

**Cambridge International**

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Information Technology

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VILLA INTERNATIONAL  
HIGH SCHOOL

**Paper 2 - Practical**

# Chapter 11

Sound & Video Editing (Notes)

VIHS, QI Campus, Male'

Compiled By: ZUBAIR ANSARI

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## Sound & Video Editing

**Pixel:** A very small square area of one color that is illuminated on a display screen. These are combined to create a bitmap image. **Frame:** A single still image in a video file.

**Rendering:** Combining the effects created in a video file to create an output video file.

**Transition:** The movement from one clip to the next.

**Filters:** An effect, often color related, that can be applied to a clip.

**Track:** A single audio section in a sound or video file.

**Pitch:** The highness or lowness of a tone.

### Video Editing Software:

Most video editing software will have similar features. The level and complexity to which these features can be used may differ between the software available.

**Examples:** [Kdenlive](#), [Adobe Premiere Pro](#), [Movie Maker](#) etc.

#### 1. Preview Pane

It is used to view the video creation progress and an area where the editing takes place, often referred to as the timeline. Any clips or images to be included must first be imported into the software. Each clip or image can then be dragged or placed onto the timeline to be edited.

#### 2. Aspect Ratio

Setting an aspect ratio is determined by the media you are creating the video for. 16:9 is the current high-definition standard for television and monitors, and photography often uses 4:3 or 3:2 aspect ratios.

#### 3. Resolution:

A resolution can also be set for a video. The resolution is the number of pixels horizontally compared to the number of pixels vertically. The current resolution for high definition is 1920 x 1080 pixel. This means that each frame in a video has 2073600 pixels.

#### 4. Trimming / Joining:

To trim a video, there is normally a 'trim/cut' tool. This is often used by simply finding the point in the clip you need, trim and then highlighting the video to this point, either from the start of the clip, or the end, depending on what you need to remove.

When the trim/cut tool is clicked, it will remove the highlighted part of the video. The tool can also work by dragging the clip from the start or the end, to the point you want to trim to. Some software will allow you to set a start point and an end point for a clip and will remove any video that is not within this.

Once you have trimmed the video clips you may want to join several clips together. Joining together video clips can be done by dragging video clips in the timeline next to each other.

## **5. Transition Effects:**

Clips can also have transition effects applied to make the change between clips more visually interesting. Joining together clips is done to create effects such as jump cuts for action scenes, to start new scenes or to sometimes imply that time has passed by in the video.

## **6. Text-Based Slides & Credits:**

Text-based slides in videos are often used for a title slide at the start of a video, or credits at the end of a video to show who was involved. Text-based slides are often created by having a still image or block of color as the background. Text is then layered on top of this to give the information needed.

## **7. Captions & Subtitles:**

Adding captions and subtitles are often done to provide a message, emphasize a point or to help the hard of hearing. These are created by using text, and sometimes visual effects, that is displayed over a number of frames in the video.

## **8. Animation and Effects**

These can be added as a transition between video clips and text-based slides. The animations and effects available can differ greatly between different software, but most have a standard set including effects such as fading and adding filters. Adding fade effects to video clips allows for calm, smooth transitions.

It can be used to overlay two video clips, which is often used to convey something happening simultaneously. However, mostly it is used simply to either gently establish a scene or close one. A slow fade in an action scene could be unsuitable and ruin the action effect. Animation effects can be used to create different feelings and provoke different emotions about a video.

## **9. Navigation**

It often allows you to navigate through the video to a certain frame and extract that frame to save as an individual image. This can be called taking a snapshot in some software, extracting an image or taking a picture in others.

## Sound Editing Software

Most sound editing software will have similar features. The level and complexity to which the different features can be used may again differ between the different software available. Most software has a similar set-up in that it has a way to view different tracks in the sound dip. Each track is often represented as a sound wave.

**Examples:** [Audacity](#), [Adobe Audition](#), [Avid Pro Tools](#), [CUBASE](#) etc.

### 1. Trimming and Joining clips

Trimming audio clips is used in order to remove unwanted parts of the clip. This can sometimes be done to synchronize the sound clip with a video clip. If you've already trimmed part of the video, you'd also need to trim the equivalent audio section in order for the video and the sound to end together.

To trim an audio clip, you simply find what you want to trim and then use a 'cut/trim' tool to remove the unwanted parts. This is often done in sound editing software by highlighting the section of the dip that needs to be removed and selecting 'delete'.

In the same way that video clips can be joined together, sound clips can be too. Multiple sound clips can be imported, edited and placed straight after the previous clip. The software will continue from one clip onto the next. Effects, such as fading, can also be applied between the clips when joining them together.

### 2. Fading in and Fading out

Like video clips, sound clips can be faded in and out. This often involves the end of one clip becoming quieter and the start of the next beginning quietly and getting louder. If a clip is faded in it will start quietly and get louder. If a clip is faded out it will start at a louder volume and get quieter. This is done in order to create a gradual transition and gentler start to a clip that is more pleasant to listen to, rather than just starting a clip at full volume. Imagine a host on a radio show about to play a loud song. Without a fade-in effect, the song would just burst in to sound and could shock listeners. Instead, it is much more enjoyable to get a gradual transition over a couple of seconds to allow listeners to readjust in their own time.

Fading in or out is normally an effect that can be applied to an audio track. Normally the part of the track that needs to be faded is selected and a fade effect can be applied. You can often choose what volume the clip will be at the start of the fade and what it will be at the end of the fade. You can also often choose how long you want a fade effect to last in terms of time. For example, apply a fade-out effect to the last 10 seconds of a sound clip.

### 3. Speed of a Sound clip and changing the Pitch

The section of the clip to be altered is highlighted and an effect is applied to the clip to speed it up or slow it down. The speed can often be set very accurately with an input method allowing a value to be entered. Changing the speed of a sound clip has a similar effect to changing the speed of a video clip. It also alters the mood and emotion felt when listening to the clip.

Issues can arise when speeding up or slowing down sound clips. When playing back a sped up clip the sound can appear very high pitched and squeaky. When playing back a slowed down clip the clip can sound deep and have too much bass to it.

To counter this, some software is able to allow you to adjust the pitch of the recording while altering the speed. This will change the level of the sound track to be higher or lower in pitch, changing the notes to be higher or lower as a result.

#### 4. Reverberation

Reverberation, often shortened to reverb, is the effect that is created on sound when it repeatedly bounces back off a surface. In an auditorium, the sound from a music band will bounce off all the walls. When this effect is layered on top of each other, by bouncing off multiple surfaces, reverberation is created. Reverberation is noticed most when a band stop playing but the sound of the guitar and the singer can still be heard. It lingers on for a time. Adding reverberation onto a sound track can create a similar effect. It adds a type of echo onto the section of the track selected in order to create a reverberation effect. This effect can be enhanced and made very obvious, or can be decreased and made more subtle if you feel it is too much. Most sound editing software will have a reverberation effect that can be applied to the sound track. The effect of this can normally be altered, by imitating things such as making it sound like the clip is recorded in a large auditorium.

#### 5. Overdubbing and Voice-Over

Overdubbing a sound clip is often done to provide a voice-over without removing the noise from the clip that is already there, such as background noise. This is done to allow many of the originally recorded sounds to remain, otherwise it becomes a less interesting clip without some background noise to accompany it.

Overdubbing is can be when presenting news clips, using a translator, reviewing entertainment or just giving extra information such as in nature documentaries. To overdub, you must record an entirely new soundtrack of just the voice-over work. Once that is recorded it is imported into the software as a separate track. This track can then be edited separately to the other sound track and the two can be exported together at the end to create a single sound file.

#### 6. Exporting

Like video clips, sound clips can be exported in different file formats. This will again depend on the desired quality of the final track and the media it will be used for.

**Mp3** is a sound file format. It is a format that allows most of the quality of the sound file to be retained, but compresses the file to make it smaller.

#### Sampling Rate and Resolution

The sampling rate is the number of samples of the recorded sound taken in a second. The **sample rate is normally measured in hertz (Hz) or kHz (1000 Hz)**. *A sample rate of 40Hz would mean that 40000 samples of the sound are taken in a second.* The more samples taken in a second, the higher the quality of the sound file. Therefore, the lower the number of samples taken, the lower the quality of the track. When the sample rate goes beyond 50kHz it is thought

that the human ear will not be able to recognize any further quality in the track. The standard sampling rate used by most digital recording equipment is 48 kHz.

The sample resolution refers to the number of bits values the sample can be taken on. This level of depth would create a very low-quality recording and is not sufficient for most recordings. The higher the sample resolution, the higher the quality of the file and the more accurate the file will be. It will, however, also increase the size of the audio file because more data is having to be stored.

### **Digital Audio**

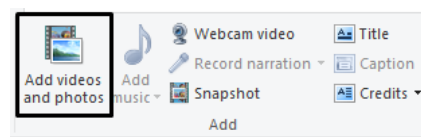
It is normally found in two different sample resolutions: 8-bit and 16-bit. 8-bit sampling can sample 256 different values. This would still produce quite low-quality audio. 16-bit sampling can sample over 65000 different values. This is a higher quality than any human ear can recognize.

## Sound & Video Editing Step-by-Step

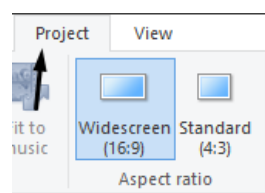
Term	Definition
Pixel	A very small square area of one colour that is illuminated on display screen. When combined, they form a bitmap image
Frame	A single still image in a video
Rendering	Combining the effects created in a video file to create an output video file
Transition	The movement from one clip to the next
Filters	An effect, often colour related, that can apply to a clip
Track	A single audio section in a sound or video file
Pitch	The highness or lowness of a tone
Aspect ratio	The ratio of width to the height of a screen
Resolution	The number of pixels horizontally compared to the number of pixels vertically
Sampling rate	The number of samples of the recorded sound
Reverb	The effect created on sound when it repeatedly bounces back of a surface

### 1. Video editing

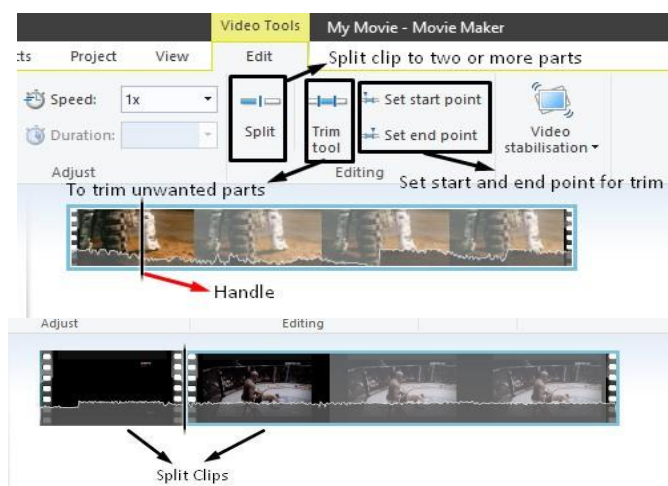
- Importing files and inserting image(s)/video(s)



- Setting aspect ratio

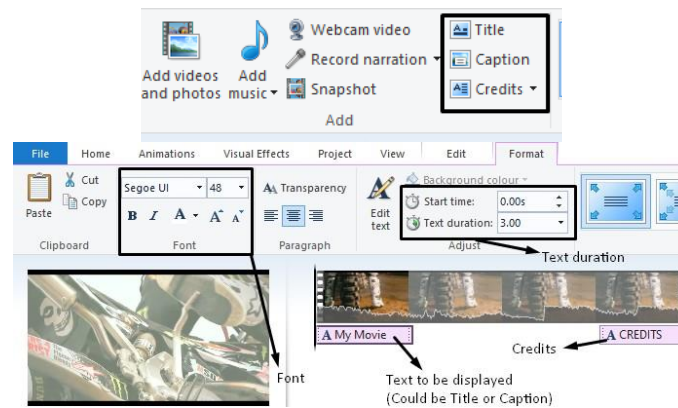


- Trimming video clips and joining them together

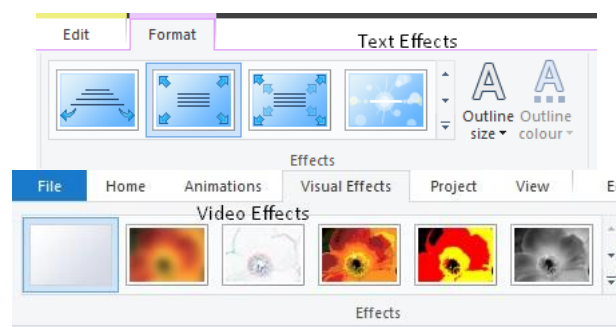




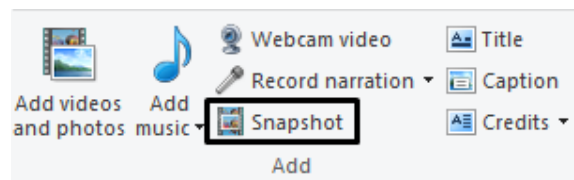
- Text based slides and credits



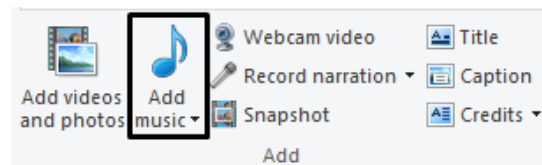
- Animation and effect



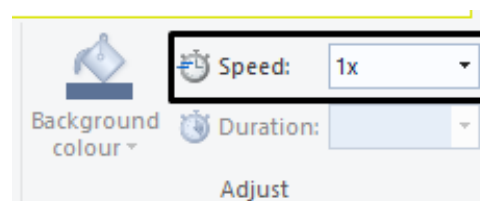
- Extracting a still image (snapshot)



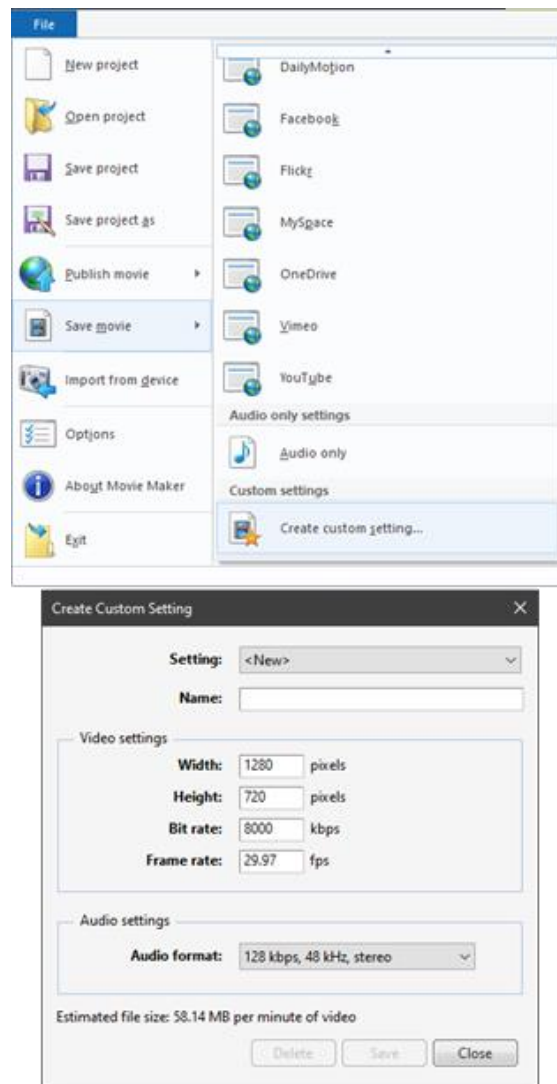
- Adding sound file



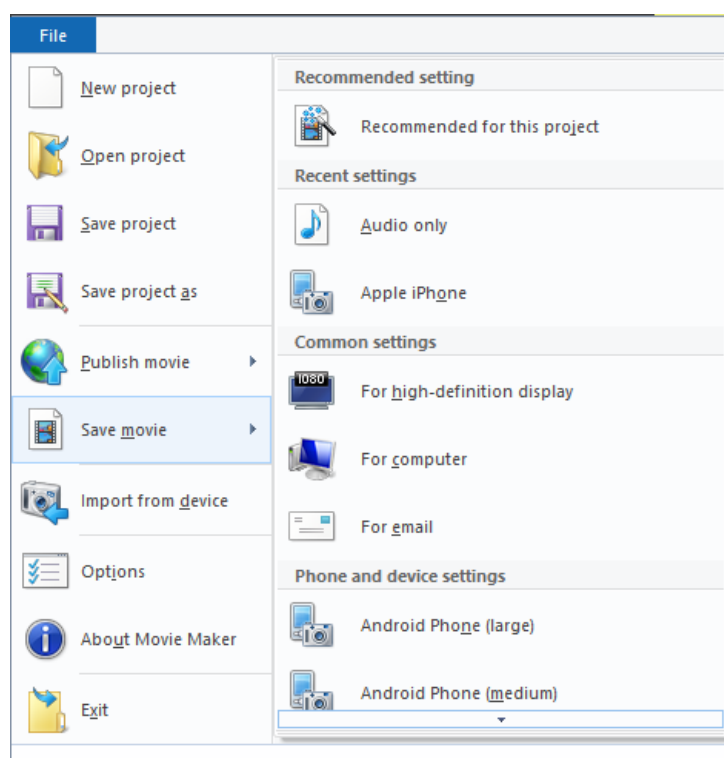
- Video clip speed



- Resolution (custom resolution)

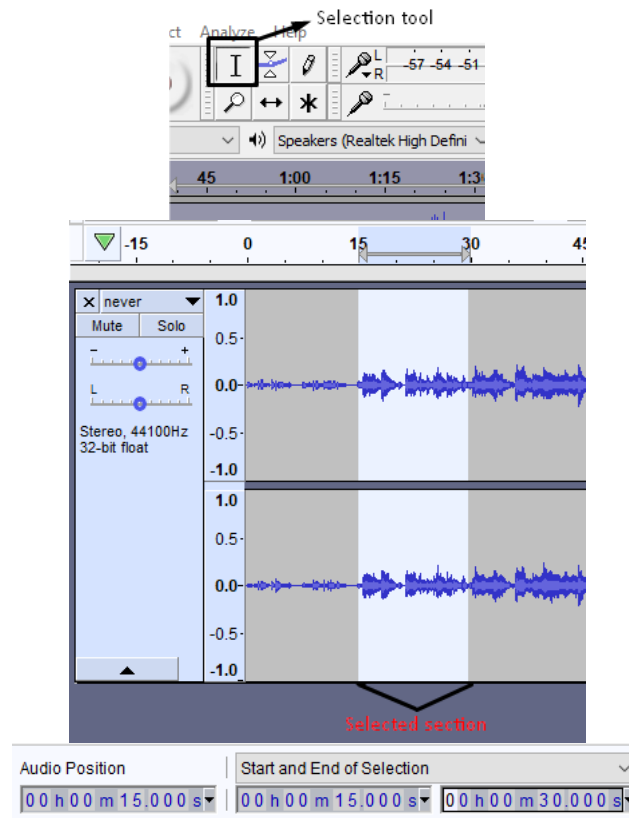


- Exporting
  - Most websites use **.mp4**, **.avi**, **.mpv** for videos



## 2. Sound editing

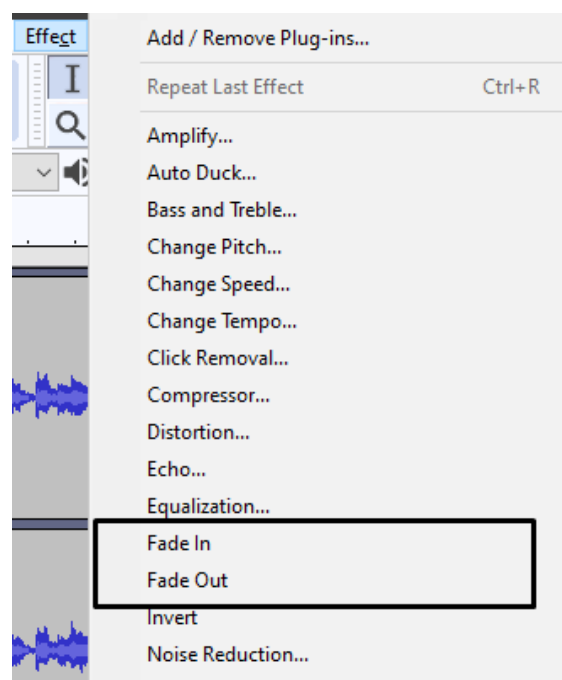
- Trimming and joining audio clips

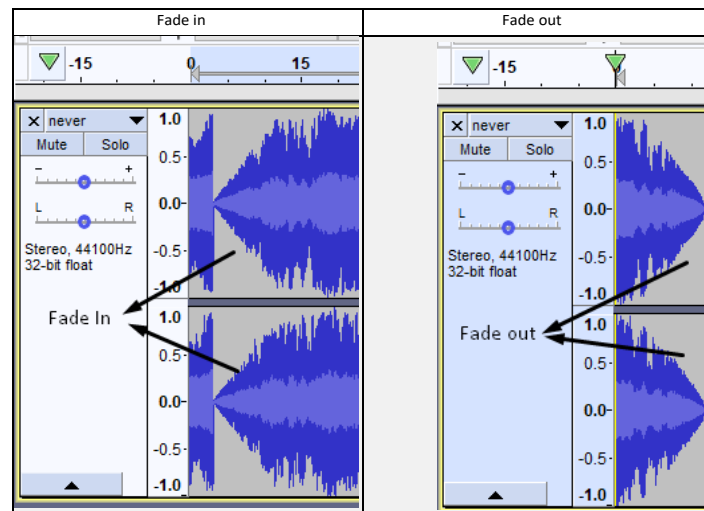


- A more accurate way of splitting and trimming audio clips

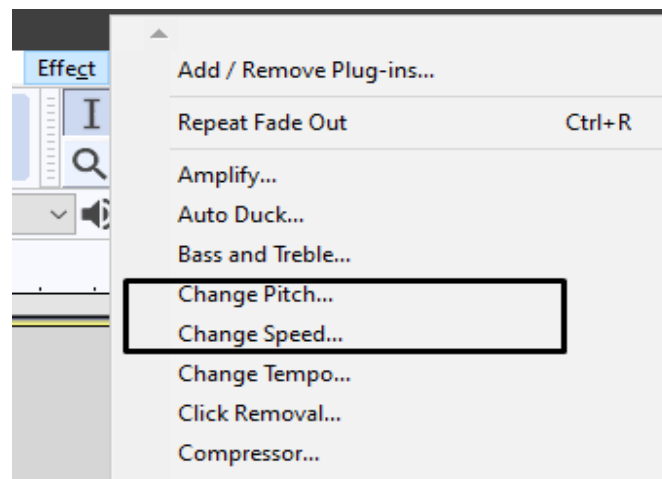


- Fade in and out

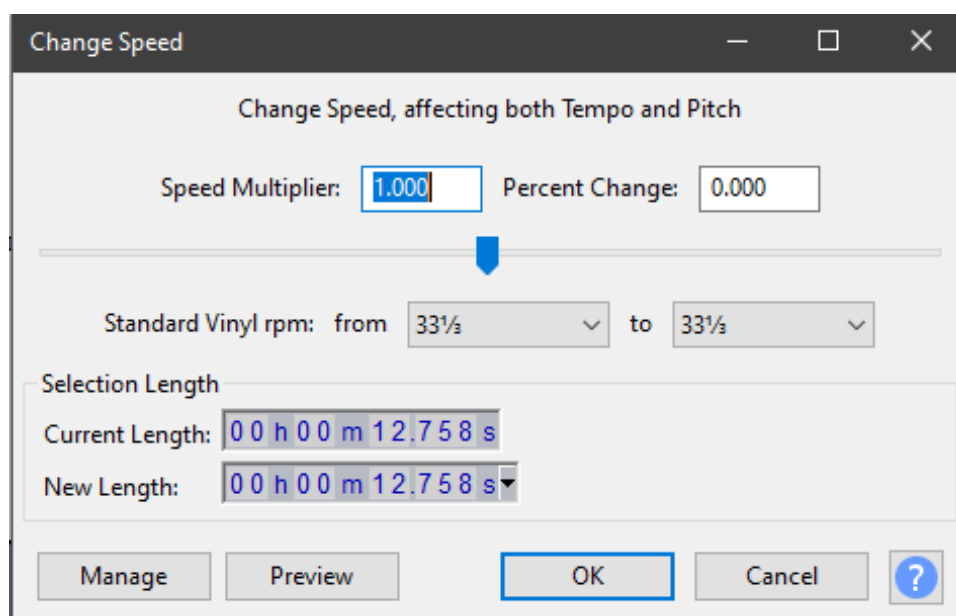




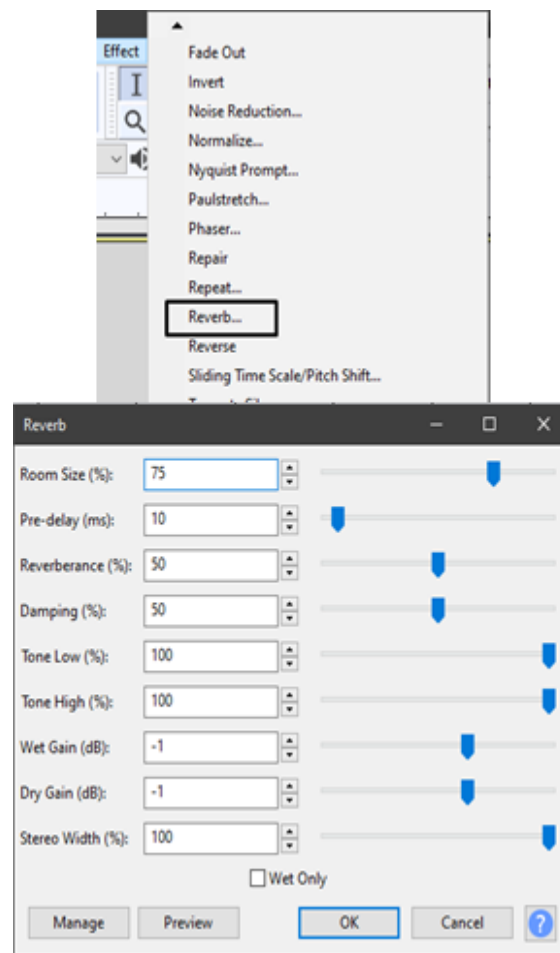
- Altering the speed and pitch of a sound clip



- Changing the speed of an audio clip also changes the pitch of the clip



- Reverberation (Reverb)



- Exporting- The most commonly used format for audio clips is **.mp3**, and during exporting, sample rates can also be changed.

