Final Submission: Documentation

The game I created sound for is a small puzzle game. This game is called Crustacean Conundrum that requires the player to utilize two different movement bindings for two controllable characters that can each only move in one direction (x axis and y axis only). The theme of the game is set with crabs on a beach trying to get back home. With this, they have to path and work together to try to overcome the obstacles in their way and get back home. For the in-game experience, the game was made to be played with two separate players, although one player can play it just fine utilizing both movement binding options. (WASD, and arrow keys). The crabs / players push each other to complete the level together. Looking deep into the game and trying to find sounds for any asset I could, I decided that the game should have ambience music and sounds, collision sounds, parameterized footsteps, button / gate sounds for the puzzle aspect itself, menu interface sounds, and a level completion sound. For these sounds overall, I tried to make them have a blend of cartoony sounds and some amount of realism.

**Ambience:**

Background ambience music and sound played in the game. I used realistic beach waves and seagulls chirping the background that play in different random intervals of time. They set the mood and setting of the game as it’s on the beach. The background music is fanfare-y and joyful overall as it’s supposed to be a lighthearted game.

**Wall Collision:**

I cut this sound from a sound sample of falling rocks hitting and surface and edited it to make it seem like it was a hard collision. This signals the player that they are moving into an immovable wall in the game.

**Moving Seashells:**

These seashells are assets used to push down a button in placeholder of a player controller. As such, I would want the seashells to make noise when they are moved to signal the player that they are currently colliding and moving the shell.

**Button Activation:**

As it’s a key element of the game, I wanted a strong sounding button press that felt satisfying for the player to hit. I used a relay switch sound sample and altered it pitch-wise and used EQs to get the intended effect.

**Gate Sounds:**

The gate is a closed exit of a level that only opens when all the buttons on a level are pressed down, either by seashells or the two crabs players can control. I wanted a sound that was different from the others in that it was louder and fit the material of the game (metal in this case).

**Footsteps:**

These footsteps are played whenever the player moves. If the player crabs are sprinting, then the sound if played faster and louder, as it should. It signals to the player that the crabs are moving. In addition, each crab has their own unique footstep sound to differentiate the axes and the crabs themselves when they move through sound. They are made of 3 sound samples each that play at different intervals controls by FMOD.

**UI Sounds:**

These UI sounds are brief, satisfying click-like noises for the menu-hover and menu-click sounds that signal that an interface button is being hovered or clicked on.

**Level Completion:**

Tells the player that the level is complete and they get to move on to the next. I wanted a triumphant-like sound that was easy to distinguish, and uplifting in mood.

Many of the sounds were cut from their original samples and went through a variety of EQs, pitch and volume takes, low pass and high pass filters, and sound merging between different sounds to get to their end result. Nothing too fancy, but overall a timely process.

Regarding FMOD, I separated the sounds into different categories by folders (Ambience, Character, Interactables, and UI). These categories explain the sound and what purpose / attachment they should have in the game. I separated the sounds into two group buses as well: Ambience and SFX, as all the sounds fit in to either category. This was done so I could create volume settings in my game and allow the player flexibility to adjust them. There weren’t many overall functions in my game so I had to make do with create more playability options in the game to allow for parameters like allowing the player to sprint, or creating a volume settings menu. Through heavy feedback, I managed to come up with more applicable FMOD techniques to use for sounds overall. These include making footsteps making a multi-instrument to use for the footsteps that randomize the footstep generated with different changes in pitch for each one. I then added a speed parameter to the footstep to account for player speed and set automation in volume for the parameter and a scatterer instrument for the footsteps. I did the same thing for two different set of footsteps. I also added a seagull parameter for my background ambience beach sound and used a similar technique; cut 3 different sets of sounds from an initial sample and place them into a multi-scatterer instrument and changed volume for the seagulls if the parameter was higher. I messed with spawn intervals and pitch/vol randomization so it seemed natural for the overall ambience beach sound. Amongst other things I did in FMOD were adding some fades like ADHSR and normal fade outs, looping, messing with overall buses and sound settings to equalize all sounds, and messing with some effects. Most effects were done with Reaper, however.

When mixing all the sounds into the game, they came in all different sorts of volumes and I had to adjust each one. The live update feature for the master bus was very helpful in that regard. Also, by having each sound in separate buses and folders overall, I could play around with these decibel levels in the mixer to make them have a uniform volume base to work off of and adjust individually from there. A reference game I used was doodle jump as it was a very simple cartoony game much like mine and had similar aesthetics and a hint of realism in the sounds. I wasn’t able to find anything online on how Lima Sky operated their sound pipeline / polish, but in the end I tried to match overall volume levels to the reference (bumps/collisions and movement prioritized over all else as that’s the main interaction in our games).

**I gathered all my initial sound samples from freesound and here are my references:**

**(The authors’ usernames are in the sound file names and urls)**

192277\_\_lebaston100\_\_click (menu click) - <https://freesound.org/people/lebaston100/sounds/192277/>

204690\_\_craxic\_\_glass18 (merged to make menu click) - <https://freesound.org/people/Craxic/sounds/204690/>

448080\_\_breviceps\_\_wet-click (menu hover) - <https://freesound.org/people/Breviceps/sounds/448080/>

372181\_\_amholma\_\_ocean-noise-surf(waves bg ambience) - <https://freesound.org/people/amholma/sounds/372181>

footsteps(cut from this media file) - <https://freesound.org/people/revolt2563/sounds/352870/>

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469901\_\_aabbccddee123\_\_066-zorrotratadeagarrarroca-001(moving seashell) - <https://freesound.org/people/aabbccddee123/sounds/469901/>

384698\_\_bassmosphere\_\_a-relay-switch-being-activated(button activated) - <https://freesound.org/people/bassmosphere/sounds/384698/>

126041\_\_mhtaylor67\_\_gate-latch(gate open & close) - <https://freesound.org/people/mhtaylor67/sounds/126041/>

399377\_\_deleted-user-5405837\_\_complete-04 (level complete) - <https://freesound.org/people/deleted_user_5405837/sounds/399377/>

488660\_\_fission9\_\_tumbling-rocks (cut from this, wall collision) - <https://freesound.org/people/Fission9/sounds/488660/>

background-music - http://computoser.com/track/7764

seagulls by Lydmakeren - https://freesound.org/people/Lydmakeren/sounds/510917/

crab Y footsteps by savataivanov - https://freesound.org/people/savataivanov/sounds/384082/