# Design Doc for CA 1

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A video game screen with a person holding a stick

Description automatically generated

My game is about a lumberjack who is calming chopping a tree in an open field, but all is not as it seems as the lumberjack notices strange things happening, such as the clouds and the bees not looking as they used to. This starts the lumberjack’s quest, venturing through horrific areas to defeat the unknown being tormenting him. The game takes place in an open field but changes to a much darker, scarier forest, and finally, a disgusting fleshy cave. You control the lumberjack himself as he swings his axe. Depending on where the axe swings, the lumberjack will end up on either the left or right side of the tree. The main focus of the game is to avoid the branches that fall down as the lumberjack chops away at the tree and to defeat the enemy that lies near the end of the game. Some different things about my game are that the environment changes a lot to appear much darker and unnerving. The music also changes in addition to this. Near the end of the game, a boss fight is initiated with a horrible being, the “Fallen Angel”, a demonic creature with many eyes with intent to eliminate the lumberjack. The gameplay is very simple where the player must simply dodge the falling branches above them, but the branches tend to change how they look which can catch the player by surprise. When the player reaches the boss fight, a sixty second timer starts and the player must chop the tree, which is now the boss, as fast as they can. A health bar is displayed to show how close the player is to defeating the boss. The boss has a roar sound which plays multiple time throughout the fight. This sound is of my own voice, which is heavily pitched down to mimic a big, evil entity.

A computer screen with text and numbers

Description automatically generated

When coding this game, I had to do a lot of going back and forth when changing the sprite textures. This is because I have the sprites changing a lot at different points during the game. Early in the game, when a sprite is changed, it changes back to its original sprite afterwards so there’s a lot of example of “.setTexture” throughout the code. This also applies to when the game restarts without closing the window. If this happens, every single sprite that is changed (which is every single sprite in the game) must be changed back to its original texture. I had to do a lot of testing throughout the code to make sure textures were changing and sounds were changing at appropriate times. For one of my bee sprites, it periodically flies upwards. I change this texture later in the game to a dragon.

A screen shot of a computer program

Description automatically generated

I did “cout” statement to test which variable makes the bee go upwards. After I figured this out, I was able to add two different textures of the dragon, one with its wings up and one with them down. By know the points in which the bee flies up, I was able animate the dragon and make it look like it is flying up using its wings. The changing of the game’s textures all revolves around the number of logs chopped, represented by a counter in the top right corner of the screen. This makes the changes at fixed moments.

A screen shot of a computer program

Description automatically generated

I didn’t find coding this game in C++ to be too difficult. I of course ran into issues with textures and sounds. I had to learn how the sounds worked when trying to stop them and play different sounds. An example of this is when I changed the background music based on the number of logs chopped. I needed to start the music 1 log before I stopped the previous music. It didn’t work if I tried to stop one and start the other in the same if statement. I also learned when changing sprite textures that if the new texture is larger than the previous texture, the new texture fails to load. This happened when making the bee texture change into the dragon texture. The dragon texture was bigger than the bee texture so it would fail to load, and the sprite would appear to disappear altogether. This was solved by scaling down the dimensions of the dragon texture to match those of the bee texture. I relied heavily on SFML to handle my sprites and sounds in my game.