Attack of the Beat

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**Project Description/Abstract**

The goal of this project is to create a game that is an enjoyable experience for the player by challenging them, creating an interesting game environment, and has game mechanics that have not been fully explored by other games.

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**Self-Assessment Essay Fall**

*Sean McManes*

Attack of the Beat is a project dedicated to creating an entertaining, exciting, and immersive game experience for the player and puts an emphasis on the music in the game. This music will manipulate several functions in the game environment so that the player must focus on not only the game itself but also the game music to gain an advantage. This aspect of gaming has not been approached in most modern games. These games typically use their music to fill the background noise of the game and do almost nothing more than create an atmosphere for the game. The music does not have a direct affect in the game experience. Our project will attempt to bridge this disconnect and create a game experience driven off the music in the game itself.

The experiences that we gained during our academic career will assist our project development immensely. Considering I have not completed any co-op semesters so far, most of my experience comes from the courses that I have completed during my time at the University of Cincinnati and from my own experiences outside of the class. Our project will involve the use of several class types, functions, and established libraries in order to achieve a functioning game. CS 2011 Introduction to Computer Science and CS 2028C Data Structures were the courses that established and expanded my knowledge of programming with C++ and the importance of object designing in a program. This project will require the use of user inputs, contain several game objects that will have to be managed and manipulated, and contain a form of storage for object information and other important data. The skills gained from these courses will especially assist with the overall designing of object types, deciding what data needs to be stored and where, and creating the necessary functions to manipulate this data and interact with other objects.

As mentioned, the project will have to manage various objects in the game environment, store portions of this data for future use, and be able to read stored data as well. This will allow the code of the project itself to stay clean of repetitive data that could be stored elsewhere and read from/written to when needed. My experience from CS 2071 Discrete Structures, CS 4071 Design and Analysis of Algorithms, and CS 4092 Database Design and Development will assist me with these aspects of the project. The objects in the game could vary depending on the scenario. In the worst case, there can be several objects that need to be handled depending on what is happening in the game. In order to do this, the object must be managed in various ways and my experience in these courses will especially help in that design process. I will be able to choose the best ways of storing objects and finding the ones that need to be manipulated based on what the search parameters are and be able to evaluate the code to know if there are perhaps better options that would be more efficient. Outside of these courses, I have experimented with ways of collecting user inputs and being able to display objects and outputs beyond what have been done during my coursework (typically just command line). For this project, the use of libraries such as SDL2 and SFML will be useful for displaying the game and both reading and outputting audio.

Most of my motivation for this project comes from my enjoyment and time spent with video games during my life. The countless experiences that I have gained from them and the communities that they have connected me with have affected several aspects of my academic career path and other aspects of my life. From these experiences, I want to be able to expand upon the aspects that I find the most enjoyable for not only myself, but also for a larger audience. During my time with video games and outside of them, I also gained an appreciation for music. Some games have great soundtracks that add to the atmosphere of the game and can get you truly immersed in the experience. Others seem to fall short or do not fully use the music to add to the gameplay itself. From my experience with both game and music I can see the disconnect between them and this became the foundation for this project.

Our first steps in reaching our goal for this project are to build a working game and game design that will be the backbone for the rest of the project. If the game itself is not interesting to the player or is not functioning properly, then the rest of the project will fall short. Once the basic game framework is set, then the aspects of the game that we want to be manipulated by the music can be decided and implemented. The major aspect we have in mind are enemy attack and movement. In order to manipulate these aspects, the music playing must be analyzed and the data from this interpreted by the game into actions for the objects in the game. These actions will most likely be based on the frequency of the sounds, and their duration, being played, but their effects in game may depend on the objects that we want to be affected. For example, certain enemies may only attack when a range of frequencies are played, and their attack power or types may depend on duration of those frequencies. After these aspects have been refined and are working properly, then we will be able to work on expanding the game’s objects further. Some of these ideas will be dependent on the time available for them, but if possible, it would be nice to have more variety in the game world, such as different area types, enemy types, game objects, and so on. Overall, we will know we are done once we have made the experience enjoyable for the player and incorporates our major ideas on what the game music can manipulate to make that experience unique for the player. We could then get feedback from other game enthusiasts to know what aspects of the game succeeded and if there are any areas that could be improved.

**Self-Assessment Essay Spring**

*Sean McManes*

Start

**Summary of Hours**

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