**Introduction:**

Sunset Heights is a fairly simple 2D Platformer built in Unity, where the goal is to get to the end of the level while avoiding evil slimes and death pits. I originally intended the project to be more action-focused and star a girl wielding a slime hammer, however once the reality of what this would require art-wise set in I quickly decided to stick with the template character.

**Analysis:**

As the project was fairly simple, much of the initial work came from simply swapping out the sound events in the code with FMOD events, which I got done fairly quickly. Adding in water ambience and randomized enemy grunts proved more difficult however, requiring custom scripts and quite a bit of bug fixing. In addition, I wanted to distance the game as much as possible from the template it was built on, and as such art was also quite time consuming. By the end I had replaced most of the foreground tileset and added some water at the start of the level to contextualize the water ambience, which helped the game stand out much more. Given more time I would’ve loved to overhaul all of the visuals, but as is I’m pretty happy with how the game looks and feels.

**Sound Assets:**

The most involved part of the sound creation process was creating the water ambience for the ocean at the start of the level, which was made up of several components, including a loop of soft ocean sounds coupled with four different wave sounds, to which I applied fade-in and fade-out’s in order to make them blend together a bit better. For the menu sounds I wanted to make sure the sound effects represented the motion of going in and out of the pause menu, with a much louder and more positive tone for going in the menu while a more subdued one plays for going out, which I think made the menu much more satisfying to use. My one regret is picking a sound for the menu selection that was a bit stylistically dissonant compared to the others, with a much more retro feel. For many of the voices with multiple randomized sounds such as the battle cry and enemy sounds I had to adjust the pitch to make sure the voices actually sounded like they came from the same character, since they were often from different sources originally. With the enemies this was particularly difficult, since most of the sources came from wildly different animals that I had to pitch down or up to all sound like they were coming from the same race of orcs.

In general it was important to me that common sounds like jumping, attacking, and voices were randomized so as not to become repetitive during gameplay, which I applied to the jumps, footsteps, player damage, player attacks, enemy damage, and the aforementioned waves by including multiple different samples that were chosen randomly by FMOD. The footsteps required some pretty severe EQ correction on the low end to make them consistent, since some were much crunchier than others despite coming from the same source. I’m also particularly proud of the sound that plays when your character respawns, which I created from drastically speeding up a recording of bubbles which blend together to suggest a slimy reformation, which ended up matching the default template character perfectly. Finally, the retro coin sound was picked to pair with the bright, crystalline pickups in the actual game, although I also added a touch of reverb to give the sound a bit more depth.

**FMOD:**

The FMOD work for the project was fairly simple as many of the sounds were one shots with no other edits that weren’t already handled in Reaper (Enemy Death, Enemy Hit, Coin, Landing, Slime Spawn, and all of the UI Events) although there were still quite a few sounds that required a good deal of setup. The water ambience was of course the most complicated, with a scatter instrument randomly selecting wave sounds to play over a softer ocean loop. I also added a proximity parameter which causes the waves to become quieter or louder depending on how close the player is, with the sound eventually going completely silent if they stray too far. The enemy growls were handled similarly, just without the softer backing track and including another proximity parameter to allow the randomized growls to fade in and out based on how close the player is. The one flaw with my implementation was that it only keeps track of the x-axis in game, so it’s entirely possible to hear loud growls from an enemy high above the player, which I would definitely like to address at some point in the future. Both the enemy growls and water ambience also received some random pitch variation to prevent the ambience from becoming repetitive. Other events of note include the ones using multi-instruments in order to randomize the sound effect, which includes Footsteps, Jump, and, Player Damage. Hammer Swing is a special case in that it utilizes two different multi-instruments to randomize both the battle cry and swooshing sound, allowing for many more sonic possibilities. My only major regret with the FMOD events is a few of them (Hammer Swing, Player Damage, and Enemy Hit) don’t actually appear in game due to a lack of time to implement the gameplay features necessary to actually make use of them, which I definitely would like to remedy if I continue with the project.

**Mixing:**

Mixing on the project was fairly simple, although I am pretty satisfied with the final result. I organized the mixer into UI, SFX, and Ambience branches and adjusted accordingly. The UI sound effects were especially loud by default, even after toning them down in Reaper, so they were further turned down here. The SFX received a small decrease in volume in order to stick out less from the ambience, which was likewise increased in volume.

**Mastering:**

For mastering, I compared the game to *Downwell* and *Sonic Mania*, both platformers which made for a good comparison. Both games were fairly loud, coming in at around an average LUFS of -15Db, although *Downwell*’s varied quite a bit due to the high volume of the sound effects compared to the music. Based on the other examples given in class as well as my game’s more relaxed tone in contrast to the two comparison games, I thought a quieter master would suit the project better, with the final coming in at around an average LUFS of -25Db.

**Asset Sources:**

* Wave4: <https://freesound.org/people/Kayyy/sounds/61014/>
* Wave3: <https://freesound.org/people/Kayyy/sounds/61013/>
* Wave2: https://freesound.org/people/Kayyy/sounds/61012/
* Wave1: <https://freesound.org/people/Kayyy/sounds/61011/>
* Waves Up Close 2: <https://freesound.org/people/amholma/sounds/376804/>
* Menu Button: <https://freesound.org/people/Leszek_Szary/sounds/191592/>
* Arcade Splatter: <https://freesound.org/people/plasterbrain/sounds/464909/>
* Menu Select: <https://freesound.org/people/pumodi/sounds/150222/>
* Paino: <https://freesound.org/people/Michel88/sounds/76969/>
* Ogre1: <https://freesound.org/people/-sihiL/sounds/213846/>
* Thud3: <https://freesound.org/people/BMacZero/sounds/96138/>
* Female Battle Cries/Grunts: <https://freesound.org/people/AmeAngelofSin/sounds/264982/>
* Bamboo Swing: <https://freesound.org/people/InspectorJ/sounds/394451/>
* Whoosh: <https://freesound.org/people/qubodup/sounds/60013/>
* Bubbling, Large: <https://freesound.org/people/InspectorJ/sounds/398808/>
* Slime Monster Noises: <https://freesound.org/people/konstati/sounds/486506/>
* Girl Taking Damage: <https://freesound.org/people/MadamVicious/sounds/218190/>
* Footsteps, Concrete: <https://freesound.org/people/InspectorJ/sounds/336598/>
* Coin4: <https://freesound.org/people/The-Sacha-Rush/sounds/336933/>
* Land a Jump: <https://freesound.org/people/zepurple/sounds/540272/>
* JumpGroan002: <https://freesound.org/people/TaraMG/sounds/386043/>
* JumpThud003: <https://freesound.org/people/TaraMG/sounds/386047/>
* JumpGroan001: <https://freesound.org/people/TaraMG/sounds/386044/>
* Frogs\_Croaking\_Sound\_1: https://freesound.org/people/leonsptvx/sounds/521160/