***Project Report***

***Introduction*** :

The program inputs live audio data from the user's microphone and converts it to an image using suitable colours for each pixel. The audio input has to be 36 seconds long.

***Libraries used***:

* tkinter - In order to input the audio and convert it into an array of tuples containing sets of integers
* sounddevice - To create a new window and create and display the image.
* colour - To import the color function which takes colours as a combination of red, blue, green.

***Theory behind the project:***

The computer processes sound as an array of float point tuples according to the sounds amplitude, frequency and wavelength. These floating-point tuples can also be recorded as integer sets. The main idea of the project is to understand the sounds patterns by representing them as a picture. The program converts these integer inputs to a value between 1 and 0, which can later be used to represent a colour using the "rgb" operator.

The rgb operator takes three values between 0 and 1 and assigns a colour based on the inputs. Each second of the audio input gives 44100 tuples and hence 36 seconds will give an array of length 1455300. In order to display this data a square grid of side length 1260 is required. The rbg operator determines the colour of each of these cubes. The tkinter library imported in this program is used to display this coloured grid.