



NINE-BYTE WARRIORS  
*Midnight Harvest*



## GAME DESIGN DOCUMENTATION

"Midnight Harvest" Documentation

### ABSTRACT

Midnight Harvest is a simple and fun farming sim by day which turns into a bullet hell by night, can you survive the onslaught of your crops?

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## INTRODUCTION

Midnight Harvest is a simple and fun farming sim by day that turns into a bullet hell by night from being attacked by your crops! Harvest your crops by fighting back the onslaught and buy more seeds to further your income, but beware that you do not plant too many...

## CHARACTER BIOGRAPHY

Frank the Farmer – Main Character

Frank's Farm

## GAME PLOT

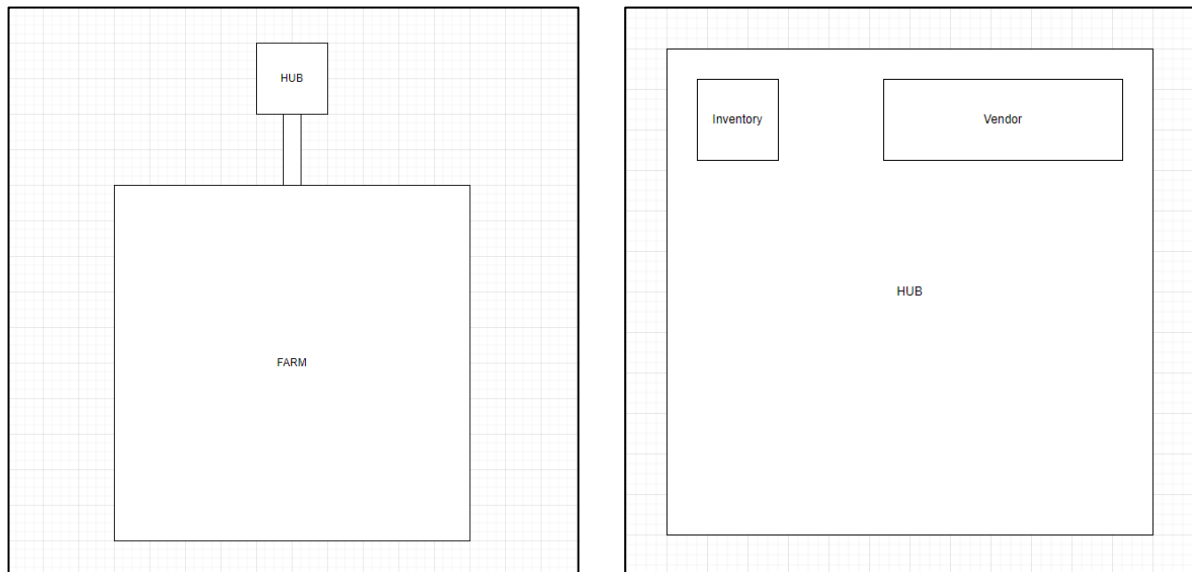
Frank bought shady fertiliser as it was cheaper however little did he know it would result in his vegetables trying to kill him!

## GAMEPLAY DESCRIPTION

Midnight Harvest splits its gameplay into two different genres. In the day, the game is a farming simulator that has the player planting crops. At night, the game turns into a bullet hell where the player will need to kill the crops that they planted to harvest them.

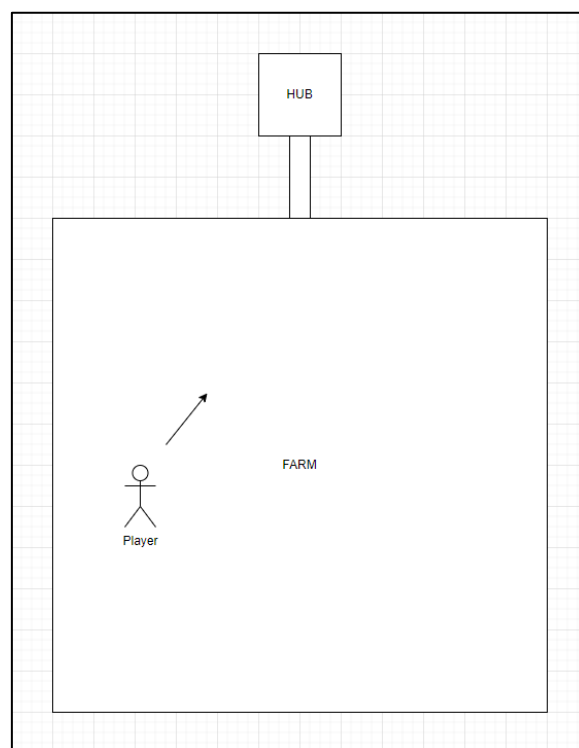
## SHOP/HUB AREA

The shop will be the location where the player will be able to go between 'days' to be able to upgrade their abilities to help them in the next day cycle of the game.



The shop will be located above the farm where the player will need to go to the gate to access it. Once the player is in the HUB it will be isolated from the farm and be shown on its own with the character in it on a black background.

While inside the shop, the player will be able to access a few things to help them when they get back on the farm to fight the enemies. It will contain inventory and a vendor.



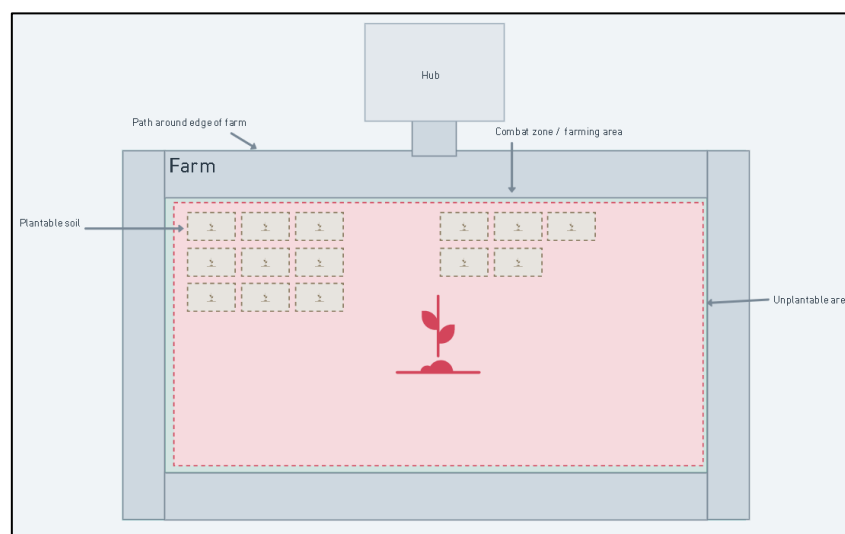
In instances where the entrance of the shop is not visible on camera, an indicator will be used to direct the player toward the shop.



## FARM AREA

The farm is where the core gameplay of the game will happen. The player will have access to the farmland in the battle and preparation phase. In each, the farm will be the same but allow the player to interact with it in separate ways. In the preparation phase, the scene will be a field composed of two elements, ground which is unplatable, and soil (plant patches). But in the combat phase, the farm turns into a battlefield. This is where the player will fight the plants they planted in the previous phase; these will comprise different plants that will interact in separate ways when fighting the player. Both will be discussed in more depth in the next section.

The design of the farm will be an open field with a path surrounding the edge of it. This path is to encompass the field limiting the size of the combat field. The plants will be in a grassy field that is composed of soil and ground. These will take up most of the farm and be where the plants will come from. This can be seen in the figure below.



## GETTING DIRTY, WHAT IS SOIL?

Like most farming games, when the game starts the player will be shown an empty field of dirt. This type of soil will be categorised as an unplatable solid. This might be a bit daunting to inexperienced players, but the tutorial should reduce this fear. If the field is composed of lots of unplatable soil, how will the player plant their seeds? This is where a hoe comes in handy, the player will have access to a hoe that will be able to till the ground to turn it into plant-able soil.

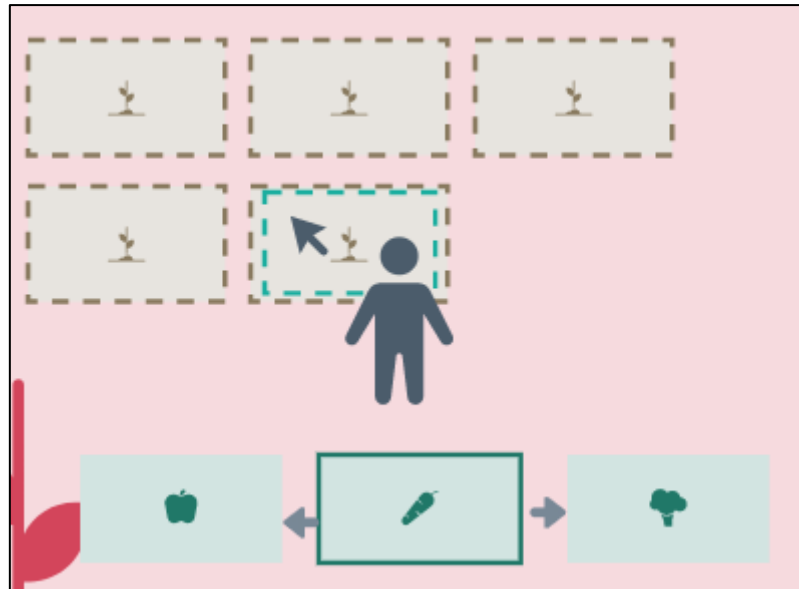
An example of how the soil will work is Stardew valley. In this game, the player will have to hoe dirt to make it soil, in which they can then plant seeds within.



(ConcernedApe, 2016)

## PLANTING

Now that the layout of the farm and how the soil will work have been covered, next, let us discuss how the player plants their crops. The way we decided to plant crops is for the player to click on a nearby plot, which will plant the seed that they have selected. The player can select the seed they want to plant by cycling through a list of seeds that they have brought. Upon clicking on open space the seed will be deducted and then planted. In the example below the player has selected a carrot and has placed it on an open plot.



## ENEMIES

The theme of the game is inspired by farming simulators, therefore, to make the game's combat suit this theme the enemies will be vegetables. To expand on this, the main game loop of a farming simulator is for the player to plant vegetables, grow them, and then harvest them. The harvesting part of a farming simulator has been twisted to make the vegetables you grow, turn against you as you try to harvest them. This is the bullet hell part of the game. When the player kills an enemy they will gain a currency, this currency can be spent on upgrades or extra seeds for the next wave.

Each enemy will have a range of attacks that will separate each vegetable from the other. Along with different attack patterns, they will have several types of movement and behaviours. The variety of ideas behind each vegetable will help keep the gameplay fun. Below there is a table to indicate the various parts of the vegetable's behaviour.

Vegetable	Movement/Behaviour	Health	Type of spawn	Bullet Pattern	Range	Reward (money)
Carrot	Stationary(none)	Low	Temporary	Line	Long	3
Bean	Swarm	Low	Permanent	Single	Short	9
Cauliflower	Default	Low	Temporary	Single/Ring	Medium	5
Onion	Circular	low	Temporary	Single/Ring	Medium	5
Potato	Heavy	High	Temporary	Explosive	Medium	10
Tomato	Kamikaze	low	Permanent	N/A	Short	8



## AI BEHAVIOURS

### SWARM

The idea behind the swarm is that the enemies will be spawned in groups. This group of enemies will then chase the player and try to stay close to the player to do damage. These enemies will normally be a kind of distraction to the player while they try to dodge the other enemies' bullets. To balance this out, enemies with swarming behaviour will have low health to allow the player to easily harvest them. An example of this behaviour can be found in Factorio. In this game, there is an enemy which spawns from a hive. They stay near the hive and then attack the player when they get near, or certain conditions are made. When this happens, they will run toward the player's base in a big swarm of enemies. This is the general idea being applied to swarm behaviour.



(Wube Software LTD, 2020)

### HEAVY

The idea of heavy is for the enemy to be a bullet sponge. This means they will need a lot of health. To stop the player from ignoring this type of enemy they will need to have a way to deal a high amount of damage in a brief period. This can be seen in other games via the tank role such as Reinhardt from Overwatch or Heavy from the Team Fortress series.

### KAMIKAZE

The idea behind this enemy behaviour is for a quick enemy to run directly to the player and explode doing a wide area of high damage. This type of behaviour can be seen in Grunts from Halo since when they lose morale, they run towards the player holding grenades in the hope to explode nearby them. This allows the player to deal with them or to manage the distance between them.



(Halopedia, n.d.)

### SEEDY BEHAVIOUR

Seeds are the only way for the player to spawn enemies. As previously said, these can be brought into a shop in the preparation phase. There is a key behaviour that dictates what happens to the seed after it has spawned an enemy. These come under two categories temporary and permanent. Temporary seeds will disappear after spawning their enemy after the wave is complete, this follows the idea of a perishable item. Although, permanent seeds will persist between different waves.

Seed	Cost	Persistence
Carrot	1	Temporary
Bean	5	Permanent
Cauliflower	2	Temporary

Onion	2	Temporary
Potato	5	Temporary
Tomato	4	Permanent

## BOSS

As most bullet hells go, a boss exists and will pose a larger threat to the player than all standard enemies with far more bullets and screen presence than any other enemy. Sometimes boss can be with smaller enemies for an increased challenge, this can either be an addition the player can choose themselves or the game making more enemies spawn. In the case of this game, the boss will be by themselves and will fight the player one-on-one. In this case, the boss will have to make up for the lack of targets for the player to kill, in which case the boss will have a large health bar and will fire more projectiles than standard enemies.

The first boss will be corn, which will have a variety of attacks, some targeting the player some not. Attacks will not be executed in any predetermined order, however, an attack will always be ongoing, for example, the boss will be spraying projectiles consistently at the player, aimed but with little accuracy, however with the rate of fire being so fast the player will have to stay moving to avoid these bullets. The spray of bullets is reminiscent of the clustered bullet pattern which is covered in the “bullet pattern” section. This spraying attack is also inspired by the “Gatling Gull” from Enter the Gungeon (Gungeon) which also sprays bullets toward the player. The attack that separates the corn boss from this Gungeon boss is the second attack, which rains bullets from the sky, peppering the land with bullets at random but with enough to cause a consistent threat to the player that they will have to dodge constantly throughout its duration. Another attack that this boss will have bullets not spawn from the boss but instead from the walls of the arena, in which case these will be a wall of bullets that come from the sides that the player will either need to dash through or just weave through depending on the density of bullets. Below is an example of “Gatling Gull” from Gungeon and their spray pattern.



(Messner, 2016)

## PHASES

There are two phases within game preparation and combat.

### PREPARATION

The game will start in the preparation phase. The barn is only available to the player during the prep phase and the barn will close when the phase changes, in the barn the player can buy seeds from the vendor and be able to buy upgrades and consumables. The player can place seeds in dirt areas in the farm depending on the seeds decides what enemies are spawned in the combat phase. Once the preparation phase is complete the phase will change to the Combat phase.

### COMBAT

After each prep phase, there is a combat phase where the player will have to fight and defeat the plants that they planted in a certain amount of time. After five nights the last combat phase will be a boss fight. During the combat phase, the player must defeat all the plants before a certain amount of time. The player will gain coins in the combat phase which they will be able to use in the preparation phase. Once the player defeats all the plants the game phase will change back to the preparation phase where the player will prep for the next night by using the coins gained from combat.

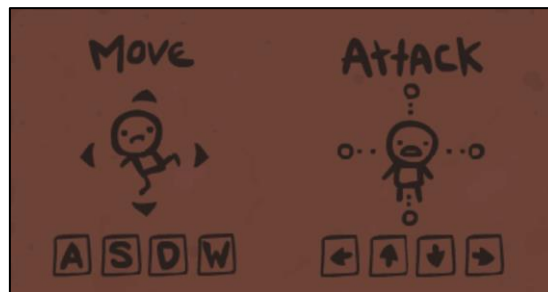
### DAYS

Days are being used to limit the length of the gameplay sessions; this was to make a clear outline of where the gameplay loop will end. Each day-night cycle is a single gameplay loop of planting seeds and then fighting the enemies you plant. In total the player will have 5-day night cycles to fight enemies to prep for the boss which will appear after the final night.

## MOVEMENT & ATTACKING

### STANDARD 8-DEGREE MOVEMENT

The movement implemented will be the same as other isometrics, with the WASD keys controlling the player to go horizontally and vertically respectively. Additionally, keys can be combined to move diagonally, giving 8 degrees of movement to allow the player to move efficiently and weave between enemy bullets. Continuing to use *The Binding of Isaac* as a reference (image below) Isaac attacks in 4 degrees as opposed to the 8 degrees of movement, the difference in this game will be being able to attack in 360 degrees as opposed to just four because our shooting will be aimed to the mouse cursor. In *The Binding of Isaac*, enemies that can shoot at Isaac do so at 360 degrees, however, it only shoots when it has a line of sight, the enemy can shoot 1 or 5 bullets in a spread, and these bullets will always have been initially aimed for Isaac so the player will have to always be moving, which is a standard in bullet hell games. With this game, you can dodge and weave between the bullets and attack at the same time with the cursor aim, this combined with the enemies' bullets may get confusing, so these two will be separate colours; this will be covered more in the bullet patterns section.



(M, 2013)

### DASHING

Dashing is going to be the player's "get out" button where they will dash in a direction they are moving and be given invincibility frames ("I.frames") for that duration. I.frames are a set duration where the player cannot receive any damage, meaning they can go through a projectile and not receive damage, this name is chosen as it is within those frames that the player is "invincible." In this case, they are implemented usually when the player receives damage in any game, as this prevents the player from taking too much damage too quickly otherwise it would be too unfair for the player. A way to get out of tricky situations is common in bullet hells, this can be either a dash, an ability that removes bullets, or any sort of ability that allows the player to escape these situations. In the case of this game, this dash will be simply a short dash with I.frames for the duration of this dash. During the preparation phase, this dash will be upgradeable, the most notable will be the distance, as this gives more I.frames and allow the player to cover more ground to get out of a tough situation, however, another upgrade will be the amount you can do in a row. Below is an example of a dash mechanic in "Enter the Gungeon", in which case it is known as a "roll", but the functionality is the same.



(Enter the Gungeon Wiki, N.D.)



## ATTACKING

To fight back, the player will shoot enemies using the mouse cursor to aim, this bullet will have a different sprite to the enemy bullets so the player can very quickly tell them apart, so the screen does not get too cluttered and so the player does not get confused. This attack will be upgradeable: the rate of fire, the number of bullets, and bullet damage are a few that can be included in the upgrade menu. This may come in the style of separate weapons however overall, the attacking variables listed prior may change depending on what the upgrades are.



(L, 2016)



## BULLET PATTERNS

Amongst the enemies and bosses, various bullet patterns will be fired, these can be aimed or just fired in all directions. A bullet pattern refers to the general shape that the bullet will fire in, a good example of this is in the above example used to show the dash mechanic, that pattern is a “wall” of bullets. The pattern simply describes both the way the bullets are shot and the shape they take, a “circle” of bullets and a “ring” of bullets are separate patterns, as a circle is a circle of bullets fired together in a direction whereas a ring is any number of bullets fired in a ring outward from whatever the source may be.

Below are the patterns that will appear in the game and a description of what they are along with their dangers to the player:

Bullet Pattern	Frequency (1 being least frequent - 10)
Single	10
Ring	5
Spirals	2
Shapes	1
Line	7
Wall	3
Explosive	4
Clustered	5
Wiggles	2

### SINGLE

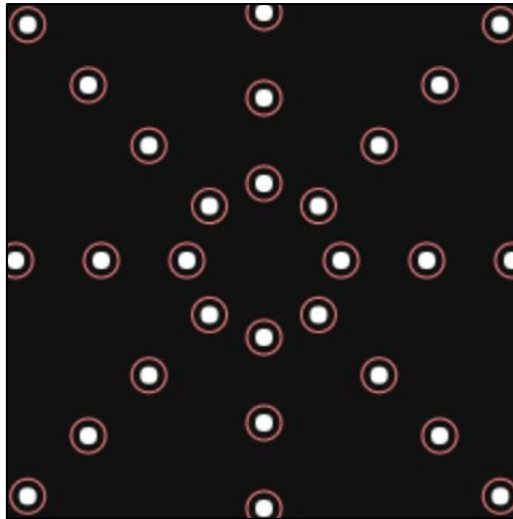
The standard and easiest bullet to dodge consists of a single bullet fired at a single time from one source, usually aimed towards the player. This shot is not a danger itself however combined with other patterns these being scattered across all the other shots can prove troublesome as they are usually unexpected due to usually coming from the very first enemy the player would encounter and therefore the player considers them much less of a threat. When there are so many single-shot enemies though, they can prove troublesome. The below example is taken from Enter the Gungeon, and shows a single-shot enemy combined with some cluster-shot enemies:



(Enter the Gungeon, N.D.)

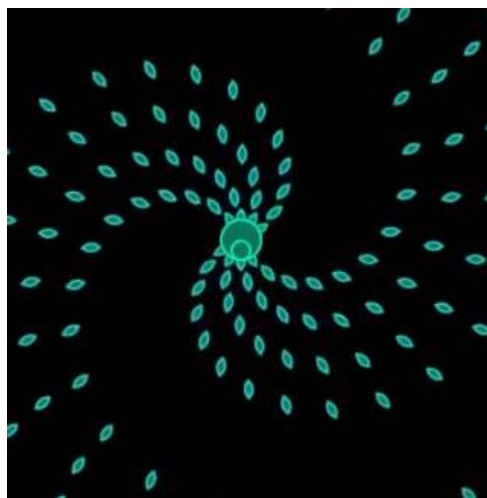
## RING

One of the harder patterns, this pattern usually fires X number of shots in a ring around its source. In the case of this game, it will be 8 – 16 shots being at least: Up, down, left, right, and the diagonals between those shots. This gets significantly harder each time a new enemy with this pattern spawns, the pattern itself may look easy to dodge by itself as it is not aimed therefore the player does not need to move, when added to itself and other bullet patterns it can grow to be significantly harder, and this ring can also serve as a screen clutterer that can cause the player to panic more frequently when they do not necessarily need to. Below is an example taken from the [Sparens Danmaku guide](#), which has simulations that can be run and slightly customised to see different bullet patterns:



## SPIRALS

A spin-off from rings, spirals are bullets that are shot in a ring shape but with a delay between each bullet, so they get shot in a spiral. Usually, these are mixed with spread shots, so it is a spread shot spiral as seen in the example below, or mixed with more patterns. They are mixed with others and fused with other patterns purely because spirals are easy to dodge as the player can usually dodge through the arms as they come around or have the movement speed high enough to stay within the gaps between the arms.



(Winger, 2015)

## SHAPES

As mentioned above, sometimes bullets can be fired in a pattern of shapes, these can be circles or pentagons, or any other shape that is made up of bullets. These are typically designed to pose a larger threat to the player but are still able to be dodged. The difference between these and simply a large projectile in this shape is that these typically have a gap large enough in them for the player to weave inside/through it if there are so many of them being fired, as seen in the example below from [Sparens Danmaku Guide 4](#):



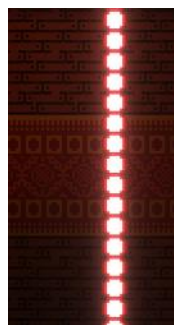
## LINE

The line pattern is a burst shot of a predefined number of bullets in a line towards the player, sometimes faster than other patterns so the player must prioritise getting away from those. This will also mean the player will have to always be on the move as these will be fired consistently enough to always keep the player on their toes and become a priority target if there is enough of them around.



## WALL

In a similar fashion to “line,” a “wall” of bullets is a predefined number of bullets moving in unison toward the player in a row like a wall. This wall of bullets can change in density depending on how many bullets are spawned but each bullet should be evenly spaced out, remaining the same distance from each other whilst moving. These are travelling in a line, however, instead of being burst like the above bullet pattern, it is instead travelling together towards the player in a wall fashion, designed for the player to weave through or dash through.



(Enter the Gungeon Wiki, N.D.)

## EXPLOSIVE

A single shot explodes, meaning the player must steer clear from wherever this will land as the resulting area will be an explosion that will damage them. This projectile is likely to be slow-moving to indicate that it will be a heavy hitter or something else when the player first sees it, so the player may have a chance to guess what that shot does when they see it for the first time. In some games, the explosion will launch extra bullets, which will not be present in this game but could be in the future.



(Maguire, 2016)

## CLUSTERED

A swarm of enemies each fired a shot, causing a large cluster of bullets to go toward the player. These are all single-shot enemies however there is another enemy in the game that is designed to huddle together and fire toward the player, meaning all the bullets are going to be staggered and clustered together, causing a mass of bullets the player will need to avoid. Sometimes these clustered bullets in other games are shot from a single target, as the above screenshot shows a Gungeon enemy with a shotgun shows; in the case of this game, it will be a swarm of enemies, giving this pattern a more unique feature as all the bullets will be shot separately and *not at the same time*, making it far more staggered. The below example is from a game called “Just Shapes & Beats” which has two patterns at once, one being projectiles from the sky dropped at random, being a clustered pattern.



(McAloon, 2016)

## WIGGLES

Wiggles are bullets but they have a wavy motion as they go forward, this can be in an extensive line like the wobble like a snake or bullets that interweave one another as they go forward. Wiggles cause the player to panic at times as it is not a straightforward bullet that they can simply move out of the way, wiggles require the player to either predict the curve of the lines or where the bullets are going to be when they are close or just relocate altogether to avoid them. Below is an example from Just Shapes & Beats again:



(Just Shapes and Beats Wiki, N.D.)

## SCORE SYSTEM

The game will feature a scoring system where the player can attempt to accumulate points and beat their high score. Points will be awarded when they kill an enemy and the number of points awarded to the player will differ depending on the enemy killed.

Several points will be determined through testing and a table will be created using excel.

Enemy	Score
Carrot	50
Bean	10
Cauliflower	40
Potato	60
Tomato	50
Onion	30

## TUTORIAL

For the tutorial, the player will be hand-held through the first day and night, however, it will not help them win the combat scenario but the first night will be the easiest as is the progression of the game. When this tutorial has been completed for the first time, it will have an option to be replayed however once it has gone on the first run it will not show up again until it is chosen to come back. This is so the player does not have to complete the tutorial at the start of every run. This tutorial will not necessarily constrict the player to do as it says, however, most of the things it says to do will be in the general order of things the player will do during the daytime phases, so the player will learn the general order of things to do during the daytime phases if they choose to follow the tutorial.

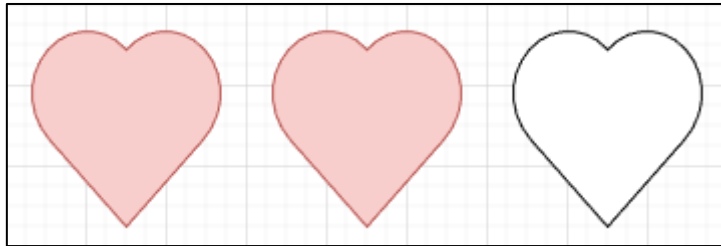


(Cuphead Wiki, N.D.)

## HEALTH

A health system is a way of healing or dealing damage to entities. This will work where when the entity is hit by a melee or a bullet. Since all entities will need health, it will be created using a health component.

The player's health will be represented by hearts on the UI. Each heart will have three stages to them, full, half, and empty. Enemies will use the same system but instead of individual hearts representing this, a health bar that displays the total health pool of all the enemies. This will allow the player to see if there are any enemies still alive on the farm.



Lives can be recovered in a few ways:

- It can be recovered in the shop by purchasing a life.
- It can be recovered on the Farm when dropped by an enemy.
- Consumables.

## UPGRADES

Upgrades can be purchased in the preparation phase in the barn. Upgrades are purchased using coins gained in combat. The player will be able to upgrade:

- Health (increased number of hearts)
- Weapons
  - a) Increase damage
  - b) Increase fire Rate
  - c) Change bullet spread of weapons
- Abilities (Reduce cool down/ increase time ability active)
  - a) Reduce dash cooldown/increase the number of dashes before cooldown, increase dash invincibility.
- Score modifier
- Status Affects (Upgrade resistance to certain status effects)
- Increase drop rate of resources (Health pickups)

## INVENTORY

Half of the game is a farming simulator that has the player going to plant their seeds to grow their enemies. This means the player will need some sort of inventory to allow the player to carry seeds from the shop to the farm. In addition to seeds, the inventory will cover the amount of money the player currently has as this will be used when the player kills enemies and buys seeds.

Since the player will only have access to the planting mechanic in the day phase, the access to the inventory should be cut off when changing to the night phase. This will be done by giving the player access to the inventory through a hot bar of the seed options. This hot bar will then be hidden in the night phase, which is a way to tell the player that they are not able to plant their seeds.

## OBJECTIVE – GAME LOOP

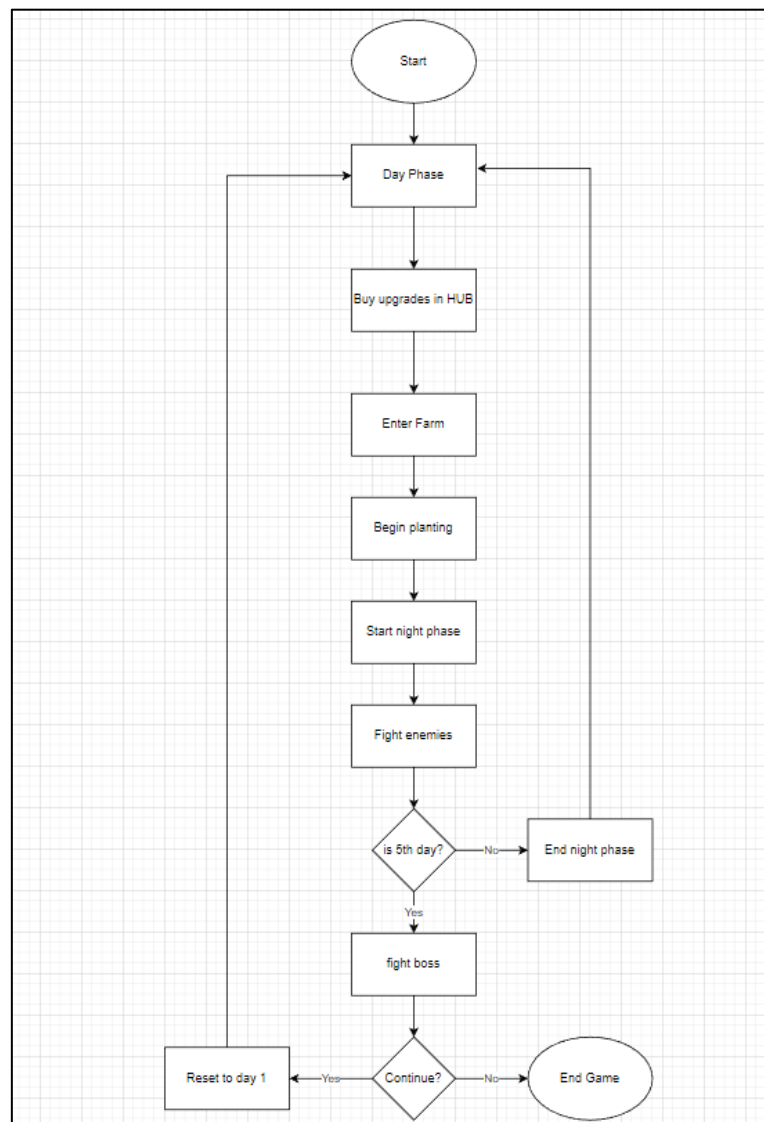
The game aims to last 5 days on the farm and to accumulate as many points as possible.

The game will start with the player on day 1 daytime in the HUB and will need to buy plants to be able to plant them on the farm. The player cannot simply plant in any location on the farm and instead must plant on fertile plots of land.

After the day cycle has been completed, the night cycle begins, and the plants come to life. To harvest the plants, the player will need to defeat them as they attack the player by shooting them. Upon killing the plants, the player will be awarded points and resources to use in the next daytime cycle to prepare for the night.

This will be repeated for 4 in-game day cycles and then on the 5<sup>th</sup> day towards the end of the night, the boss will appear to face the player. The player will need to defeat the boss to beat the game and be awarded a large chunk of points. If the player defeats the boss, they will be given the option to stay another 5 nights on the farm with increased difficulty and the opportunity to gather more points.

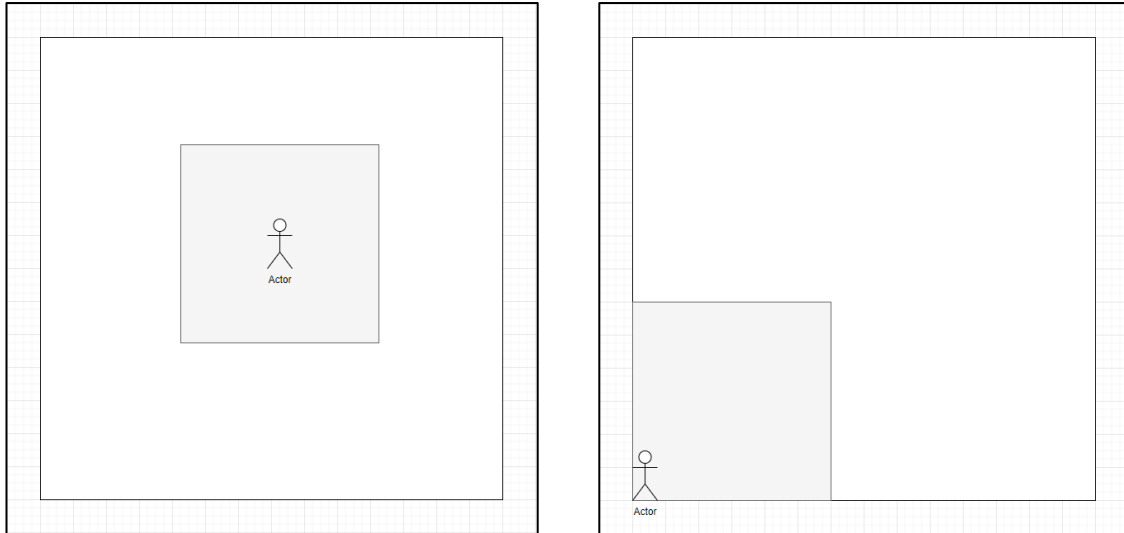
If the player dies at any point, the game will end, the points will be logged, and they will need to start over.





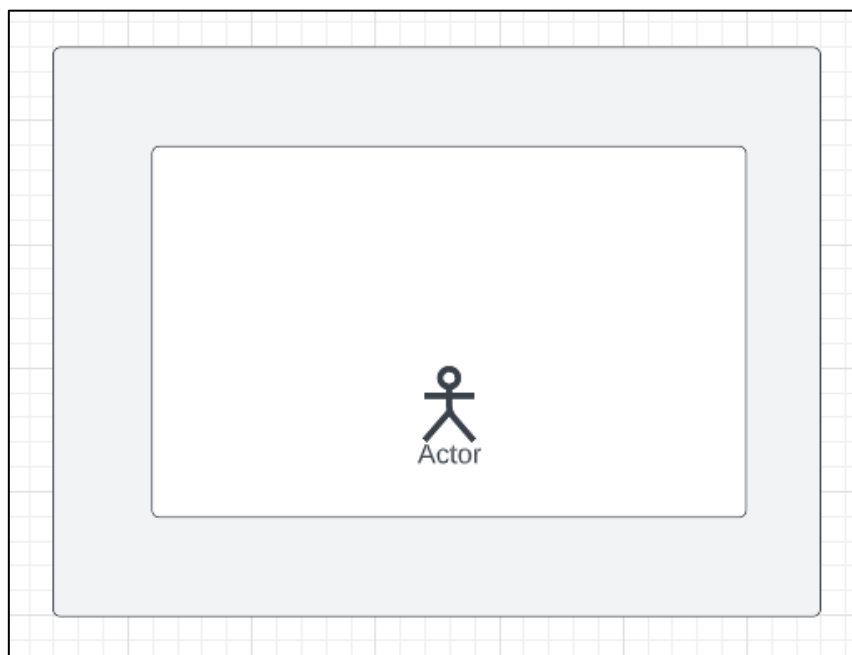
## ORTHOGRAPHIC CAMERA

The camera will show a section of the farm and stay focused on the character. As the player is moving around the map the camera will follow them. The grey box represents the camera however the field of view is not accurate and subject to change.



In cases where the player is at the border of the farm, instead of allowing the camera to show the space outside the farm, it will anchor itself to not allow it to go out of bounds.

The shop has a different way of using the camera, this is due to the size of the shop. As the shop takes up a small amount of space on the tile map, the camera's viewport can see all of it. This allows the camera to stay stationary while the player is free to move around the scene. The UI attached to the shop will be around the outside of the scene, so it does not interfere with the items on the shop floor.



## CONSUMABLES

Consumables are a big part of some games as they often allow the player to either boost their abilities or undo past mistakes. The core mistake the player can make in this game is getting hit by bullets, this is due to the game's only loss condition being the player dying. To avoid or prolong this from happening the player is given the option of buying health back at the shop. These are the core consumables in the game. Consumables come in two forms, use now, or use later. Games often have a mix of both Legend of Zelda is a prime example. Legend of Zelda offers the player heart crystals that they can find during their travels, these are instantly consumed. Meanwhile, it offers bombs or health potions that the player can store to use throughout the playthrough. The game's combat phase locks the player until they have killed all the crops they have planted. Therefore, allowing them to poorly judge their abilities and not punish them for planting too many enemies would reduce the unforgiving difficulty that is often associated with the bullet hell genre. Therefore, the game only offers healing through a single-use instant healing item. This reiterates that the day is a safe phase and is for the player to recuperate. But as the player needs to buy the item, they must weigh the benefits of gaining more scores versus healing lost hearts to be secure. This decision should solidify the idea of money being a valuable resource that must be carefully managed.

## MONETISATION

A premium monetisation strategy will be used when monetising the game; the reason for this is that the game will not feature any in-app purchases that could help generate revenue therefore it is ideal to use a premium monetisation strategy.

The game will also be released on steam, and it is not typical for games on steam to feature ads.

## PLAYER ACQUISITION STRATEGY

### STEAM PAGE OPTIMISATIONS

As the game is aiming to be released on Steam, it is important to optimise the game page to attract the most clicks from users and in turn, lead to the game being purchased.

- Unique Selling Point (USP): The USP should be the main thing shown to the users on the steam page so that the potential players are made aware of what exactly makes the game different from others and attract them with the unique element of the game.
- Images/Icons: Images and Icons are one of the first things that a potential player will see on the steam page. Because it is the first thing that a potential player will see, it is the first impression and a good first impression would encourage the user to click on the page and find out more.
- Tags/Keywords: Tags and Keywords are an integral element of Steam pages. When users use the search engine in Steam, by including a few keywords, relevant games will appear in the results. The aim of Tags and Keywords is so that when players search for games in the search engine, Five Nights of Farming will also appear in the results as the relevant tags will also be included on the Steam page.
- Description: The description is the initial content that the player will be presented with when on the Steam page. The Description will include concise information detailing the gameplay features and a general overview of the game so that the user will have a clear idea of what the game is about and what to look forward to.
- Videos: A Game trailer will need to be included on the Page as it will help grab the user's attention and give the User a better idea of the game. It will also be used as a tool to portray the exciting elements of the game so that it interests the potential player.
- Price: The pricing will need to be compared with similar games on steam and the duration of the game will also be a factor in what the price of the game will be.

## PLAYER RETENTION STRATEGY

Score System: The scoring system will allow for greater replayability of the game and competition between players to see who can get the highest score.

### UNIQUE SELLING POINT (USP)

The USP of the game is the crossover between bullet hells and farming simulators. The game takes inspiration from farming games such as Stardew Valley and adapts it into a bullet hell taking the bullet hell inspiration from games like Enter the Gungeon.

## ARTISTIC STYLE

### GAME ART

The game is centred on the idea of the player being a farmer that must kill their crops to get their resources. This is a niche idea, although there might be some crop assets, we can find online, they will be limited in their range and consistency. Therefore, creating assets for the game will be a better option. For this to be effective a clear inspiration and style will have to be used for the reference of these assets.

### IDEA GENERATION

The initial idea that came to mind was the original inspiration for the project which was a game called “AtomiCrops”. This game uses a detailed version of pixel art. This blends well with the idea of creating the assets due to pixel art being very accessible, due to the lack of experience in creating assets the team has.

The key part of each asset is that they are easily identifiable from one another. This will allow the player to quickly glance at a crop patch and know which crops are which. This will be important to keep in mind when creating assets. To make sure the assets feel like they fit into the scene, Bird Bath Games have incorporated a dirt mound at the bottom of the vegetables. This helps to blend into the background soil they are placed on. This takes away from the boldness of the colours used to make them unique and identifiable. This helps to ground them in the environment they were placed in.



(Bird Bath Games, 2020)

The style of the plants makes them appear friendly, to encourage the player to protect them from incoming enemies. The moods of the plants also change depending on their current state, the most obvious example of this is watered and thirsty plants. This can be seen in the original screenshots above, but a clearer example can be seen below. When plants need to be watered, they will have a drop indicator above them, being in this state will cause the plant to appear sad, with the vibrancy of the colours being toned down. Meanwhile, a watered plant will have vibrant colours and appear happy, this is accompanied by the plant dancing in the soil. All of this is to give feedback to the player about the action of watering plants.



## EXPANDING THE IDEA

The art inspiration for the game does not just come from one source, as AtomiCrops is not the only game that tackles the topic of involving vegetables in a combat-based game.

### CASTLE CRASHERS

Castle Crashers is a good example of a game that can seamlessly involve the idea of adding a corn enemy. This should be taken note of as it will allow the inspiration of the creation of sprites to enable them to be matched together and the importance of keeping a consistent theme. The style of the enemy can also be used to create the enemies due to it showing a strong cartoon style which will fit the light-hearted aspect of a bullet hell based on a farming simulator.



(Castle Crashers Wiki, N/D)

### PLANTS VS. ZOMBIES

Plants vs. Zombies is a household name in the game industry, this is due to its highly successful mobile game. The game has the player fighting off waves of zombies by setting up a defence with plants. This has a parallel concept with Midnight Harvest as both games feature the core mechanic around plants. This makes it a great inspiration for turning a plant into a usable 2D asset, especially the designs of the plants. An example of this is the faces on each plant showing clear cartoon-styled emotions. This keeps the game light-hearted while grounding the game in its reality thus making the gameplay feel believable in extension. It shows the importance of all assets needing to be linked with some style and applied across multiple assets.



(POPCAP, 2023)

## CUPHEAD

Cuphead is a game that falls into the bullet hell genre, in the game has the player going from boss to boss with each sporting their bullet patterns to learn. One particular set of bosses acts as a good inspiration for this game, the “Root Pack” is a boss that has the player fight three different vegetable-based bosses. The reason these acts as a good reference point is because they are 2D and each has a consistent way of implementing vegetables as a living entity. Like Plants vs. Zombies, Cuphead creates a believable environment where these entities can exist. This is partly due the consistent art style but the reactivity of the facial expressions. Each boss hints at their next attack through body language or gestures. These can be used to inspire a similar system in Midnight Harvest.



(Cuphead Wiki, N/D)

## STARDEW VALLEY

Of course, no farming game can be made without referring to the most successful farming game ever made, Stardew Valley. Stardew Valley’s inspiration can be separated into three sections, UI, tile maps, and environments. Stardew does not sit solely in a farming simulator, which makes it a good reference point as its assets need to have a general purpose. ...

## USER INTERFACE

Stardew valley is often seen as a comfort game due to most of the gameplay being very peaceful. This is important because if the gameplay is peaceful, the UI needs to reflect this and seem welcoming. As half of Midnight Harvest is a farming simulator, using Stardew Valley’s UI as a reference when creating the UI should allow for the game to appear comforting before revealing the fact that the game has bullet hell elements hidden in the night.



(ConcernedApe, 2016) (Hayton, 2021)



## TILE MAPS & ENVIRONMENTS

Stardew Valley uses a tile map-based system to create the environment. When getting assets for the game, this is a key feature that will need to be considered if the tiles do not blend then the whole map will look strange. An example of this in Stardew is when the dirt reaches water tiles or grass tiles. These tiles blend into each other to create the illusion of them existing in a 3D world. This is also true for plants, as they need to exist in the game space and not stand out too much compared to the tilemap system they are placed upon.

Tile maps are only part of Stardew Valley's level design. Below is a scene from Stardew Valley, it contains a good example of how elements on top of the tile map can help enhance the scene by adding depth despite being 2D.



(ConcernedApe, 2016)

## ENTER THE GUNGEON

Enter the Gungeon is a good example of a bullet hell that this game aims to be. This is because there is a wide range of different enemies each with its bullet patterns. This is the approach this game will take with the different vegetables. That being said, from an art viewpoint the way enemies travel around the environment related to sprites is a good approach as they only face eight main directions and play a simple animation when moving which for most cases such as the bullets is a waddle. To make this approachable in the time limit, reducing the amount of directions enemies can face while keeping a simple walk animation will bring the most out of the enemies while allowing them to exist believably. Enter the Gungeon also has an appealing art style with all of the game being in low-res pixel art.

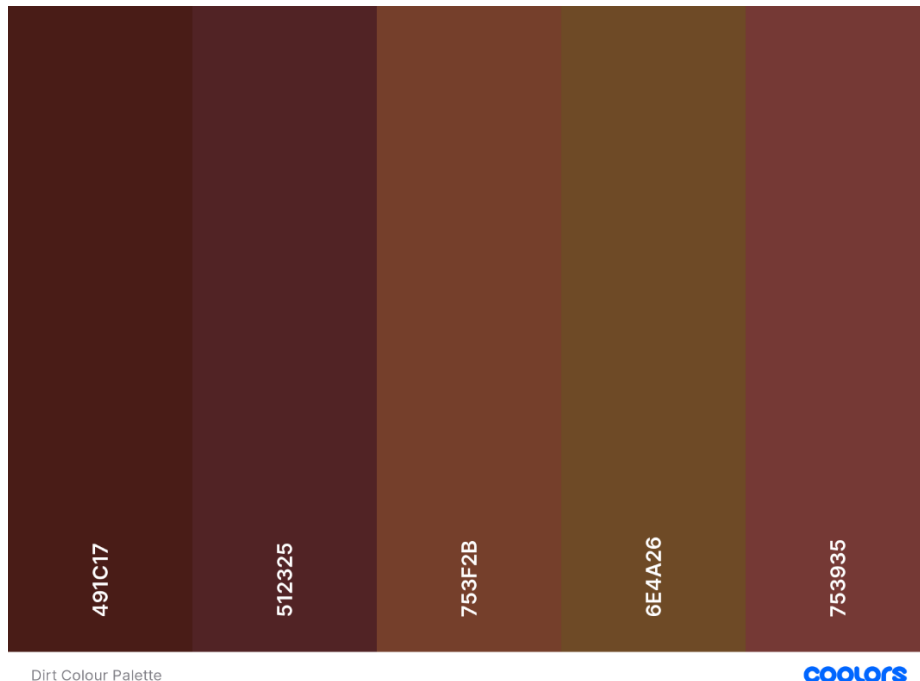


(L, 2016)

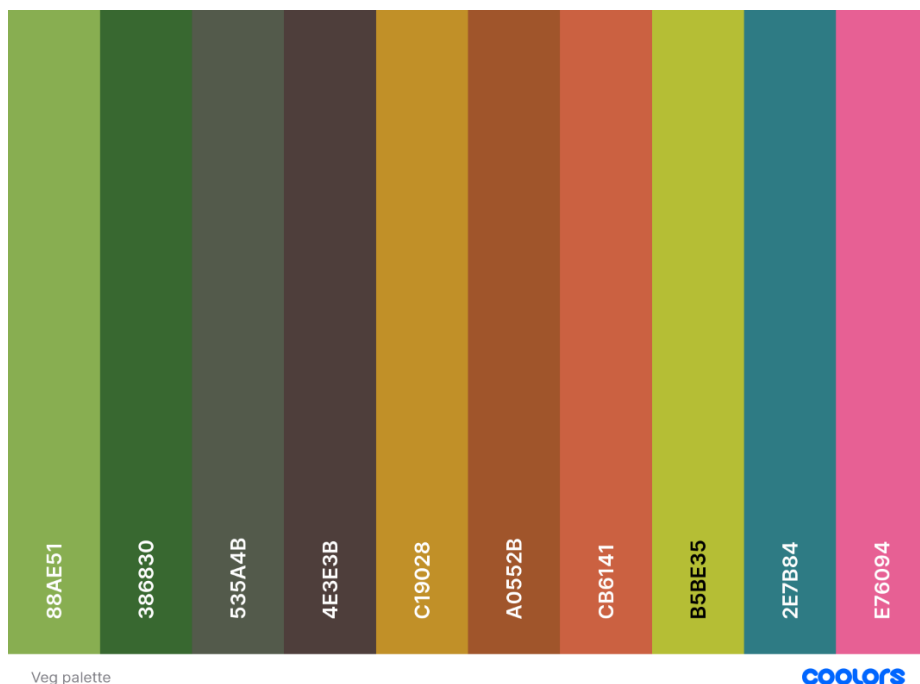
## COLOUR SWATCHES

### ATOMICROPS

Below is the colour palette for the dirt.



Below is the range of colours used on the vegetable



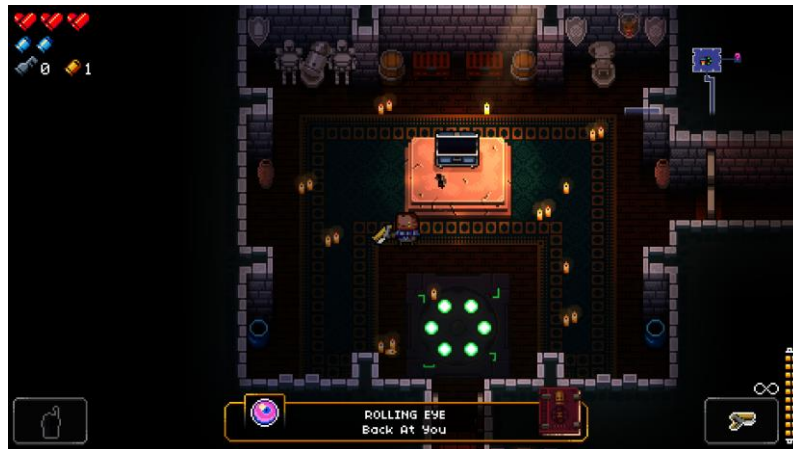
### USER INTERFACE

UI to be minimalistic showing the player necessary information to not clutter the screen, and just UI to show player health, weapons, abilities, score, and coins. Due to the game being a bullet hell, a lot is going on screen so the player cannot be distracted by information that is not necessary for them to know. Inspiration for the UI comes from other bullet hell and other top-down games.



## INSPIRATION

### ENTER THE GUNGEON



(Dodge Roll, 2016)

### VAMPIRE SURVIVORS



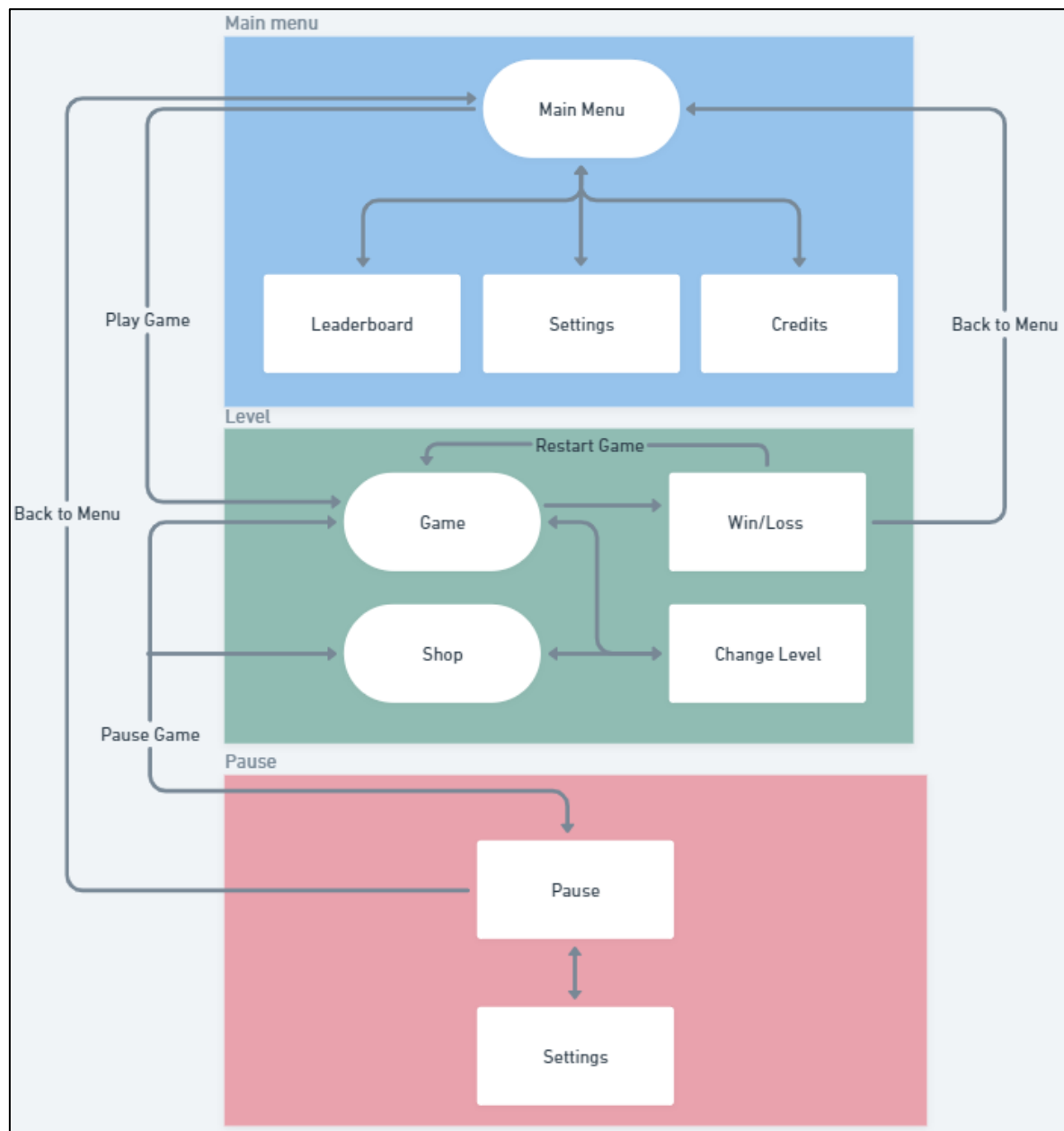
(Poncle, 2022)

### THE BINDING OF ISAAC



(Nicalis, Inc., 2014)

## SCREEN FLOW



## SOUND DESIGN

### INSPIRATION

The sound design for the game will be inspired by a combination of elements from bullet-hell, farming, and arcade games.

For the bullet-hell elements of the game, the sound design will require intense and fast-paced music to build intensity and make the player feel under pressure when facing a hoard of enemies. The sound effects of the bullets will need to feel impactful and destructive.

For the farming elements of the game, the sound design will need to be peaceful with soothing sounds which will contrast with the bullet-hell gameplay. Nature and wind-blowing sound effects will support these elements to give the player a feeling of working on a farm.

For the Arcade elements, the sound design will need to be catchy and, on a loop, to keep the player engaged with the game.

### FARMING PHASE

For the farming phase of the game, the sound design will be inspired by other farming simulators such as Stardew Valley, Minecraft, and Terraria. The key elements of these games are the tranquillity portrayed through the music and sound effects to give the feeling of calmness and relaxing activity.

### BATTLE PHASE

Due to the game being an arcade bullet hell game, the sound design needs to make the player feel as though they are on limited time and the battle phase is hectic. Games that capture this essence are Enter the Gungeon, Space Invaders, and Pac-Man. Enter the Gungeon is used as an inspiration primarily for the bullet hell aspect of the game. The reason for this is Enter the Gungeon uses the bullet hell genre literally and applies gun sound effects in all elements of the game be it the Menus or the sound effects of the enemies walking around.

Space Invaders and Pac-Man are other games that will also be used to inspire the game because of the arcade elements of their sound design. The two games use music to immerse the player in the arcade feel of the game and use sound effects to portray the different elements of the game such as death effects, pick-up sound effects and in Space Invaders' case, firing sound effects.

## COMPONENTS

A component worth mentioning would be file handling JSON so that certain features can be used/saved by developers. Features such as the bullet patterns and tile maps use JSONs that are read from and then applied in the game to either fire the created bullet pattern or draw the current levels tile map. JSONs become an integral part when saving these features, even if they were all saved in similar ways it's worth mentioning that they were used to store the features and all relevant information to them.

## ASSET BREAKDOWN

### ART ASSETS

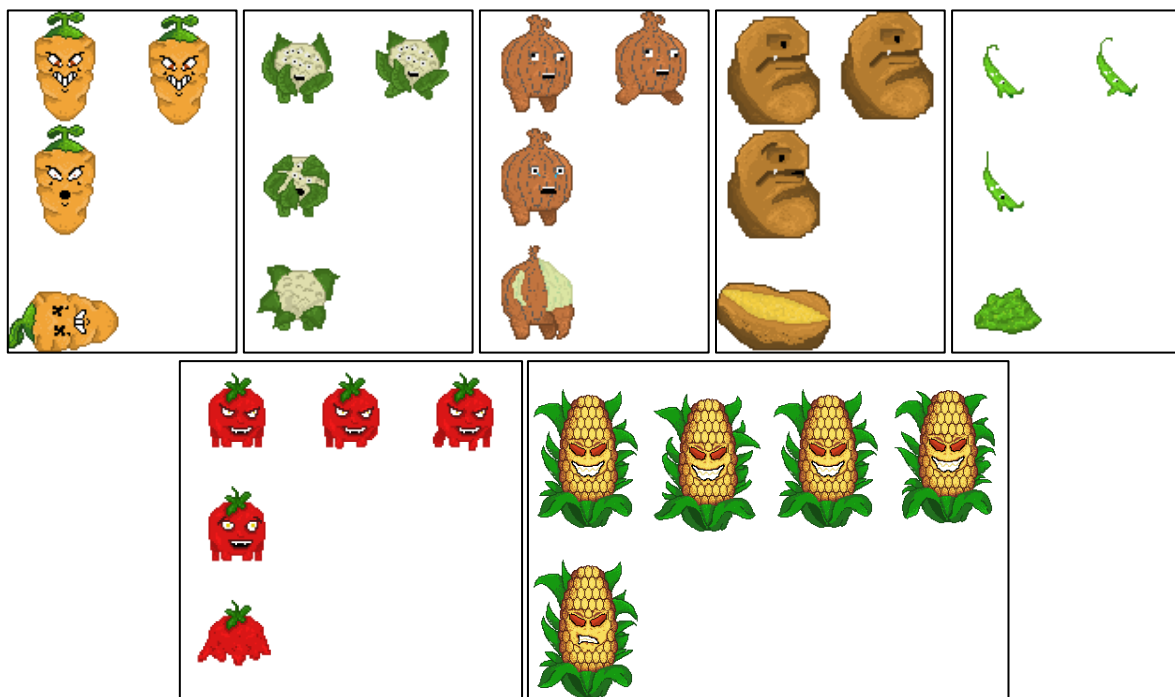
Art assets have had two approaches taken sourcing pixel art from the Unity store and creating our sprites to give us more range due to the uniqueness of the game.

### INTERNAL SPRITES

Creating sprites will allow a wider range of similar styled entities, an example of these is below. These were created with a software called Piskel.

### ENEMY

The base enemies are put into sprite sheets, the layout is for each row to be dedicated to each type of animation e.g., walk, hurt, and death, with the first sprite being idle.

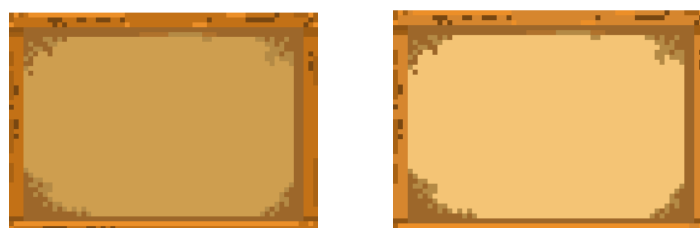


### USER INTERFACE

User interface (UI) is an important part of any game as it can help give information about the player's environment or the player. Due to this, the UI should be styled comparably so it does not distract the player from the gameplay. Therefore, creating the UI in a similar style to the game will allow it to fit the style of the game while giving it the ability to allow it to stand out.

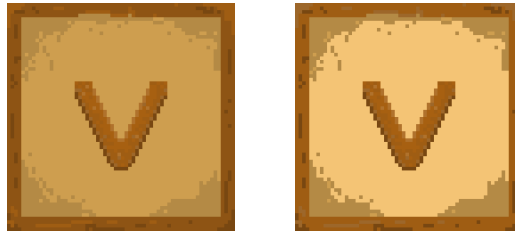
### BUTTON

This has an idle and hovered state.



### DROP-DOWN BUTTON

This has an idle and hovered state.



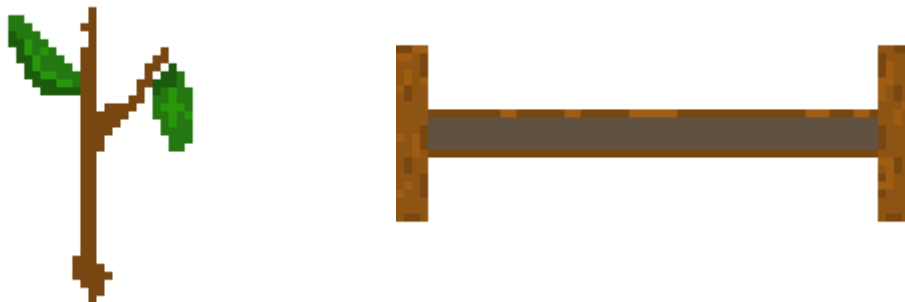
### DROP-DOWN FRAMES

When the drop-down is clicked, these will be the containers for the options, one of these will be used for the currently selected one while the other for the options.



### DATA SLIDER

This is a slider for setting with a numerical value, the stick will act as the interactable slider while the bar is the range of motion for the stick.



### BOARD BACKGROUND

This will act as a pause/setting background for the text and other UI elements



## MENU UI

These UIs are only found at the menu level.

## BACKDROP

This backdrop is being used on the main menu, it will be a background like Terraria's or Minecraft's main menu background images.



## TITLE BANNER



## GAME UI

These UI are related specifically to the game.

### COINS

The coin image is used to link the UI to the player's monetary value.



### HEARTS

Heart UI is made of 3 sections, full health, half, and no health. These are all combined into a single area in the game UI screen.



### SEEDS

Seeds are used to act as a visual representation of the player's inventory. These will be linked with text in the game but will allow the player to see which each number is linked to, and which seed they currently have selected.



## EXTERNAL SPRITES

With external sprites, these have been sourced from a Unity asset pack called "2D RPG top-down tile sets – pixel art assets MEGA BUNDLE" by Gif. These give access to a wide range of assets from tile sets of environments to player sprites. The approach taken to get these from Unity to the engine is using Piskel. An example is the tile maps below where base tiles and grass overhangs have been created into separate tiles.



<https://assetstore.unity.com/packages/2d/environments/2d-rpg-topdown-tilesets-pixelart-assets-mega-bundle-212921>



## TILEMAP ASSETS

Tilemap assets are a mix of both internal and externally sourced sprites,

### BACKGROUND LAYER

#### BASE COLOURS

[These are from Gif's asset pack.](#)



#### CONCRETE

[These are from Gif's asset pack.](#)



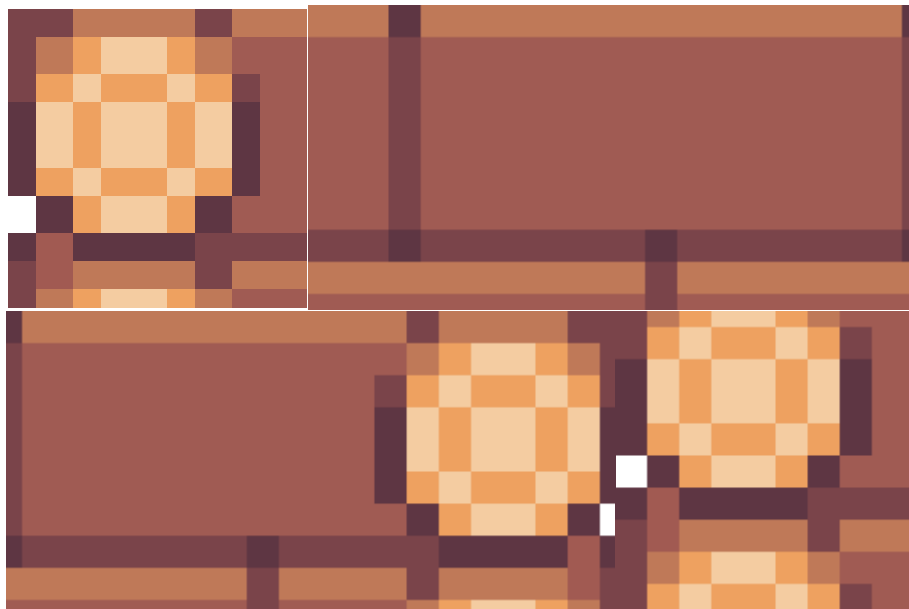
#### WOOD FLOORS

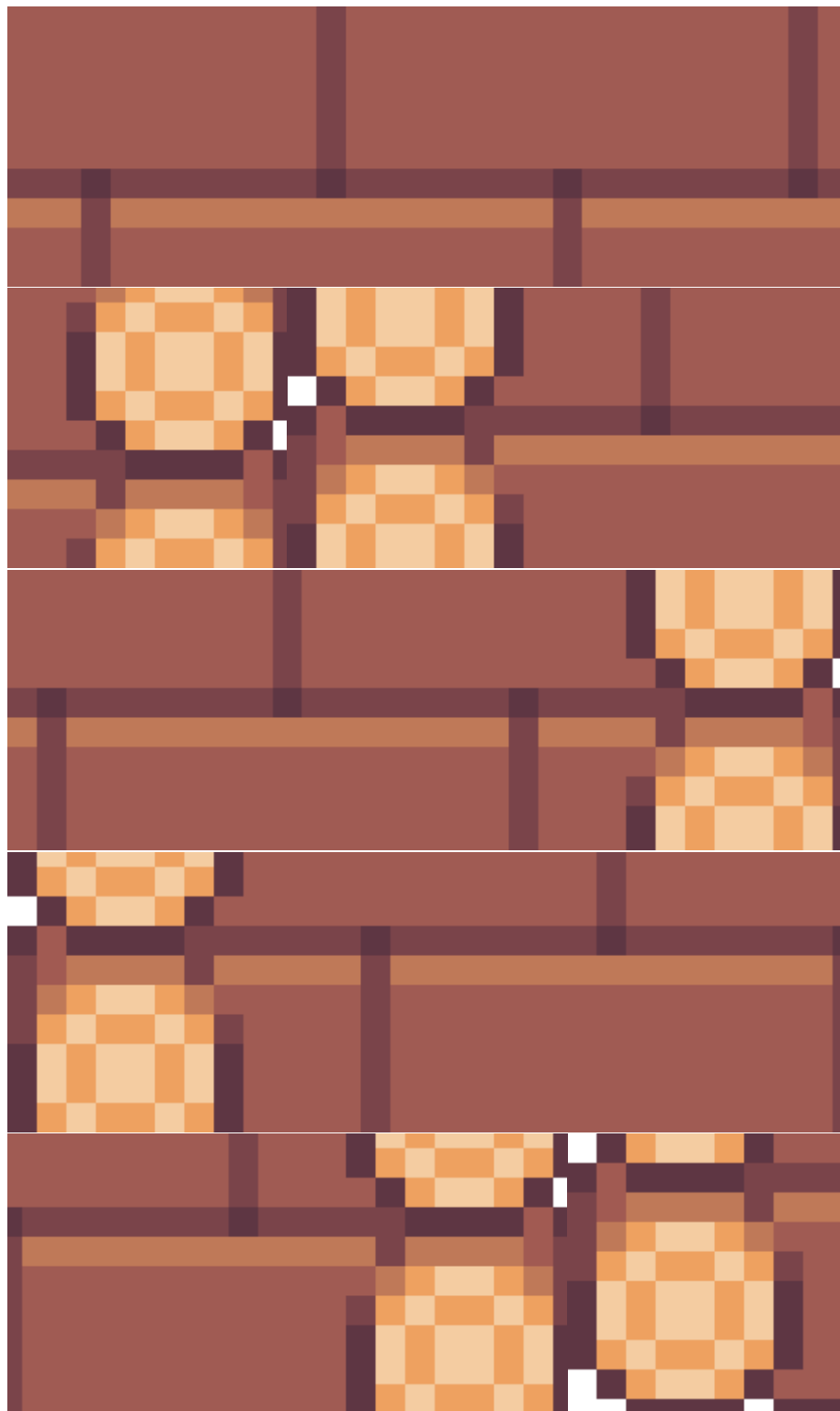
[These are from Gif's asset pack.](#)

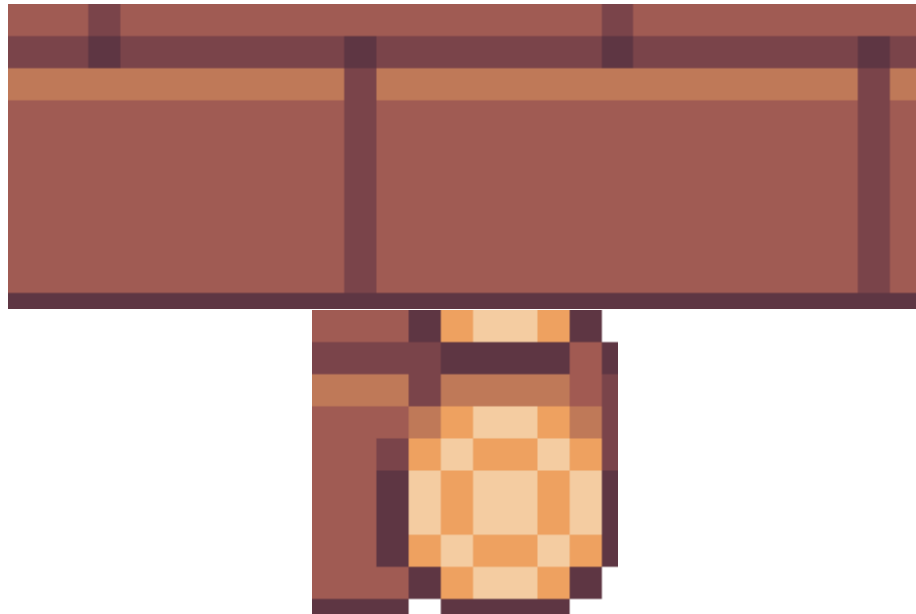


#### WOOD WALLS

Wood walls are used to contain the shop and act as a visual representation of the colliders. These can be put together to make walls of varied sizes. [These are from Gif's asset pack.](#)



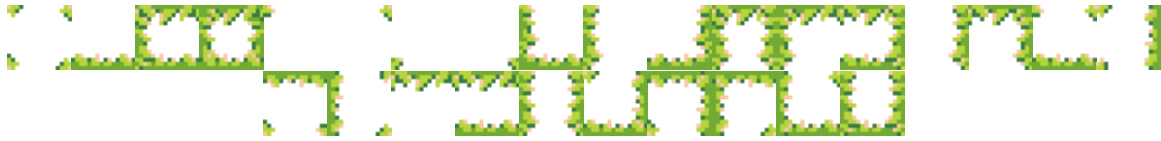




## FOREGROUND LAYER

### OVERLAYS

[These are from Gif's asset pack.](#)



### DECORATION

[These are from Gif's asset pack.](#)



### PLANTS

Each of these represents a different seed.

Type of plant

Texture

Empty



Bean



Carrot



Cauliflower



Onion



Potato



Tomato

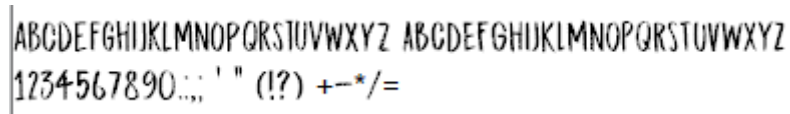


## TEXT ASSETS

There is not much text in our game since Frank does not have any dialogue. Despite that, text still needs to be considered since it is used for UI interfaces to present information to the player that would be hidden otherwise. An example of this would be the score or money the player has. Another use of text is for a tutorial which will try to help the player by giving them tips on actions they can do to progress the game.

## FONT

The font in the game is called [Midnight Chalker](#). This font will be used throughout the game as it is easy to read and has a style to it that adds atmosphere to the game. This font is not for commercial use, but this can be easily changed when the game is coming closer to being released.



ABCDEFGHIJKLMNOPQRSTUVWXYZ ABCDEFGHIJKLMNOPQRSTUVWXYZ  
1234567890.:; ' " (!?) +-\*/=

## SOUND ASSETS

### MUSIC

#### FARMING PHASE

<https://pixabay.com/music/synth-pop-02-ernestyx-bright-sides-131079/>

#### BATTLE PHASE

<https://pixabay.com/music/synthwave-lady-of-the-80s-128379/>

#### BOSS PHASE

<https://pixabay.com/music/synthwave-a-hero-of-the-80s-126684/>

#### MENU PHASE

<https://pixabay.com/music/upbeat-dreamer-131011/>

### SFX

#### BULLETS

<https://mixkit.co/free-sound-effects/gun/>

#### DEATH

<https://pixabay.com/sound-effects/man-scream-121085/>

<https://pixabay.com/sound-effects/083902-guy-screams-quotfuckquotwav-83352/>

#### ENEMY DEATH

<https://pixabay.com/sound-effects/monster-death-grunt-131480/>

<https://pixabay.com/sound-effects/tomato-squishwet-103934/>

#### BOSS SFX

#### PICKUPS

<https://pixabay.com/sound-effects/item-equip-6904/>

<https://pixabay.com/sound-effects/inventory-grab-36275/>

### MISCELLANEOUS

#### LEVEL WIN

<https://pixabay.com/sound-effects/level-win-6416/>

#### ITEMS EQUIP

<https://pixabay.com/sound-effects/item-equip-6904/>

### USER INTERFACE

#### BUTTON CLICK

<https://pixabay.com/sound-effects/uiclick4-79818/>

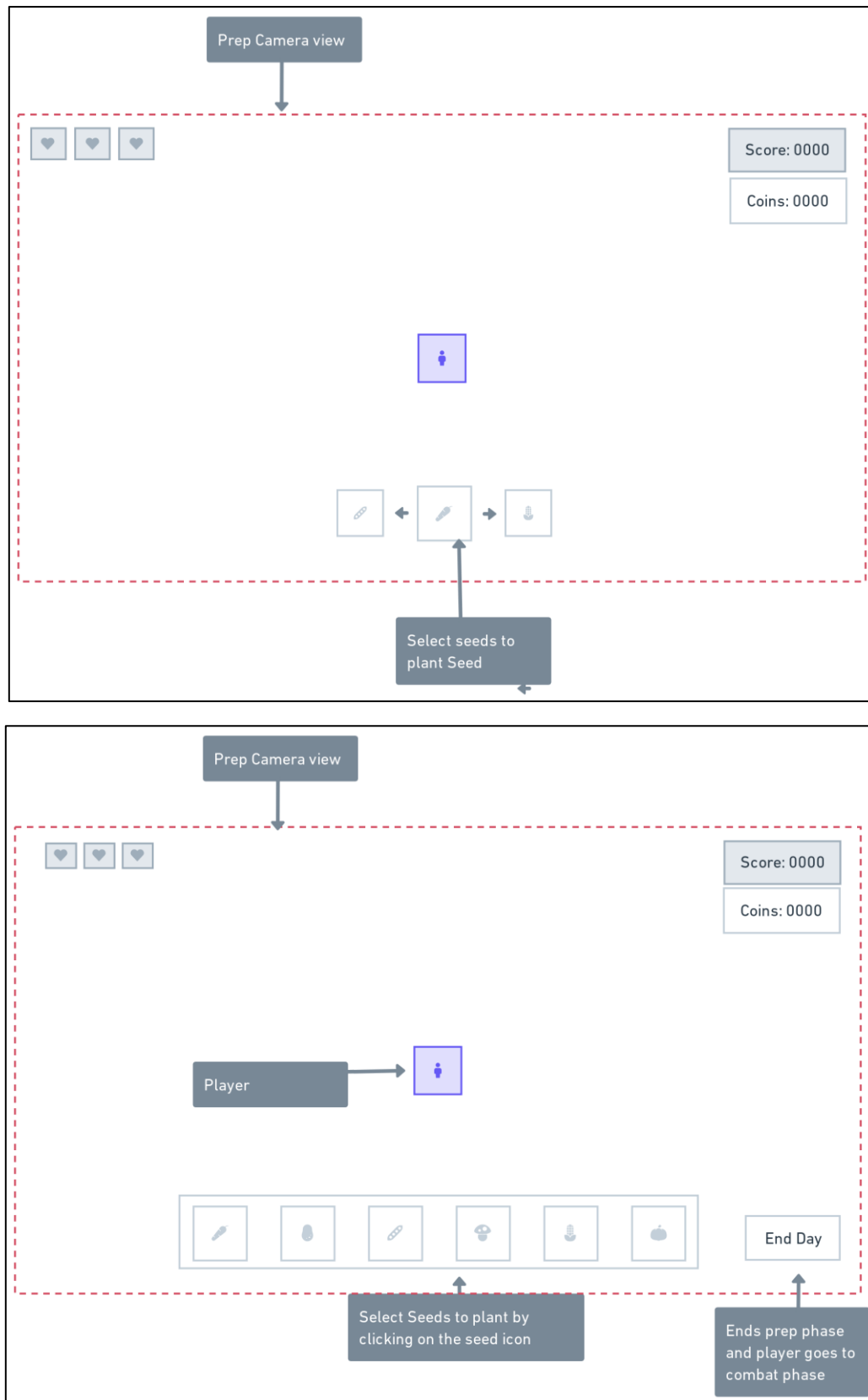
<https://pixabay.com/sound-effects/uiclick4-79818/>

#### PLANTING

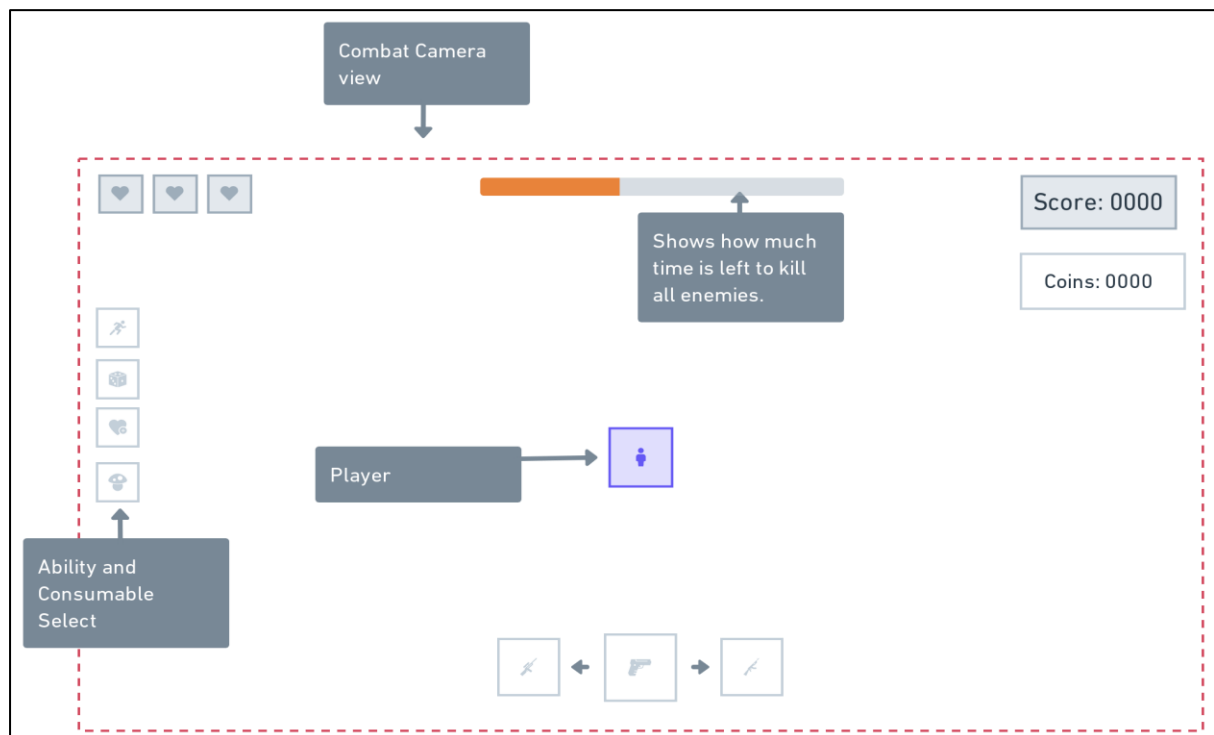
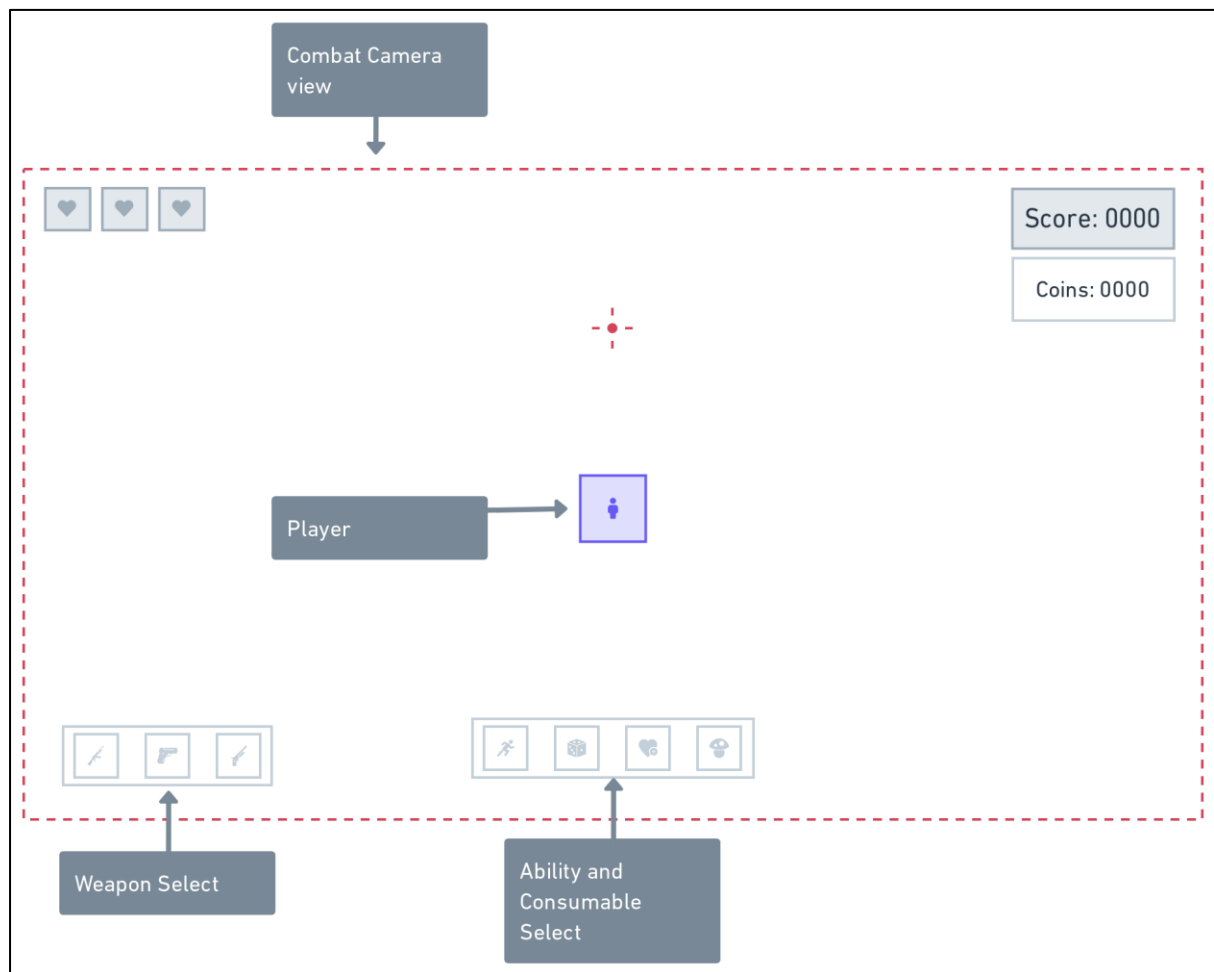
<https://pixabay.com/sound-effects/shovel-dirt-81799/>

## HORIZONTAL PROTOTYPE

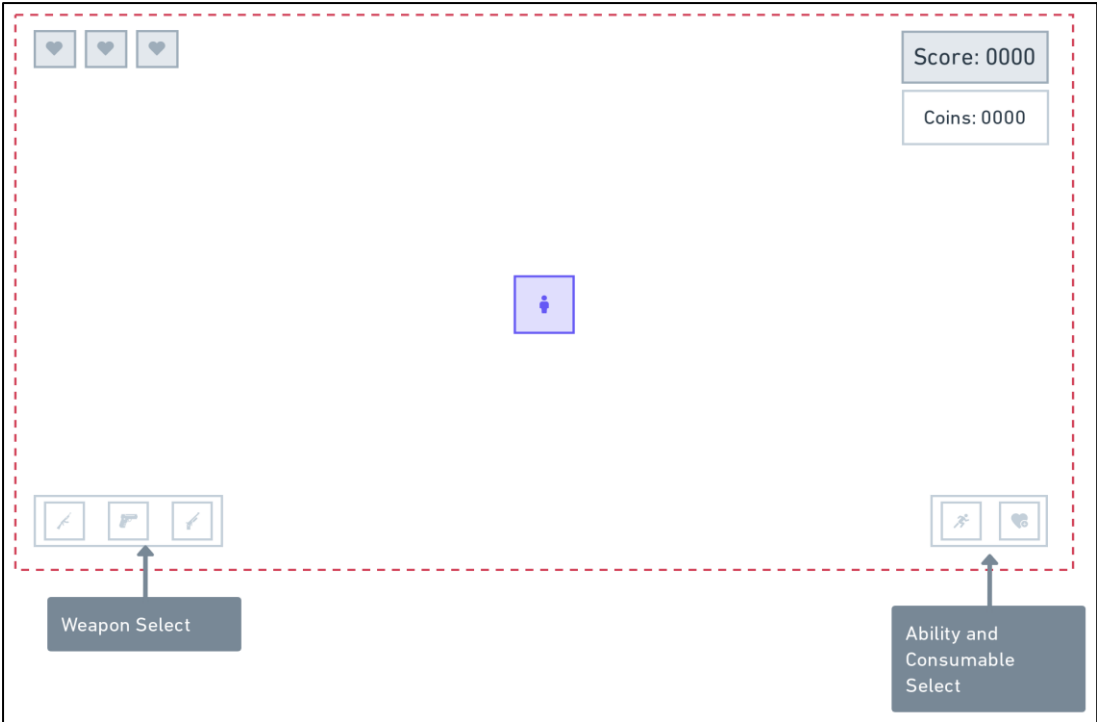
### Preparation UI ideas



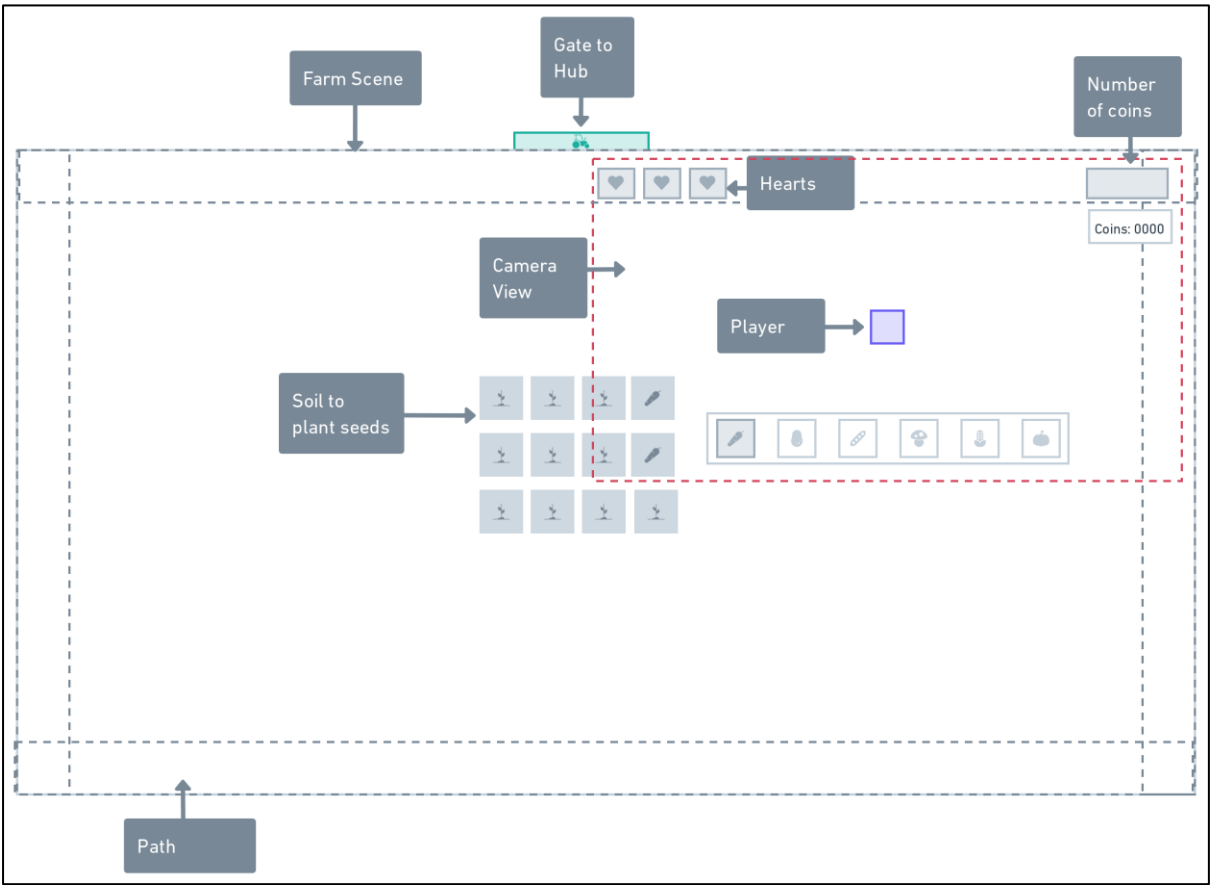
## Combat UI Ideas

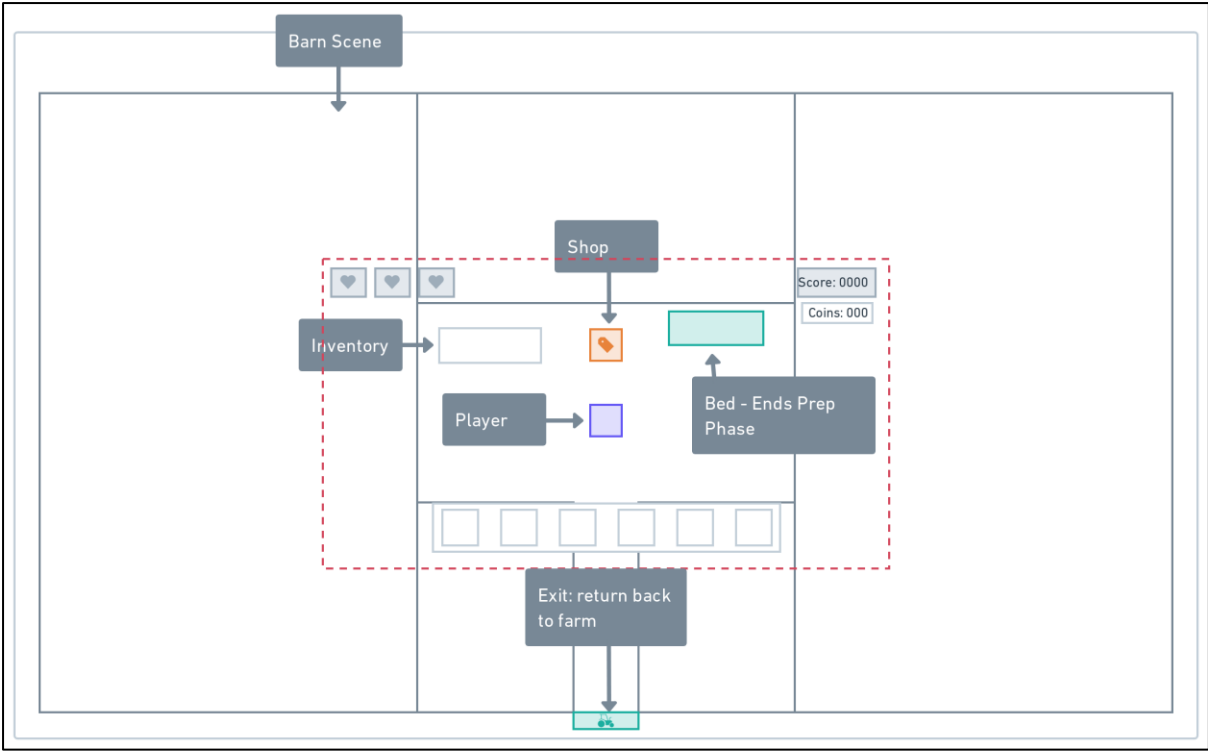






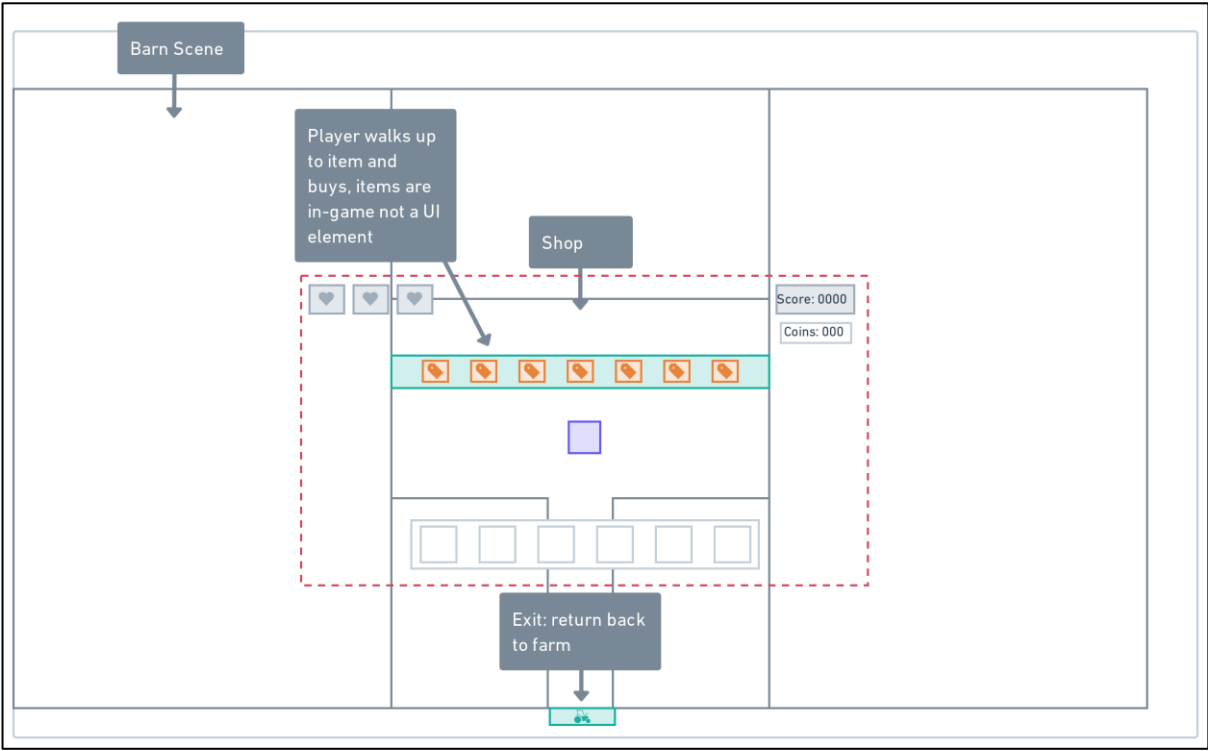
Level Mock-up Ideas

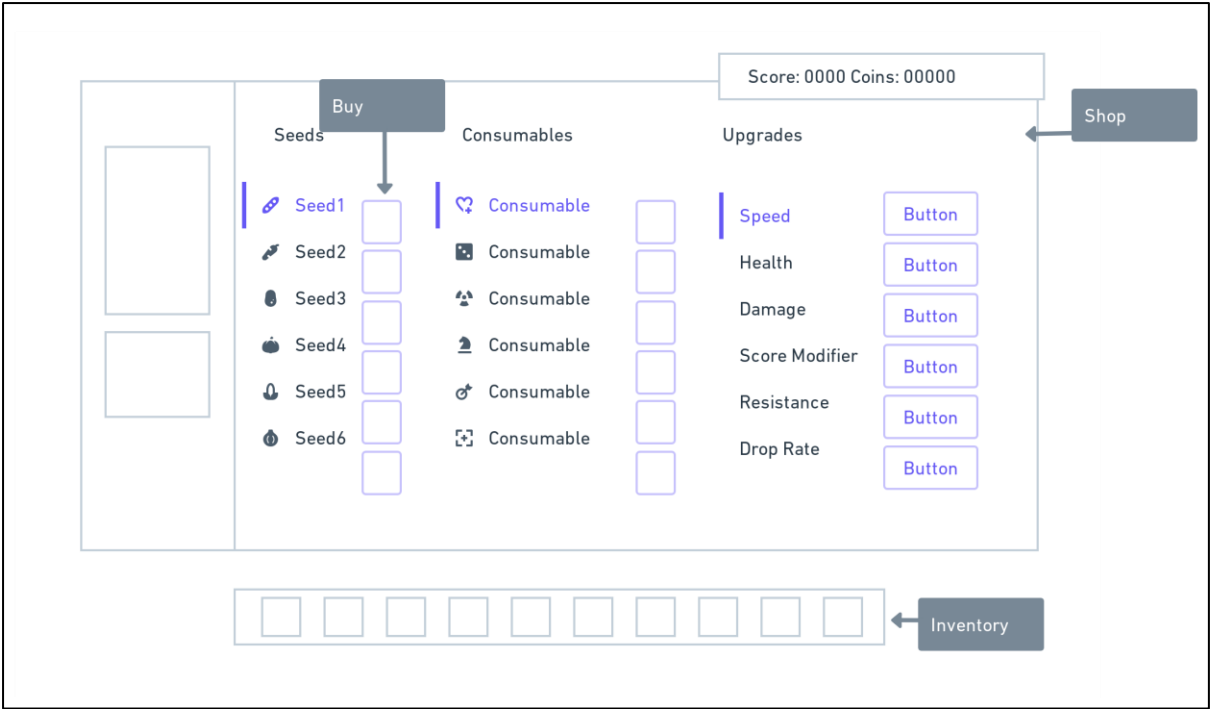




Shop Mock-ups

How the player will be able to buy seeds?





## PLATFORM CHOICE

The choice of platform that was decided on was PC, more specifically Steam. Steam was the choice made because it is the most indie-friendly given how many indie games get published on Steam and therefore the game will not stand out negatively amongst any other titles that it could appear next to such as AAA titles and whatnot. The game will be listed closer to indie titles and therefore will appeal to players who will be searching specifically for indie titles to try out, giving the game a better shot. In a post (Elliot, 2018), they state that Steam is the best to publish your indie game on as it's also the easiest way to create a "buzz" around it.

It would also be worth mentioning the engine that was created both before and alongside the development of the game, as this engine saw a lot of updates throughout the game's development cycle. More on the engine is stated in the technical design document (TDD) however since it's what the game was made on it's worth mentioning. When it came to assets, they have also created however some ideas for the games were sprung from such places as the Unity asset store, which allowed us to see an image of what we wanted the game to look like and give us some more ideas.

## ACTUAL GAME LOGO



## ACTUAL GAME ICON



farm.ico

## ACTUAL GAME NAME

Midnight Harvest

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