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Design Document:

Game overview:

Dungeon Explorer is going to be like Gauntlet where you fight your way through a dungeon full of various enemies and treasure. The genre is a dungeon crawler and the camera position will be isometric 2d. The player will be able to pick the class they want to be which will influence things like the stats of the player (hp, movement, attack speed) and what weapons are available (sword, bow).

The game will be played with the WASD keys for movement and the mouse will be used to “look” around (player’s character points towards the mouse). The left mouse button will cause a character to attack. There will be ranged or melee options for attacking depending on what class you pick and what weapon you have. When an enemy runs out of life then they will die and the player will get some gold. There will also be some status effects like poison or basic stat boosts or healing.

If the player dies in combat then they will have to wait until a teammate comes by to revive them by channeling. The objective is to move through the rooms of the dungeon killing the enemies until the players find the exit. Rooms will spawn enemies, randomly and only on specific tiles, when all the players enter and then the players wont be able to leave until all the enemies are killed.

The visual entities in this game will be the player, enemies, terrain, projectiles, and traps. The main interactions will be the combat between the player, enemies, and projectiles. Melee attacks by players and enemies will spawn a hit box in the attack area and if an entity is colliding with the hitbox they will be attacked. Enemies will not interact with other enemies, same for character to character interaction. All entities will collide with walls and characters will be able to go through doors to move between rooms. This game will be interesting and fun because it is partially skill based with how the player chooses to fight and kill the enemies. There will also be variety in enemies and player choice.

Our game will feature multiplayer where players can play together to go through the dungeon together and defeat enemies. If all the players die at the same time then they will restart the dungeon back to the beginning. Everyone will win the dungeon when someone reaches the end of the dungeon. If anyone defeats an enemy then everyone will get the points and gold.

Development strategy

1 or 2 people will work on implementing the basic framework of the networking part of the game. The other people will be working on the other low bar goals at the same time and the networking people will move on to the other low bar goals when they are done.

The low bar goals will be split into issues and work on just implementing the low bar in a self contained way. Once they are done with the logic of the low bar they will merge it into develop to work with all the other parts.

High bar:

Bosses/minibosses - We adjust the enemies where they will be harder to give the player a harder challenge and more points. They could also have special attacks and/or health phases.

Item shops - We can add a way for players to shop for items during certain parts of the dungeon to buy things like health potions using the gold they earned from killing the enemies or a new primary or secondary attack.

Procedural maps - Set up the map where it has rooms and corridors connecting these rooms. With this we can randomly set up these corridors and rooms with different enemies and traps.

Minimap Feature: Gives the player a minimap.

More abilities/spells/weapons - Expand these functionalities to give the players more options.

Guard functionality - where the player can guard an attack.

Treasure chest - Will allow players to open the treasure chest.

More Classes - Add more classes with some more complex abilities/attacks.

Low bar checklist:

Enemy Pathfinding - Enemies will path find towards the player.The base algorithm used will probably be Dijkstra's algorithm. But, different enemies will have different implementations of the algorithm (skeletons will go directly to the player, archer enemy will just need line of sight).

Player movement - player will be able to move in 8 directions when pressing corresponding keys.

Combat - Shows an animation when the attack button is pressed that will deal damage to enemies if they are in contact with the attack hitbox. There will be ranged and melee attacks.

Classes - There will be at least three classes. The player will be able to choose their class. Classes will have a main attack, secondary attack and a potion slot. The classes will be some variant of the normal dungeon crawler theme (knight, archer, mage, rogue, warrior, orc, etc.).

isometric view - Build the map, player, and enemies where they will all be in isometric view.

Multiplayer - There will be a client/server architecture to play the game on.

Traps - Certain tiles can do an effect like poison when stepped on. Or walls that shoot fireballs, or traps that root you.

Death system - When a player loses all their health they will die. They will be unable to do anything until they are revived by another player through a channeling system. If all the players die the game is over.

Enemies - Different kinds of enemies with different stats and attacks.

Status effects - Have things like poison which will slowly drain the health of the enemy or player, on fire, slowing. Also beneficial effects like healing/regen or speed boost. These may come from potions or traps or enemies attacks or character abilities.

Victory condition - When the player gets to the end of the dungeon they will win the game.

Point/Gold system - Players gain gold from defeating enemies. For the low bar it is only a scoring system

Draft complexity rubric:

Feature	Feature max points	Total points
Scrolling World	20	20
Realtime Game	15	35
Networked Multiplayer	50	75
Powerups	10	85
Art	10	95
Isometric World	25	130
Rich behavior	20	140
Joycon support	10	150

Justifications:

Scrolling World 20 points: The justification for 20 points is that the screen will be following the player and rendering the rest of the map as the player moves around. For multiplayer each player will have their own camera view centered on them.

Realtime Game 15 points: The justification for 15 points is that the player will be moving and attacking and will see in real time if their attacks and movements and this is the same thing for the enemies. Combat will also be hotboxed based.

Networked Multiplayer 50: The justification for this is that we will have the multi process client and server and we will be connecting through LAN for multiplayer.

Powerups 10 points: The justification for 10 points is that we will have basic power ups and items that can do stuff like heal them, regenerate health over time, poison them to decrease health over time, and increase or decrease stats.

Art 10 points: The justification for 10 points is that we are planning to have the art be genre specific to a dungeon crawler and also be in an isometric view. We will build some simple art ourselves if we can and get the rest of the assets from a free art website if we need it. We probably won't have very many animations.

Isometric world 25 points: The justification for the isometric world is that we will build the art assets to all be in an isometric view and have all the logic and movement to display the isometric view.

Rich behavior 20 points: The justification for 20 points is that we plan on having different enemies implement different kinds of behaviors. Some examples are that ranged enemies will try to run away if you get too close to the, some enemies when defeated can split

into multiple enemies, and we could have enemies that will teleport behind the player and attack them.

JoyCon support 10 points: The justification for 10 points is because we plan on making the game fully playable with the joycon controllers.