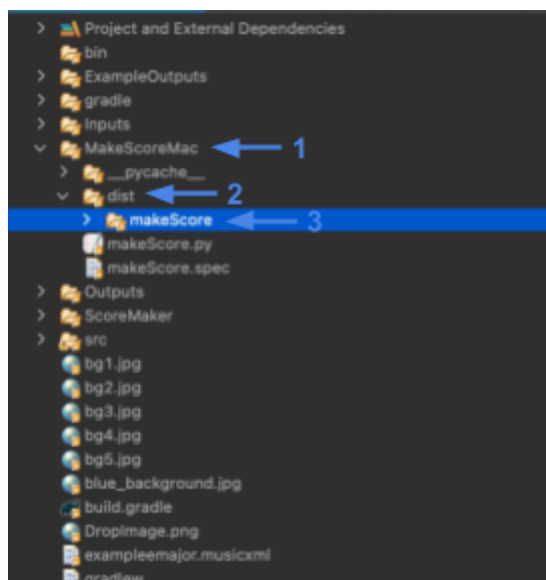
This warning indicates that the formatting of the text tablature in the [text area](#) is wrong due to measure amounts being incorrect. The measure lines that are missing measures will be highlighted in yellow. This can be resolved by [editing the tablature](#) to follow the proper formatting indicated in the [supported formats](#) section. This is just a warning and the tablature will still convert but the generated MusicXML may be incorrect.

## 6.6 MacOS Sheet Music Permissions:

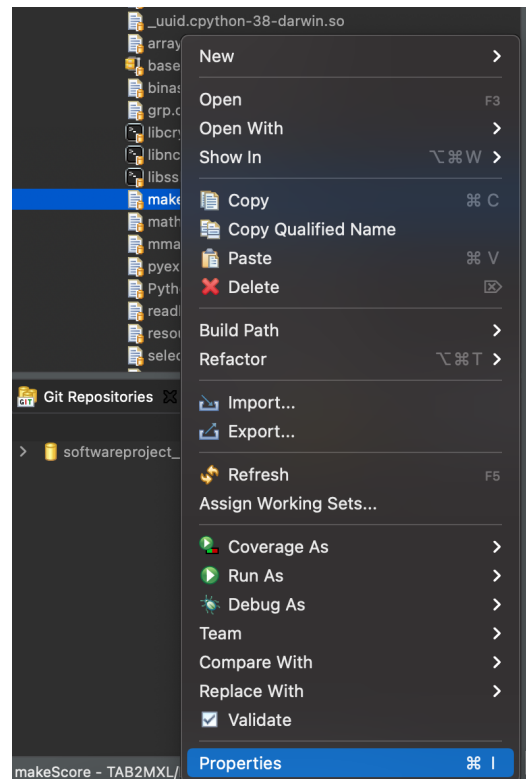
Due to the strict security measures on MacOS there are some steps we might need to complete first to give the application the appropriate permissions in order to convert your tablature to sheet music. Windows users can ignore the following steps.

In the TAB2XML folder navigate to the MakeScoreMac/dist/makeScore Folder

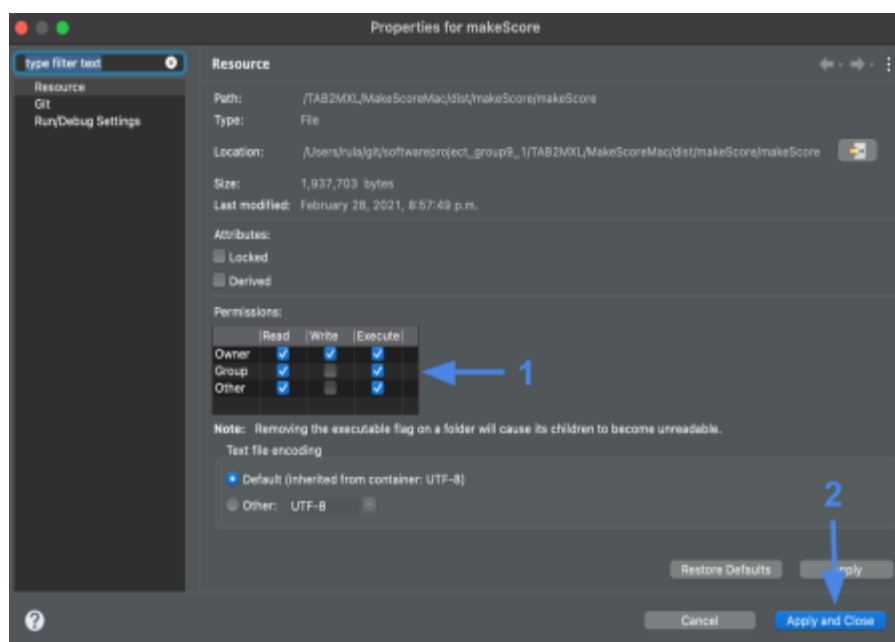
Once in that directory find the file called makeScore and right click



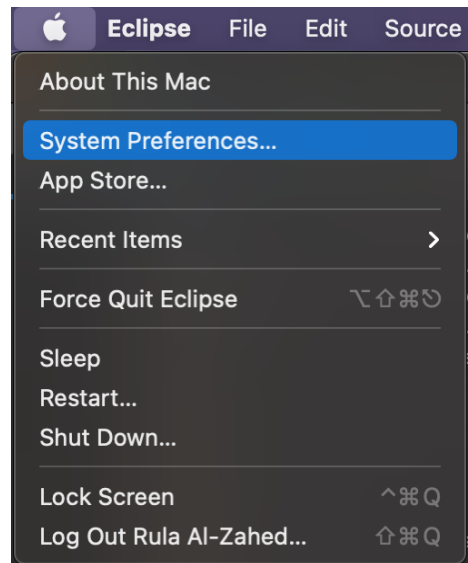
Look for the Properties option and left click



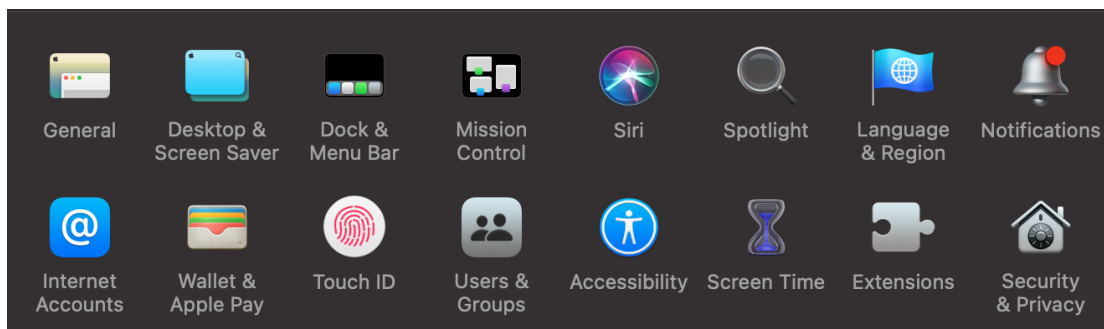
Make sure the Execute checkboxes are selected for Owner, Group and Other. This allows the application MakeScore to be executed from Eclipse. Then click Apply and Close



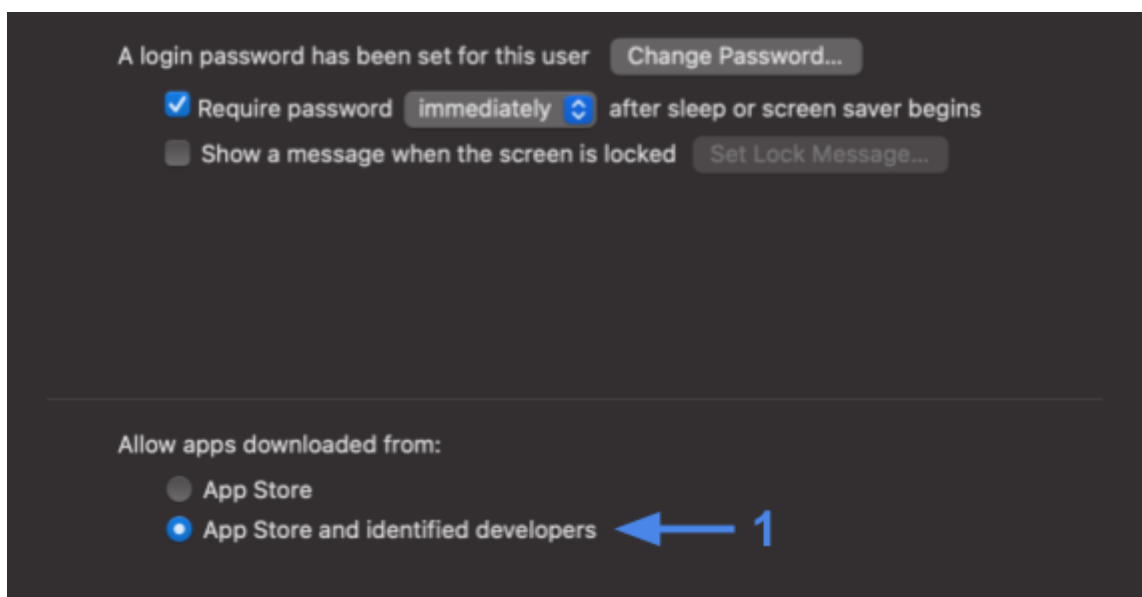
Click on the Apple icon on the top left of the screen and click on **System Preferences**



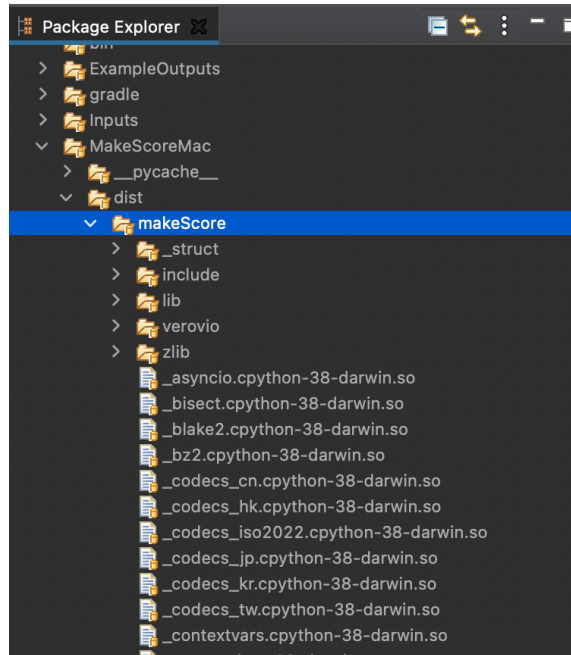
Navigate to and click on **Security and Privacy**



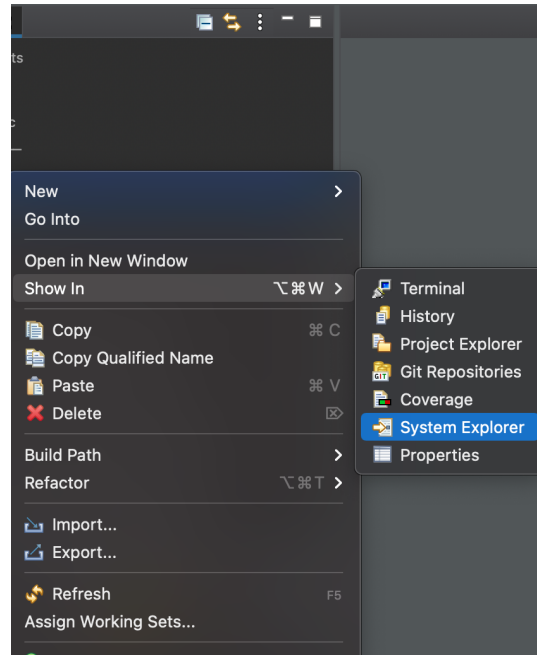
In the **General Tab** the checkbox for “App Store and identified developers” is checked



Back in Eclipse navigate back to the MakeScoreMac/dist/makeScore directory

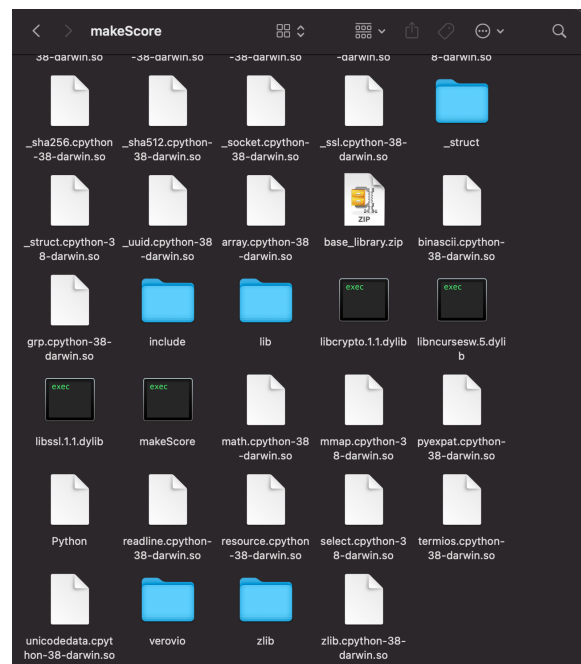


Right click on the directory and under **show in** click on **System Explorer**



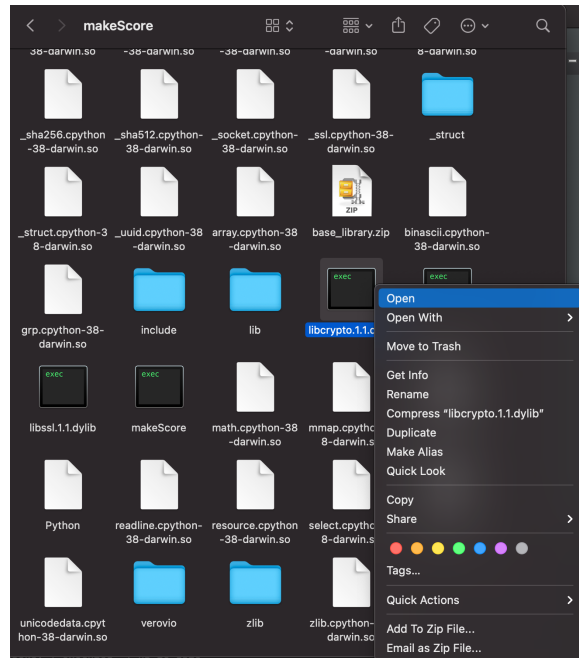
Once the folder is open in finder window scroll down until you locate the following files:

- libcrypto.1.1.dylib
- libncursesw.dylib
- libssl.1.1.dylib
- makeScore





Control + Right Click on each of those files and select open, this grants the application the permission to run on your computer (Control + Right click saves the preferences so you only need to do this once).



If there are any other notifications about unidentified developers head to the **General tab** in **Security and Privacy** and manually allow the application permission to run.

Now the Tablature to sheet music conversion should work error free.

If any other issues occur please contact me at [yasseralzahed@gmail.com](mailto:yasseralzahed@gmail.com)