The application includes the requested playback controls, and these have been satisfactorily implemented. In particular, the Record button allows the user to record the processed audio signal in WAV format.		1
The effects have been connected in a chain. The chain is functioning properly, and the user can listen to the processed audio signal.		1
The filters have been correctly configured, and include the requested controls.		1
The written report includes a brief description of the processes of audio recording, editing, processing and saving in Audacity.		1
The written report includes a brief description of the main characteristics of each effect and how they have been programmed.		1
The written report includes a brief analysis of the application discussing how the low-pass filter and the master volume effects affect the sound's spectrum.		1
The application includes further development.		2
Total		10

Exercise 2

Description

A famous DJ has contacted you to develop an interactive web-based application for visualising his music during its concerts. The application must be based on p5.js, p5.speech and the JavaScript audio feature extraction library Meyda.

Task 1

First, to evaluate your skills, you are asked to perform the following task. The DJ sends you three sounds (Ex2_sound1.wav, Ex2_sound2.wav and Ex2_sound3.wav) and you have to select Meyda audio features that could help represent these sounds visually in an appropriate manner. For example, if the 'brightness' of one of the sounds radically changes over time, to select an audio feature that measures the brightness of this sound could be a good choice from a perspective of producing visual impact.

To perform Task 1, you have to fill in the following table. You have to select three Meyda audio features for each sound and justify your selections.

	Meyda audio features	**Justification**
Sound 1		
Sound 2		

Sound 3		

Task 2

The second task consists of creating the aforementioned web-based application for audio visualisation. The application (*exercise 2*) will use the song Kalte_Ohren_(_Remix_).mp3 (*) as an audio source.

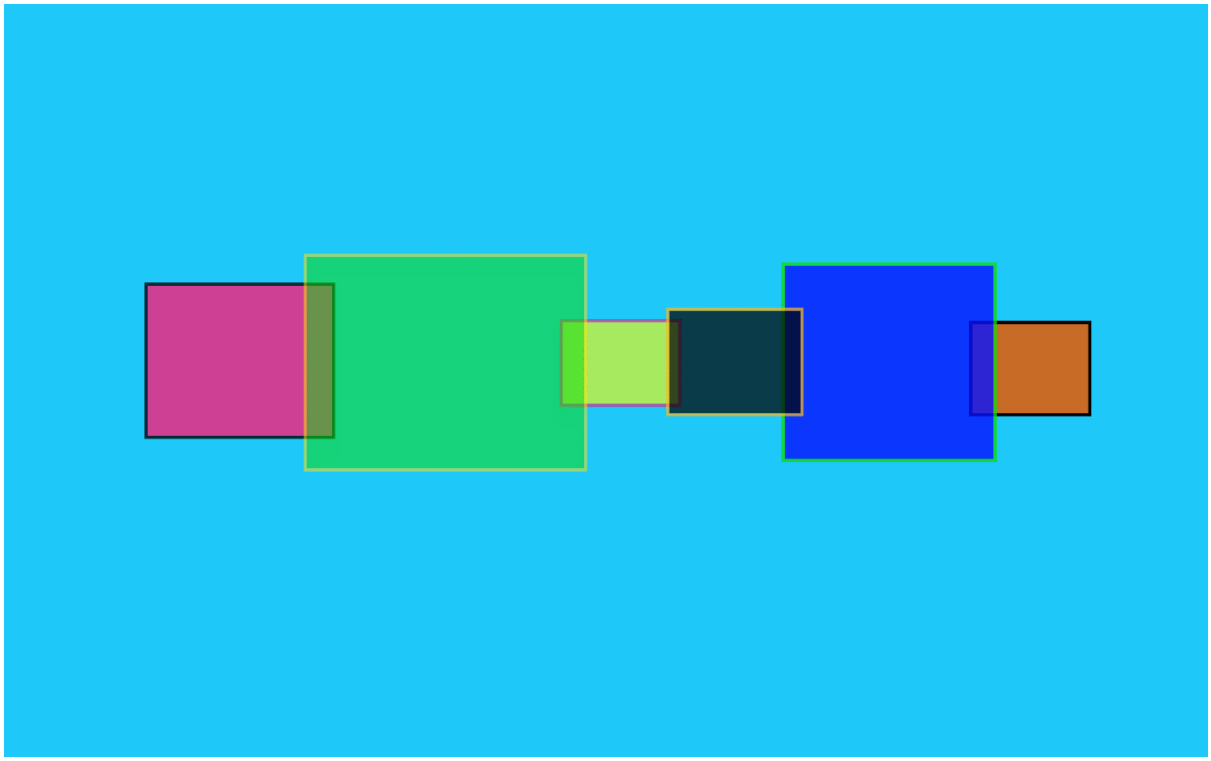

Figure 3. Idea for the audio visualisation application.

You could use the image of Figure 3 as an inspiration. The visual variables could include:

1. Number of rectangles.
2. Rectangle size.
3. Rectangle fill colour.
4. Rectangle border size.
5. Rectangle border colour.
6. Rectangle fill colour opacity.
7. Rectangle border opacity.
8. Rectangle rotation.
9. Background colour.

You have the full freedom to choose which audio features to use and how to map them to the visual variables.

Ideas for further development:

1. The application could include a voice control system, implemented with p5.speech, that could recognise voice commands such as:
    a. Black, White, Red, Blue, Green: to change the background colour to one of these colours.
    b. Square, Triangle, Circle, Pentagon: to change the shape of the generated figures to one of these shapes.

List of deliverables

For Exercise 2, you should submit in a ZIP file:

- The source code of the application *exercise 2*.
- A link to the application running in a web page using the Coursera static web page function.
- A screencast recording demonstrating that the applications meet all the requirements and showing the further developments implemented (maximum length of two minutes).
- A written report in PDF format, approximately 500 words. This report must include:
    - The table of Task 1.
    - A description and justification of the audio features and mapping implemented in Task 2 from a perspective of visual impact.
    - A brief description of the further development implemented.

Marking criteria

	Done?	Marks
The screencast recording has a maximum length of two minutes, and it demonstrates that the application meets all the requirements and shows the further developments implemented.		1
The written report includes the table of Task 1 and the selected audio features as well as the justifications are appropriated.		2
In the application *exercise 2,* the audio feature extraction and the mapping between visual variables and audio features has been correctly configured.		2
The application *exercise 2* visualises the song in an appropriate manner.		2
The written report includes a description and justification of the audio features and mapping implemented in Task 2 from a perspective of visual impact.		1
The application includes further development.		2
Total		10