**Design Document**

My term project is kind of a spin-off of the existing game called Flappy Bird. However, as much as I enjoyed playing the game, I felt that the game itself was too mundane once you get used to it. Therefore, I wanted to find another way of playing the game along with some customizations.

ScreamingBird, which is my term project’s name, aims to have the bird go through pipes. The user can control the ‘thugbird’ with their loudness of the voice. The louder the user screams, the higher the bird goes up. Of course, the bird also falls down due to gravity. The user can also choose the hardness in the settings menu, which will change the gap size between the two pipes. Also, there is a high score menu to keep track of scores.

I used pygame to implement various features of the game, such as animating bird in the intro screen, moving base in the base and such. Also, pygame allowed me to scale and transform various images in a meaningful way, so I was able to make a real time soundbar graph using it and also use one image to make two pipes by rotating it.

I used pyaudio and numpy to take samples of the sound input, analyze it, find the max, and make the data into a number and use it as an input in the game. I had to fix various problems where the data would overflow, which was settled down after I fixed the channel, frequency and also the sample rate. This allowed me to make the graph I’ve mentioned before.

I used pickle to store data into a dat file and load it at the same time. This allowed me to keep track of all the scores that were made, and these data is used in a meaningful way to produce high score board.

To match the general concept of playfulness, I had to make several images based off of flappy bird UI that I’ve found online. This gave a unified user experience effect. Also, I’ve made pause button that also thought about how user would be exhausted after several screams so that they could take a rest.