The ffprobe and ffmpeg packages have been installed in the lab in the exact same format as they were utilized in the labs of the course. This is completed by downloading a static build of the FFmpeg build to my local machine, unzipping it and then adding it to the path environment variable.

The application starts off with a function which is supposed to extract certain information about the output of ffprobe data. The application saved ffprobe data in the form of a list where each element was a string. Each string stated that some field was equal to a given amount or output. The extract information function was designed to extract the string information after the equal sign of each output of the ffprobe returned data.

The next major cell in the application takes care of the majority of the implementation of the application. It consists of a function which extracts video and audio information of a file using ffprobe. Then it utilizes the extract_info function to extract the required information about each field necessary to the assignment. Finally, through a complicated series of if-statements the function determines which of the specified fields meet the requirements of the film festival. If the video file doesn't meet the necessary requirements, the application will convert the file accordingly and make sure all the given requirements of the output video file are met.

Finally, the last major cell in the Jupyter Notebooks application is a cell which iterates through the file names of the videos, appends the folder name to the front of the path and sends it to the function which is supposed to determine whether or not it meets the given requirements of the film festival.

The acceptable parameters for the video types included an video codec of h.264, an audio codec of aac, a frame rate of 25 fps, an aspect ratio of 16:9, a resolution of 640x360, a video bit rate of 2-5 Mb/s, an audio bit rate up to 256 kb/s and the audio channels set to stereo. Not to mention the file format was required to be mp4. None of the five files sent by the film festival met all these requirements. Thus, they all required updating in some way utilizing the ffmpeg framework.

The video format is the file type of the videos. The video codec and audio codec represent the software that encodes and decodes the audio/video information. Frame rate represents the frequency at which images are captured. Aspect ratio of a video represents the ratio of width to height of the given video. Resolution is the number of pixels that can be represented in each dimension of the video. The video and audio bit rate represent the number of bits that can be processed in a given amount of time for each respectively. Finally, the audio channels represent how many specific points the audio will be coming from.