This program is designed for mixing audio files at the desired sampling frequency. It processes files located in two different directories: the first directory contains inhalation signals, and the second contains background noise.

The program performs the following steps:

1. **File Selection:** It scans all files in the specified directories and processes one file from each directory.
2. **Volume Adjustment:** The program applies the function apply\_gain(20 \* (noise\_weight - 1)), where the number 20 is used to control the volume of the background noise in decibels (dB). The function values determine how much the background noise will be increased (for positive values) or decreased (for negative values). This approach is physically justified, compared to simply multiplying the background noise by a coefficient.
3. **Signal Alignment:** The program automatically determines the lengths of the signals and places the shorter signal in the middle of the longer one.
4. **Result Creation:** The program generates a set of files where the name of each file is formed by the following principle: the name of the first file + noise\_weight value + name of the second file.

This program provides flexibility in adjusting the volume of background noise and efficiently aligns audio files of different lengths.