**Project Proposal**

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**Project Name: CD Demise**

**Category: Animation Application or Game**

**This game style is similar to Binding of Isaac with visuals similar to Pokemon or the original Legend of Zelda (8-bit).**

**Premise:**

* You play as Minidisc who is trying to get to a music collector who has rare pieces of music history to help return a lost piece from her collection. Unfortunately, the evil Dotify and Pear Music are determined to stop your journey to obtain the rare piece you possess, enlisting the help of AirBuds, myPhones, and Boats by Dro. However, with its years of knowledge, Minidisc knows the weaknesses of the enemies it encounters along the way; a sequence of three or four different notes. Minidisc does not travel alone though; Vinyl and Cassette are there to help (as pickable skins in the level), each with a unique note style.
* The goal of the game is to get through three different rooms to the collector. Each room has a different arrangement of enemies and obstacles (such as puddles which will damage the player) to overcome before progressing to the next room. Once the player reaches the end of the last room containing enemies/obstacles, the player enters a small room where they are greeted by the collector and rewarded with a ‘win’ end card with points (which are scored based on how many enemies the player hit correctly and a number of lives left). Of course, Minidisc has to get to the collector before time runs out, causing her to give up the search and leave.

**Mechanics:**

* 1 level with 3 rooms, with the last being a boss (if time allows).
* 3 playable characters (skins). Health of 5 hearts. Low level enemies take off half a heart while higher level enemies take off a whole heart. There will be hearts that can be picked up during gameplay.
  + Minidisc: high low power: 1 HIGH, 1 MID, 2 LOW
  + Vinyl: high high power: 2 HIGH, 1 MID, 1 LOW
  + Cassette: high mid power: 1 HIGH, 2 MID, 1 LOW
  + Can switch between skins with a key
* 5 enemy types with different weaknesses, ranging from 3 hits to 4 hits. Sheet for enemy weakness types is listed at the bottom for the beginning, can be turned off. Enemies shoot notes that vary in speed and power (harder hitting enemies do not shoot as fast as weaker enemies):
  + AirBuds
  + Boats by Dro
  + Dotify
  + Pear Music
  + myPhones
* 3 rooms minimum (not including the collectors room):
  + First room: enemies hurt by easy difficulty note combos, few obstacles like water puddles (damages the player)
  + Second room: enemies hurt by medium difficulty note combos, increase in obstacles to overcome
  + Third room: larger number of enemies than the previous rooms, including enemies hurt by more difficult note combos
* Lose condition
  + Player runs out of lives or timer runs out
* Win condition
  + Player reaches the collector at the end of the third level. Points awarded for enemies hit correctly (ie; did the player hit the enemies in the required number of hits) and number of lives left.

**Challenges for demo 1 :**

* Use of rectangle class:
  + To get the location of the Avatar
* How to draw the current state on the screen:
  + We did not know how to use the GUI and how to use it draw the output on the screen.
* Knowing how to fix certain errors when compiling:
  + There was a warning that we kept getting when compiling that we could not find a solution for, and so we had to find out how to fix it online.

**Demo 1:**

* Class Files:
  + We will have all the four classes (Avatar, Collectible, AnimationApp and Obstacle ready)
  + We will have the text based demo for our project.

**Next Steps after demo 1:**

* Create a Visual for the game:
  + We will create put skin for all the characters.
  + We will give different attributes to differentiate each character.
* Make our project ready to meet all the requirements for demo 2:

**Challenges for demo 2:**

* The logic to animation:
  + Visualizing how to implement the logic to GUI
  + Implementation from the animation app to GUI (how to use animation app for the GUI app).
* Fixed troubleshooting problem in the GUI:
  + How to fix problems in the GUI involving avatar movement animation.
* Creating the characters for the avatars:
  + Visualizing the character and then creating them using pixel art.

**Demo 2:**

* Class Files:
  + We will have all the class files required for demo 2.
* GUI :
  + We will have worked on the GUI for our demo 2.
  + The user will be able to interact using a keyboard.
* Stage, obstacles and avatar in GUI:
  + We will have a stage, a avatar (Hero), 3 enemies and 3 obstacles for our 2.

**Next Steps after demo 2:**

* More stages and obstacles:
  + We will have 3 stages for demo 3 instead of a stage.
  + We will have more obstacles for demo 3.
* Create Test Files:
  + We will create test files for all the classes, expect the GUI app class.
* Create the Main Menu:
  + The Main Menu will have the Text File; where the player will be able to input his/her name.
  + It will also have 2 buttons, 1 on the bottom left and 1 on the bottom right. (It will help the player to choose between play the game and quit the game.)
* Make our project ready to meet all the requirements for demo 3:

**Challenges for demo 3:**

* Adding the final animations and logic for the GUI:
  + Creating animation for projectile and enemy movements
  + Having the projectiles and enemies removed when there was a collision between them
  + Troubleshooting bugs that arose from transferring the code from the image classes directly into the logic based classes (done to simplify the classes)
* Time management:
  + Less time to work on the components of demo 3 due to obligations in other courses including assignments and several midterms

**Demo 3:**

* GUI:
  + We will have the GUI fully functioning combined with the logic to demonstrate the complete mechanics of the game
  + We will only have one stage instead of 3 stages (did not have enough time to complete this step)
  + The user is now able to shoot projectiles using the mouse
* Classes:
  + We will have test classes for all of the classes we have created, required for

demo 3

* + We will have all of the classes organized into different packages
  + We will have an OO design using inheritance for our classes
  + We will make sure there are no privacy leaks within each class
* Enemies and Projectiles:
  + We will have the projectiles added so they will generate based on mouse input from the user, and they will deliver damage to the enemies when they collide
  + We will have the enemies moving around the map instead of being stationary as shown in demo 2
  + The projectiles and enemies will be removed when the projectiles either hit the bounds of the map, and when they collide with enemies (the enemies will be removed as well)

**Next Steps after demo 3:**

* More stages:
  + We will be adding the additional stages as stated in demo 2 (this was not completed for demo 3 due to difficulties getting the overall functionality of the GUI working without bugs)
  + We will be adding in a main menu to the GUI for the start of the game
  + We will be adding in the final map with the collector that indicates the user has completed the game.

**Challenges for the Final Project:**

* Implementing the start menu, game over, and end game screens
  + It was hard to debug and restructure these components without causing issues within the gameplay startup/reset
  + We originally included buttons for navigating through the screens/game, but they were having major issues to make them functional with resetting the gameplay so these were changed into key based functions
* Due to the major time constraint for trying to complete the project, we had to exclude some of the features we originally intended to implement
  + The amount of time it took to implement the game screens caused us to run out of time to add additional levels, and a timer for the gameplay

***Note:*** *If something mentioned above is not included in the final project then it is mentioned below, if there is something that is not mentioned above and is there in the final project then it is mentioned below. If something is not mentioned under* **Final Project Includes**  *and it is mentioned above then it is there in the final submission.*

**Final Project Includes:**

**Premises:**

* Minidisc is the main hero in the game. Our final project only includes Minidisc, since we decided not to have the Vinyl and Cassette (the skins that a user can change too) in our game. It is just Minidisc who fights all of the enemies to win. Moreover, AirBuds, myPhones, and Boats by Dro are not included to help the enemies fight against Minidisc.
* In our premises, we said that we would have three different rooms and a time limit for the player to finish the game, but our final game only contains one room with the obstacles and enemies. Moreover, there is no time limit to the finish the game, so the player can play the game until they either complete the level or run out of the lives.
* We would have implemented these features if we had more time, but were not able to due to the time constraint and mandatory obligations in other classes.
* In our final project, all of the enemies and Minidisc (user) can shoot music notes at the each other, with the user operating the computer mouse to aim and shoot at the enemies (cursor to aim and mouse click to shoot).
* We have also changed the collector from a random character to the Collector from Guardians of the Galaxy (for humour purposes)
  + (Reference for image used):

*The Collector from Guardians of the Galaxy*. (2017). [Image]. Retrieved from https://movieweb.com/guardians-of-galaxy-vol-2-why-no-collector/

**Mechanics:**

* There is only one room in the final submission.
* There are 3 playable character (skins) with each playable character of 3 hearts.All the enemies causes the same amount of damage to the character.
* There is only one avataar, user cannot switch avatar.
* There are 3 enemies with same power and strength. All the enemies shoot at the same speed and they make same amount of damage on the Minidisc.
* The user can choose to start the game by pressing the “t” on the screen and when the game ends the user has the choice of either restarting by pressing “r” the game or quit the game by pressing “q” at end game screen.
* Win Condition
  + If the user collects all the collectibles before running out of the health then the player win the game.
* Lose Condition
  + If the user run out of the lives and playable character before collecting all the collectibles the user loses the game.
* There is only a room in the final submission.
  + The obstacle only stops the Minidisc from going over it. It does not damages the Minidisc.