

# Criterion A: Planning

## Defining the Problem

The client (myself) wants to create a software simulation that is open source on a rhythmic oriented simulation by changing some aspect of the simulation. In this case I suggested a Role Playing video game solution. Videogames are one of the most complex structures of code that is found in every day but also are a form of entertainment

This project will be able to simulate an environment that is rhythmically structured. This project will simulate a free roamed area with rhythmic attributes that will benefit the clients interaction with the software, but will not be able change any other aspect of the environment. This will utilize a beat based system that is determined by the present beats per minute.

## Rationale for the Proposed Solution

The client wants to create a standalone application for this project because it is the easiest to use for any general audience. This application will be able to run on most computers as the software is targeted for the general public.

By coding this software, the developer (myself) will also reinforce his knowledge of the methods used in the collisions of objects and movement in a coded environment and learn much more complex collections of data like Collections. There are existing programs that are on a similar basis, but are often blocked by cost.

This will be coded by a game engine called Godot using GDScript. GDScript is a dynamic language easily portable to multiple computer environments, meant to be useful for programmers learning JavaScript, Objective-C, PHP, Python, Ruby, Lisp, and Tcl. It's easy to learn and easier to read as it's less cluttered. Moreover, it's performance can be improved because certain areas of code can be made in C++, as dynamic languages tend to be less performance based.<sup>1</sup>

## Success Criteria (in order of importance)

1. Application readily calculates rhythmic actions on part of the client
2. Application readily simulates a rhythmic environment for client
3. Application readily gives the client objects to interact with
4. Application readily operates clients actions
5. Application readily operates all functions in accordance to their purpose
6. Application readily process all changes to the tree

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<sup>1</sup>[https://docs.godotengine.org/en/stable/getting\\_started/scripting/gdscript/gdscript\\_advanced.html](https://docs.godotengine.org/en/stable/getting_started/scripting/gdscript/gdscript_advanced.html)