**Speech & Technology**

**Lab Worksheet**

Name(s): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Total Points = \_\_\_\_\_\_\_\_\_ / 10

**Part 1: Sampling Rate**

Listen to the examples of the sentence played at sampling rates of 4, 8, 12, 16, and 44.1 kHz.

1. Based on listening alone, what sampling rate do you think is appropriate for speech? (1 pt)

Next, open each recording in a different Praat window. Take a look at the frequency ranges.

1. What is the frequency range of the sound acquired at a sampling rate of 8kHz? (1 pt)
2. Why do you think the original inventors of the telephone only transmitted information less than 4 kHz? (1pt)

Please respond “true” or “false” for each statement. (1pts)

\_\_\_\_\_\_ It is easy to see all relevant speech formants (F1, F2, F3 and F4) at the sampling rate of 4kHz.

\_\_\_\_\_\_ It is difficult to see voiceless fricative information in sampling rates of 4 and 8 kHz.

\_\_\_\_\_\_ The best sampling rates to capture voiceless fricative information is at least 16 kHz.

\_\_\_\_\_\_ There are no downsides to high-quality sampling rates (44.1 kHz).

**Part 2. Speech Recognition Technology**

Watch the video of the grandmother trying to use google home. <https://www.youtube.com/watch?v=e2R0NSKtVA0>

1. What aspects of her speech and language make it difficult to use this technology? Provide at least 3 examples. (1 pt)
2. How do you think the grandmother feels when using Google home? Do you think she will use the device after her family leaves? Why or why not? (1 pt)

**Part 3. Recording your own speech and voice: How accurate is it?**

Choose a speech-to-text app on your phone (example, text messages, google, siri, etc).

Develop a sentence that can be said as Standard American English, and as a different dialect of American English. Consider using slang terms and/or accented speech.

Examples:

Southern American English: “ya’ll” for “you all” or New York English “yous all” for “you all”

Boston American English: “Park the car in harvard yard.”

Answer the following questions:

1. What app did you choose? (0.5 pt)
2. What dialect did you choose? (0.5 pt)
3. Sentence 1- said in Standard American English (1 pt)
   1. Standard American English (what you said): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   2. What your app heard: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. Sentence 2- Said in a dialect of English (1 pt)
   1. Dialect of English (what you said): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   2. What your app heard: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Reflection. What did you learn from this activity? How do you think a speaker of the dialect you chose feels when using speech technology? (1 pt)