**Emily Zeh**

**Interactive Game and Audio Final Project**

**Game: The Lawn Con**

**Game:**

The Lawn Con is a simple Unity game that aims to teach the player about how to make their yard/garden more environmentally friendly. The player can choose from a selection of tiles (grass, flower, moss, etc) and make a 5x5 grid lawn. The player then performs two actions (mowing, weeding, watering, etc) each day for one in-game week. The results of their actions are tallied up at the end of the week, and the player can achieve a bad, neutral, and good ending. Either way, they are given tips and advice on how to better care for their lawn in a way that is good for the environment.

**Basic Sound Effects:**

There are five actions that a player can perform on the tiles in their yard: mowing, weeding, watering, fertilizing, and spraying pesticides and herbicides. Each one needed to have its own sound effect, and I wanted to do something interesting with them to enhance the feedback given to the player. The tiles have visible stats that represent the different states of the type of tile, like the how much water it has or how high the grass level is. I set a volume parameter for the sound effects tied to the actions, and when the amount of ‘work’ that would be performed on a tile crosses a custom threshold, the volume of the sound effect increases greatly. Therefore, if the water level increased from 1 to the max value of 5, it the sound that plays would be much louder than if it went from 3 to 5.

I also made some pseudo-UI sounds that I feel qualify as sound effects as well. First there is the sound that plays when placing a tile during the setup phase. I tried to make it sound as though a shovel was digging up dirt to ‘replace’ it with the chosen tile type. The other sound which plays when a tile is selected in the play phase uses the second half of the placing sound that sounds like crunching dirt. I wanted to make the two sounds similar since they both involve working with the tiles.

**Ambient Track:**

There are a couple of different ‘hidden’ stats that each of the tiles have, one of which is an ‘environment’ stat that goes down when an action is performed that hurts the environment. The sounds in the scatterer will decrease in volume along with the environment stat, so the player gets auditory feedback on their results. The scatterer itself contains four tracks that represent bits of the environment: bees buzzing, dogs barking, birds chirping, and wind through a set of windchimes. This same scatterer also plays during the title screen, but the title screen ambience does not contain the musical background, as I wanted the title screen to have a quieter soundtrack than the track during the game. The music during the game is somewhat louder to make the occasionally louder sound effects less jarring.

**Results/Midi:**

I was not quite sure how the results sounds would work, but I think they turned out all right. I used midi items that I created instead of free sounds online. There are three different endings in the game; a good, neutral, and bad ending, and each one has a different midi sound that plays to signify which ending the player got. The good ending has ascending notes, the bad ending has descending ones, and the neutral ending alternates between low and high notes. I’m not quite sure that they fit in with the rest of the sounds, but after the work I put in to make them and get them to work I’m proud of them.

**Mixing and Mastering:**

Mixing was a bit more annoying and involved than I thought it would be, but it turned out all right. I separated the sounds into sound effects, music, and results buses. Then I created a snapshot event- if the escape key is hit to access the exit menu, the volume of the ambient track will decrease dramatically. If the player pauses, it is likely because they are doing something else, so reducing the volume makes sense. For some reason, the scatterer sounds in my project were incredibly quiet, so I had to do a lot of fiddling with the volume to get them loud enough to make the exaggeration between high and low environment values noticeable.

When I moved on to mastering, I noticed that most mobile and browser-based games had lower LUFS, or an overall higher volume. I tried to make the master bus louder, but I could only increase the volume so much before the sudden volume of the sound effects and the loudness of the ambient track was too overwhelming. I settled on a LUFS of roughly -17, which increased the volume enough without breaking or distorting the sound.

**Sound Sources:**

"Pop7", by greenvwbeetle (<https://freesound.org/people/greenvwbeetle/sounds/328118/>)

"Shovel Dirt", by andersmmg (<https://freesound.org/people/andersmmg/sounds/516312/>)

"Water Pouring A", by InspectorJ (<https://freesound.org/people/InspectorJ/sounds/421184/>)

"Aerosol Spray", by WeeJee\_vdH (<https://freesound.org/people/WeeJee_vdH/sounds/267709/>)

"LawnMower\_Idle\_Close", by KieranKeegan (<https://freesound.org/people/KieranKeegan/sounds/431477/>)

"OpenBag", by TriqyStudio (<https://freesound.org/people/TriqyStudio/sounds/467604/>)

"Ticking Stopwatch (dry)", by DavidJGurney (<https://freesound.org/people/DavidJGurney/sounds/275802/>)

"Pull Plant", by josepharoh99 (<https://freesound.org/people/josepharaoh99/sounds/387083/>)

"Venkatesananda", by Jesse Gallagher (<https://www.youtube.com/watch?v=RnBCftRg2LM>)

"Dogs Barking.wav", by LeandViljoen (<https://freesound.org/people/LeandiViljoen/sounds/501719/>)

"Bees.wav", by Benboncan (<https://freesound.org/people/Benboncan/sounds/73370/>)

"Bird Whistling, Robin, Single, 13.wav", by InspectorJ (<https://freesound.org/people/InspectorJ/sounds/456440/>)

"Wind Chimes, A.wav", by InspectorJ (https://freesound.org/people/InspectorJ/sounds/353194/)