

AUDACITY A BEGINNER'S GUIDE

by

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WHAT AUDACITY CAN DO

- Record audio from a microphone, through the computer's sound card, from a line in or from a CD
- Import existing audio tracks stored on a computer in .MP3 or .WAV format (and a few other formats like .AIFF and .OGG but you don't really need to worry about these)
- Process audio - i.e. add a variety of effects (know as digital signal processing - DSP)
- Edit audio - e.g. fade in/out, cut/paste etc.
- Multitrack - i.e. record many layers of audio

WHAT AUDACITY IS NOT SO GOOD AT

- Multitracking to a precise beat - i.e. if you multitrack you really have to try and play in time. Audacity records in real time not in beats and bars.

WHAT AUDACITY CAN'T DO

- Import WMA files (music ripped from Windows Media Player below V.10)
- Import MP4 files (usually music ripped from iTunes)
- Play or edit MIDI files

SOME POSSIBLE USES OF AUDACITY

- Record the music of a class/individual pupils/school concerts etc. and exporting as an MP3 or .WAV file. This can then be burned to an audio CD, put on a website, used in Powerpoint presentations etc.
- Record short sound samples and add digital processing to create new, weird, interesting sounds
- Edit a long recording (e.g. a recording of a school concert) by cutting out the bits in between items and exporting each item as a separate CD 'track'
- Transpose a recording of a backing track
- Import existing music (e.g from a CD) and edit as above
- Record whatever passes through the computer's soundcard (e.g. recording programmes from internet radio or sounds from websites that can't normally be downloaded)

DOWNLOADING AND INSTALLING AUDACITY

Audacity can be downloaded (free) from: www.audacity.sourceforge.net

Once downloaded simply click on the Audacity icon  to run the programme.

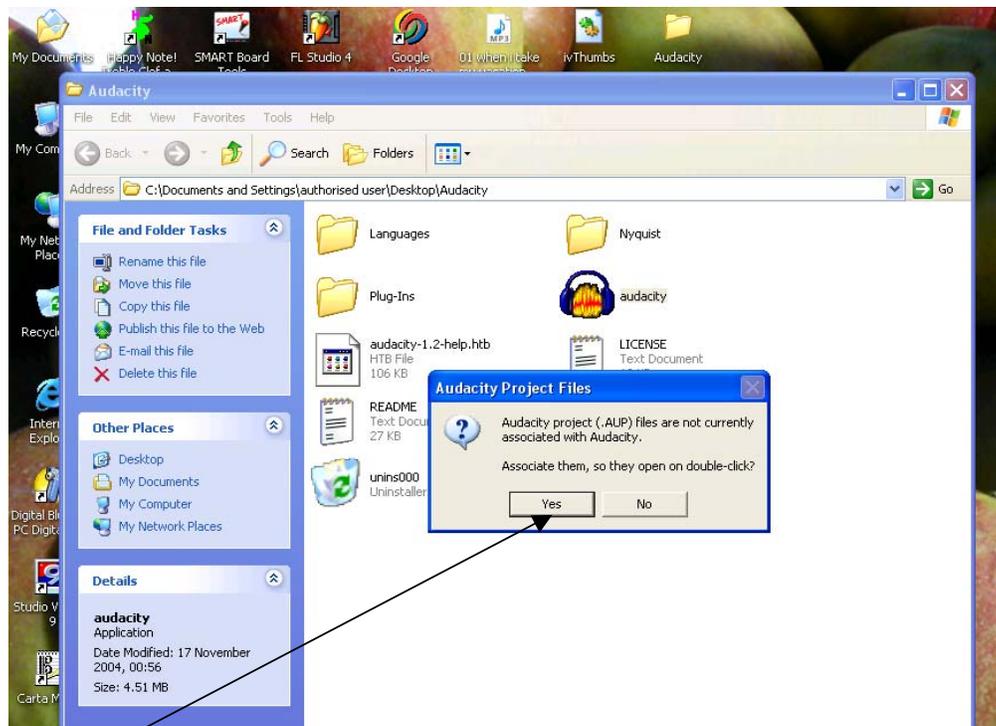
By right clicking you can add the icon as a short cut on the desktop ('send to desktop - create shortcut')

When running Audacity for the first time there will be 2 prompts:

1. Language

Click 'yes' for the language (make sure it says English)

2. Audacity project association



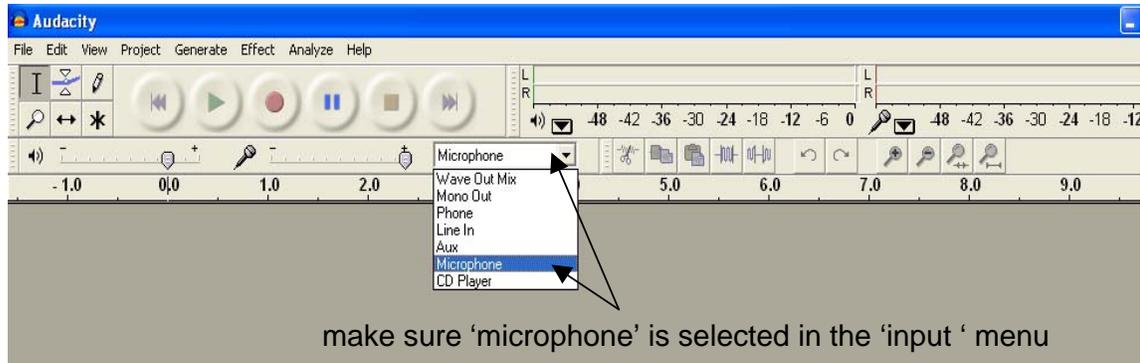
Click 'yes' to associate project files with Audacity. This means that project files can be opened directly with a double click (like Word documents etc.). If 'no' is selected then Audacity must be opened first and the required file opened via Audacity's file menu. (No big deal but just takes a bit longer).

1. RECORDING AND IMPORTING SOUNDS

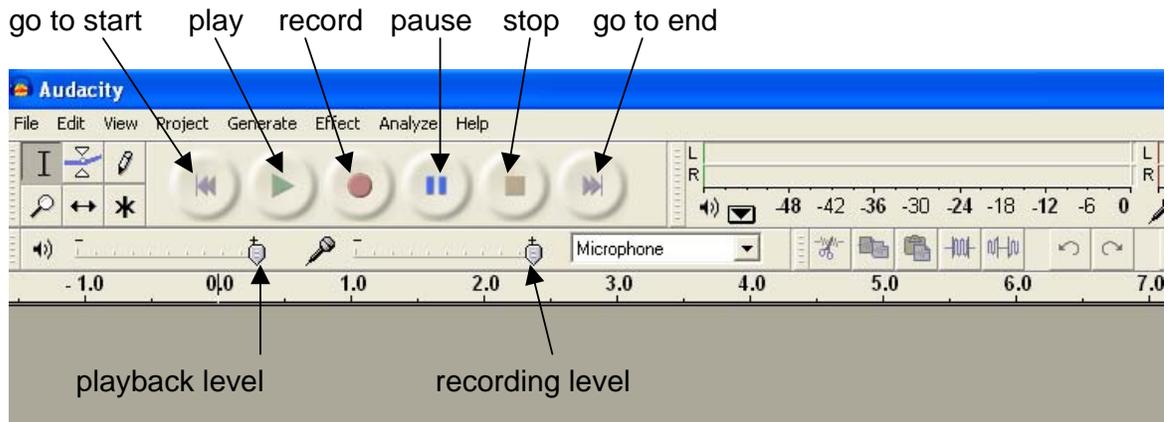
1.1 RECORDING VIA A MICROPHONE

Connect a microphone to the computer's microphone input (usually coloured red or has a microphone symbol next to it). The microphone will need to have a small connector (1/8 ") similar to the size of the earphone connector for an MP3 player. If you have a microphone with a larger connector (1/4 ") then you will have to buy an adaptor - available from most electrical retailers.

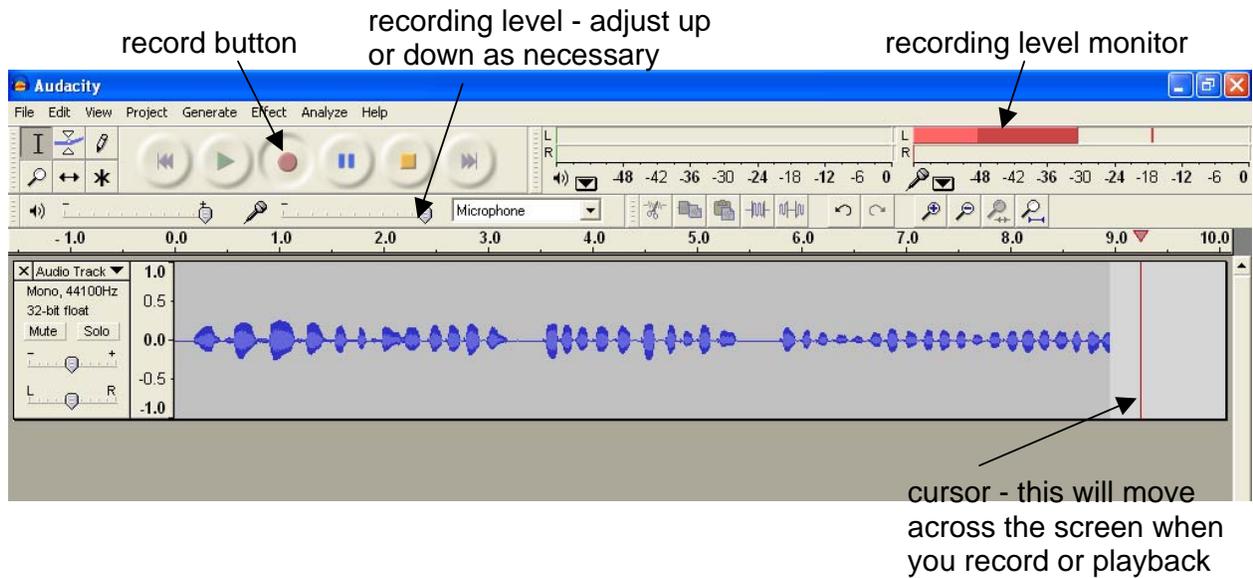
Ideal microphones are those intended for computer use which can range in price from about £1 to £10 or those for use with minidisk recorders (about £65). These can also be bought from most electrical and computer retailers.



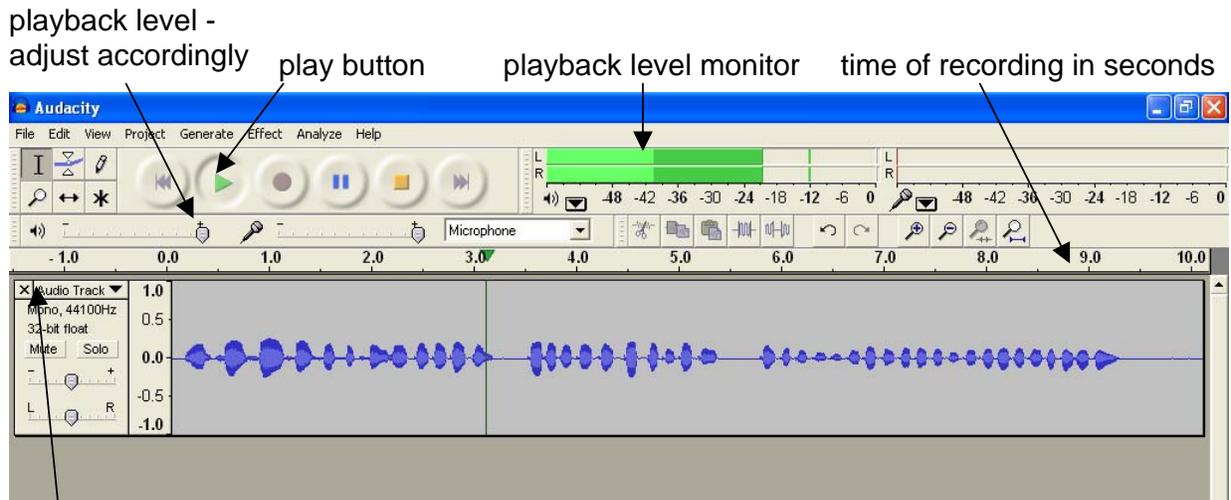
Basic 'transport' and recording/playback controls:



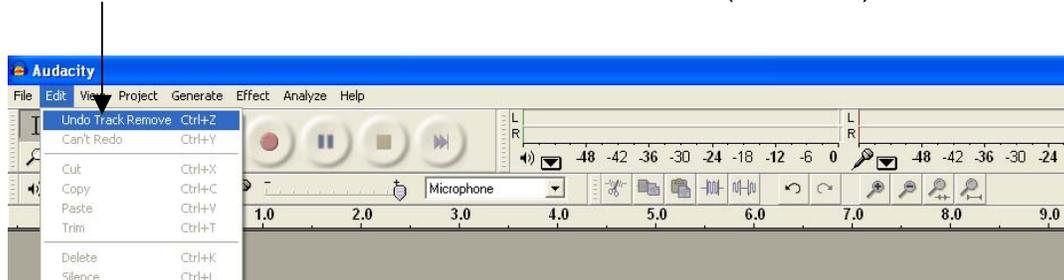
To record, simply click on the 'record' button and recording will start immediately.



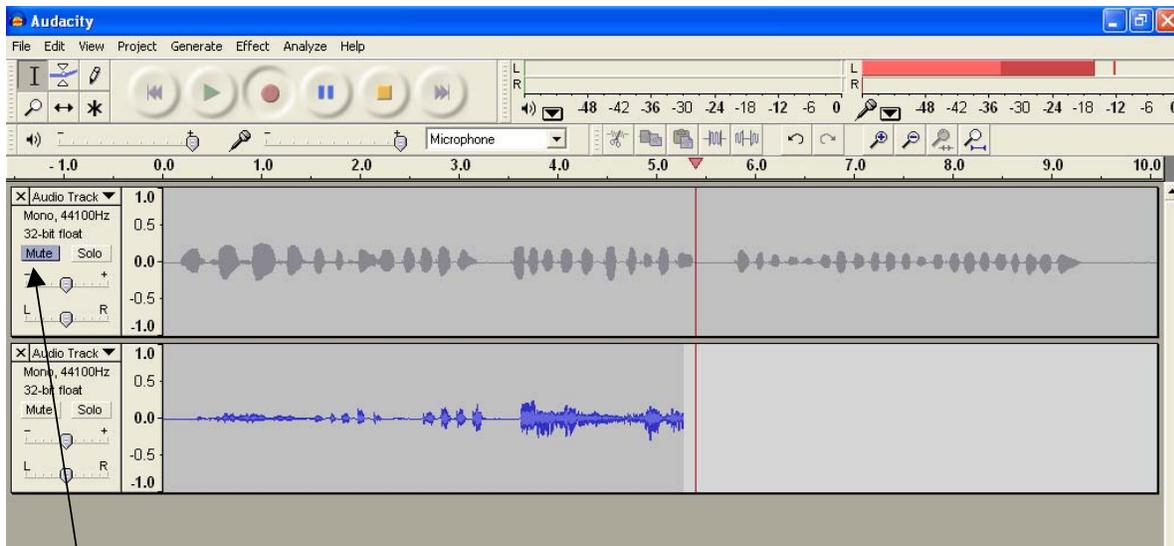
When recording is complete click on the 'stop' button and then click on 'play' to hear the track.



If the recording needs to be deleted click 'stop' then click the small X in the top left corner of the track. This does not delete the track for ever. If you change your mind and want to retrieve it then click on 'edit' on the menu bar and choose 'undo track remove'. Almost all actions can be undone (or redone) like this.



If you want to record another track in addition to the first one then simply click on record again and a new track will appear.



mute button

It's worth noting that when recording the second track the first track will playback so, if the speakers are set quite loud, the first track will also be picked up by the microphone when recording the second track. If you don't want this then ideally get the performer(s) to wear headphone(s) when recording the second track.

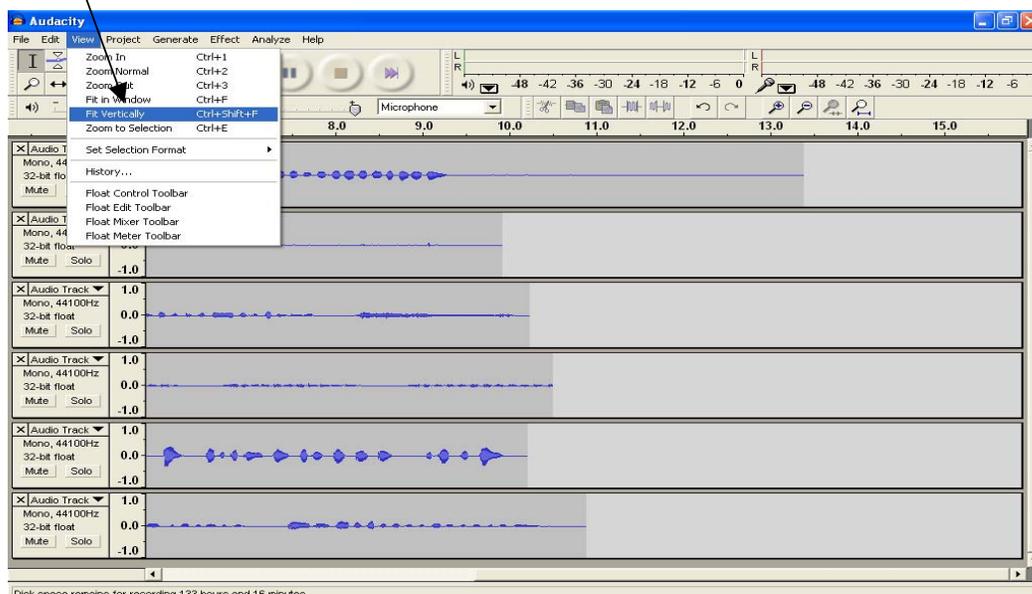
Alternatively, if exact synchronisation is not important you can always mute previous tracks by clicking on the 'mute' button.

In the picture above the first track has been muted (grey instead of blue).

n.b. to the right of the mute button is the solo button. If this is activated then only this track will play (useful for muting all other tracks with a single click).

The recording process can be repeated as many times as you like - there are no limits to the number of simultaneous tracks.

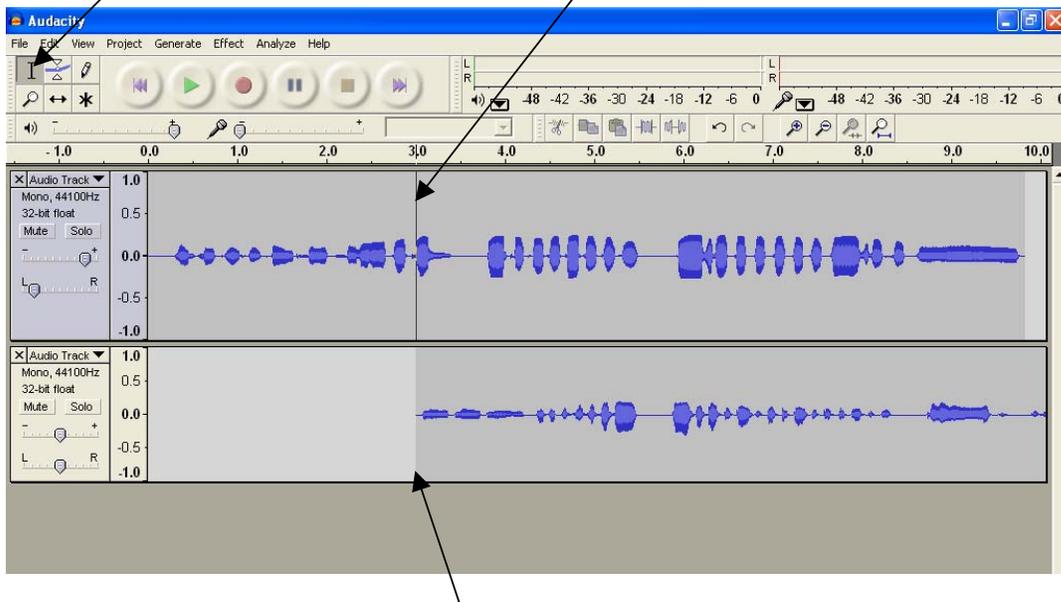
If you record more than 4 tracks then they will start to disappear off the screen. However to see all tracks at once click on 'view' on the menu bar and select 'fit vertically'.



When recording multiple tracks, recording normally takes place from the beginning. However if you want to add a new recording from a point other than the beginning then set the cursor at the point where you wish to record from.

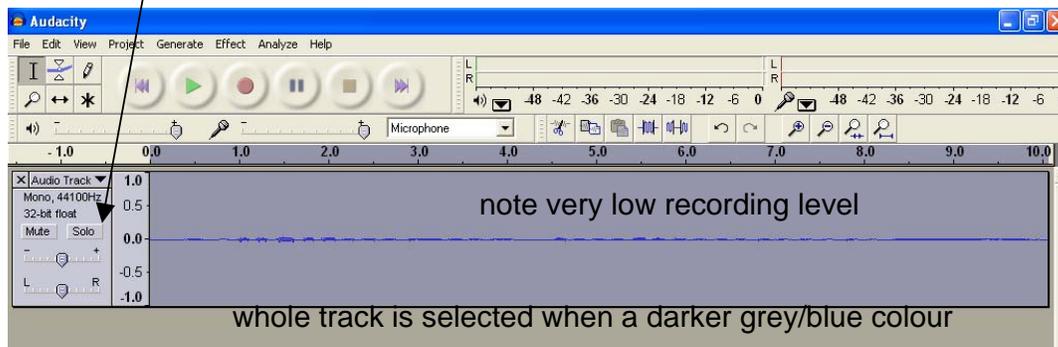
selection tool (I) - Audacity always starts up with this tool pre-selected

Set cursor simply by clicking with the selection tool (I) in the grey area

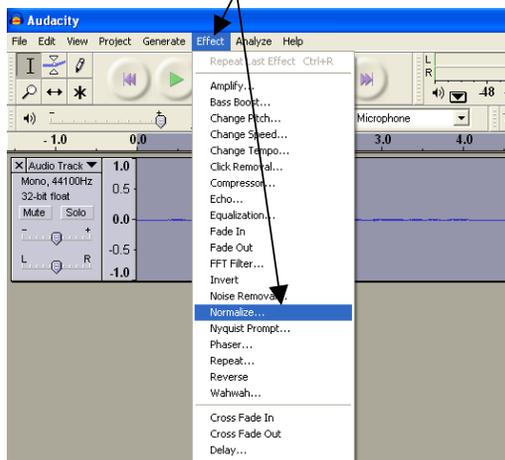


When 'record' is clicked the new track will begin recording from the cursor

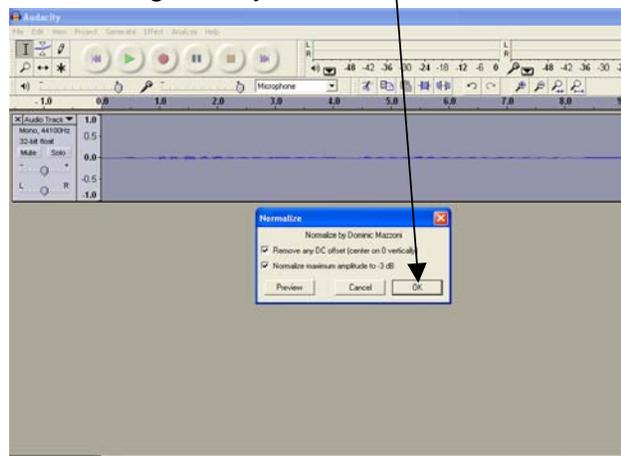
If a track is recorded and the level is very low, then this can be boosted by the process of 'normalisation'. To normalise a track make sure the whole track is selected (the easiest way to select a single track is to click in any blank grey area at the beginning of the track (the track info box)).



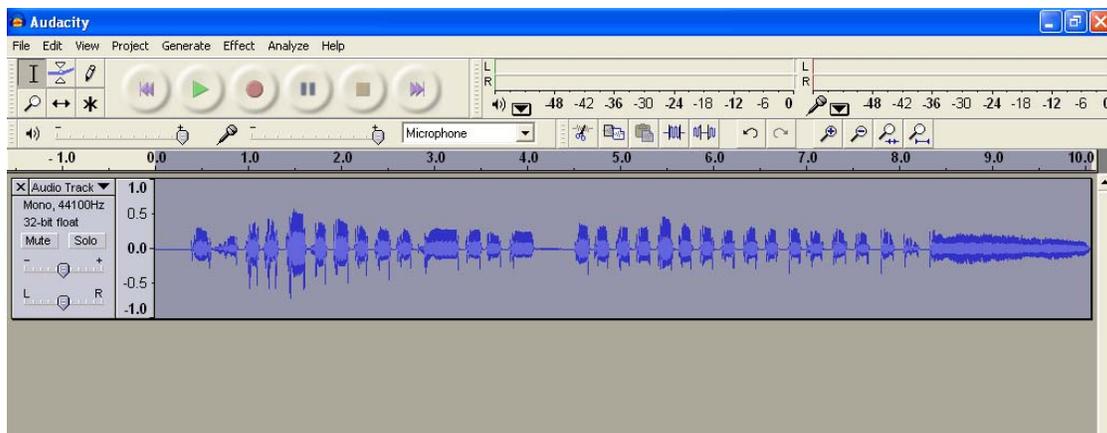
Then click on 'effect' on the menu bar and select normalise.



In the pop up dialogue box ignore the settings and just click OK.

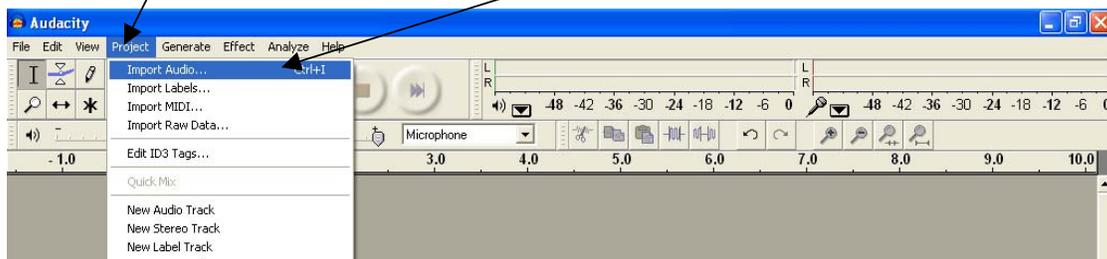


Notice how much bigger (louder) the waveform is after normalisation. Don't forget this will also make any other sounds, such as hiss, much louder as well.



1.2 IMPORTING EXISTING AUDIO

To import existing audio (like a soundfile or CD track already on your computer) click on 'project' on the menu bar and select import audio.

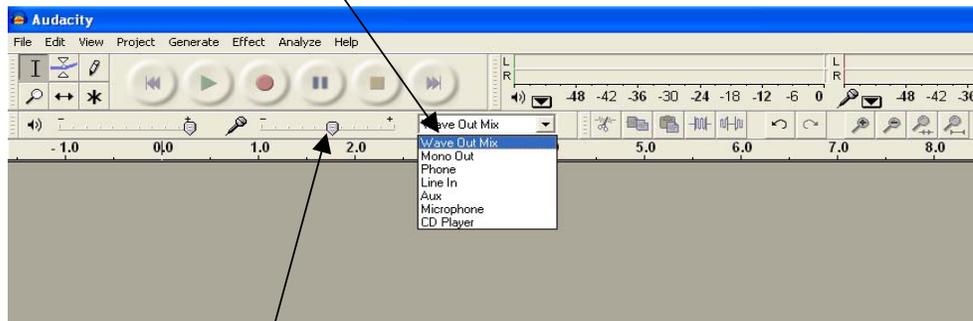


A browser window will then open for you to locate the audio file you want to import.

This must be a .MP3 or .WAV file. If you have Windows Media Player V10 or above (or iTunes) then the 'rip format' must be set to either of these file types to import a CD track into Audacity.

1.3 RECORDING FROM THE INTERNET

To record sounds from the internet (like sounds on a website or radio stations) set the record input to wave out mix.



Adjust the recording input (this will probably have to be a lot lower than recording from a microphone). Click on record as normal while the radio station etc. is playing and Audacity will record whatever you are hearing.

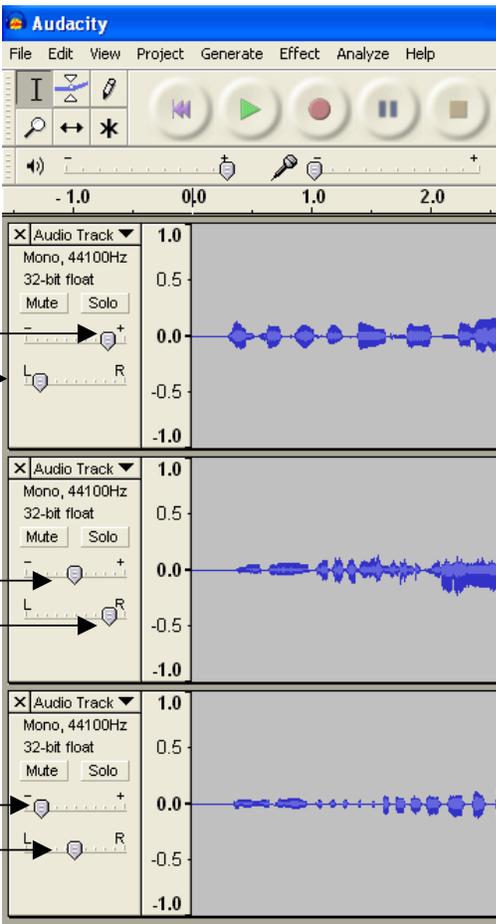
2. EDITING AND MIXING

2.1 RELATIVE VOLUME LEVELS AND PANNING

All basic editing is the same wherever the sound source has come from (microphone, imported audio, internet).

Multiple tracks can be balanced in volume by using the individual track volume controls. i.e. if one track needs to be quieter or louder than another.

Individual tracks can also be 'panned'. If you are playing back through stereo speakers (which is normally the case) then the output volume of each track can be directed more to the left or right speakers or both equally (centre). Panning can give the recording a sense of space (e.g. two voices calling to each other across a room)



The screenshot shows the Audacity interface with three audio tracks. Each track has a volume control knob and a panning control knob. The volume controls are set to 1.0 for Track 1, 0.5 for Track 2, and 0.2 for Track 3. The panning controls are set to -1.0 for Track 1, 1.0 for Track 2, and 0.0 for Track 3. The tracks are labeled as 'Audio Track' and show a waveform. The volume and panning controls are labeled with 'L' for left and 'R' for right.

track 1 high volume
and panned to the left speaker

track 2 'normal' volume
and panned to the right speaker

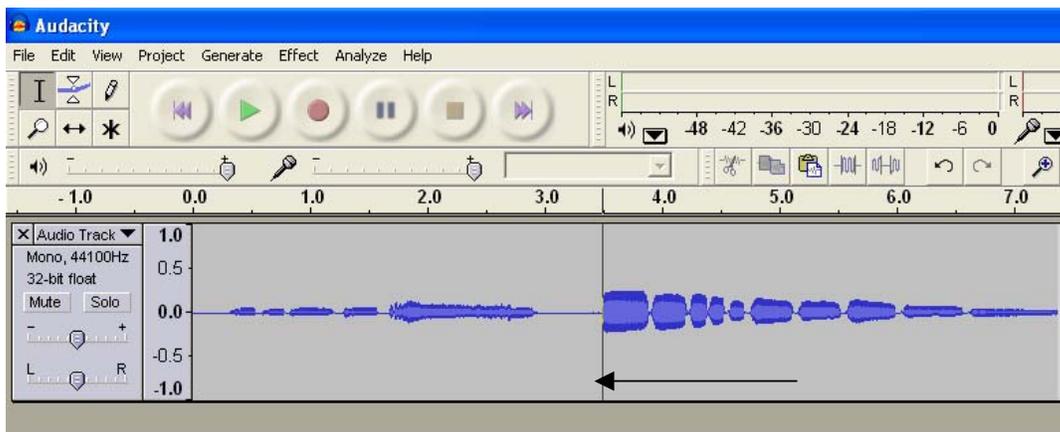
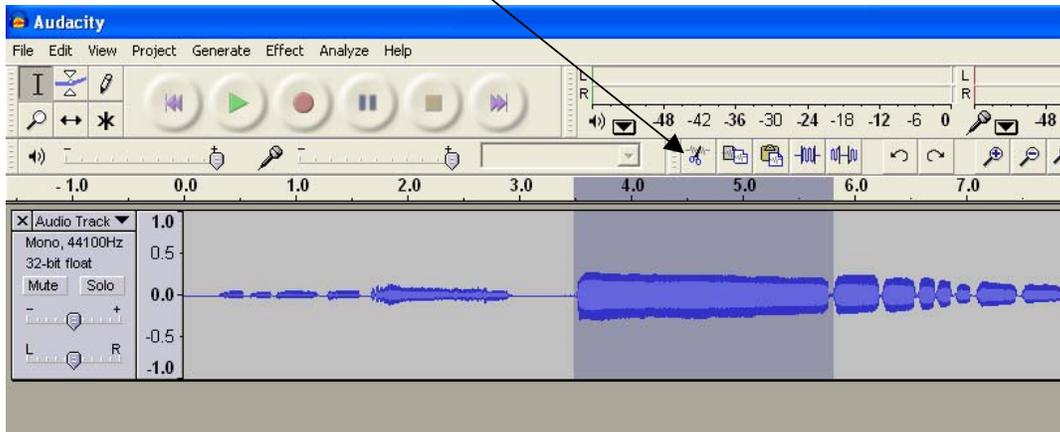
track 3 low volume
and panned to the centre

2.2 REMOVING UNWANTED PARTS OF A RECORDING

There are various ways of doing this.

(a) to completely remove a section

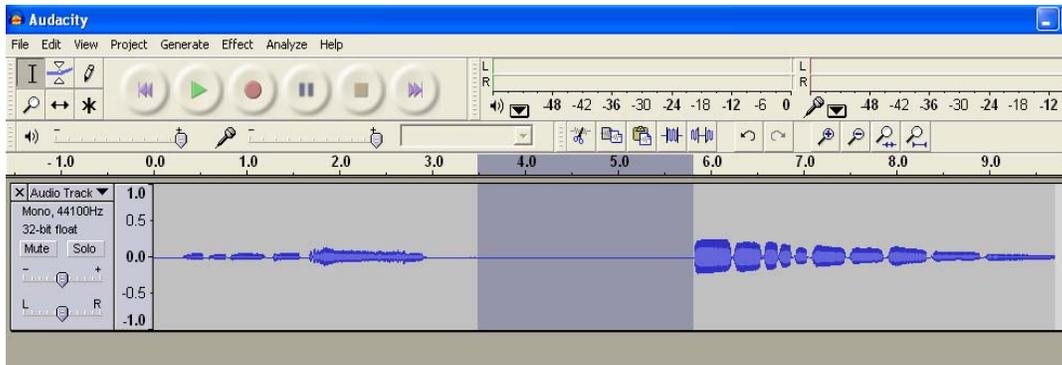
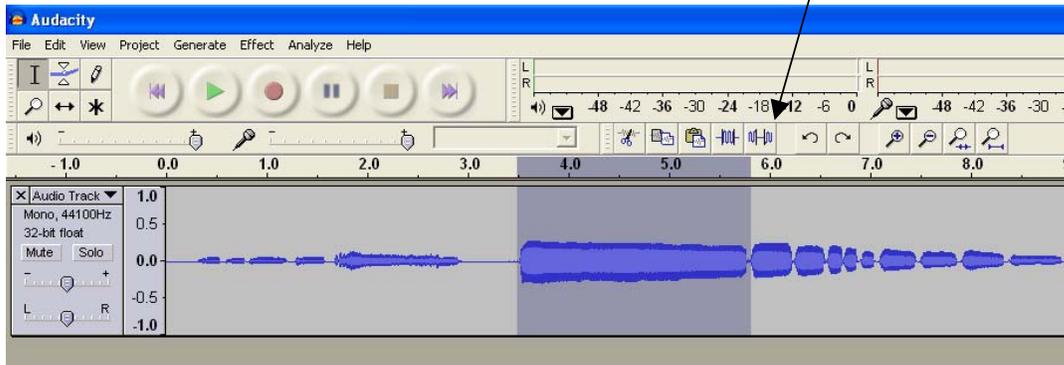
Click and drag the selection tool (I) over the part of the recording you wish to remove and then click on the 'scissor' tool.



This completely cuts out the section. The following part of the recording will be moved back to join the previous part.

(b) to silence a section

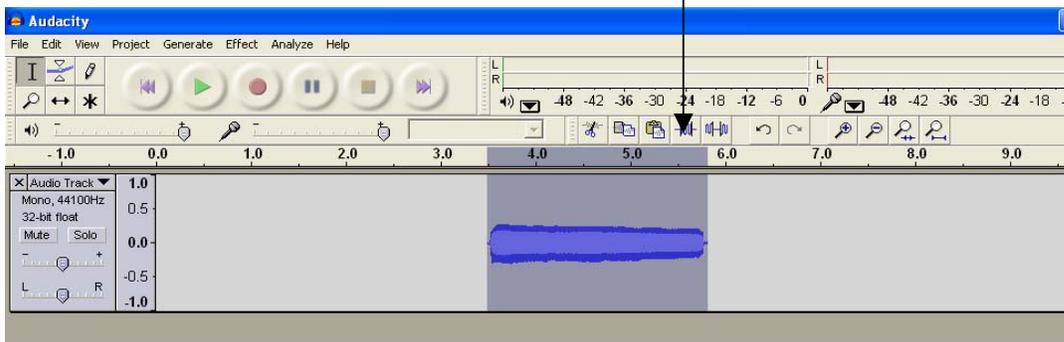
Select the part of the recording as before but click on the 'silence selection' tool.



The selection is silenced but not removed.

(c) to remove the unselected parts

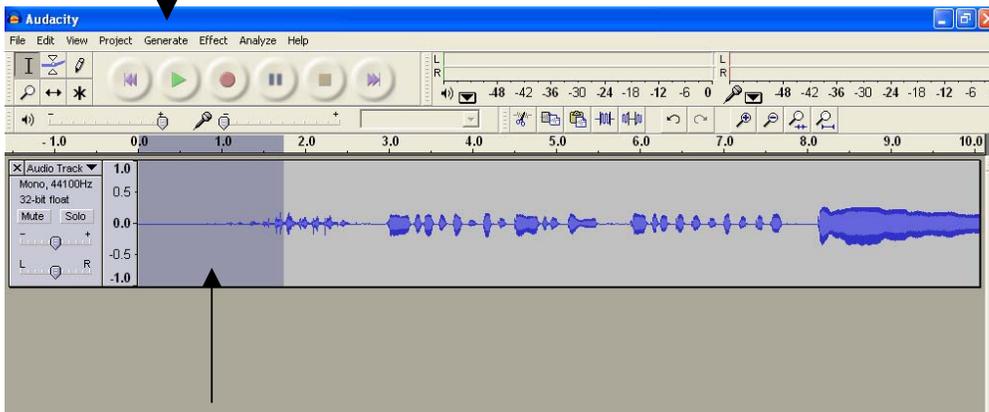
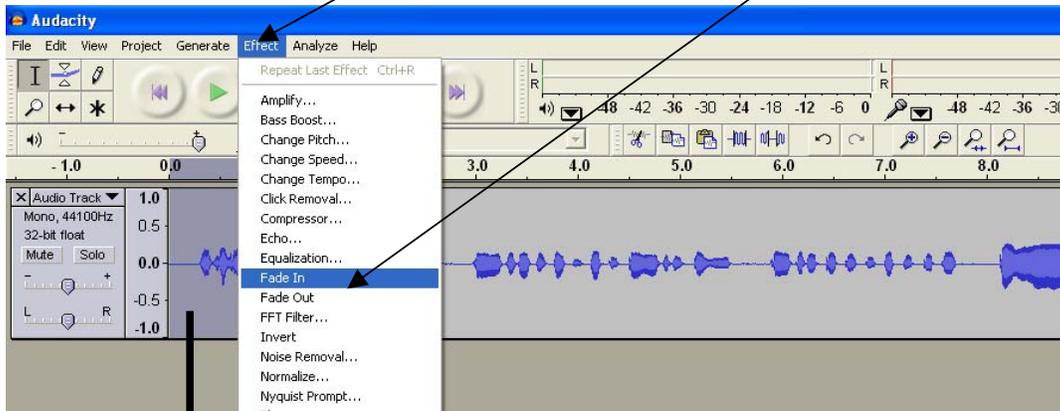
Proceed as before but click on the 'trim outside selection' tool.



The selected part of the recording is left by itself at the point in time where it was originally recorded.

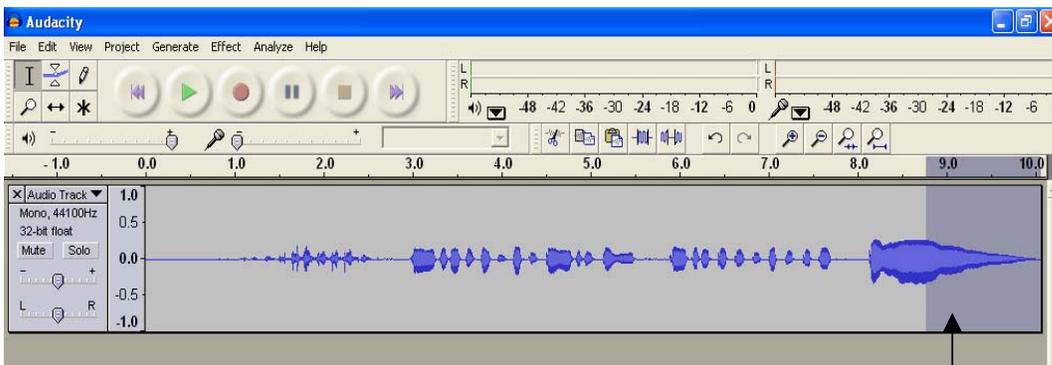
(d) to fade in and out (this is particularly useful for making a professional smooth beginning and end to a recording).

Click and drag the selection tool (I) over the opening section for as long as you want the fade in to be. Then click on effect on the menu bar and select fade in.



The opening section will now fade in gradually.

Repeat the same process for the end of the recording and click on fade out.



The end will now fade out gradually

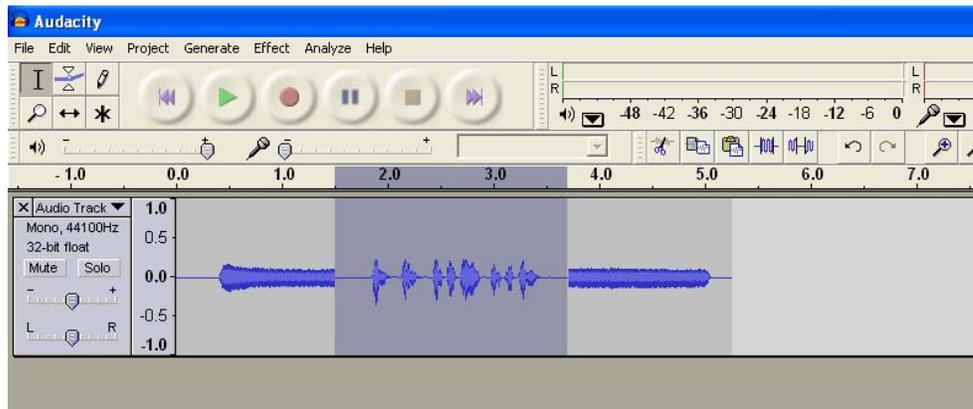
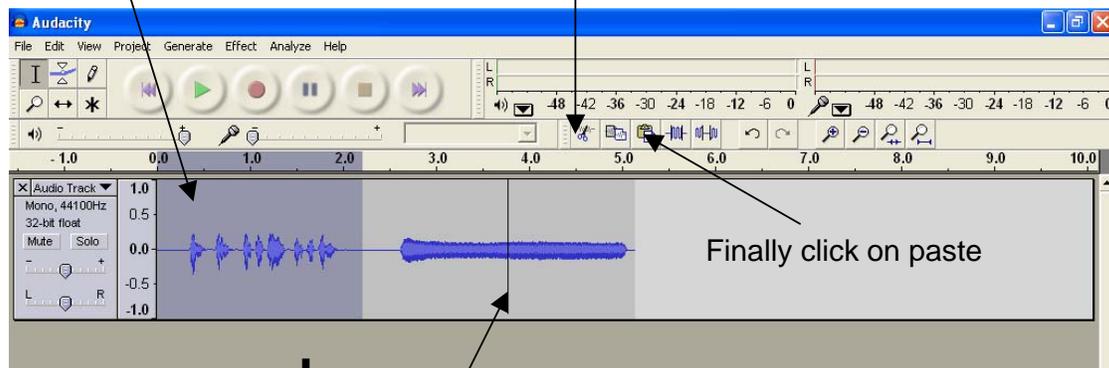
2.3 CUT, COPY, PASTE, DUPLICATE, SPLIT AND MOVE

Sections of a recording can be manipulated much the same as in a normal Word document etc.

(a) to cut and paste

First select the part of the recording you wish to cut and paste by clicking and dragging the selection tool.

Then click on cut (scissors) and move the cursor to where you want the section to be pasted



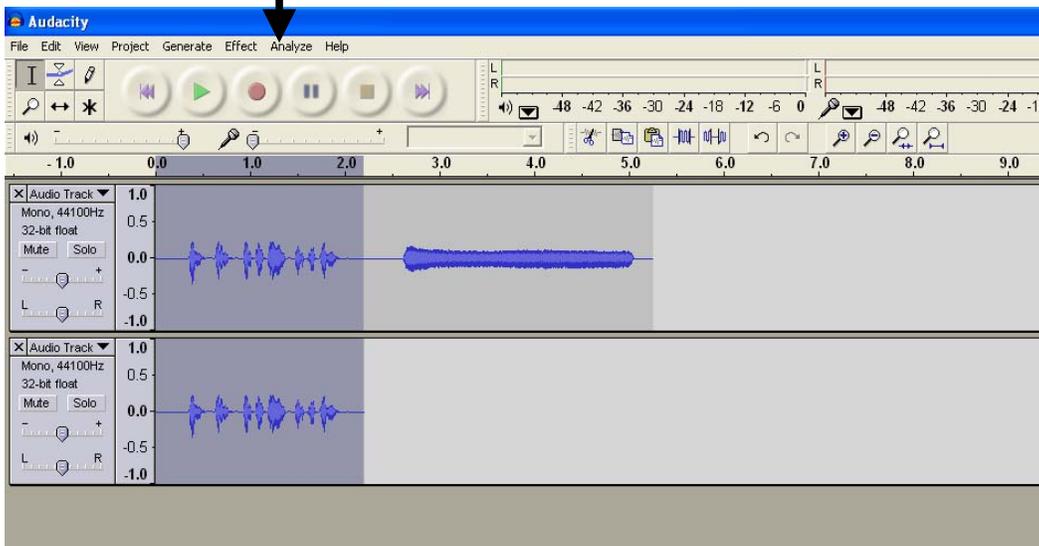
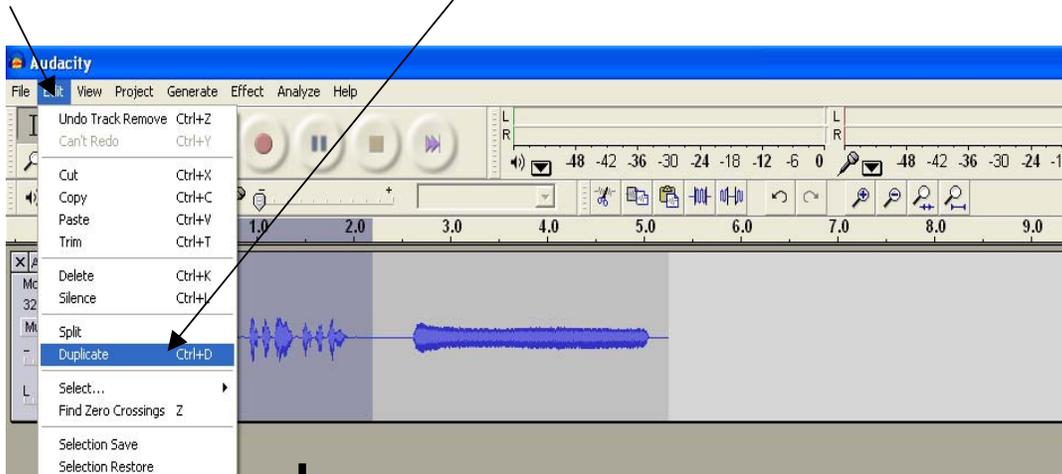
The selection has now cut and pasted to the desired point.

(b) to copy and paste

Follow the same procedure as above but click on the copy tool instead of the cut tool

(c) to duplicate

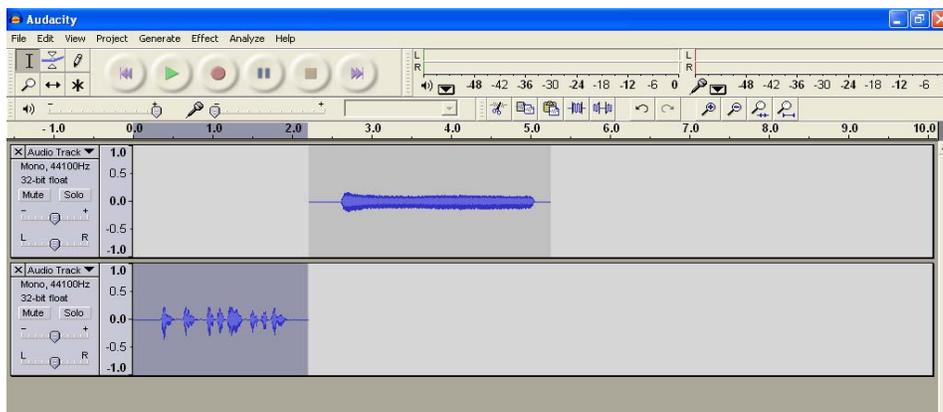
Select the part of the recording you wish to duplicate as above and then click on edit on the menu bar and select duplicate from the drop down menu.



The selection will now be duplicated onto a new track.

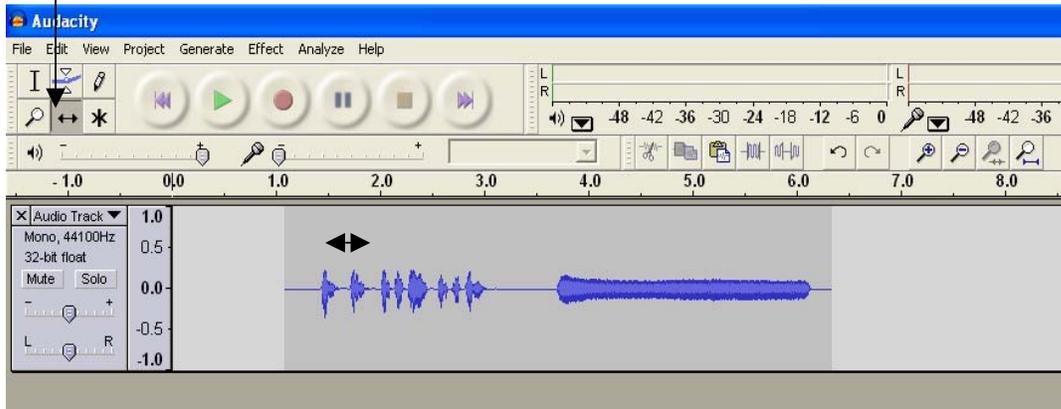
(d) to split

Proceed as for duplication but select split from the drop down menu. The selection will be copied to a new track but the original will be cut.



(e) to move

To move an entire track forwards or backwards in time then select the 'time shift tool' ().



With this tool you can click and drag the whole track forwards or backwards in time (the track does not have to be selected).

If you wish to move only a part of the recording then you will have to duplicate/split the recording so that part can be moved on a separate track.

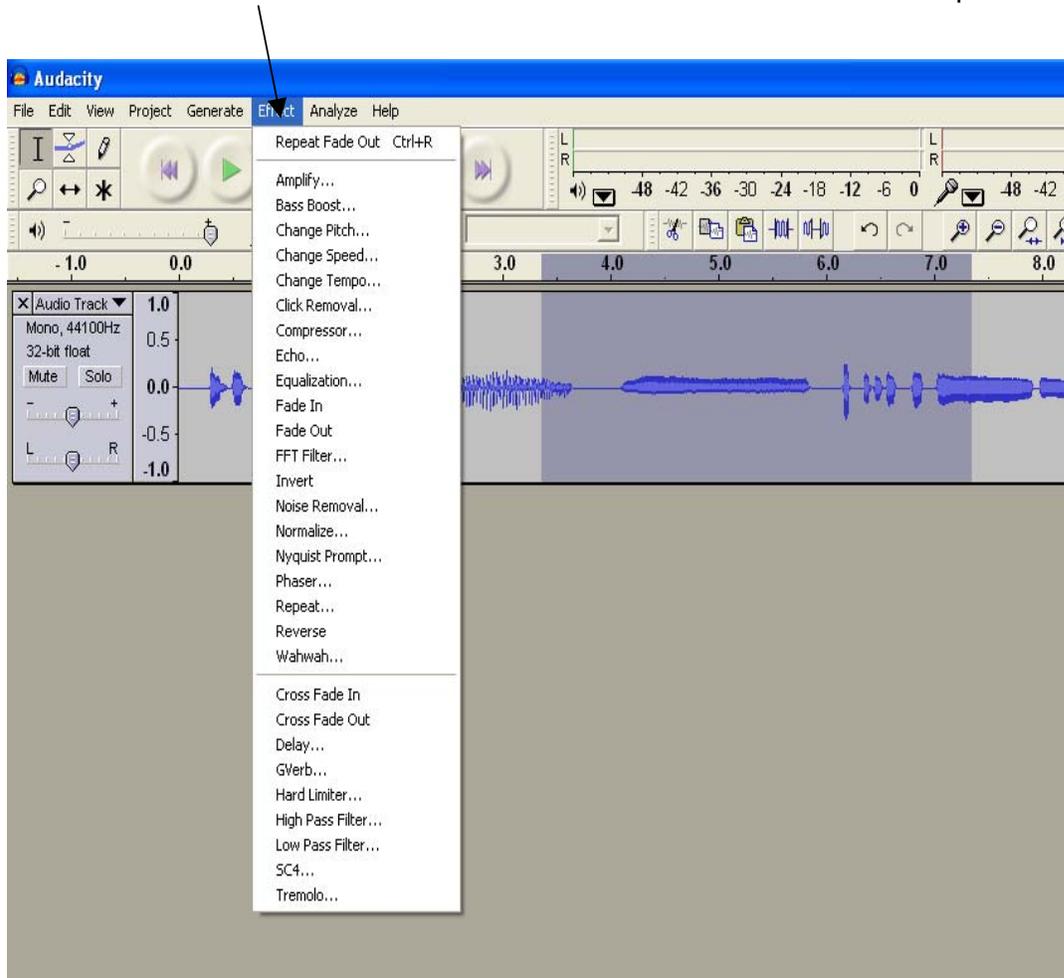
The use of the other tools in the palette are not covered in this guide as in the majority of cases you will only need to use the selection and time shift tools.

3. PROCESSING

3.1 PROCESSING (ADDING EFFECTS)

Processing is about applying digital effects to a sound to transform it, sometimes creating a whole new sound, completely unrecognisable from the original.

Audacity has a large range of effects too numerous to discuss in full detail here. To apply an effect, the procedure is much the same as for editing. First select a whole track (click in a blank grey area at the beginning in the track info box) - or select a section of a track (click and drag the selection tool) - to apply an effect to. Then click on effect on the menu bar and select an effect from the drop down menu.



When you select an effect a dialogue box will open with all the various parameters that can be changed. This often looks quite daunting but the best advice is to experiment with the controls systematically, click OK (or preview) and hear what the effect is like (and try to remember what you did if you find something that is really good!). Remember, if you apply an effect that you then don't want you can always undo it by clicking on edit on the menu bar and selecting undo..... (whatever it was that you did).

3.2 COMMONLY USED EFFECTS

Some of the most commonly used effects:

amplify	will increase or decrease the volume according to the settings selected. If you amplify a sound too much it could end up distorted.
change pitch* see note below	will raise or lower the pitch of a sound
change speed	will raise or lower the speed and pitch - similar to speeding up or slowing down a vinyl record
change tempo	will make the speed faster or slower without changing the pitch - similar to performing a piece of music faster or slower
equalisation	This is a more sophisticated 'treble and bass' control - making a sound more boomy or tinny
reverse	will reverse a sound - i.e. make it play backwards
delay	will add 'echo' to a sound - similar to hearing your voice repeated from a mountain top
reverb	(called Gverb in Audacity) and will add 'echo' to a sound - similar to being in a large hall

All the other effects, particularly 'wah-wah' and 'phaser', can create very interesting and transforming effects.

You can also add multiple effects (simply by processing a track or selection several times) - e.g. you can make a sound go backwards, have delay added and be raised in pitch.

*Change Pitch

This can be a very useful function for transposing the pitch of a backing track for singing along with (or fitting in with instruments etc.). If you have a backing track (on your computer) that you wish to transpose, first import the file as explained in section 1.2. Then select the whole track, click on effect and select change pitch from the drop down menu.

The image shows the Audacity interface with the 'Change Pitch' dialog box open. The dialog box has the following fields and options:

- Title: Change Pitch without Changing Tempo
- by Vaughan Johnson & Dominic Mazzoni using SoundTouch, by Olli Parviainen
- Pitch: from **C** to **D#/Eb**
 - Buttons: up (selected), down
- Semitones (half-steps): 3.00
- Frequency (Hz): from 432.353 to 514.157
- Percent Change: 18.921
- Buttons: Preview, Cancel, OK

Annotations with arrows point to the following elements:

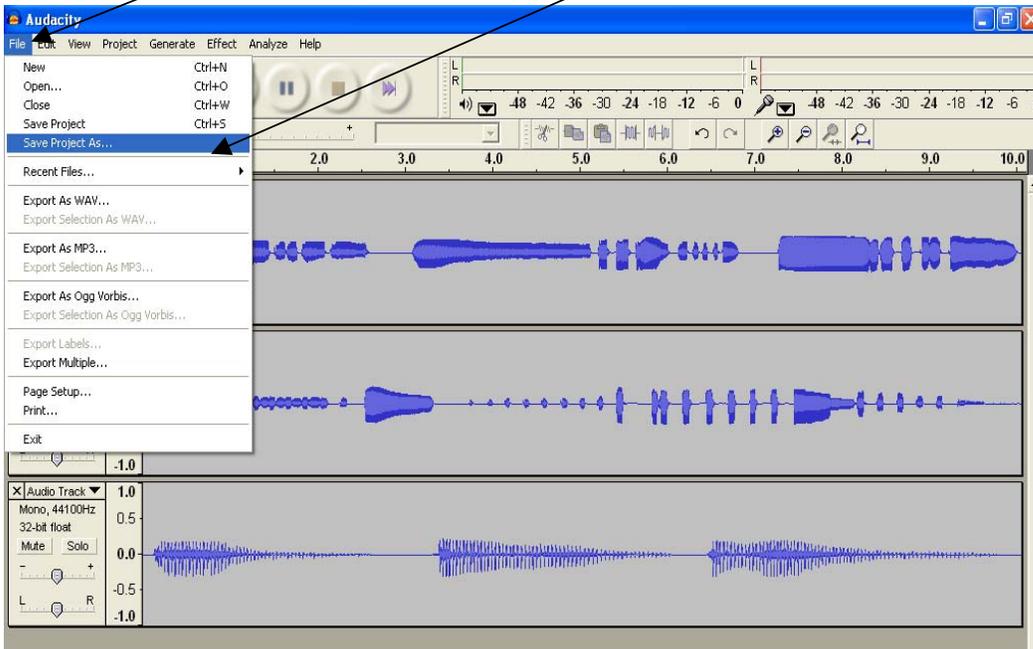
- A box at the top says: "Decide whether you want to transpose up or down" pointing to the 'up/down' radio buttons.
- A box on the right says: "Click and select key you wish to transpose to. If you have put C in the first box then you must determine how far you want to transpose (as if C was the original key)" pointing to the 'to' key dropdown.
- A box at the bottom right says: "Click OK when ready" pointing to the 'OK' button.
- A box at the bottom left says: "Click and select key of original track (or just put C if you don't know)" pointing to the 'from' key dropdown.

4. SAVING, EXPORTING AND FILE MANAGEMENT

4.1 SAVING AN AUDACITY PROJECT

If a recording session is not quite finished, you may want to save your project as an Audacity Project File (.aup) which means that at another time you can open up the project and continue recording, editing and adding effects etc.

Click on file on the menu bar and select save project as.



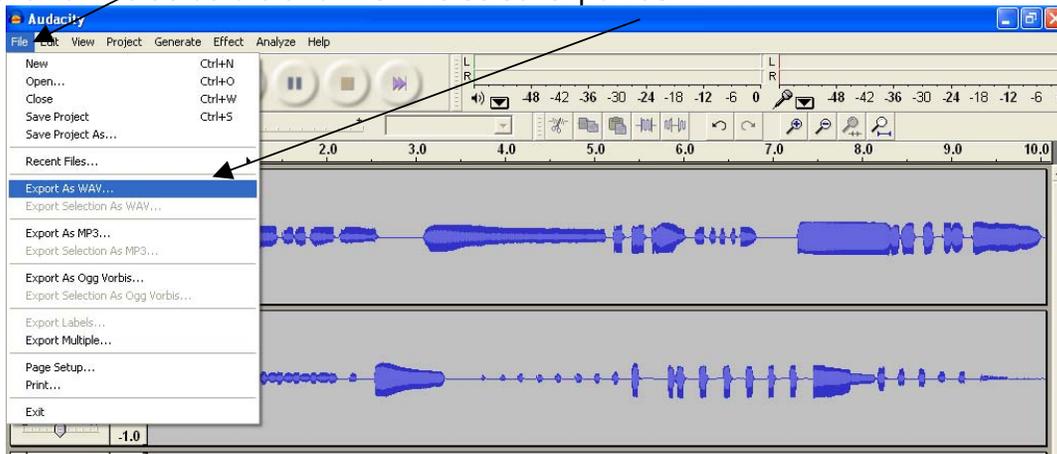
In the dialogue box that opens, give your project a name and choose which folder you want to save it to.

n.b. when you reopen this file it will only open with Audacity (i.e. the programme that created it)

4.2 EXPORTING AN AUDACITY PROJECT

When your recording is completely finished you will want to export the project. This will mix down all the tracks to one single stereo track and will be saved in a format (such as .WAV or .MP3) that can be opened with other programmes such as Windows Media Player, iTunes etc. and can also then be burned to a conventional audio CD etc.

Click on file as before and this time select export as .WAV



n.b. you can also select export as .MP3 but this will only work if you also downloaded the LAME file encoder when you first installed Audacity. If not then there are plenty of free downloadable file converters on the internet which will convert .WAV to .MP3 and vice versa.

4.3 FILE MANAGEMENT

It is worth noting that if you import an audio file (see 1.2) - for editing, adding effects etc. - Audacity does not copy the existing audio file but simply creates an image of the file and remembers where to refer to it on your computer.

If you save your project as an Audacity Project File you can reopen the file later and carry on editing as normal. HOWEVER - if, in the meantime, you have moved the original (source) file (i.e. the file you originally imported for editing) to another folder (e.g. trying to 'tidy up' your files) or even deleted it from your computer then the next time you open up the project in Audacity you will see the image (waveform) of the file but will hear no sound!!!

Audacity will only look for the original source file in the place where it was first stored - so if it has been subsequently moved it cannot be found.

This fact has frequently led to many project files going astray.

The simple answer is - once you have imported a file then **DON'T MOVE THE ORIGINAL.**

The reason that all audio recorders and sequencers *refer* to a source audio file rather than making a copy is that the file sizes can be quite big. If audio software copied these files every time then the computer's hard disk would soon fill up.

Of course, if you *export* the project to a .WAV file then there is no longer a problem as this will form a real copy of the original file (rather than just an image reference).

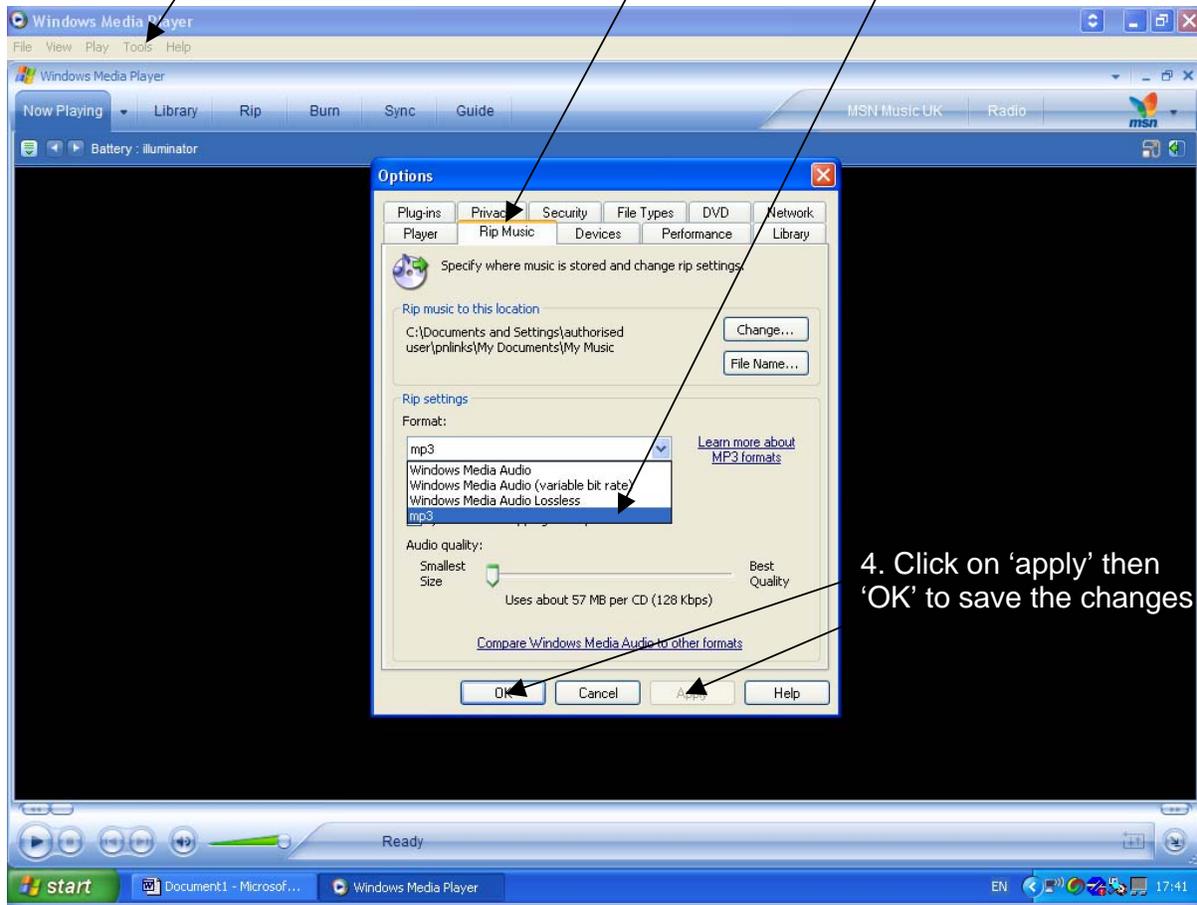
5. APPENDIX

5.1 RIPPING CD TRACKS TO .MP3 FORMAT WINDOWS MEDIA PLAYER V.10

Windows Media Player below V.10 will only rip CD track to your computer in .WMA format which cannot be recognised by Audacity. You must have version 10 or above.

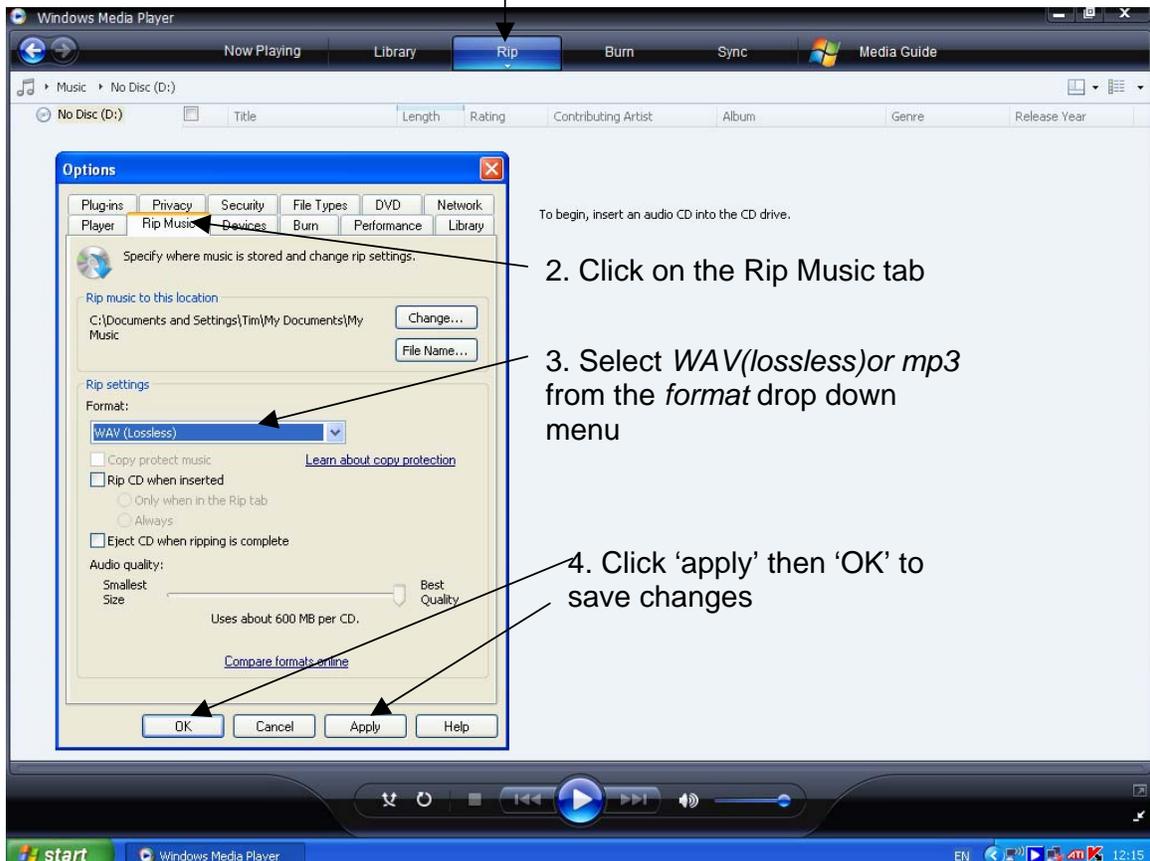
V.10 can be set to rip to .MP3 as below:

1. Click on *tools* then *options*
2. Click on the *rip music* tab
3. Select *mp3* in the drop down *format* menu
4. Click on 'apply' then 'OK' to save the changes



5.2 RIPPING CD TRACKS TO .MP3 OR .WAV FORMATS WINDOWS MEDIA PLAYER V.11

1. Right click on *Rip* then on *more options*



NOTE: selecting .WAV will use up more hard disk space

5.3 RECORDING AND PLAYING BACK THROUGH AN EXTERNAL SOUND CARD

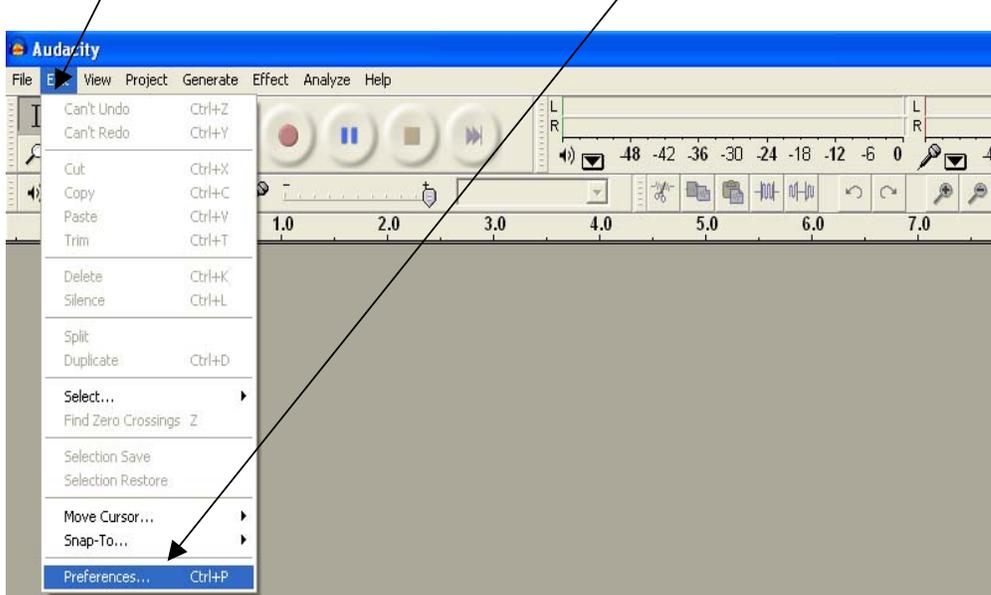
Computers (laptops in particular) don't always come with a very high quality soundcard. This means that recording onto a computer's internal soundcard may produce some hiss etc.

A way around this is to purchase a stand alone external soundcard (about £150-£200) which can be connected to the computer via USB. The resulting recording will be near professional quality.

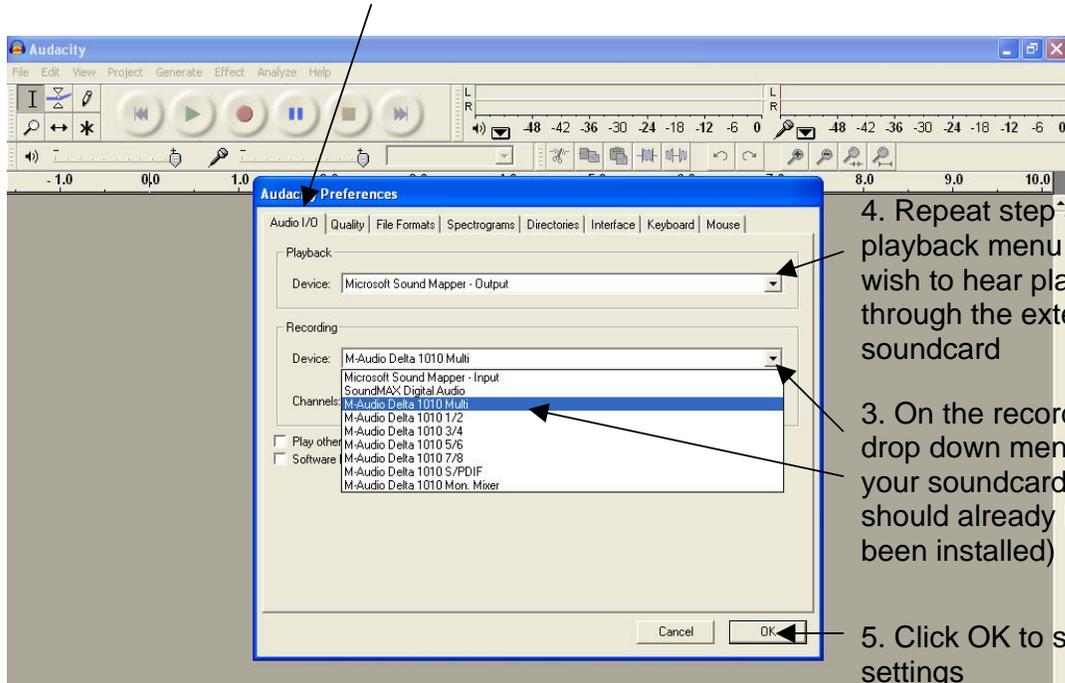
If an external soundcard is being used then the recording software (such as Audacity) needs to be told this.

In Audacity this can be set as below:

1. Click edit on the menu bar and then select preferences from the drop down menu



2. Select the Audio I/O tab



4. Repeat step 3 for the playback menu if you wish to hear playback through the external soundcard

3. On the recording drop down menu select your soundcard (which should already have been installed)

5. Click OK to save your settings