The number of MFCC vectors extracted from each audio file depends on the following factors:

**1. Audio File Duration**

The total number of samples in an audio file is determined by:

Total samples = sample rate × track duration

**2. Hop Length**

The hop length determines how much the analysis window shifts for each FFT calculation. For a hop length of 512 samples:

Number of frames (MFCC vectors) = (Total samples / hop length) + 1

**3. Number of Segments**

If the audio file is split into num\_segments, the MFCCs for each segment are calculated independently.

**Example Calculation**

Using your parameters:

* SAMPLE\_RATE = 22050 Hz
* TRACK\_DURATION = 30 seconds
* HOP\_LENGTH = 512
* NUM\_SEGMENTS = 10

**Total Samples**

Total samples = 22050 × 30 = 661,500

**Samples per Segment**

Samples per segment = 661,500 / 10 ​= 66,150

**Frames per Segment (MFCC Vectors)**

MFCC vectors per segment = (Samples per segment / Hop length )+1 = (66,150 / 512) + 1 ≈ 130

**Total MFCCs per Audio File**

For each audio file, **1,300 MFCC vectors** will be generated with the current parameters (10 segments, 130 vectors per segment). If you change num\_segments, the total number of MFCCs will adjust accordingly.