APTgt

AUTOMATED PHONETIC TRANSCRIPTION GRADING TOOL

Welcome to the Automated Phonetic Transcription Grading
Tool (APTgt).

Creating Assignments

This learning system allows you to build phonetic transcription assignments, add audio/video recordings, and create an answer key. Student assignments will be automatically graded based upon the answer key you provide. There are three keyboards: beginner (broad transcription), advanced (narrow transcription), and the full IPA keyboard. You can set the date and time that the assignments are due and provide immediate or delayed feedback of the performance results. Students can visualize the de-identified results of the class and visualize graphic displays of individual and class performance.
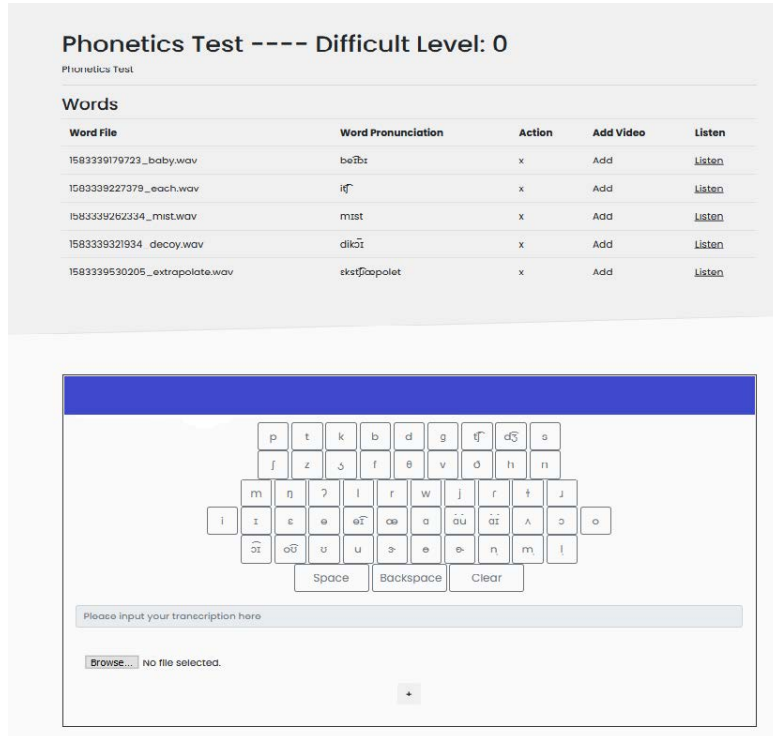

Figure 1. Teacher portal for creating assignment

Scoring

APTgt automates the scoring of assignments by calculating the edit distance between the answer provided in the key and the students answer. It does this by assigning gradated penalties for phoneme edits versus diacritic edits: For any substitution, addition, or deletion of an entire phoneme, the algorithm assigns a penalty of 1; for any substitution, addition, or deletion of a diacritic, the algorithm assigns a penalty of 0.5. APTgt also provides average edit distance scores for all transcription comparisons input in a session. Students are also provided with the percent accuracy for each item and the average across all items transcribed.
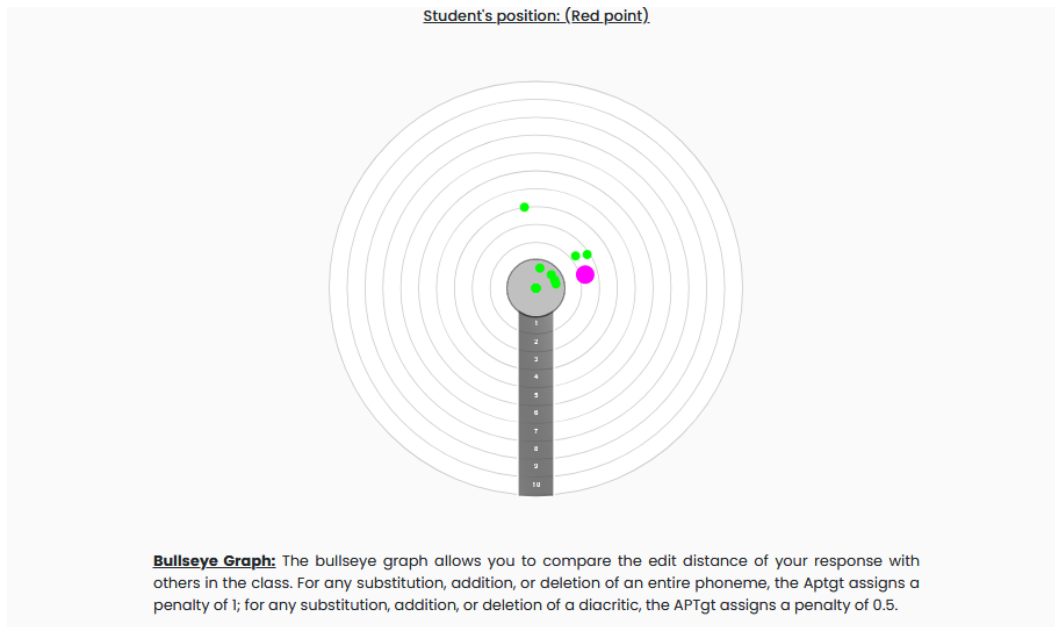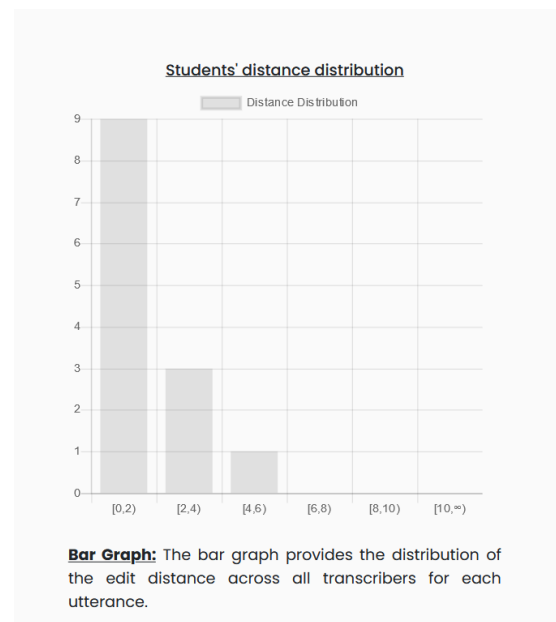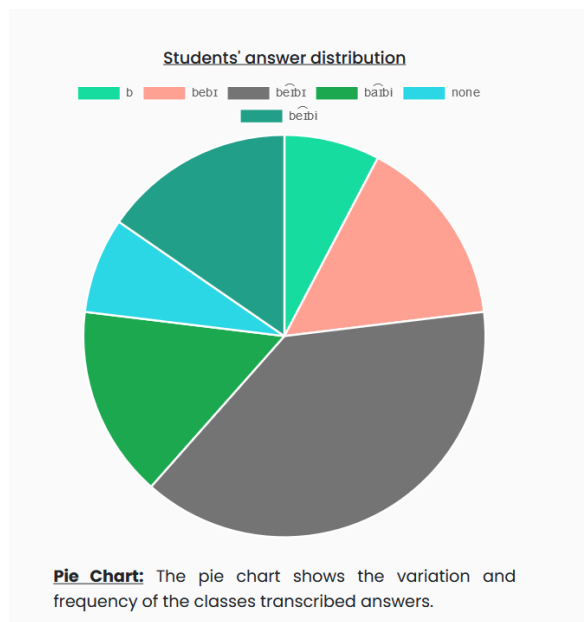

Figure 2. Automated scores obtained from student responses.

Visualization Tools

Visual tools are available within graded assignments that provide the ability for students to analyze their individual results and the anonymous results of the entire class. The bullseye graph allows student to compare their response with the class while seeing the edit distance. This allows the students to quickly see how far their response is away from the instructor's answer and those in the class. Below the are the ordered plotted responses from Figure 2. Students are able to see how far away their responses are from the instructors key. When multiple students are completing transcriptions, the bullseye graph will allow for comparisons across all transcribers.

Bullseye Graph: The bullseye graph allows you to compare the edit distance of your response with others in the class. For any substitution, addition, or deletion of an entire phoneme, the Aptgt assigns a penalty of 1; for any substitution, addition, or deletion of a diacritic, the APTgt assigns a penalty of 0.5.

The pie graph allows students to see the multiple ways the target item was transcribed and the frequency of each transcribed response. The bar graph indicates the number of students whose edit distance fell within a specific range. The visualization tools allow for instructors and students to gain understanding about individual and group performance. The tools can be used in the classroom to spark discussion about the variability that occurs between multiple transcribers and to refine transcription skills.

Pie Chart: The pie chart shows the variation and frequency of the classes transcribed answers.

Bar Graph: The bar graph provides the distribution of the edit distance across all transcribers for each utterance.

Application

Potential uses of the tool include the following: instruction, transcription practice, tracking student's performance over time, estimating the severity of sound production accuracy impairments through case studies, and calculating inter-rater reliability of multiple transcribers.