# Bullet Hell Dungeon Post Mortem: By Jonathan Sarasua

## What I planned To Accomplish

* Working menus with clickable buttons with sound and art
* Working UI with Health, current weapon, and ammo
* Data driven player, enemies, and bosses
* Data driven weapons and bullets
* VFX for weapons
* SFX for bullets
* VFX for bullets
* Transition sequences for death, victory, and map transitions
* Player character has controls to move, shoot, swap weapon, and dodge
* Enemies drop weapons to pickup
* Map editor tool
* 3 maps
* 3 bosses
* Pause menu, death screen, and victory screen
* Audio controls from menus

## What I actually accomplished

* Working menus with clickable buttons with sound and art
* Working UI with Health, current weapon, and ~~ammo~~
* Data driven player, enemies, and bosses
* Data driven weapons and bullets
* ~~VFX for weapons~~
* SFX for bullets
* ~~VFX for bullets~~
* Transition sequences for death, victory, and ~~map transitions~~
* Player character has controls to move, shoot, swap weapon, and dodge
* Enemies drop weapons to pickup
* Map editor tool
* ~~3 maps~~ 2 maps
* ~~3 bosses~~ 1 boss used twice
* Pause menu, death screen, and victory screen
* ~~Audio controls from menus~~
* Polish features like boss health bar, damage conveyance (player fades in/out on damage), enemy burst shooting

## What went right

* Flexible to iterating on polish.
* Iteration on art assets with artist (DhiMaximus)
* Able to realize what was cuttable

## What went wrong

* Waffled on the base project
* Didn’t comprehend how hard lining up player and weapons would be
* Didn’t understand how hard a working tile map would be
* Cut corners to get features in
  + Ignored/hid bugs instead of looking for root cause
  + UI is all hard coded
* Had difficulties determining if I should work on more polish or finish features

## Insights and lessons learned

The biggest and most important lesson I learned with Bullet Hell Dungeon is the moment to moment gameplay has to feel polished. All other features are secondary. This was very apparent looking at milestone 2 versus milestone 3 where lining up the weapons better, adding more poses, and making a tile map that doesn’t hurt your eyes. Even though these weren’t features like room locking or more levels, I would say the polish is worth it.

To go along with the first lesson, lining up weapons with the player is SO HARD. I spent hours dealing with the problem. Enter the Gungeon dealt with the problem my removing arms from the player and having a robust system for rotation the weapon and flipping the sprite/putting the sprite behind the player at the correct time. Because of art limitations I couldn’t remove the arms. I also had a very hard time getting the position of the weapon correct, and finding the correct spot to mirror the weapon sprite and move the weapon behind the player was way more time consuming than I thought.

The next important lesson is playtesting helps your game SO MUCH. I only asked Tyler to playtest my game after milestone 3, but it was helpful to see how he played the game. His playtest led to features like the player flashing on damage for conveyance, player brief invulnerability after taking damage, enemies pausing between bursts of shots, larger hallways on map (only implemented on second map, and scrolling to change weapons. This was a single playtest, but that is a ton of features that make the game better. I wish I had more playtests and from varied people. Seeing Butler’s playthrough mirrored some of what Tyler said as well. Playtests also are a good way of determining what’s important. I asked Tyler if he’d want the changes he listed or features planned on like room locking and audio buttons, and he didn’t care much at all about my planned features.

The last lesson I learned is even though working with an artists solves some problems, there are plenty it creates. You will need to work together a ton, but you’ll also need to sync up your schedule to optimize work. This was challenging as Dhi is in Australia, so timezones were a problem. Also, you have to convey how the art assets have to be given since our engines are very strict. Still, it was awesome to work with Dhi, and his art looks better than anything I could have found.