Evaluation Plan

Research Question:
I am currently focusing on implementing two main sonification for my project.

Sonification 1: The lesson plan for touch typing
- For wrong key input – one error sound
- For the wrong finger used for the key – another error sound.

Question: Are the users able to differentiate between two different sounds?
Explanation: Since the error beep sound is very short, it is important users understand what kind of mistakes they are making)

Sonification 2: Continuous background sound based on healthy body posture.
- Changes pitch/frequency when posture becomes unhealthy [muscle angel differs too much from ideal angle]

Question: Are the users able to identify what this background sound is referring to and take action accordingly while still hearing the lesson plan?

Explanation: I plan on adding this continuous sound mildly along with the lesson plan. So, it is important to understand whether users are able to identify that or not.

Participants & Recruiting:
Even though initially this system was mostly for visually impaired users trying to learn touch typing. However, during the last deliverable, I realized the features I am adding could be beneficial for other users as well. Therefore, I am planning on recruiting some people who are aware of the basics of the keyboard and do not use touch typing while typing. I happen to know some younger friends who are going to learn touch typing, probably I can ask them to evaluate my system.

Measures:
First, I will make them use the typing.com. I will see how quickly the participant rectifies mistakes while typing based on their visual instructions. Additionally, it will provide the users more context since they are not very familiar with touch typing.

Then I will make them follow my audio plan [similar to what they did on typing.com] in a dummy keyboard, I will play the background sounds and different error sounds manually via UI in "Manual Mode" in my simulator. I will collect data on how they are reacting to the background and how quickly they rectify the mistake.

**Note: I have decided to stick to a simple, slow letter-based lesson plan so I can track what fingers participants are using to produce the right error sound.

Then I will do a short interview where I will ask them if they were able to identify different error sounds and how the background sound [for body posture] was affecting them.
Protocol:

Thank you for taking the time to consider participating in my short study. I am a student at Georgia Institute of Technology conducting a study for my Computer Audio Course. I am designing a system that will ensure efficient, enjoyable, and healthy typing learning experiences by considering **users' performance** and **body posture** and sonifying proper instructions.

There are two sections of this study. First, you will work with an online touch-typing platform that has mostly visual instruction.

Then I will play my simulator, where audio lessons will play, and you will follow that. If any mistakes are made, there will be an error sound. You won't be able to rectify it, so focus on the next letter. Additionally, there is an additional background sound to track heathy body posture.

Do you want to proceed with the study?

Thank you for your consent to participate in the study. I will explain the process before we start.

First, Typio.com visual lesson plan.
Then I will play my simulator, asking them to follow the lesson plan on a dummy keyboard.
Then a short Interview.

Analysis:
I will compare – how users reacted to the visual instructions of typing.com [in beep mistake sounds], and how they reacted to two different error sounds of my simulation. The latency for reacting towards error sound, ability to identify different error sound, and posture sound will help me to analyze the strength or weakness of my simulator.