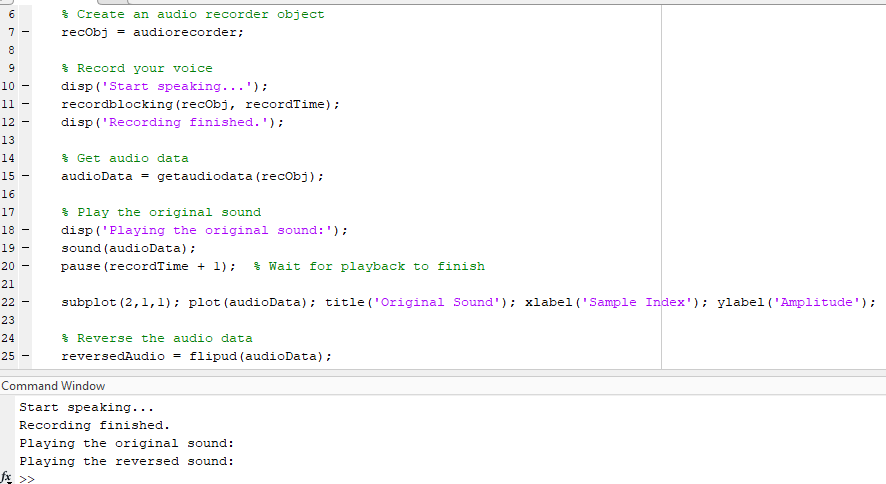
**Lab 10**

**Task 1**

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**Task 1 – i**

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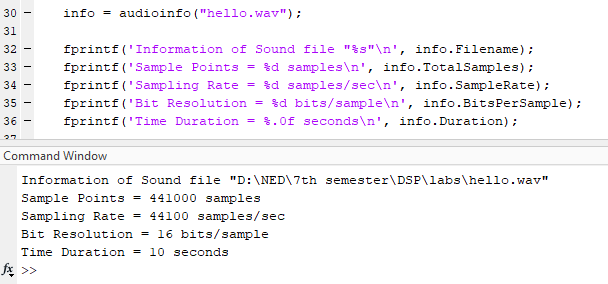
**Task 1 – ii**

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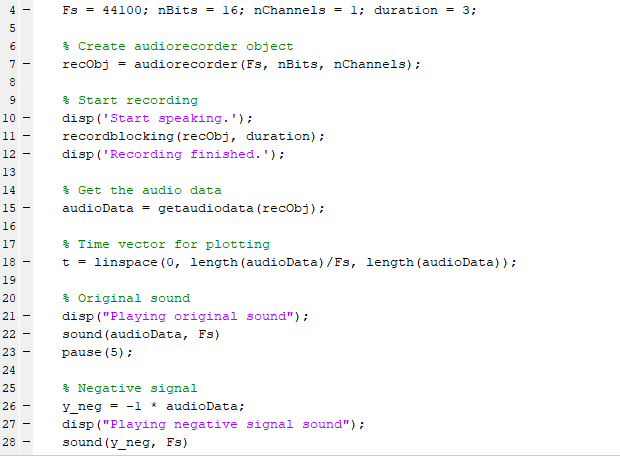
**Task 1 - iii**

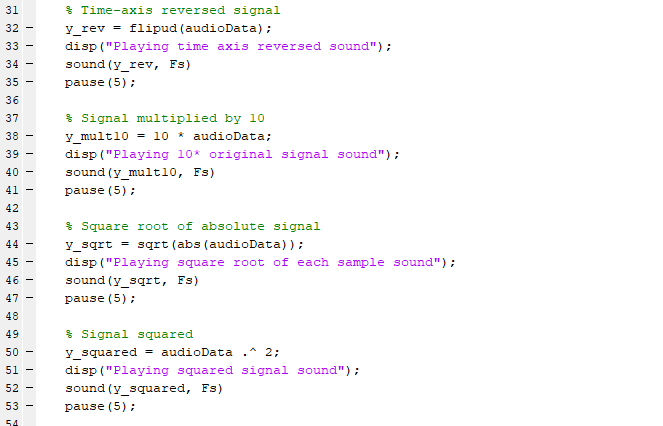
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**Task 2**

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**Task 3**

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**a. Multiply the audio signals by -1 (Inversion)**

* **Effect**: The waveform inverted vertically. Sounds identical to original as inversion preserves the absolute amplitude and phase relationships. Our ears are insensitive to phase changes

**b. Reverse the audio signals in time axis (Reversing the signal)**

* **Effect**: Reversing the signal plays the audio backward.

**c. Multiply the audio signals by 10**

* **Effect**: Multiplying the signal by 10 scales the amplitude of the waveform, resulting in a 10x louder sound.

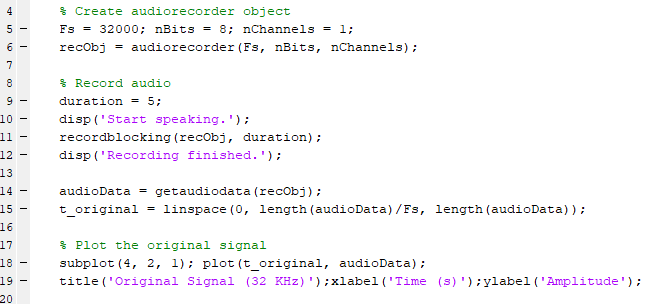
**d. Replace each sample by its square root**

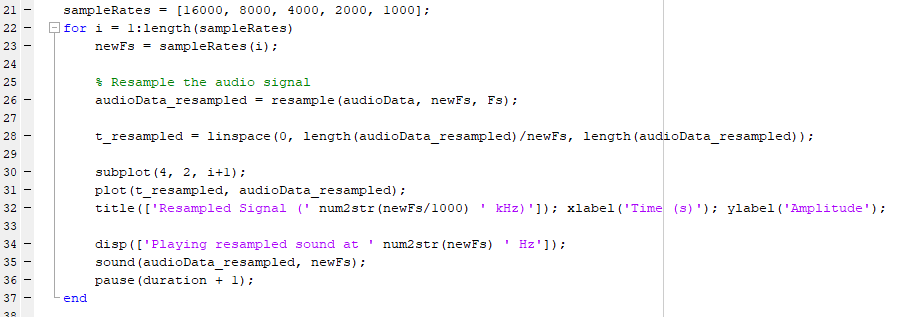
* **Effect**: Applying the square root to each sample causes distortion because louder portions become quieter, and the overall signal becomes uneven in amplitude.

**e. Replace each sample by its square**

* **Effect**: Squaring each sample significantly reduces the amplitude. Most audio signals have values near zero so squaring these values results in even smaller numbers, leading to a signal with almost no sound.

**Task 4**

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**Task 5**

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