Content Based Filtering Recommendation Engine

```
Labeled Data  →  Normalize sample rate, file type, length  →  Train CNN
                                                                   │
                                                                   ↓
Youtube → Scrape → Normalize sample rate, file type, length → Songs bites → Demucs Stem Split → Mel Spectrogram Pipeline
                                                                                                         │
                                                                                                         ↓
                                                                                            Instrument Classification via CNN
                                                                                                         │
                                                                                                         ↓
                                                                                            Convert Classifications to Vector Probabilities
                                                                                                         │
                                                                                                         ↓
                                                                                            Cosine Similarity Pipeline → Recommendations based on instrument make up
```