	All program use animation functions						
Signal is from file							
File name	**Notes**	**Output stream**	**Loop**	**Numpy**	**Effect**	**Spectrum**	**Units**
prog_A1	Read a signal from a wave file, and plot the signal using the animation function, while playing the signal using pyaudio.	Y					
prog_A2	The same as prog_A1.py, but run the process in a continuous loop, and use Numpy.	Y	Y	Y			
prog_A3	The same as prog_A2.py, but plot also the Fourier transform of the signal.	Y	Y	Y		Y	
prog_A4	Read a signal from a wave file, implement a filter as a recursive difference equation, plot the frequency response of the filter, and plot the input and output signals using the animation function, while playing the output signal using Pyaudio.	Y	Y	Y	Filter		Y
prog_A5	The same as prog_A4.py, but plot also the Fourier transform of the input and output signals.	Y	Y	Y	Filter	Y	Y
Signal is from microphone							
File name		**Output stream**	**Loop**	**Numpy**	**Effect**	**Spectrum**	**Units**
prog_B1	Acquire the microphone signal using pyaudio, and plot the signal using the animate function.		NA	Y			Y
prog_B2	The same as prog_B1.py, but plot also the Fourier transform of the signal.		NA	Y		Y	Y
prog_B3	The same as prog_B1.py, but plot also plays the signal to the output using Pyaudio.	Y	NA	Y			Y
prog_B4	Acquire the microphone signal using pyaudio, plot the signal and its Fourier transform using the animate function, while playing the signal to the output using Pyaudio.	Y	NA	Y		Y	Y