CS 1033

MULTIMEDIA AND COMMUNICATIONS

Lab 10: Audio

REMEMBER your headphones for today! Also make sure you have a functioning/enabled MICROPHONE to use for this lab!

Remember to have your memory stick or a place in the cloud ready to back up your work in every lab!

Learning objectives for this lab
- Find all the features in the Audacity interface
- Load an audio file in Audacity and interpret its quiet vs. loud sections
- Combine multiple tracks in an audio project
- Shift the positions of individual audio clips within the timeline
- Export audio files into MP3 or WAV formats with metatag information
- Load a MIDI file and see how Audacity represents it in a different interface
- Apply effects to an audio track to change its pitch, volume, or other properties
- Embed an audio track into a website using HTML5-Editor

Introduction

The last major media form taught in this course is audio. This lab is an introduction to using Audacity in order to perform audio editing. You will be combining audio layers to form a single track, adding effects to audio tracks, and exporting a track as an MP3 file. The final activity involves embedding an audio file into a website using HTML5-Editor.

If you are in a lab room environment , please use headphones for this lab to ensure that the lab is a quiet and respectful learning environment for everybody.

Audacity

Audacity is a free audio editing program for both Windows and Mac machines. It makes it easy to load audio tracks, cut and re-arrange clips, layer multiple tracks, and even add effects to the tracks.

Our labs on campus have Audacity installed. If you want Audacity on your own laptop, it is free to download from their official website: https://www.audacityteam.org/.

Glossary

**waveform**   the visual representation of a sound in a sinusoidal-like plot

track   **a single stream of recorded sound, similar to one instrument in a symphony or one voice in a podcast.**

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pitch	how high or low the sounds are, based on the frequency of the sound waveform; also called **key**
mono track	layer in an audio project which has a single channel that all speakers/headphones would play identically
stereo track	layer in an audio project which has separate channels for the left and right speakers/headphones

Activity 1

Installing Audacity in Windows

1. In Chrome, go to https://www.audacityteam.org/download/windows/
2. Scroll down to find the installer link. Click on it.
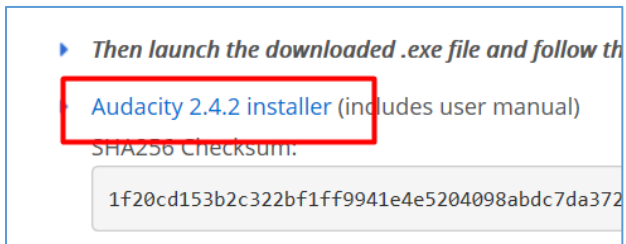
3. In the FossHub page scroll down and find the Windows installer. Click on it and the download will start.
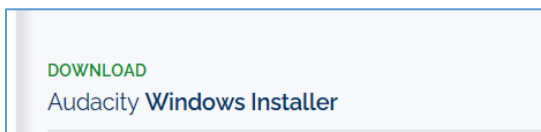
4. Once the Audacity installer has completed downloading click on it.
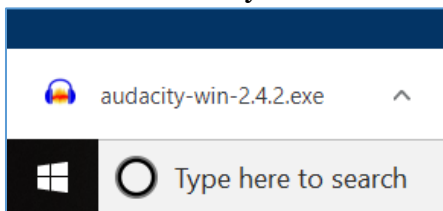
5. You might get a prompt for which you will click Run.
6. You will get a prompt for which you will click Yes.
7. Go through with the installation prompts and steps.
8. Once the installation is complete, click on Next then Finish to Launch Audacity. Now you should have Audacity on your machine/laptop.

Getting started with Audacity

This activity will introduce you to the Audacity interface, show you how to load a track, and interpret the volume of the sound from the waveform.

1. Create a directory on your memory stick within the **cs1033** directory to use for this lab and name it **lab10**.
2. Create a sub-directory within **lab10** and name it **music**.
3. Open the following URL in a browser:
   http://www.csd.uwo.ca/~bsarlo/cs1033/labs/lab10/music
4. Download all the files listed there and save them into your memory stick, e.g. **F:\cs1033\lab10\music**.
5. If you are in a crowded room, please plug your headphones into your computer now and keep them plugged in for the entire lab.
6. If Audacity is not already open, use the Windows search tool (magnifying glass at the bottom of the Windows bar) to find and open Audacity.


7. Click File > Open. In the pop-up window, navigate to your directory, e.g. **F:\cs1033\lab10\music**.
8. Select *Champ de tournesol.mp3* and click Open.
9. Look at the following diagram to familiarize yourself with the interface.
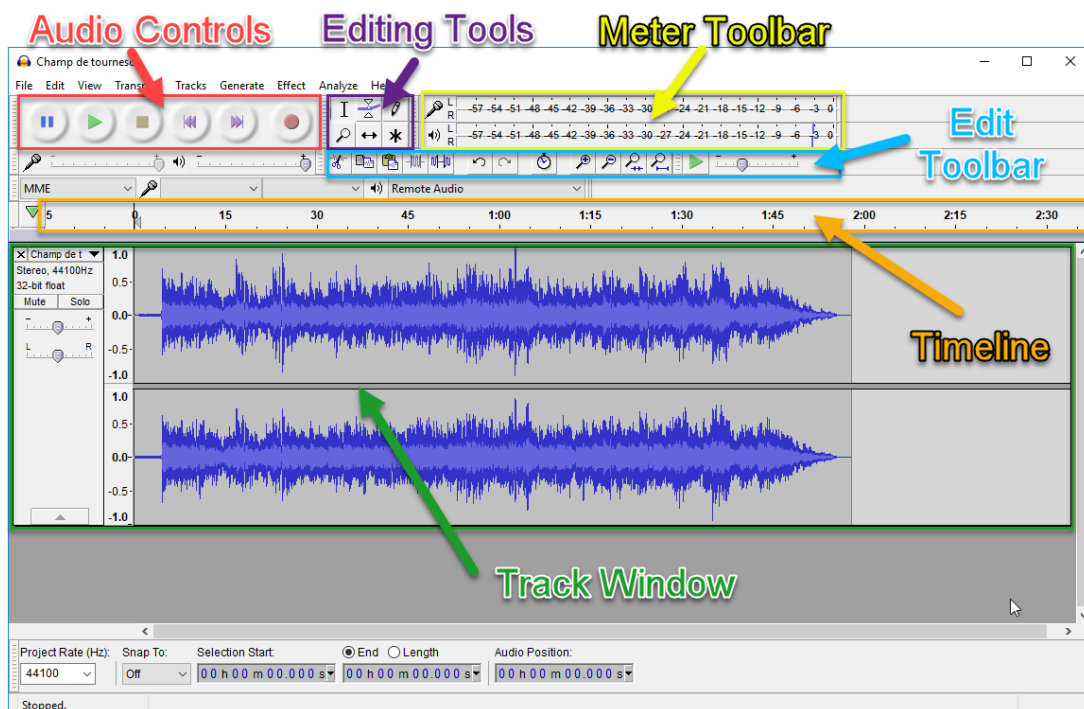
If you have a newer version of Audacity, it will appear as so but the location of the tools on the interface are all the same:
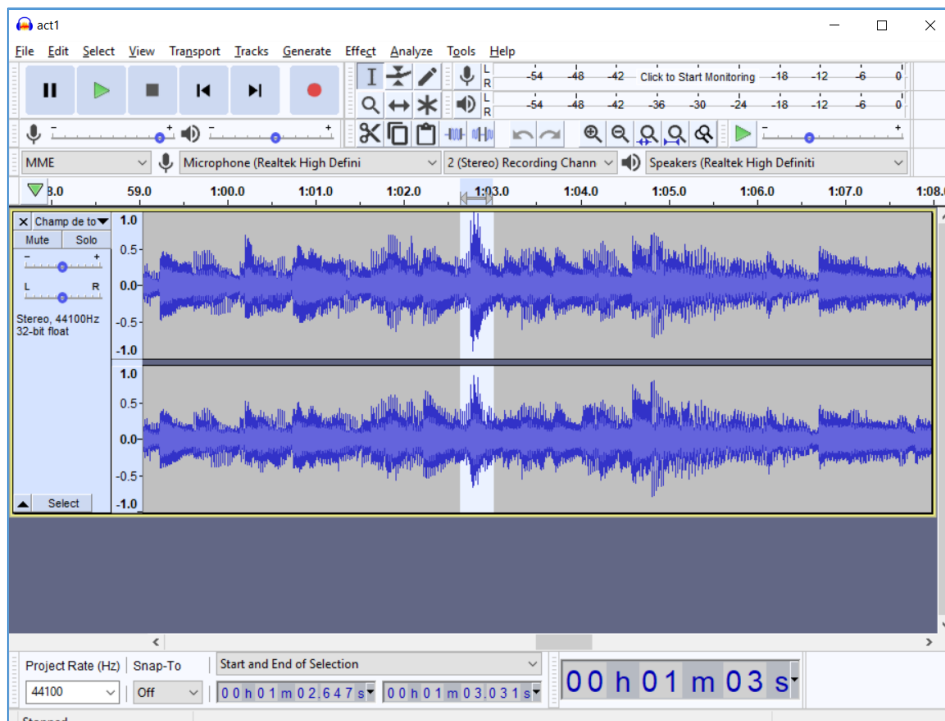

10. Audio is a time-based medium, meaning that it plays over a period of time. In Audacity, the **Timeline** is directly linked with the **Track Window** to indicate the connection between the audio samples and their timestamps.

11. Look at the **Timeline** and **Track Window**. Hold Ctrl and hit 1 to zoom in. Try zooming in a few more times.

12. Now hold Ctrl and hit 3 to zoom out. Do that a few times.

13. Notice that the **Timeline** scale changes based on the zoom level. In some situations you will need to zoom in really close and see timestamps down to a tenth of a second and in other situations you'll zoom way out so that the time is measured only in minutes.

14. Zoom in/out to the level that the time is shown in 15-second increments again as shown below.
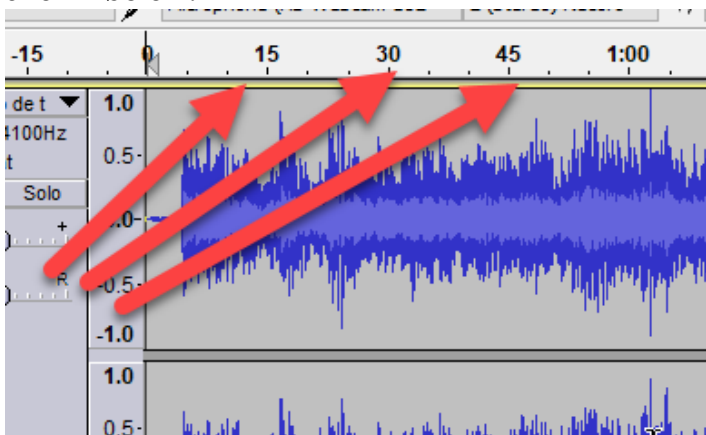
15. Look at the end of the audio waveform and see how long the clip is in the **Timeline** above the right edge of the clip's end point.
16. Notice at the very start and the very end of the clip, the blue waveform is a thin horizontal line. This means those parts are silent, or at least very quiet.

17. Push the Play button ( ) in the **Audio Controls** panel near the top. You should notice that the clip is very quiet for the first 4-5 seconds and then the music begins, which makes sense with the waveform during that period.

18. Push the Pause button ( ) beside the Play button in **Audio Controls**. This stops the audio from playing but keeps the playhead in place so you can continue listening later.

19. Push the Stop button ( ) on the other side of the Play button in **Audio Controls**. This causes the playback to stop and reset the playhead at the start of the track, unlike the Pause action.
20. In the **Editing Tools** panel, check that the *Selection Tool* (I-Beam) is active. It should be active by default, but if it's not, click it now.
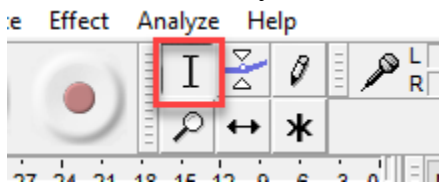

21. Click on the waveform (the blue sound wave, either the top or the bottom wave, it doesn't matter which one) at the 30-second mark. Push Play now and it will play from this marker. This is a quick way to jump ahead without having to listen through the entire track from the start. Push Stop again.
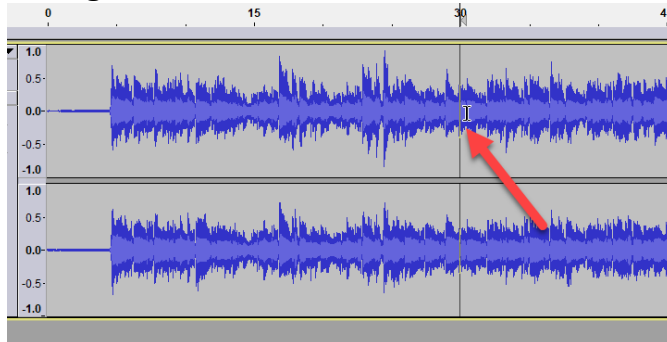

22. Just by looking at the waveform, locate and click on the loudest part of the clip (remember that the height of the wave indicates its volume).
23. Move your cursor to the left from this spot, about 4 seconds **before** the loudest moment occurs (you can zoom in (CTRL+1) a bit to help you make your selection slightly more accurate). Click down and drag your cursor to the right so that it ends about 4 seconds **after** the loud moment. This period of about 8 seconds, with the spike in the middle, should appear highlighted with a different shade of

6

gray.
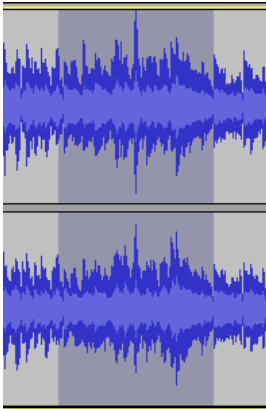
24. Push the Play button. Notice that it plays the selected portion and nothing else.
25. Keep this portion selected. Look on the left side of the Track Window for a slider setting with "L" and "R" labels.
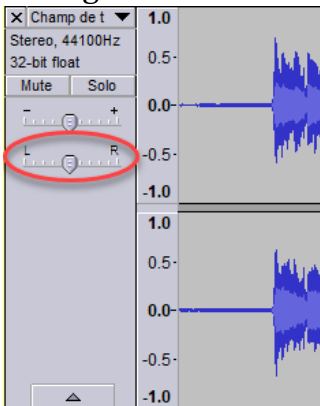
26. Drag this slider all the way to the left side so it's under the "L". Push Play. The audio is only coming out of your left headphone.
27. Now drag it all the way to the right side so it's under the "R" and push Play. The audio only comes out the right side now.
28. Drag the slider back to the middle so that it says "Pan: Center".
29. Click File > Save Project As. If a little pop-up window shows up, just hit OK.
30. Navigate the Save window into your folder **F:\cs1033\lab10**.
31. Save the file in this folder with the name *act1.aup* (Note: .aup is the Audacity native file format).
32. Open a Windows Explorer (folder icon in Windows 10) and navigate to **F:\cs1033\lab10**.
33. In this folder, you should see the *music* sub-folder you created to hold the provided tracks and the *act1.aup* file you just saved from Audacity. Additionally you should see another sub-folder, called *act1_data*, which you did NOT create yourself. This is generated automatically from Audacity when you save the project. Do NOT delete this folder. Audacity uses those files so it's best not to touch them.

Activity 2

Editing audio clips

This activity will teach you how to layer multiple tracks, use the Time Shift Tool to move tracks back and forth, and add effects to the audio.

1. In Audacity, click File > Open...
2. Ensure that the Open File window is pointing to **F:\cs1033\lab10\music**.
3. Select *Eye of Forgiveness.mp3* and push Open.
4. Repeat steps 1 to 3 again, this time opening *countdown.mp3*. This will open another window.
5. If you have the *act1* project still open from before, close it now. You should have 2 Audacity windows open: *Eye of Forgiveness* and *countdown*.
6. Listen through both tracks.
7. Go to *Eye of Forgiveness* in Audacity. Notice the start has about half a second of silence. Zoom in closely on the start of the track.
8. Use the Selection Tool (I-Beam) to select that silent half-second. It's ok to leave a tiny bit of silence before the music begins.

9. Hit the Delete key to remove the selected portion. (NOTE: if you ever accidentally delete a portion that you want back, you can hit Ctrl+Z to Undo it).
10. Click File > Save Project As. Save the project with the name *act2* in **F:\cs1033\lab10**.
11. Zoom back out so that you can see the entire song in the window without scrolling.

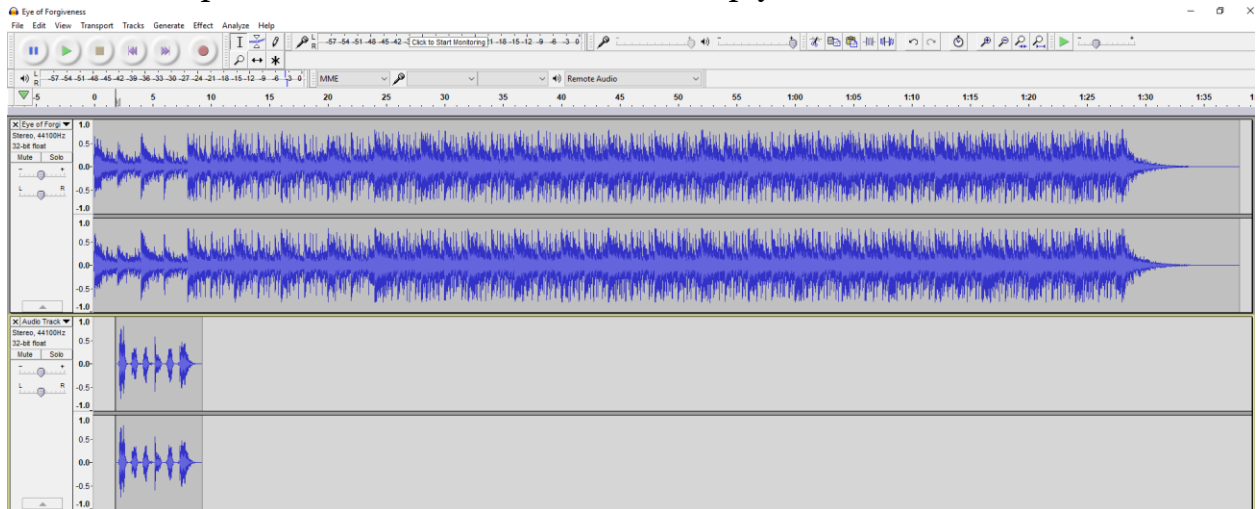12. Click Tracks > Add New > Stereo Track.
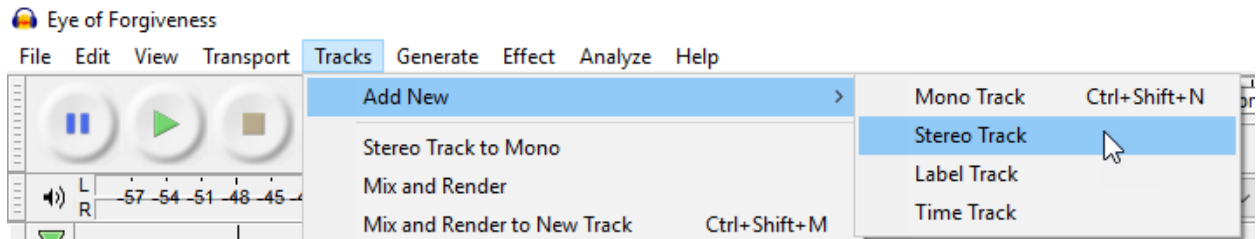
13. Go into *countdown* in the other Audacity window.
14. Hit Ctrl+A to select the whole countdown audio. Then hit Ctrl+C to copy (NOT cut) this audio.
15. Go back into *Eye of Forgiveness* and click into the new, empty stereo track below the song track near the beginning of the track.
16. Hit Ctrl+V to paste the countdown audio in this empty track.

17. Note that the countdown audio might not start on the very left edge. It pastes where your cursor was last clicked. It's not a problem because we will shift it shortly.
18. Click Play and notice how the tracks will overlap and play together. Just listen for 15 seconds and hit Stop.
19. Click the little Mute button on the left of the *Eye of Forgiveness* track.
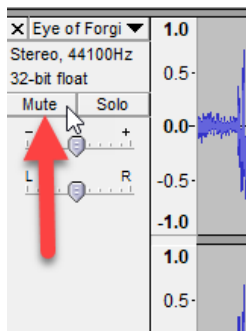
20. Push Play again.
21. Zoom in and pan to the end of the *countdown* track. After the voice says "Go", there is a second of silence. Highlight and delete that silence at the end.

9

22. Zoom back out and un-Mute the first track by clicking the same Mute button.
23. In the Editing Tools panel at the top, click on the Time Shift Tool (double-sided arrow icon). This tool is used to shift tracks to the left or right.
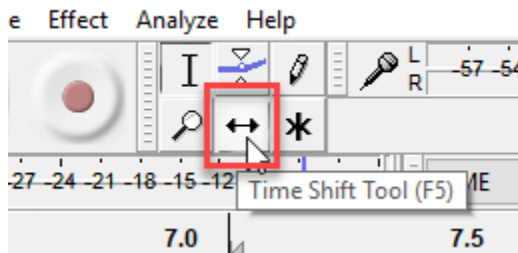
24. Click down on the *countdown* track and drag it to the left edge. (If it was already tight to the left, drag it to the right first and then back to the left). You should see a yellow vertical line flash along the left edge to indicate that it's locking the track into place at the very start. Let go of the cursor when it is tight to the left edge.
25. With the Time Shift Tool still active, click down on the *Eye of Forgiveness* track and drag it to the right so that it begins as soon as the *countdown* track ends.
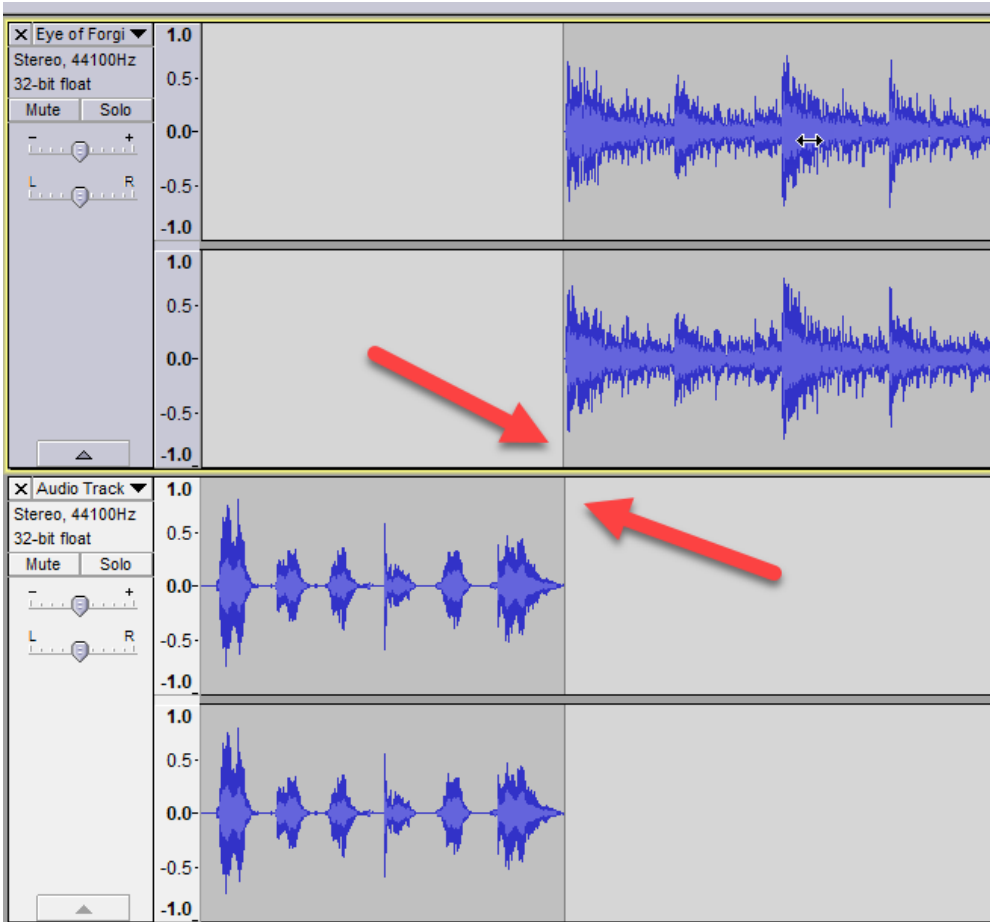

26. Push the *Skip to Start* button ( ) and push Play to listen through.
27. In The Editing Tools, switch back to the Selection Tool (I-Beam).

10

28. Look at the start of *Eye of Forgiveness* and highlight the first full second of it (doesn't have to be exact).
29. At the top, click Effect > Fade In. The highlighted portions will look like funnels.
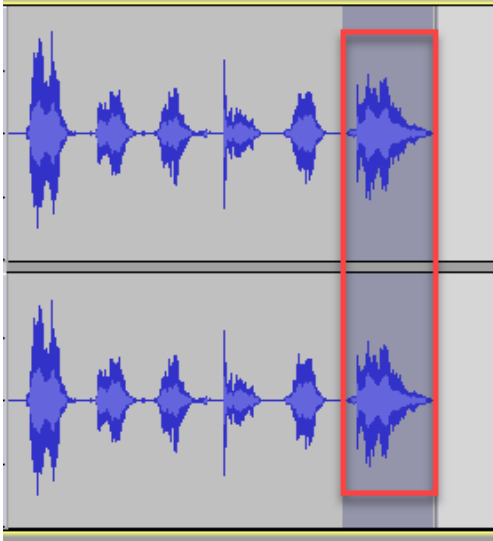

30. Switch to the Time Shift Tool and slide this track about 1 second to the left so that the faded in portion overlaps with the word "Go" from *countdown*.
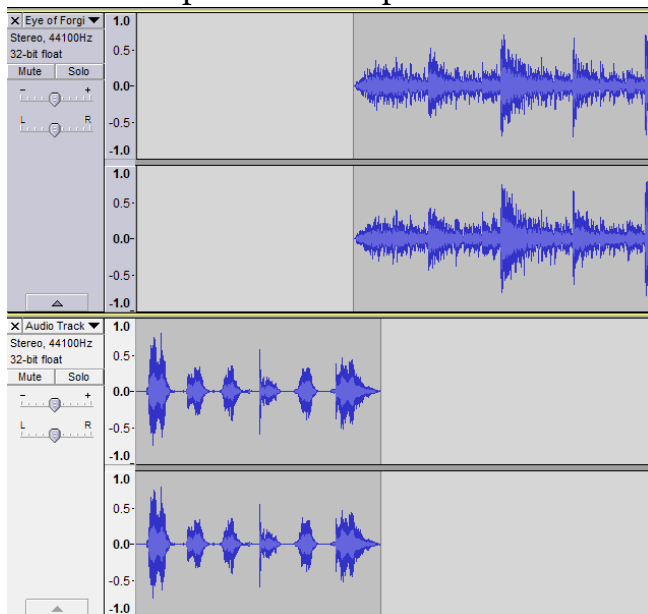
31. Select the Selection Tool again.

32. Highlight the ending of *countdown* where the voice says "Go".

33. At the top, click Effect > Echo.
34. In the Echo effect pop-up window, set the Delay time to 0.5 seconds and the Decay factor to 0.4 seconds. Push OK.
35. Click the *Skip to Start* button and push Play. You should hear the "Go" echoes a couple times as the music begins playing.
36. Save your work.

Activity 3
Exporting as MP3

The work you have done so far in this lab is just done in an Audacity Project file (.aup extension) which only loads within Audacity. To play a finished audio track in a normal media player (like Windows Media Player or iTunes), it has to be exported as a more universal file format, like MP3. In this activity, you will learn how to export as an MP3 and add metatags with track information, i.e. Track Name, Artist, Album, etc.

1. In Audacity, click File > Open.
2. Make sure the Open window is pointing to your **F:\cs1033\lab10\music** folder. Select *winter.mp3* and push Open.

3. Zoom in a few times on the track and click the *Skip to Start* button (   ) OR in the newer version (   ) as you zoom in to stay looking at the start of the track.
4. Select the first 2 seconds of silence and delete that part.
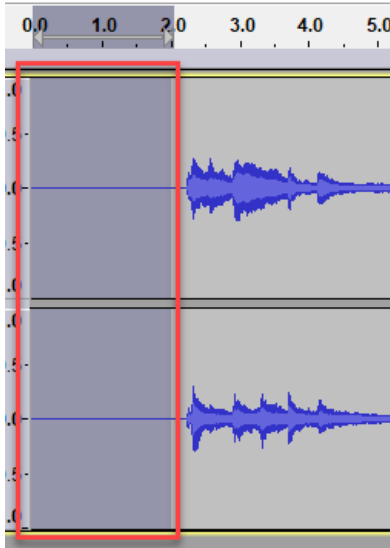
5. Push Play and listen to the first 10 seconds of the track, then Push Stop.
6. Hold the Ctrl key and hit the A key to select the entire track.

7. With the whole thing selected, click Effect > Change Pitch from the top menu.
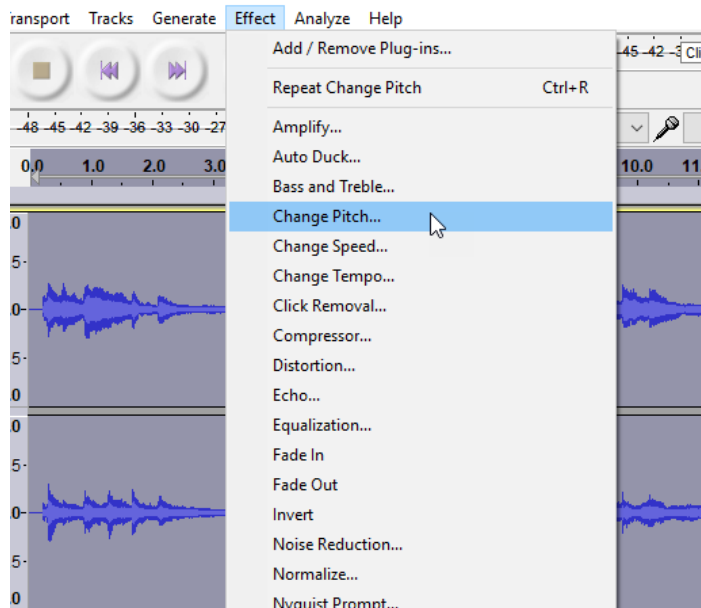
8. The Change Pitch pop-up window has a lot of little settings (some might appear different on your computer than what is shown here, that's not a problem!) but you can ignore most of it. The one thing you will be changing is the "Percent Change" slider bar near the bottom of the pop-up.
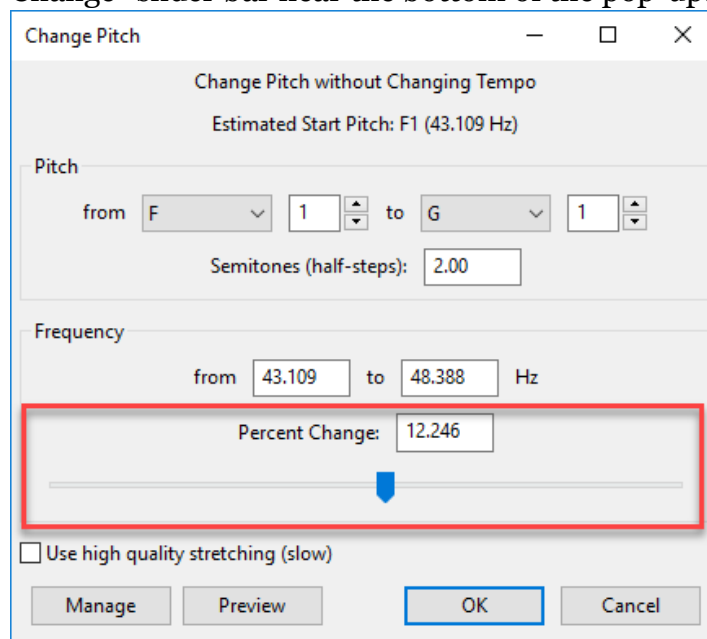
9. Click down on this slider and drag it to the left so that the Percent Change textbox shows about -50.000. This means we are making the track lower in pitch.
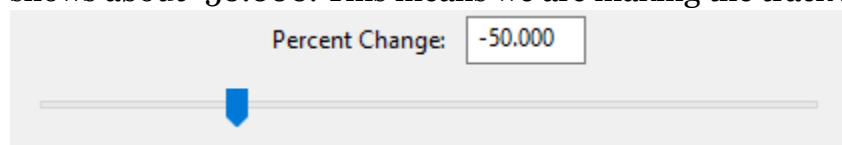
10. Push OK. It may take a few seconds to complete this action.

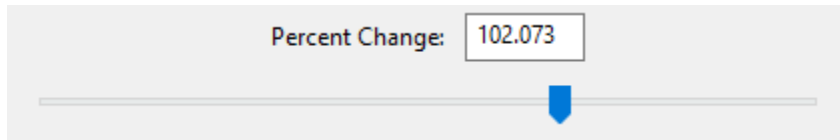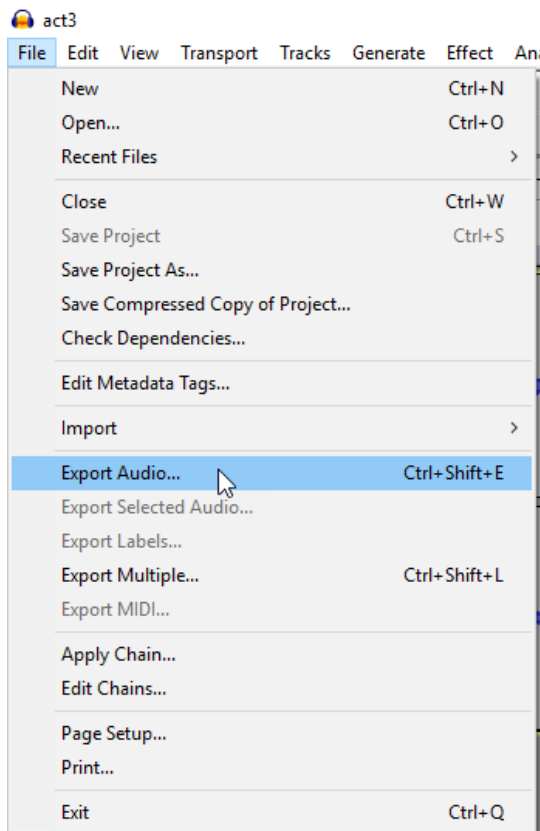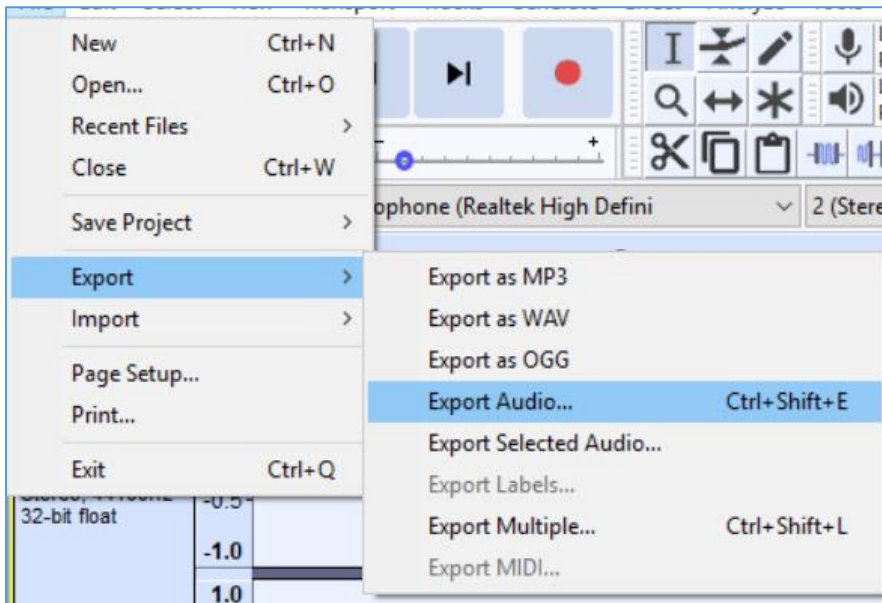11. Listen for about 10 seconds to hear that the song is now lower-pitched.
12. Push Stop. Then select the entire song again and click Effect > Change Pitch.
13. This time, drag the slider to the right so that the Percentage Change is close to 100.000. Push OK.

Percent Change: 102.073

14. Listen for about 10 seconds and notice the song will be higher-pitched.
15. Click File > Save Project As. Save the project as *act3* in **F:\cs1033\lab10**. (Remember that saving the project is important for editing the file in Audacity but this file is not playable by other programs.)
16. Click File > Export Audio.

🎧 act3

| File | Edit | View | Transport | Tracks | Generate | Effect | Ana |

| New | Ctrl+N |
Open...	Ctrl+O
Recent Files	>
Close	Ctrl+W
Save Project	Ctrl+S
Save Project As...	
Save Compressed Copy of Project...	
Check Dependencies...	
Edit Metadata Tags...	
Import	>
Export Audio...	Ctrl+Shift+E
Export Selected Audio...	
Export Labels...	
Export Multiple...	Ctrl+Shift+L
Export MIDI...	
Apply Chain...	
Edit Chains...	
Page Setup...	
Print...	
Exit	Ctrl+Q

or in the newer version

17. Make sure this Export window is pointing to **F:\cs1033\lab10\music**.
18. Name the file *act3* and change the Type to *MP3 Files*.

19. Push Save.
20. Audacity does not come with MP3 support by default so you MAY (NOTE YOU ONLY NEED TO DO THIS STEP IF YOU GET THE MESSAGE ASKING FOR THE LAME) see a message asking you to locate LAME, which is a library that is used for encoding MP3 files. Click Browse and you should find the file *lame_enc.dll* in your folder, i.e. **F:\cs1033\lab10\music**. Once you locate and select the file, push OK.
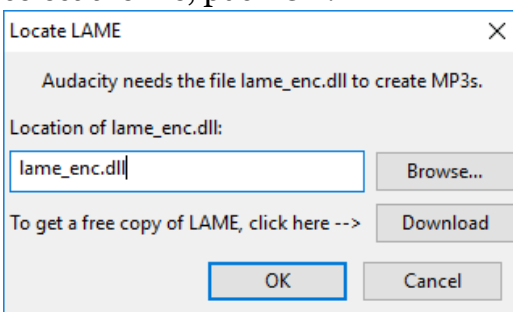
Note: If you plan to install Audacity at home, you must download the *lame_enc.dll* file.

21. Another window will pop up prompting you to enter the track's metatags. This is information about the track like the Artist, Track Title, Album, Year, Genre, etc.
22. Enter the following text in the specified tag categories:
    a. Artist Name: Melissa Thatcher & *YOURWESTERNID*
    b. Track Title: Winter

16

    c. Album Name: Large Case of Lemons

    d. Year: 2015

Edit Metadata Tags	
Use arrow keys (or ENTER key after editing) to navigate fields.	

| Tag	Value
Artist Name	Melissa Thatcher & JSMITH246
Track Title	Winter
Album Title	Large case of Lemons
Track Number	
Year	2015
Genre	
Comments	

23. Push OK. At this point, you may get the popup window Locate Lame, please see Step 20 above for instructions on what to do.
24. It may take 5-10 seconds to export the file.
25. Click File > Export Audio again.
26. Make sure the Export window is still pointing to your folder, i.e. **F:\cs1033\lab10\music**.
27. Name the file *act3* again, but this time, change the file Type to *WAV (Microsoft)*.
28. Push Save.
29. You will be prompted about the metatags again, but they will remember the ones you typed in for the MP3 just before, so you shouldn't have to re-type them now.
30. Push OK.
31. Open Windows Explorer and navigate to your folder, i.e. **F:\cs1033\lab10\music**. You should see your two exported *act3* files there with the metatag information listed.

| Name	#	Title	Contributing artists	Album
act3.wav		Winter	Melissa Thatcher & JSMITH246	Large case of Lemons
act3.mp3		Winter	Melissa Thatcher & JSMITH246	Large case of Lemons

32. Re-open your *act2.aup* file if it's not still open from before (this is the file in which you combined the spooky countdown at the start of Eye of Forgiveness).

   You will add a short audio clip at the beginning of the act2.aup track where you will record your voice saying "**YourFirstName YourLastName Presents**" **(ex. "Laura Reid Presents")**
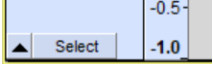
33. On the top menu bar, click Tracks>Add New>Stereo Track
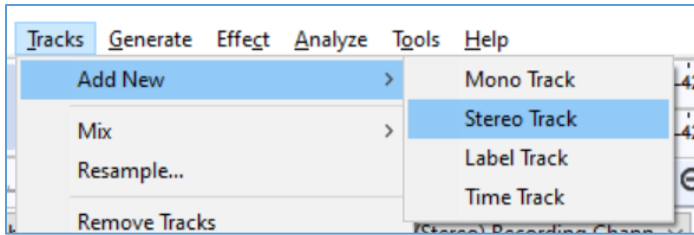
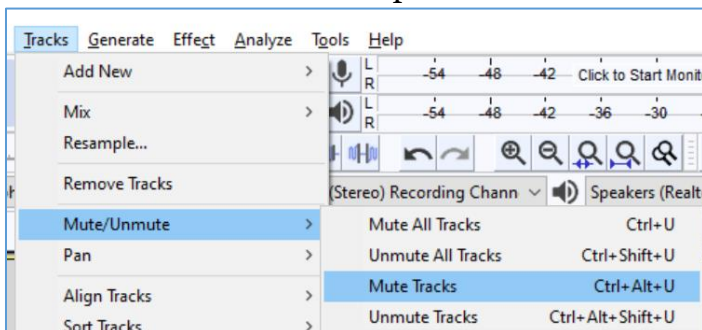You will notice that a new empty track has been added below the countdown track:
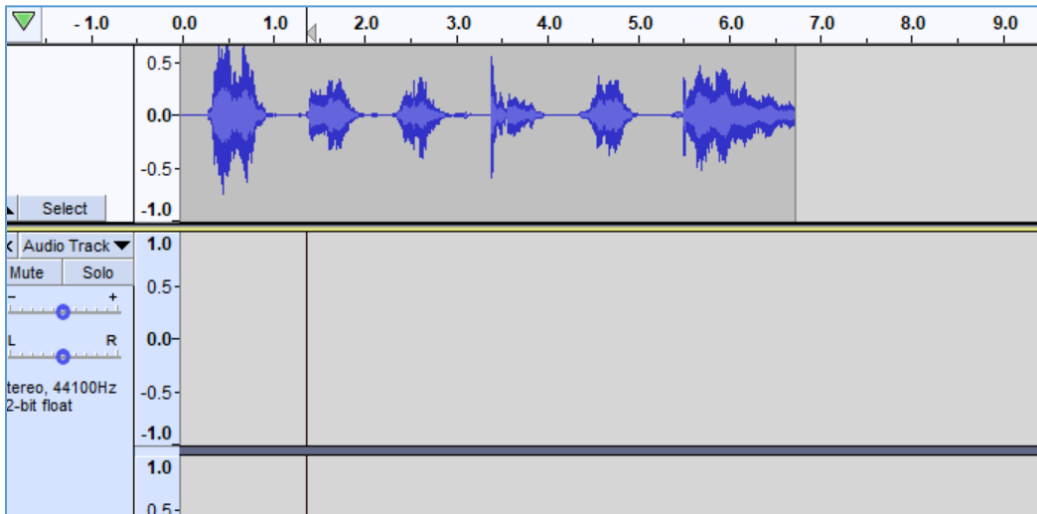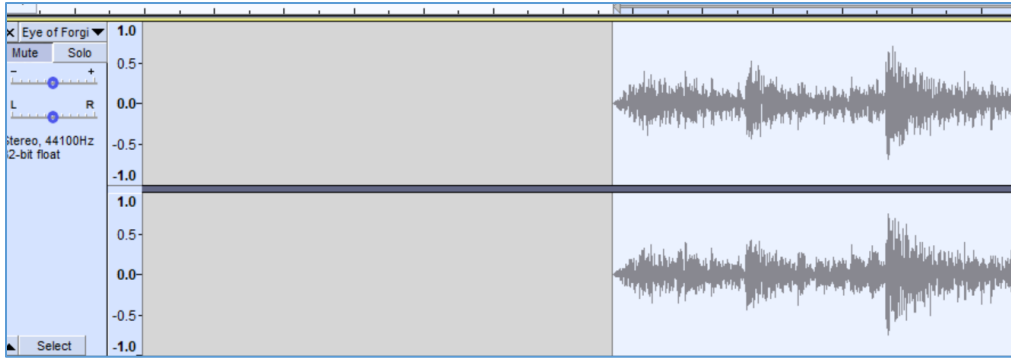

34. You need to mute the other two tracks to get a clear recording with no overlapping sounds. Mute each of the upper two tracks by first clicking on the

Select button that has an upwards pointing arrow beside it on each one and then on the top menu bar click Tracks>Mute/Unmute>Mute Tracks

You will notice the waveforms grey out.

Repeat the same for the second track.

35. Now click on the Select button for the third empty track below. Make sure the tracker is at the beginning of the new track. Hit the Record button on the top ( ) and record your voice saying "**YourFirstName YourLastName Presents**".

36. Once you are done recording press the Stop button . Now you will notice a waveform of your recording was created.
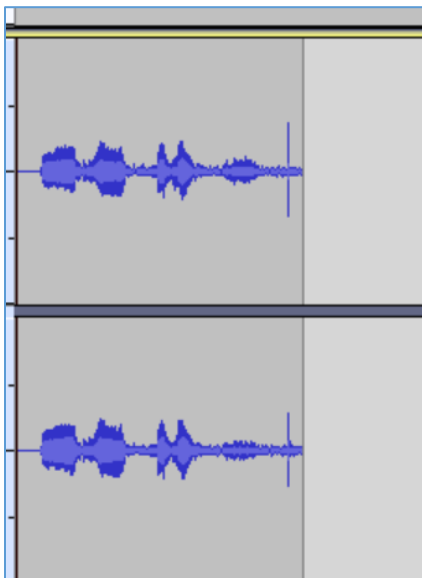
You can hear it by clicking on the beginning of this track and pressing the Play green button above.

37. Now move the other two tracks above to play after the recording. Use the Time Shift Tool on the upper bar to do so. Your tracks' alignment should appear like so:

38. Unmute all the tracks by clicking on Tracks>Mute/Unmute>Unmute All Tracks. All your tracks should now be blue colored instead of greyed out.
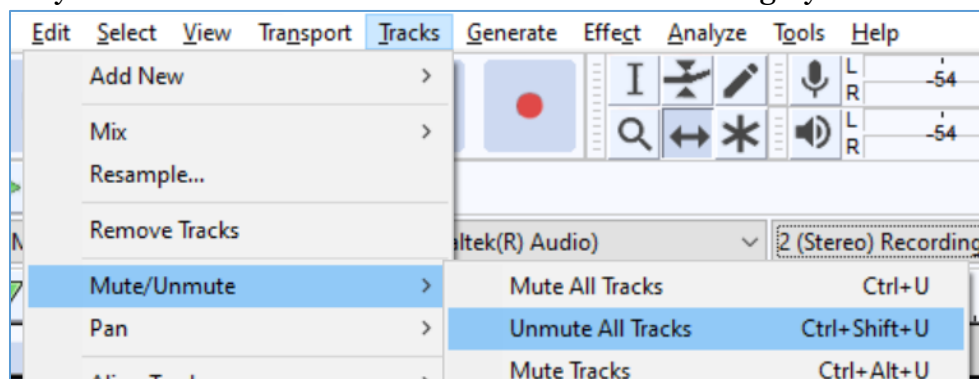
Play the recording to check everything sounds right.

39. Hit File > Export Audio like you did above.
40. Make sure you're in the **lab10/music** folder.
41. Enter the name *act2.mp3* and ensure that MP3 is the selected file type.
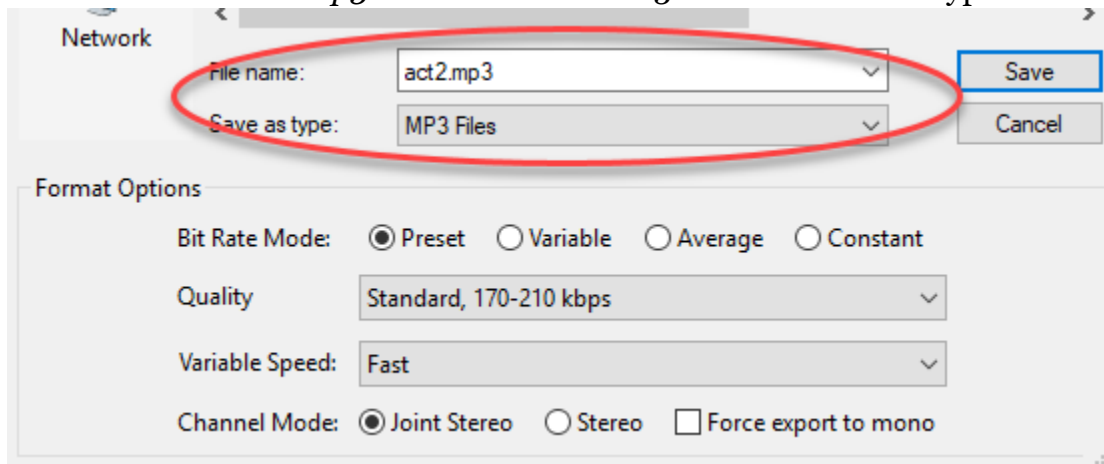
42. Hit Save. You might see a pop-up window telling you that the tracks will be merged together for the exported file; this is fine so hit OK.
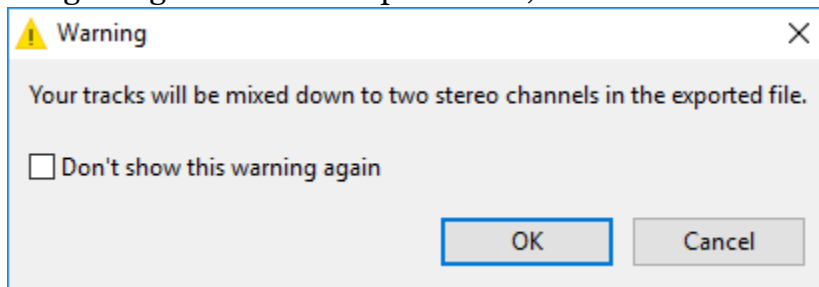
43. In the Edit Metadata pop-up window, there might be a lot of info already in place, but most of it is unnecessary. Keep the Artist Name, Track Title, and Year as they are (or enter them as shown in the screenshot if they're not in there by default) and delete the other tags.
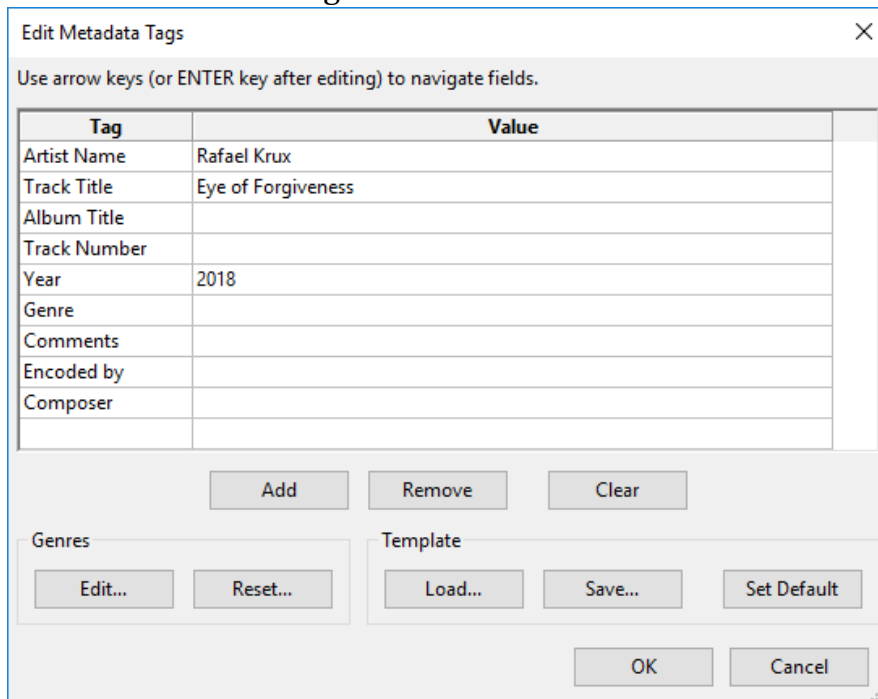
44. Push OK.
45. Go into your lab folder again and confirm that *act2.mp3* has been successfully exported there. This file will be used for another activity shortly.
46. Close all open windows of Audacity.

Activity 4
Loading a MIDI file

Electronic music, like that played on a keyboard or synthesizer, is often saved as a MIDI format. This is a lot different than standard digital files like MP3. In this activity you will learn how to import a MIDI file in Audacity and examine the note information visually.

1. Using the search tool, open Audacity again.
2. In Audacity, click File > Import > MIDI...

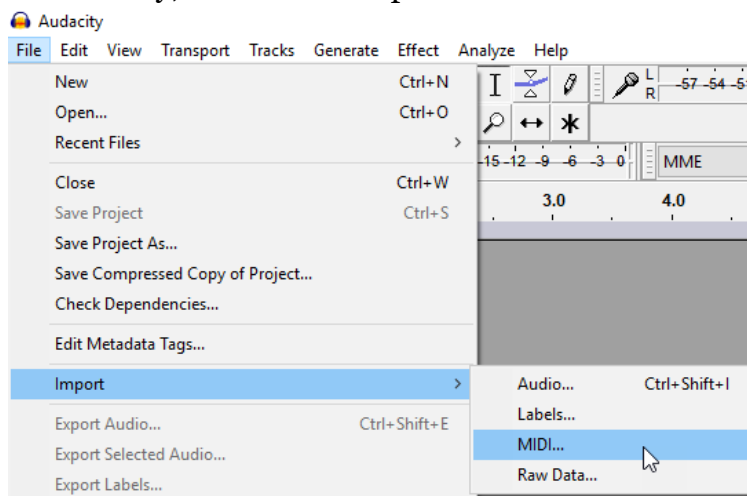

3. Make sure the Open MIDI pop-up window is pointing to your folder, i.e. **F:\cs1033\lab10\music**.
4. Select *yellowstone.mid* and push Open.
5. Notice the **Track Window** panel is VERY different looking with this file than it is with MP3 files because they store information about the notes played rather than samples.
6. Audacity cannot play MIDI files but just show the musical information. Try pushing Play and you will see that nothing happens. To listen to the track, go into the Windows Explorer (folder icon) and navigate to **F:\cs1033\lab10\music**. Right-click on *yellowstone.mid* and click Open with > Windows Media Player.
7. In the main track area, the red dashes indicate when notes are played, linked with the **Timeline** above. The dash size represents the amount of time the note is held for. The piano/keyboard on the left is a guide for which notes are played. Dashes near the top of the panel are high-pitched (treble) notes and those near the bottom are lower (bass) notes. You can only use Audacity to look at MIDI files, not to edit them so we will close this file now.
8. Close Audacity without saving the file.

# Activity 5
Embedding audio in a website

You have learned in previous labs how to build websites using https://html5-editor.net/ and how to embed multimedia files like animations and videos. In this final lab exercise, you will learn how to insert an audio file into a website using https://html5-editor.net/.

1. Go into the Windows Explorer (folder icon) and navigate to **F:\cs1033\lab10\music** and confirm that you have the *act2.mp3* file saved in there from a few minutes ago (exported in Activity 3).
2. Close Audacity if it's still open. You won't need it for this last exercise.
3. Open http://www.csd.uwo.ca/~bsarlo/cs1033/labs/lab10/ in Chrome.
4. Right-click on *act5_template.html* and save the file into your **F:\cs1033\lab10** folder.
5. In the Windows File Explorer, navigate back to **F:\cs1033\lab10**
6. Double click on it in Windows File Explorer to open it in Chrome (or whatever browser you are using). Look at the page. We are going to create the HTML code to add the audio file we created to the top right area of the page.
7. Go back to Windows File Explorer and right-click on *act5_template*.html and click on Rename. Type *act5* so that your file is now *act5.html*.
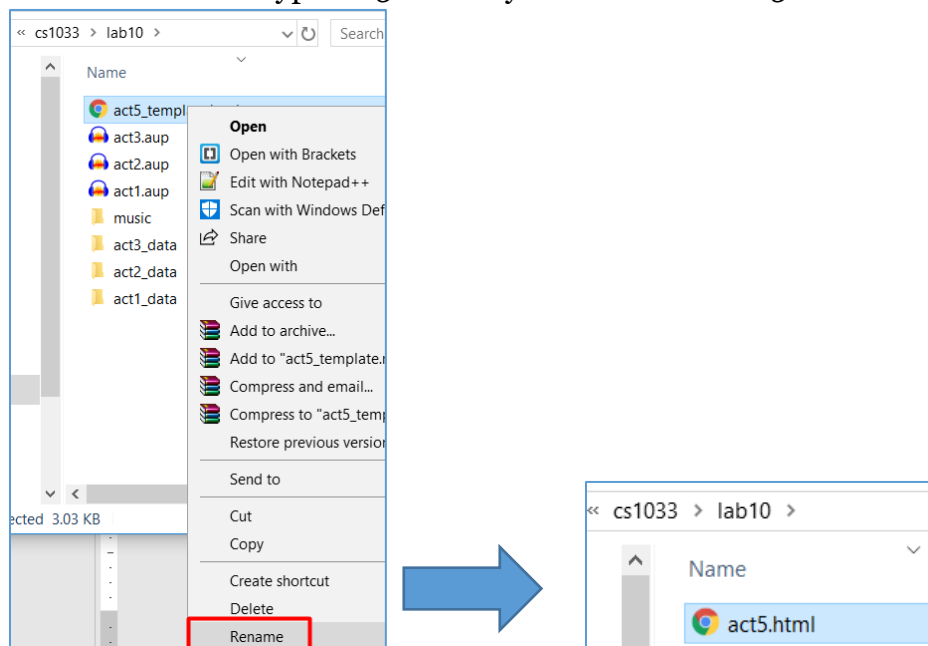

8. Next, we will add the media file created in Activity 3 (*act2.mp3*) into the webpage act5.html. In Windows File Explorer right click on **act5.html** select *Open with >Notepad.*

9. Highlight all the content between the tags <body> and </body>. Then hit Ctrl+C to copy the content selected. Leave **act5.html** open in Notepad as we go onto the next steps.
10. Use the Windows search tool (magnifying glass at the bottom of the Windows bar) to find and open Google Chrome browser.
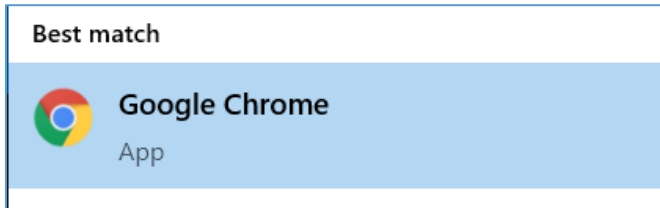
11. In Chrome's navigation bar type: https://html5-editor.net/
12. Click in the empty Code Panel. Ctrl+A to select all then Ctrl+V to replace whatever is inside the box with the new content (even if the box was initially empty).
13. Next, on the Visual Panel side, select View >Fullscreen.
14. Take a look at the webpage and especially at the two cells on the right side; one spot for the embedded audio player (it says ***INSERT AUDIO PLAYER HERE***), and one for the audio file links (it says ***INSERT LINKS HERE***).
15. Click in the upper-right content cell for the animation. Delete the text: ***INSERT AUDIO PLAYER HERE*** in the cell.
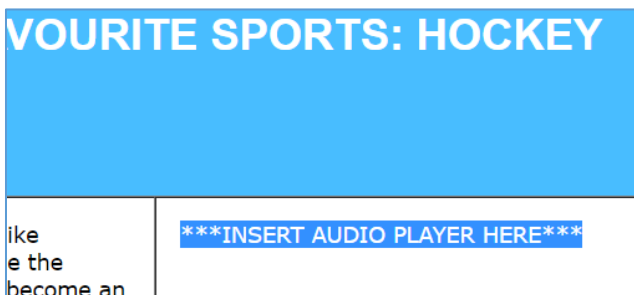
16. Leave your cursor in the area where you just deleted the text.
17. On the top bar, click Insert>Media
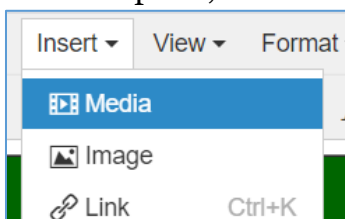
18. You are prompted to specify the audio file source on the Insert/edit media pop-up window. Click the textbox field beside *Source* and type *music/act2.mp3*. Notice that the location of *music/act2.mp3* is a relative path to the folder containing your **act5.html** file(*music* is the folder where you saved your Activity 3 mp3 files).

24

19. We also want the added audio to show the audio player controls (like play, pause, and volume). To do so, click on the same open Insert/edit media pop-up, click on the Embed tab. You will see the <audio> html element that belongs to *act2.mp3*. This code is what html5-editor will add to the Code Panel.

20. Find the controls attribute. Notice "controls" attribute is already added by html5-editor. This attribute will show the audio controls. Make sure the src attribute is "music/act2.mp3" and NOT "act2.mp3" because remember you saved your mp3 files in the *music* folder.

21. Push Ok. For now, this is what you will see:

22. The audio file will now be embedded in the upper-right content cell of your webpage.

23. Click in the cell below this (the lower-right content cell) and delete the text: ***INSERT LINKS HERE*** in the cell and leave your cursor in this location.

24. Type the text: "Download audio file".

25. Highlight this line of text you just typed.

25

	Download audio file

26. Click the Insert>Link.
27. Beside the Url textbox, type *music/act2.mp3*. The URL is relative to the page **act5.html** location.
28. Push Ok.
29. In the banner "FRANKIE'S FAVOURITE SPORTS: HOCKEY", change the word FRANKIE'S to your **First Name** (example **LAURA**'S FAVOURITE SPORTS: HOCKEY").
30. Save your work so far by exiting Fullscreen mode, then copying and pasting the html code from the Code Panel to the open **act5.html** Notepad file. Make sure you select the content between <body> and </body> and hit Ctrl+V. Then Click File> Save on the open Notepad.
31. Navigate back to **F:\cs1033\lab10**. Open **act5.html** with Chrome.
32. Click the play button to listen to the track in the embedded audio player (just test that it works, you don't have to listen through all of it!).
33. Click the audio file link. This will open it in the browser tab to play the track.

34. This concludes the final lab → Congratulations!

Uploading Lab10 Folder

Now we are going to upload your Lab10 activities to a webserver to make sure they actually work.

1. Use the Windows search tool (magnifying glass at the bottom of the Windows bar) to find and open WinSCP. You will be connecting to the Gaul server to upload the webpage to a webserver in order to test the webpage you just created on the World Wide Web and make sure it looks correct.
2. Enter the following information into WinSCP:
   a. File protocol: SFTP
   b. Host name: cs1033.gaul.csd.uwo.ca
   c. Port number: 1033
   d. User name: Your Western User ID
   e. Password: Your Western Password
3. Click Login.

4. When connected, you should see your lab01-lab09 folders (called a directory in WinSCP) that you created a few weeks ago on the Remote side (right panel). On the Remote side (the right side), create a new directory (folder) called **lab10**. And in the remote **lab10,** create a sub-folder called **music.** Make sure these folders have Permissions set to 0755. This is usually the default, but if, for some reason it's different, change it to 0755 now.
5. Click into the **lab10** folder.
6. In the Local side (left panel), navigate to **F:/cs1033/lab10** (or the location where your cs1033/lab10 folder is located). Select **act5.html** created from your Lab10 work and drag it across to the Remote side to upload it.
7. On the Remote side click into the **music** folder.
8. Navigate to **F:/cs1033/lab10/music.** Select **act2.mp3, act3.mp3 and act2.wav** created from your Lab10 work and drag it across to the Remote side to upload it.
9. Open a new tab in Google Chrome and check that the following websites are working as they should and are downloadable:
   a. http://cs1033.gaul.csd.uwo.ca/**~youruserid**/lab10/music/act3.mp3
   b. http://cs1033.gaul.csd.uwo.ca/**~youruserid**/lab10/music/act3.wav
   c. http://cs1033.gaul.csd.uwo.ca/**~youruserid**/lab10/music/act2.mp3
   d. http://cs1033.gaul.csd.uwo.ca/**~youruserid**/lab10/act5.html

   where **youruserid** is your own Western username.

Lab10 OWL Submission

1. In your Internet browser, go to https://owl.uwo.ca and login with your UWO username and password.
2. Go to your CS1033 OWL site.
3. On the left-side panel, click on **Week By Week**. Click on the **Week 10** button, then click on the **Lab 10** button, this will take you directly to **the Lab 10** submission area in Owl.
4. In the textbox under Submission, copy and paste your submission link which is:
   a. http://cs1033.gaul.csd.uwo.ca/~**youruserid**/lab10/music/act3.mp3
   b. http://cs1033.gaul.csd.uwo.ca/~**youruserid**/lab10/music/act3.wav
   c. http://cs1033.gaul.csd.uwo.ca/~**youruserid**/lab10/music/act2.mp3
   d. http://cs1033.gaul.csd.uwo.ca/~**youruserid**/lab10/act5.html
5. Click on Submit.

Remember to save all your Lab10 folder on your backup memory stick or cloud storage!

Good Luck on the final exam!