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No ProbLlama

<>

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Special thanks to Alec Markarian

Otherwise this would not have happened

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# Overview

## **Theme / Setting / Genre**

The initial setting of No ProbLlama is on the main character’s farm where she finds a ray gun that fell from a portal. After the player tries out the gun, she falls down a portal that leads her to where the main decision of the player lies: the hub world. The hub world is a simplistic area that allows the player to choose which dimension he/she wants to traverse in order to guide the main character back home. The two dimensions that currently exist to be traversed are a chicken-themed level, where all of the aesthetics are based on chickens, and a water-based goose level.

Each dimension has its own theme.

The genre of the game is a roguelike puzzle game. If the player dies, their progress on that dimension will be lost and they will be brought back to the hub world.

## **Design Decisions**

* Perspective Changes
  + - Originally we intended to make a series of mini-games where the player’s perspective would switch depending on what perspective best suited each mini-game. We decided to stick with a single perspective with the intention of facilitating production of a more focused and cohesive game.
* Change in perspective from 3D to 2D.
  + - We decided to switch from a three dimensional perspective to a two dimensional perspective for the purpose of simplifying implementation of features and production of assets. It was our assumption that two dimensional sprites would be much easier to produce as opposed to detailed three dimensional models.
* Change in focus from multiple mini-games to a single core game.
  + - Initially we were intending on designing a game that revolved around a large number of simple mini-games that would each have their own win-condition but decided instead, to focus our efforts into a single, more complex game. The idea behind this decision was to reduce the number of factors that could influence our future design decisions in order to give us a starting point from which to begin designing our game.
* Change in focus from multiple abilities to a single ability.
  + - After deciding to design a single more complex game instead of a number of simple mini-games we ran into a problem similar to the one we were trying to avoid by simplifying our game. Under the pressure to add mechanics we added too many, too quickly without considering how they would affect other factors. For instance if we allow a player to jump it causes our levels to become more vertical since we have to create additional vertical space for the player to explore using their new ability. The change to only a single power was an attempt to create a strong foundation for the game which we could expand upon later.
* The player’s raygun was changed from an inanimate object to a sentient creature capable of speech.
  + - The idea behind this change was that the raygun would be able to convey information to the player on the fly without interrupting gameplay or bogging them down with several dialogue windows. This will also be a useful tool during the game’s tutorial.
* Dimensions will be generated procedurally to cut down on design time and to increase replayability.
  + - Instead of designing each dimension manually we will be making use of a procedural algorithm to arrange a series of rooms we design in a random order. The individual rooms will all fit the theme and aesthetic of their respective level. This change should increase replayability while cutting down on design time, since each time the player goes through a dimension the experience will be slightly different.
* Levels can be tackled in any order from a hub world which reduces linearity from the player’s perspective.
  + - This decision was made in an attempt to give freedom to the player to choose their own path through the game instead of having us force them through a specific path.

## **Core Gameplay Mechanics Brief**

- Player is able to shrink and grow objects

- Player is able to jump and traverse levels vertically

- Player is able to push objects and manipulate their location

- Enemies in each level will have some ability to interrupt/kill the player,

causing them to respawn in the hub world.

## **Targeted platforms**

- PC

- Phone application

## **Project Scope**

- <Game Time Scale>

- No money will be spent during the creation of this game

- Time Scale - From January 16th to May 5th

- <Team Size>

- <Core Team>

- Dominic Petrillo

- Responsible for implementing gameplay mechanics

- Charlie Steinmetz

- Responsible for implementing the Hub world, and a dialogue system for tutorialization.

- Robert Dunlap

- As of now has been largely responsible for art but will be involved in level design when applicable.

- Brandon Pugh

- As of now has been largely responsible for art but will be involved in level design when applicable.

- Elisa Ambrose

- As of now has been largely responsible for art but will be involved in level design when applicable.

- Matthew Brendlinger

- Involved with designing Swan Lake level.

## **Influences (Brief)**

### **- <Video Game> The Binding of Isaac**

- The binding of isaac makes use of a procedural generation algorithm to arrange levels out of a series of pre-designed rooms. We intend to implement something similar in our game.

### **- <Video Game> Super Metroid**

- Super Metroid is one of the most famous 2D style games whose features like different gun abilities and basic puzzle solving helped fuel the idea for this game and its mechanics.

## **Project Description (Brief):**

No Probllama is a puzzle-based, two dimensional side scroller. Players will enter up to four different dimensions each with their own unique theme and aesthetic. Levels will be comprised of a series of rooms which are arranged using a procedural algorithm. Dimensions can be entered in any order and players will be able to complete dimensions by interacting with the environment using their matter manipulating ray gun.

Initially the player will be challenged with simple obstacles which are easily overcome, however as the game progresses, puzzles will require that more interactions be understood in order to succeed. For instance, the swan lake dimension will require that players understand how water affects the weight of the object being manipulated. Using the aforementioned idea of increasing the number of possible interactions that can be manipulated using the ray gun we hope to create a game revolving around a simple skill set that requires players to use their intelligence and willingness to experiment in order to find success.

## **Core Gameplay Mechanics (Detailed)**

### **- <Manipulating the size of objects>**

Players will be given a raygun which is able to change the size of objects if the player successfully hits them with the projectile. The gun is aimed using the mouse. The amount an object shrinks or grows is dependent on the object that is shot.

- <How it works>

Right click shoots a projectile that causes objects to grow and left click shoots a projectile that causes objects to shrink. Projectiles are affected by gravity.

### **- <Jumping>**

The player is able to jump by pressing the spacebar.

- <How it works>

This is mostly handled by the unity physics engine but the characters position is basically transformed upwards along the Y axis until a max height is reached then the opposite happens until the character collides with a floor.

### **- <Pushing objects>**

The player will be able to push objects directly by walking into them. This allows the player to combine shrinking and moving objects into more complex puzzle designs.

- <How it works>

This is handled entirely by Unity’s physics engine and is the result of two objects with rigid bodies colliding. The object moves at a speed proportional to their mass as is what happens in real life.

### **- <Death>**

- <How it works>

When the character collides with an enemy, or an enemy shoots a projectile and hits the character, the character will take damage. When the character receives enough damage to die, the character will respawn in the hub world with all of their progress lost and will have to traverse the dimensions again.

# Assets Needed

## **- 2D**

All of our characters, scenery and objects are being designed in Adobe Illustrator, and Inkscape, then converted into Unity 2D Sprites.

**- Animation**

The animations contain a mix of using the Unity animator for things such as characters where game objects within the game may use a sprite sheet to give the illusion of animations.

- Character Animations

- Llama

- ex: uses a series of created animations developed in the Unity Animator.

-Main Character

-move right or left.

-jump

-shoot

- Environmental Animations

- ex. Lava

- ex. Uses a sprite sheet with a series of images to give the illusion of lava splashing

**Prototype plan**

The major concerns going into the prototype are

* Art style
* Overall gameplay style
* Mechanics for the player
* Mechanics for the ray gun
* Getting rooms to lead to another
* How to incorporate puzzles into rooms

For the prototype, we will have a central art style that will be similar amongst all characters and guide the different styles for the worlds. We decided to go with a side scrolling puzzle game. This we will implement through the hub world, and a world that will have a few puzzle rooms. The player will be able to jump and walk forwards or backwards. The player will also have animations for these actions. The ray gun will be functioning so that it can shoot and shrink an object it hits. We don’t plan on having the procedural generation done at this point, so the rooms will be linear. As stated before we plan to have some rooms, each with their own unique puzzle to be solved.

**Mid-Assessment**

All- Will have a general story laid out.

Rob- Will have completed the art and animations for the main character. Will have designed multiple puzzle rooms, and helped with boss levels.

Charlie- Will have designed puzzle rooms, finished dialogue system, tutorial, and hub world.

Matt- Will have designed puzzle rooms for Swan level and breath mechanic for underwater.

Elisa- Will have completed into farm scene art, art for chicken dimension landscape, as well as some for swan level, animations.

Brandon- Will have completed animations for boss(es) as well as for obstacles for the chicken dimension. Will also have completed design for puzzle objectives for chicken dimension as well as the swan level.

Dominic - Will have completed implementation of shrinking mechanic, aiming mechanic, and water physics in addition to the design of one of the dimensions.