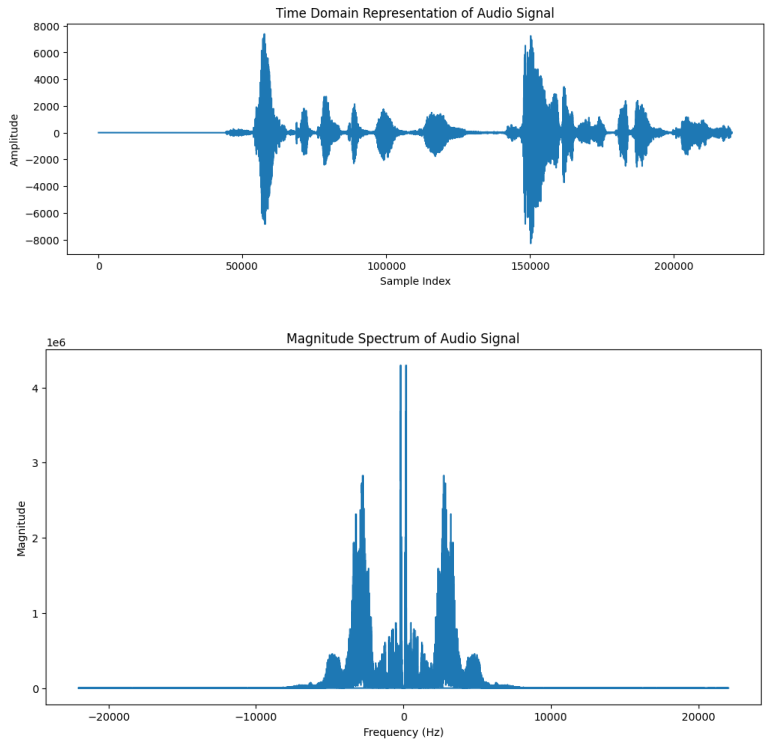


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Experiment 3 (Application)	

PROBLEM DEFINITION:	Analyze the Audio Signal in frequency domain.
ALGORITHM:	<ol style="list-style-type: none"> 1. Record Audio Password and filter the noise ==> $x[n]$. 2. Plot $x[n]$. 3. Transform Audio Signal $x[n]$ from Time Domain to Frequency Domain using DFT ==> $X[k]$. 4. Plot Magnitude Spectrum of $X[k]$.

EXPERIMENTATION AND RESULT ANALYSIS:

RESULT:	<p>Graphs:</p>  <p>The first plot, titled 'Time Domain Representation of Audio Signal', shows the amplitude of the signal over time. The x-axis is labeled 'Sample Index' and ranges from 0 to 200,000. The y-axis is labeled 'Amplitude' and ranges from -8000 to 8000. The signal is a complex waveform with several peaks and troughs, indicating a non-stationary signal.</p> <p>The second plot, titled 'Magnitude Spectrum of Audio Signal', shows the magnitude of the signal in the frequency domain. The x-axis is labeled 'Frequency (Hz)' and ranges from -20,000 to 20,000. The y-axis is labeled 'Magnitude' and ranges from 0 to 4, with a multiplier of 10^6 at the top. The spectrum shows a central peak at 0 Hz and two prominent side peaks around 5,000 Hz and 15,000 Hz, indicating a signal with a strong low-frequency component and significant high-frequency content.</p>
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