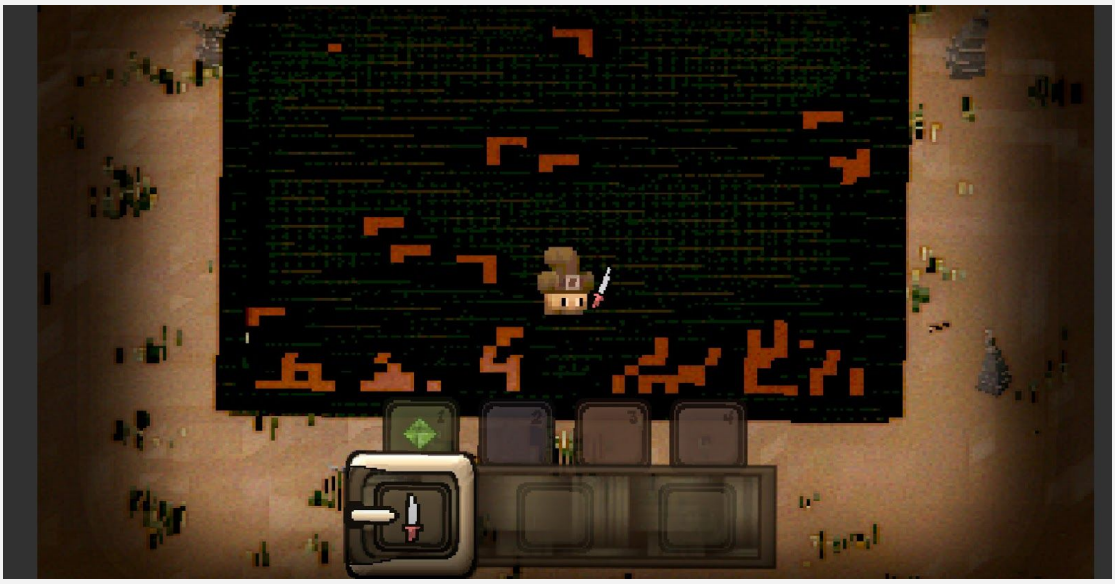
Frisking Ruins

September 2018

Bullet Hell / Roguelike / Procedural / Survival



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Summary

Frisking Ruins is a procedural survival / bullet hell combining modern indie game elements with a nostalgic retro feel.

You can kill NPCs, harvest items, go into dungeons, get slain by a giant death worm, and CRAFT!

As of yet, you have these crafting recipes:
- Cactus + Sword = Cactus Shank (Melee Item)

All textures, sounds, music and code are made by me.

Controls

Key	Action
W, A, S, D	Move
Space	Use Item / Action
L Shift	Pickup Item
R Shift	Drop Item
1, 2, 3, 4	Crafting Inventory slots 1-4
Q & E	Switch Inventory Slot

Todo

- Vignette / Transition to dungeon mode
- Item system
- New player texture + Design
- Crafting System
- Particles
- Infinite Map Gen
- Decorated Items w/ buffs/debuffs?
- Cuttable Trees
- Enemies (Decorator pattern)
- Health & Death
- Score
- Health Bar + Damaging Info
- Death Sequences
- Worm anticipation
- Worm random locations
- Dungeon entities
- Object pool entities?
- Camping
- Vultures
- Giant Fossils with loot / Carcasses
- Options / Settings (sound volumes)
- Simple Tutorial (Letters in sand)
- Sound & Music
- More dungeons
- Menu
- Treasure Hunting & Procedural treasure map after completing dungeon

Main Mechanics

Procedural Map Generation

The map is procedurally generated, in an overall desert environment.
You are surrounded by walls of cacti, and it is your quest to trek through this barren desert, in search for dungeons. These dungeons are retro-themed bullet hell sequences, and act as a big challenge for the player, with their current loadout.

Crafting System & Inventory

The inventory takes shape of the Toolbelt of the adventurous player.
Since the pacing of the game is centered around fast and quick, the UI and inventory is designed to convey a quick and easy-to-understand sense to the player.
The player has about 4 inventory slots which are easily scrolled through with the Q and E buttons.

Above this inventory there are four more slots.
This is the seperated crafting inventory. By pressing the 1-4 buttons the player can combine two specific items to craft them into new items.
The Crafting system should work entirely by easy key presses with just the left hand.
Like the inventory, it is designed for fast paced action.
Once the player gets used to this control scheme, it allows for quick actions.
Once you craft a new item, it gets placed in the first slot (from left to right) that's empty in the player's main inventory.

Bullets, Monsters & Items

The 3D world is littered with procedurally generated 2D tiled dungeons.

Once the player enters said dungeon(s), monsters will spawn and a bullet hell sequence will begin.

This is either:

- Tetris-like themed dungeon, where you avoid tetris shaped tiles that come from the top to the bottom of the chamber.

- Game of Life recreation within the dungeon, where you have to avoid all living things, that keep evolving and creating other shapes.

The combat works with items. Specific items have different stats such as: Knockback, Range, Damage, Attack Speed and Cooldown. Space (Action button) is used for overall combat.

As of yet there are three enemies/entities:

The Mummy

The Aztec Relic

The Death Worm

Code Architecture

I have created some dynamic sub-systems using the following design patterns:

*- **Items** inherit from ScriptableObject, which allows for the item info to exist in meta file format. All Item files in the 'Resources' folder is loaded automatically and put in the game. This way it is very easy to add new items into the game.*

*- **Crafting Recipes** use the same principle.*

*- **Object Pool Pattern** is used for the cacti and all the (custom) particles within the game. Since these objects come in high quantities, it reduces framerate issues and lag by putting these objects in pools.*

*- **Entities** (Cactus, DeathWorm, Mummy, Aztec & Player) all inherit from an abstract Entity class, which handles their most basic behavior (such as Die(), Health management, movement, animation)*

*- **SoundManager** handles all the Audio, such as Music transitions between the Dungeon and the Desert overworld. Also handles all the sounds in the game through static methods. Everything is done within this singleton file, which makes it kind of a Facade Pattern.*

*- **Inventory & Crafting** this whole system is sort of a unified interface, that is divided into subsystems (Crafting class within the Inventory script, which then has CraftingSlot instances, all handled separately). The Inventory class has the most important public functions in order to control behavior. Therefore, it is a Composite pattern.*

*- **Dungeons** (exist as a subclass within the World script) are constantly communicating back and forth with the World instance, to notify any changes/interactions with the player, entities or stats. Also, the world is observing these changes per Dungeon instance. So this is an observer pattern.*

***Extra**:*

*- The **Cacti** object pool uses Frustum Culling, to check which objects need to be updated and which ones don't, this greatly improves performance.*

Log

10-09-2018 (30 min):

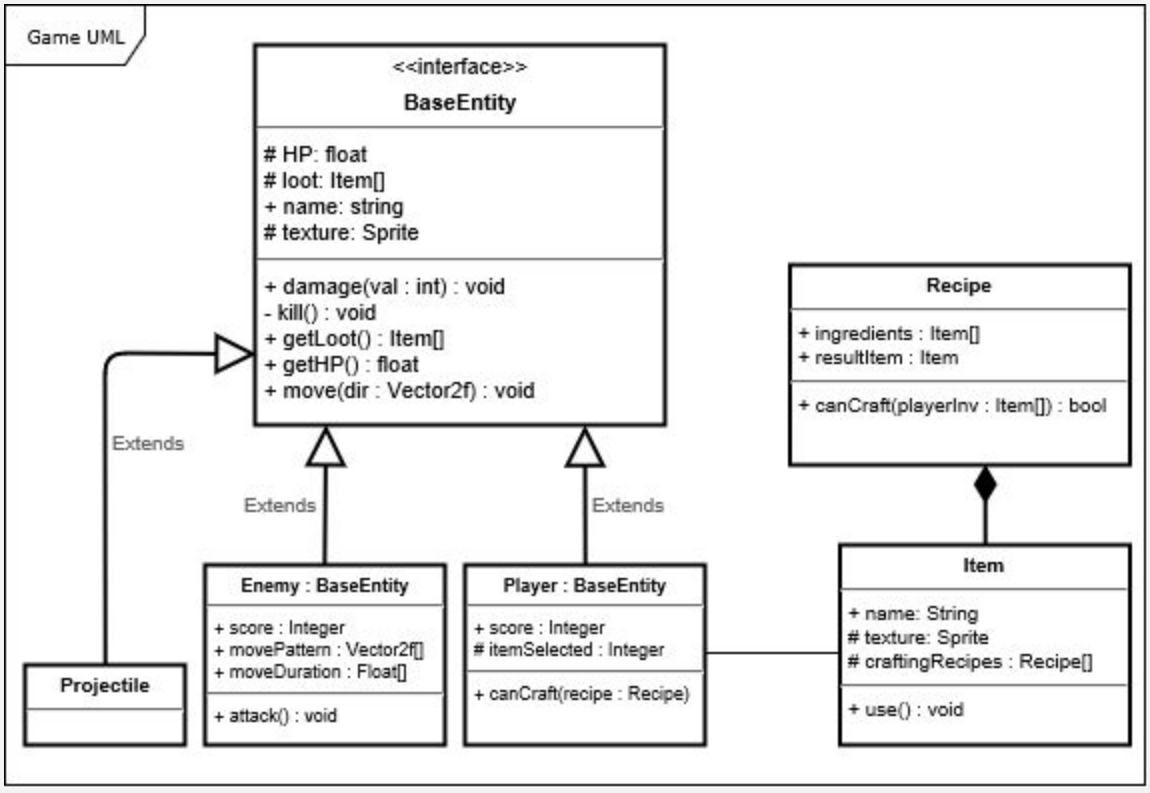
Defined the concept

11-09-2018 (1 uur):

Made an Activity / Flow Diagram

14-09-2018 (2 uur):

Reformed the idea, and made an UML Diagram.



18-09-2018 (2 uur):

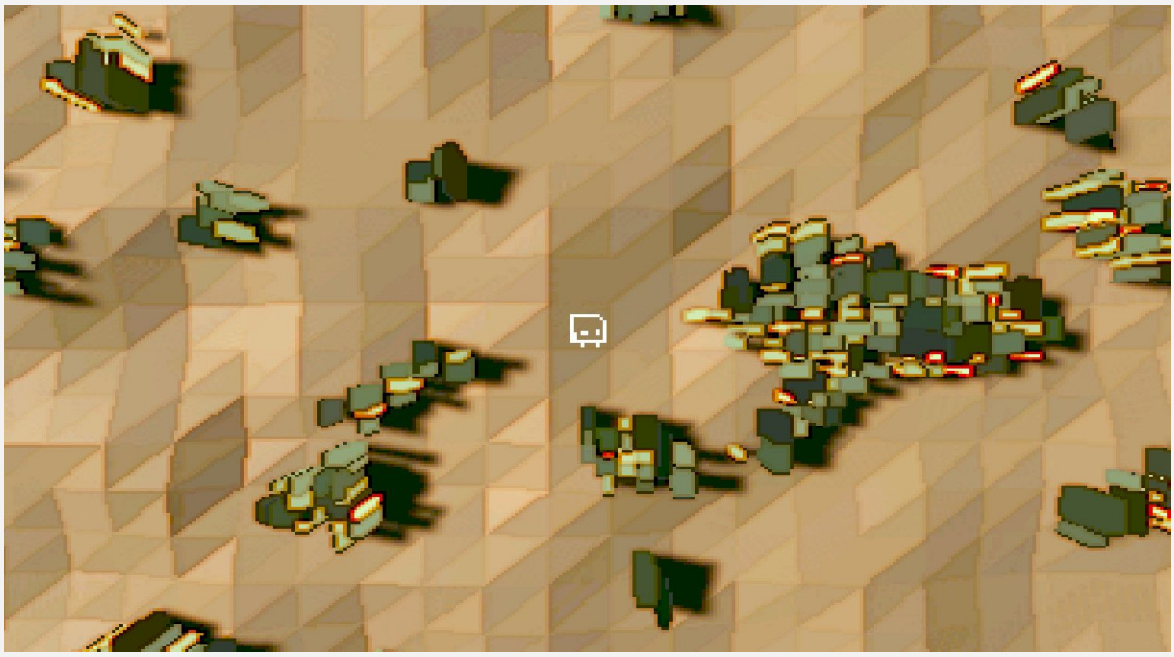
Procedural generation system implemented.

21-09-2018 (3 uur):

Procedural generation development and refinement + World building

27-09-2018 (5 uur):

Player textures made, aesthetics, visual FX & art style iteration



29-09-2018 (4 uur):

Inventory textures made, art style & overall look polishing & technical architecture design

30-09-2018 (5 uur):

Inventory system implementation started + Reworking a following iteration of UI textures. Added holdable player items.

01-10-2018 (5 uur):

Dungeon generation progress; A bullet hell dungeon survival sequence occurs once the player's longer inside than two seconds. This bullet hell arena-esque gameplay is designed after the concept of Conway's Game Of Life.

Outside of the dungeons, in the base game, there now is a Giant Death Worm whom occasionally plunges out of the sand, shaking nearby cacti as an indication. This keeps the game flow outside of the dungeons alive and mildly paced.

02-10-2018 (4 uur):

Dungeons now close off the walls, so the player can only exit after surviving the dungeon. Adding to that, you can survive the dungeon after about 12 seconds. The Game of Life algorithm is now also tweaked to add challenge.

03-10-2018 (2 uur):

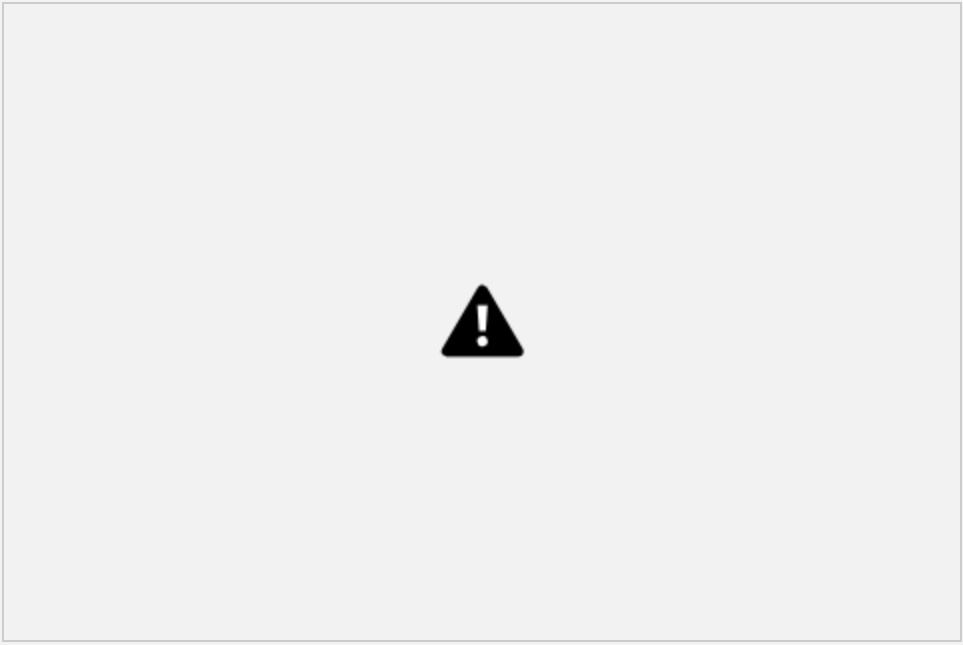
Dynamic item system made, you can add items by creating a new ScriptableObject instance (in Unity Editor, click Create and then Component/Item). Here you can assign the name, use, texture and tweak the stats of the item.

04-10-2018 (5 uur):

Added procedurally generated fractal trees, which get placed throughout the map. More environmental diversity.

06-10-2018 (4 uur):

Integrated Frustum culling, which vastly improves the framerate, and allows for bigger map sizes. Optimizations..



08-10-2018 (5 uur):

Made the transition from Outside-mode to Dungeon-mode smoother with Linear Interpolation for the change in perspective, and tweaking the colors of the outside world, so the dungeon gets more focused upon.
Item actions system almost finished. It is dynamically changeable per item on speed, action, range and damage. Cacti is now removable by cutting. IHealth interface added to entities whom are damageable.

Added particles, using a global Object Pool. These occur when chopping down cacti, or when the death worm emerges from the sand.
Also tweaked the cactus shank item, which has a jabbing motion when it is used, and is lowranged. The sword has a relatively bigger swing range, but takes longer per attack.

09-10-2018 (3 uur):

Added day/cycle terrain darkness changer, tweaked some things in the Game of Life dungeon.

10-10-2018 (5 uur):

Added four numbered slots above the belt-ventory. These slots are meant for the collection of materials, and will eventually be the crafting menu. Equipped items will be used in the belt below, and for extra storage you will have to rely on other sources.

Made the item dropping / pickup system. These work with bigger trigger boxes by the dropped items. With ***Left Shift*** *you can pick up items from the ground, and you can drop items with* ***Right Shift****.*

11-10-2018 (2 uur):

Remade the player texture, to fit the theme of the game.

12-10-2018 (4 uur):

Improved the shading of the player texture
Improved the cactus-slashing particle spawning
Further crafting system development

16-10-2018 (5 uur):

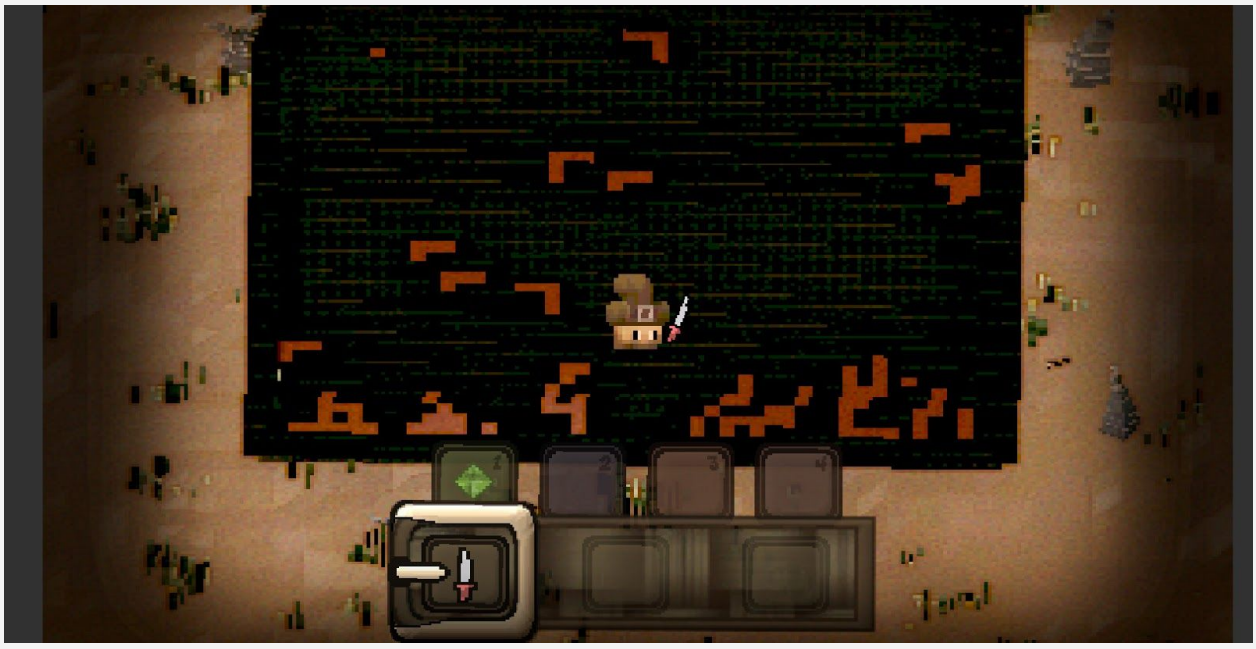
The crafting system is fully functional now
Chose the main font of the game

18-10-2018 (5 uur):

Made two OSTs, respectively for the overworld and for the dungeons. Added camera pacing on dungeon play. Iterated and did some listening tests for various versions of the songs, and tweaked the sound texture / production according to the results of some listeners.

19-10-2018 (7 uur):

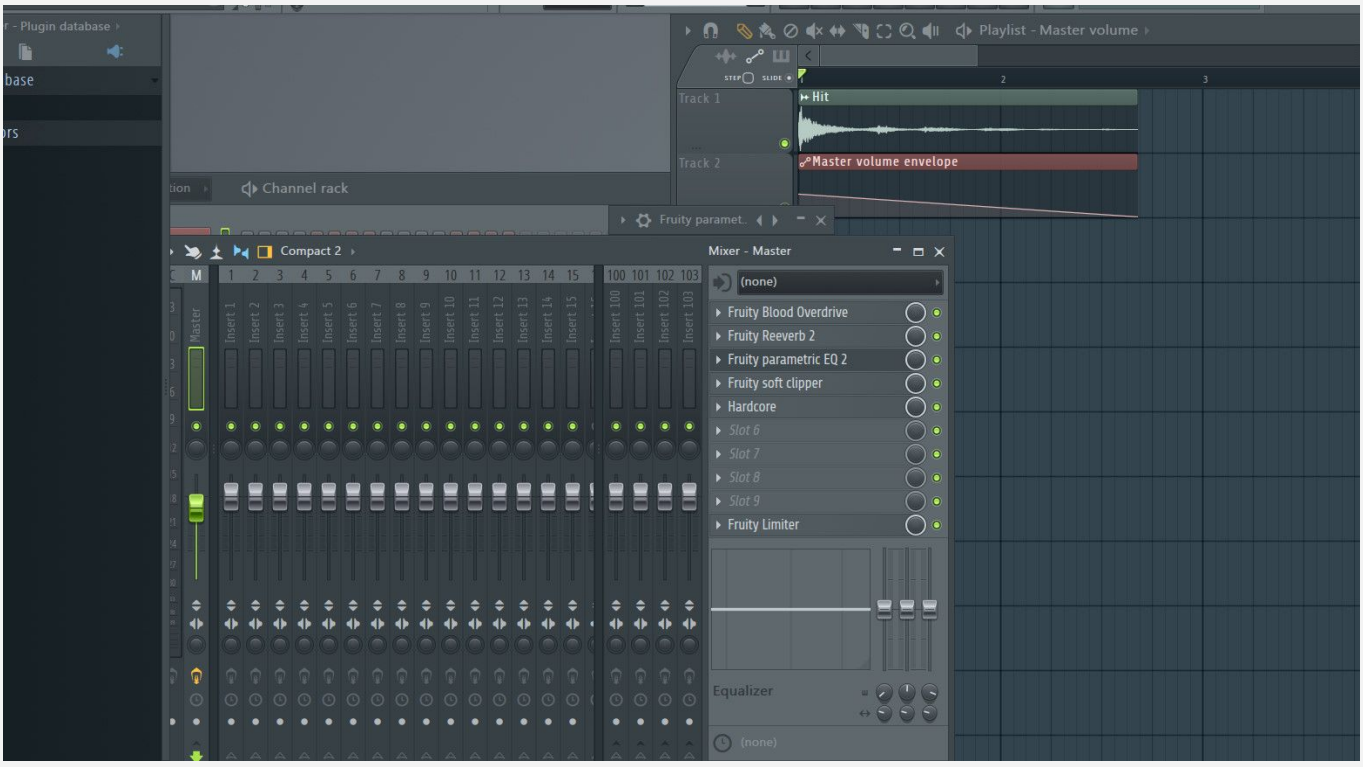
Added sound effects, and an extra Tetris-like dungeon.
Added mummies as the first enemy NPCs.
Combat system now works.
Did a playtest, and some of the feedback was regarding the entrances of the dungeon being hard to notice. Tweaked this accordingly.
Also started working on a second enemy, the Aztec NPC. This will be a ranged enemy.
Added Basic Combat & Health.
Item-dependant knockback, screenshakes, sprite flickering, and you can now kill entities.

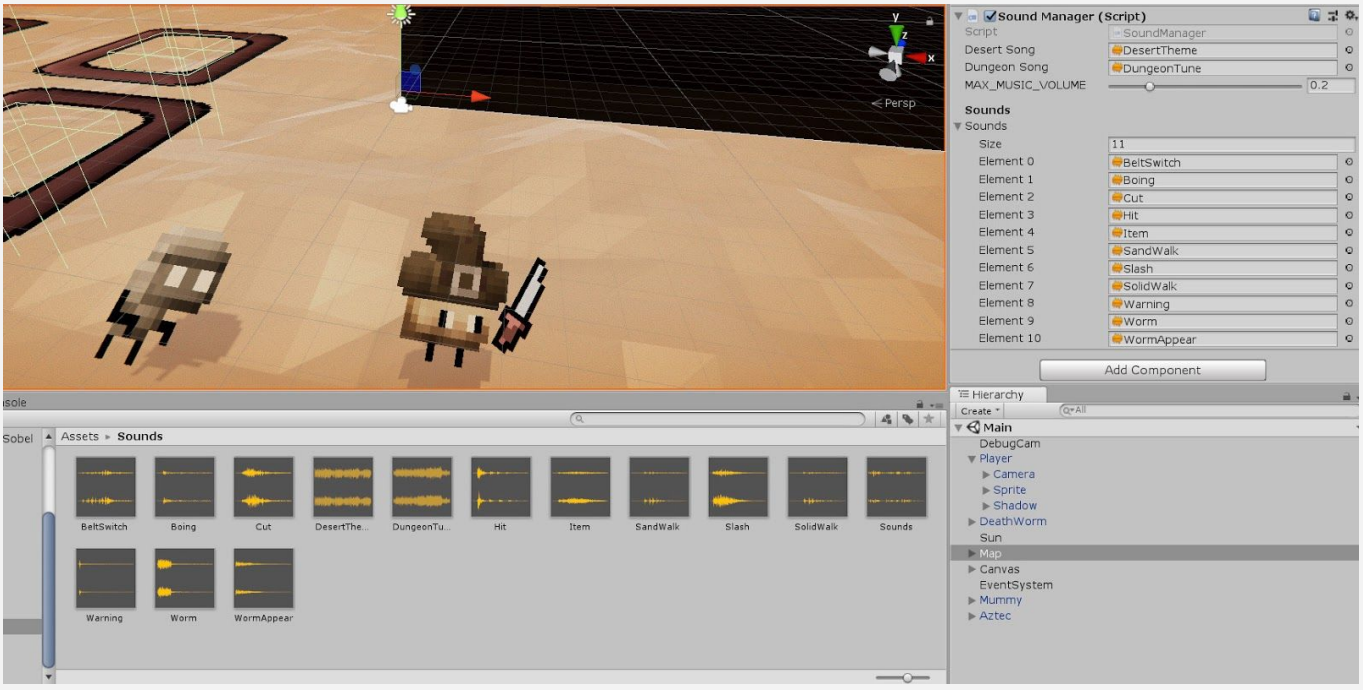


20-10-2018 (6 uur):

Particles now fade after some time.

Added a variety of game sounds (walking sounds (sand & dungeon), player hurt sound, entity hurt sound, giant worm emergence sound, entity idle sounds, inventory sounds, item using sounds, slashing cactus sound, crafting sounds, etc.





21-10-2018 (8 uur):

Polishing, setting up the spawning sequence & balancing the map for the actual game.
Borders around the world that actually prevent the player from exiting the map. These cacti are not destroyable.
Now made the death worm appear in random locations on the map.
Made an entity spawner algorithm.
Leveled the relative volumes of the sounds.
Added a UI health element.

Inspirations

Games

- Serious Sam
- Tiny Wild West
- Enter The Gungeon (Bullet Hell, Impossible to complete / You die you start over)
- Asteroid
- Pacman
- Magicite
- Tetris
- Terraria
- Dont Starve
- Blitztris
https://www.youtube.com/watch?v=LKOYnYxhlrk

- Spelunky
https://www.youtube.com/watch?v=Uqk5Zf0tw3o

- Rogue-Like Bullet Hell (Nameless)
https://www.youtube.com/watch?v=A-Y4kNCxUEU

- Hexagonal landscape (Giants Causeway)
https://cornetalec.artstation.com/projects/3Y43E

- Survived By (Survival Bullet Hell RPG MMO)
https://store.steampowered.com/app/606140/Survived_By/

- Turok 2: Seeds of Evil (Camera movement)

- Magicite (Crafting)

http://magicite.wikia.com/wiki/Crafting

- Nuclear Throne (Roguelikeness)

Research

History of Bullet Hell:
https://www.usgamer.net/articles/curtains-for-you-the-history-of-bullet-hell

Procedural Cave Generation
https://gamedevelopment.tutsplus.com/tutorials/generate-random-cave-levels-using-cellular-automata--gamedev-9664

Game Feel
https://www.youtube.com/watch?v=216_5nu4aVQ

Tetris Logic
https://gamedevelopment.tutsplus.com/tutorials/implementing-tetris-collision-detection--gamedev-852