CGRA151 Project Report

Student name: Ocean Steer **Student ID:** 300607620 **Name of game/artwork:** Breakout Evolution

Vision: For my game I will be improving upon the template for the breakout game I constructed in assignment 2. This improved version of Breakout will feature multiple levels as well as improved gameplay elements such as power ups, different target blocks, lives to add difficulty, as well as a visually pleasing design. For power ups I am intending on adding things such as but not limited to a wider platform, a safety net, extra balls, and different ball types. Different types of balls could be attained through a power up and could have abilities such as going through targets blocks without bouncing off. For the visual design I intend to base it upon the color scheme of Vice City Miami, I believe this color pallet will give a clean sci-fi sort of look that fits the title of Breakout Evolution very well. Overall, I want to completely revamp the gameplay experience into a tight well looking final product that will captivate and keep the interest of the player.

Achievement: I believe I was able to achieve mostly what I set out to in my vision. I am very happy with the way the visual design ended up especially, I accurately incased the vibe of the vice city inspiration through not only the backgrounds but the sprites and objects which I created myself which adds a lot to the gameplay experience. In terms of gameplay, I incased majority of the key elements from my vision although there are some unsolved bugs present and different target types not present the core is solid, and the added features still function well giving a well improved gameplay experience.

Technical Challenges: One of the main technical challenges I faced was the collision physics. Although this was the key feature of assignment 2, I never really got it down meaning coming into my game I had to build it from the ground up. For the most part, I scrapped what I had from my assignment and took to researching and communicating with peers on how to iron out collision physics, I took a long approach writing down step by step on paper how I would approach the issue and through a couple weeks of work I managed to get the main collision physics down understanding where the numbers need to be positioned, Overcoming my biggest struggle. My next challenge came from the logic of my power ups the whole concept and the large confusing code behind it was a large task to tackle. I tried and failed with many different structures before I came to my final one, deciding on Boolean variables to assign whether the power up is active, and lists of powerups on screen as well as activated inside the main game class as well as separate classes for the power ups themselves, the timers attached to them, and the loading of the sprites as objects. Breaking down this large task into many different sub classes helped me exponentially in generally grasping what was needed to make these power ups function at a high level. Although I may not have perfected their functionality, I believe the breaking down of this large task into separate classes has helped me overcome the struggles I was having, opposed to going for more of a brute force approach like what I did in assignment 3 which didn't work out so well.

Reflection: Overall, my experience of this assignment was one of learning. There were many aspects in hindsight that may have not been handled the best, and some that I am very proud of. One of the hardest challenges that I wasn't expecting was handling the structure and layout of my code. Through this game I really experienced the importance of having well-structured code, at times I felt even myself as the programmer getting lost within my code. Although I tried to implement as much structure as possible, I still believe it wasn't at the desired level and can still be confusing at times. I didn't think I really found many things easier than expected, each integral part of my game came with its own challenges I was forced to overcome, including the core aspects included in assignment 2 as discussed. Overall, I believed my plan matched reality quite well I got majority of the main features in and managed to polish them to a certain degree, although, time restraints and pure coding ability held me back in some respects I am proud of what I managed to create. Looking back on it I would've planned my actual code a lot better, I believe my concept plan was done well, but planning the structure and key features of my code before going ahead and starting would've done wonders for my project. But in saying this I have learned a lot from my first experience creating a game myself and am looking forward to more and more opportunities to hone and train my skills.