Kaldi ASR Team Sprint 04 Demo

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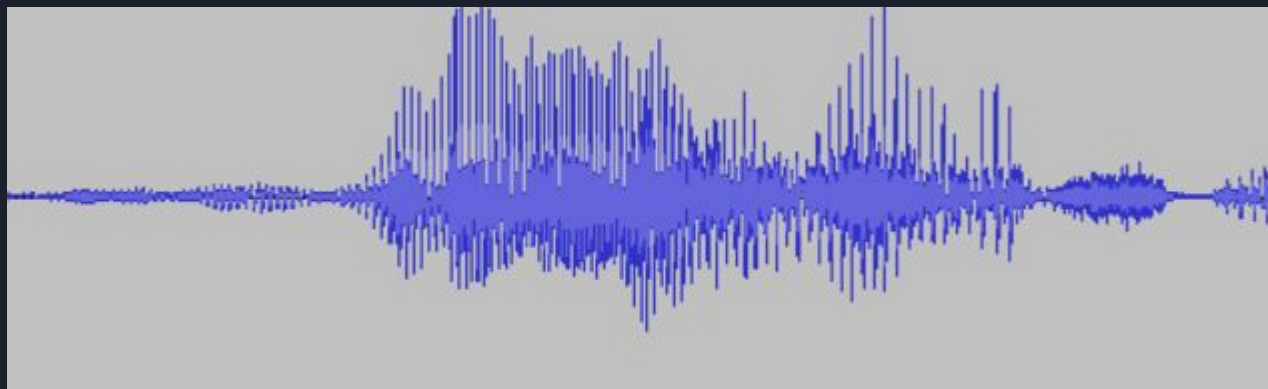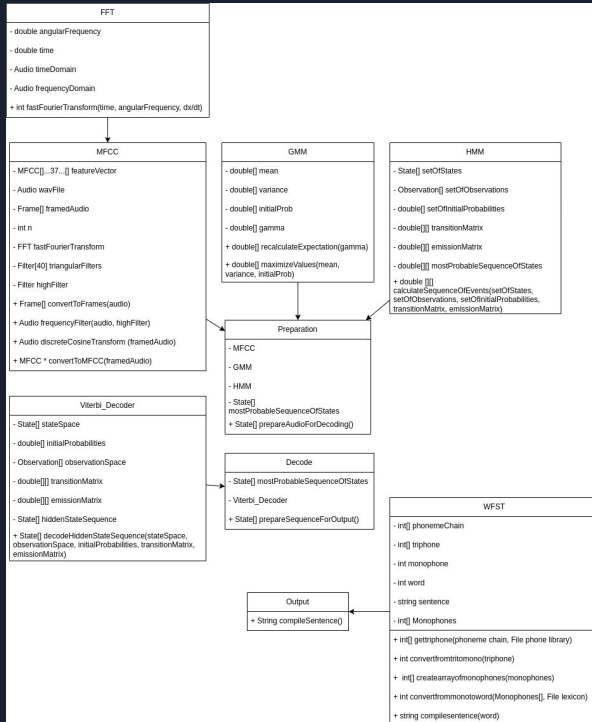
Sprint Overview

- In-depth understanding of audio data preparation stage

- Restructuring all models

- Creating and updating documentation

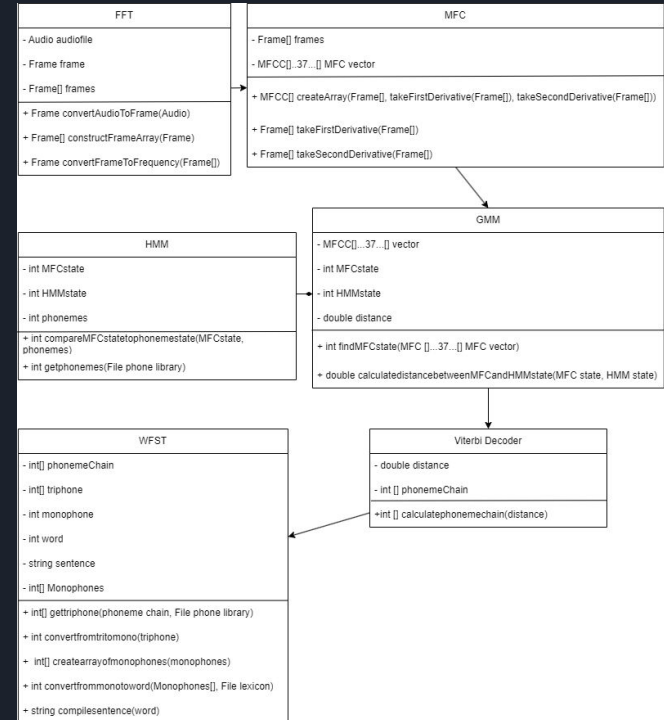- Installation Guide

Audio Data Preparation

- The FFT is a part of the MFC

- There are steps before and after the FFT to prepare the audio

- Audio is filtered, framed, and windowed before the FFT

Models

Class Diagram 4.1.3

Class Diagram 3.1.1

Documentation

- Updating SDD and SRS to reflect upcoming ASR model in development
  - Previously reflected sample ASR model
- Created user installation guide for Kaldi ASR Toolkit
  - Includes Windows and Mac installation guide

Installation Guide for Windows

- Install WSL and Ubuntu

- Set up cores and dependencies

- Set up the tools folder, and src folders

- Install the tutorial (optional)

Installation Guide for MAC

- Initial Setup Challenges:
  - Required switching to Homebrew for package installations
  - Python 2.7 compatibility issues.
- Intel MKL Installation Hurdles:
  - Compatibility issues with Intel MKL on Mac Air M1's ARM architecture
  - Requiring exploration of alternative libraries or solutions tailored to ARM.

Installation for MAC

- Windows Environment Transition:
  - Installed Parallels and Windows on Mac to overcome compatibility issues
  - Required learning Windows-specific operations for development.
- Kaldi ASR Toolkit Installation Guide Improvements:
  - Understanding the installation process on virtual machine and using the installation guide
  - Ensured clarity in instructions, especially regarding WSL integration and Windows terminal commands

Struggles

- Time out errors
- Struggled with installing Intel MKL package
- Absurdly long installation time
- Scale of the project was/is not fully understood

Future plans

- Write report on data preparation script provided by Dr. Liu.

- Continue to update documentation

- Have an acoustic ASR model ready by the end of the semester

- Finish a team-based code for the tutorial

  - Should take in multiple WAV files

  - Should convert non-WAV files to WAV

- Successful install Kaldi ASR Toolkit on a virtual machine on macOS.

Q&A