



Level Design and Production for Games

BA GAME DESIGN

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Research and Concept Vis

Understanding the Game Theme

Level Specification

As provided a guide in the Studio's early development phases, I followed their guideline template and produced a Level Specification for their Single Player Mission.

The plan was to understand short gameplay bursts within a increasingly unknown environment, with a push seen in classic FPS titles such as DOOM and Duke Nukem (as requested).

This lead me to various research into possible gameplay beats and visual themes promoted by the requirements, and planned out a few ideas.

Level Title: *Lake Michigan In Twain*

Brief: With the appearance of another alien Cocoon appearing within the caverns formed under Old Lake Michigan, the denizens of the Safe House agrees it's time to send in the cleanup crew.

Location: Lake Michigan (At least, it was)

Mission Style: Reach the Goal (Mix of Exploration and Combat)

Mission Rule Set: The Player must find a way into the lower caverns of Lake Michigan, eradicating any denizen of Arakni who wish to call it their own.

Win Condition: Reach the Lower Caverns.

Lose Condition: Die in Combat before reaching the Goal.

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As provided in the document, the initial gameplay location take place in the most populous city in the U.S. state of Michigan, Detroit; and the Player branches outwards towards distant locations as they attempt to eradicate every last Arakni: giant alien spiders with a passion for destruction.

Starting at a base point, I looked into land mass, local areas and common visual styles and sites depicted with Michigan and thought to spread outwards from there as a central point to prompt ideas for possible mission progressions.

This included areas such as Chicago as a second major location, or trying to push through to Ontario, Canada.



Locations and Landscape around Detroit

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With possible locations in mind, and the concept of the landscape being destroyed by uncanny earthly disasters, I started to think about visual key elements and how these locations can be depicted in game as a form of narrative progression; without focus on a large story.

This lead me to research into well-received titles known for these mechanics, such as Mirrors Edge (follow the red items), Shadow of the Colossus (marked wins against gods with a beam of light), and Journey (ascend to the heavens).

The plan was to have these light and colour themes depicted throughout the stage to show progression and avoid any form of confusion on direction.



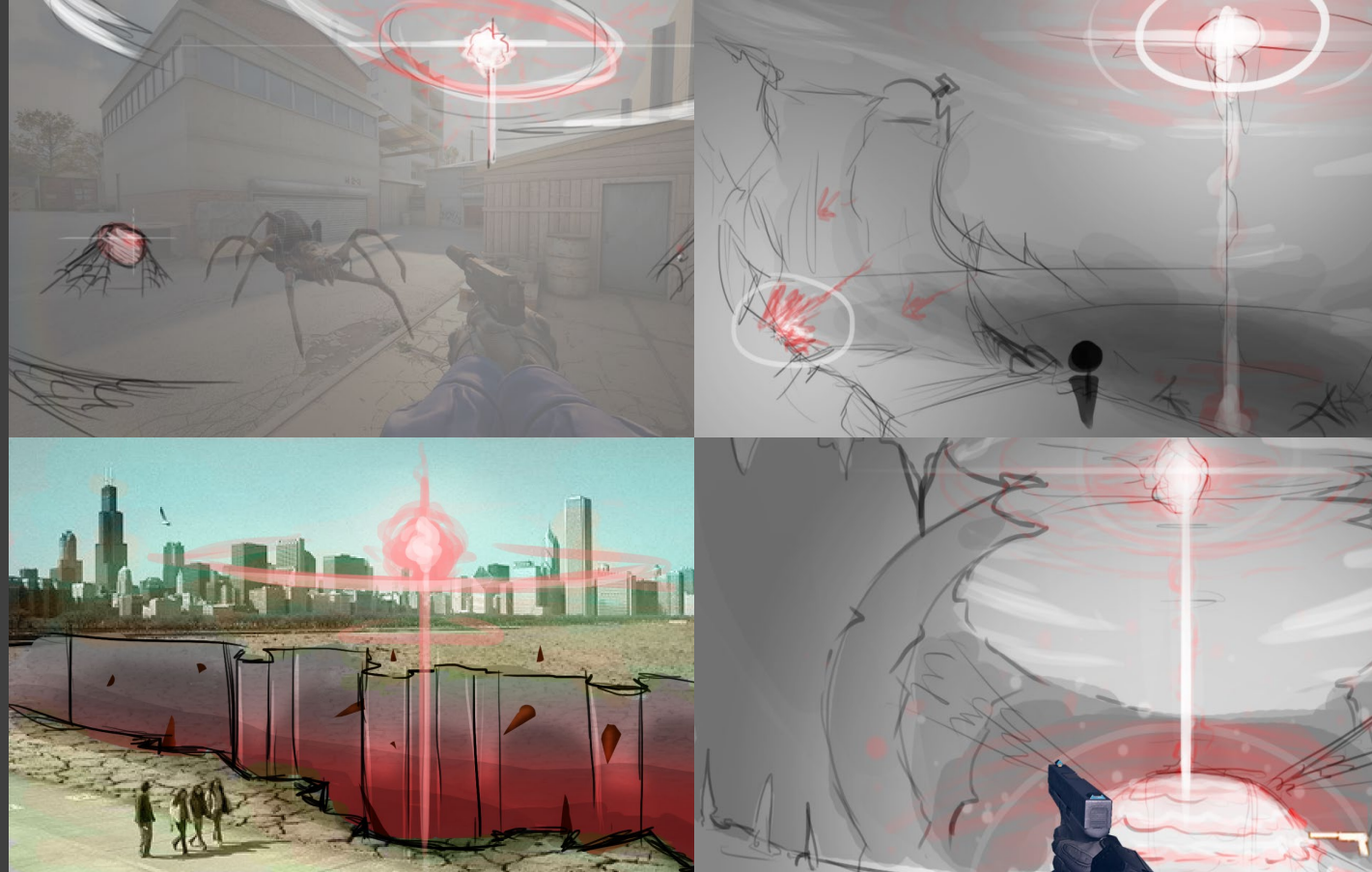
Clear key Visual Markers in Games

Research and Concept Vis

The accumulation to this first bout of research lead to the ideas of a ominous Beam of Light marking a end point to a narrative, and act as a guiding theme throughout the stages in smaller areas (such as smaller points of emission).

With the theme in mind, this could come in the form of a Large Cocoon forming letting off a beam or a mysterious alien symbol marked clearly in the sky protruding from a hatching Egg somewhere deep within the enemy lines; things to remain in sight and remind the player of their overall objective, but not be too forceful like an ongoing dialogue cutscene: simply pushed by gameplay progression.

I prompted started looking into ways to design a Organic Landscape for a possible environment such as a Spider Cavern hidden within the city, and started planning the world around this.

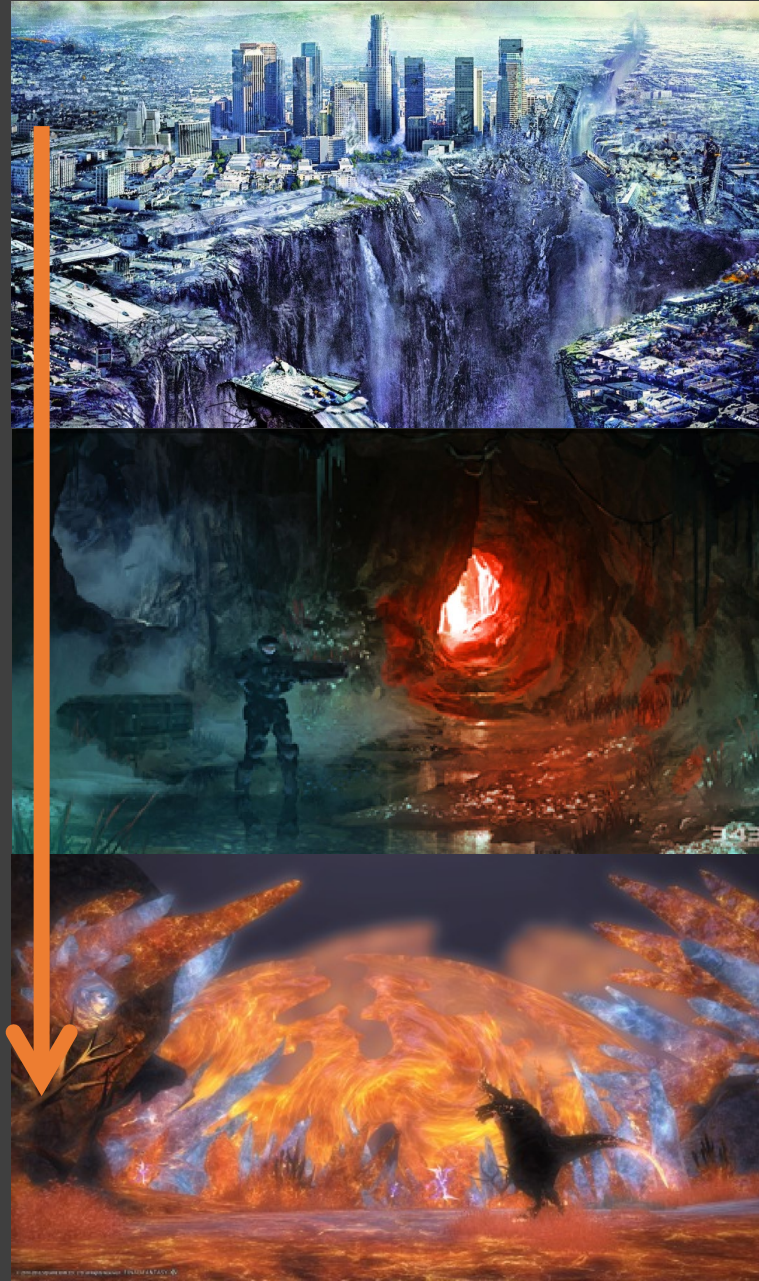


Sketches and Mockups of Navigating towards a Key World Marker

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To avoid oversaturation and visual fatigue, the idea was to have the harsh enemy lighting and colours complimented by a cold and dry environment from the events of the calamity.

The changes in visual themes act both as a way to keep the Player interested visually, whilst marking as narrative progression for each change in tone; moving from a open cold location to a closed almost living alien environment: acting as clear cuts in gameplay beats.



Clear City Shape, torn in two.
Cold dry environment and emptiness.

Dark cool caverns with distant
lights. Clear colour visuals for
danger and safety.

Unnatural and fantastical yet
dangerous environment
shown by rich hues and glows
from deep within.

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To further alleviate visual fatigue and keep a constant theme, I drafted out plans for enemy visuals, ensuring that each enemy introduced one by one has a clear shape language, movement, or colour palette than the last to put ease on player feedback.

For detail clarity, I looked into some titles that depicted great monstrous beasts but without diminishing the power of the Player through fear considering it's fast gameplay, such as Gears of War and PROTOTYPE.

This can be as simple as Red Spiders are common melee enemies and move at an average speed (little-to-no threat alone but dangerous in large groups), Green Spiders are larger with more health but shoot projectiles, and Purple Spiders are fast runners charge and explode upon impact with the player: markers for gameplay balancing and challenge composition.

This was also taken into account when designing, traps, item drops, and powerups; ensuring that they go against the hostile enemy palettes to act approachable.

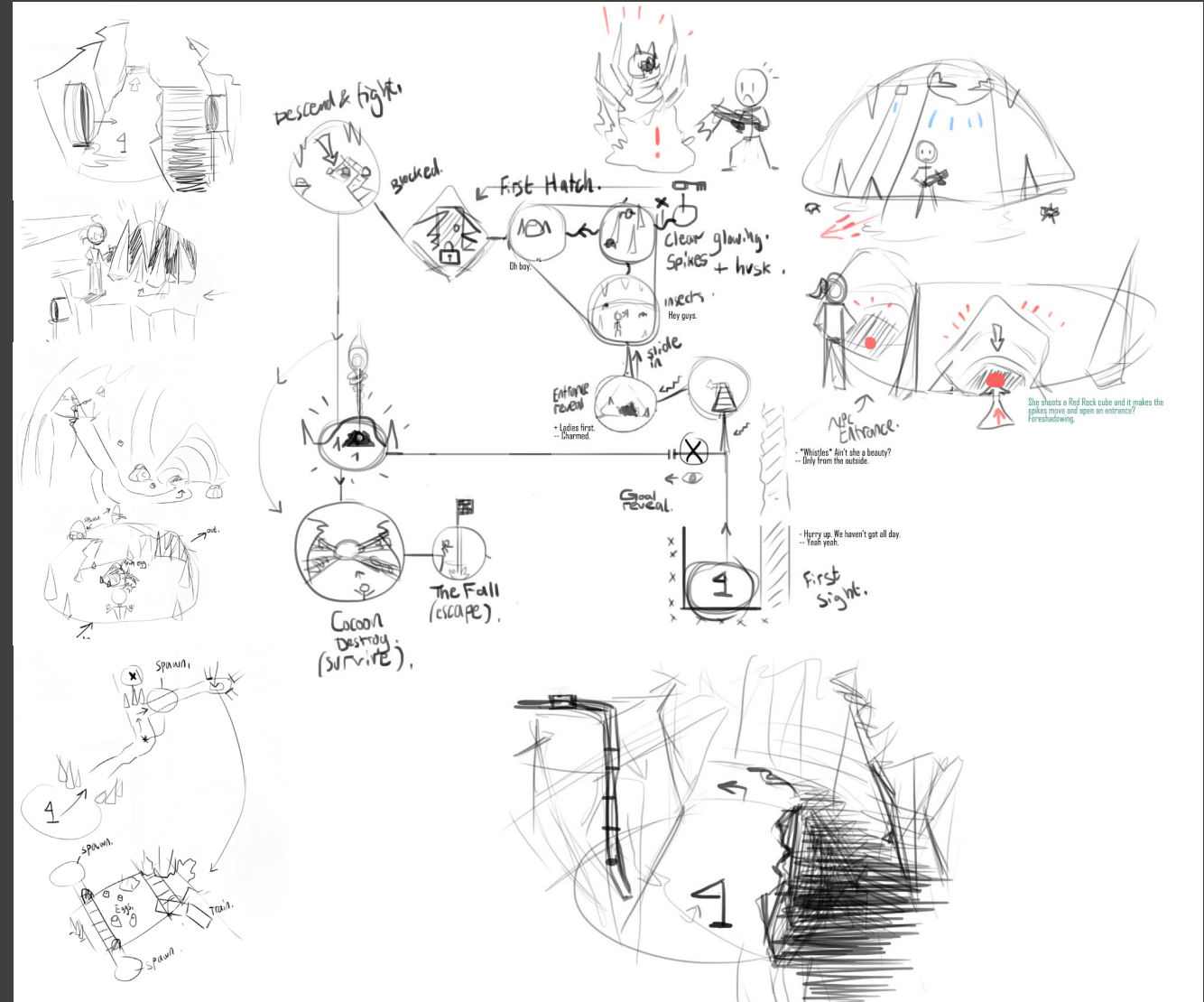


Character Material and Palette Research

Research and Concept Vis

Some detailed scenario mockups were sketched out and iterated throughout the initial weeks to prompt the right user-emotion, such as making areas that seemed too “Scary” to approach feel more “Rewardingly Challenging” instead by swapping events around and planning change in music and positive reinforcement ingame; something more akin to a Duke Nukem title.

At first, I was seemingly pushing for a Story-centric level with another character appearing in locations and giving simple tips, but to push for the raw classic feel of DOOM-like games, I slowly altered these moments into more opportunities to use Lighting and quick Camera focuses on important locations to promote feedback, leading to scraping a ton of map variations for the sake of simplicity and polish in gameplay.

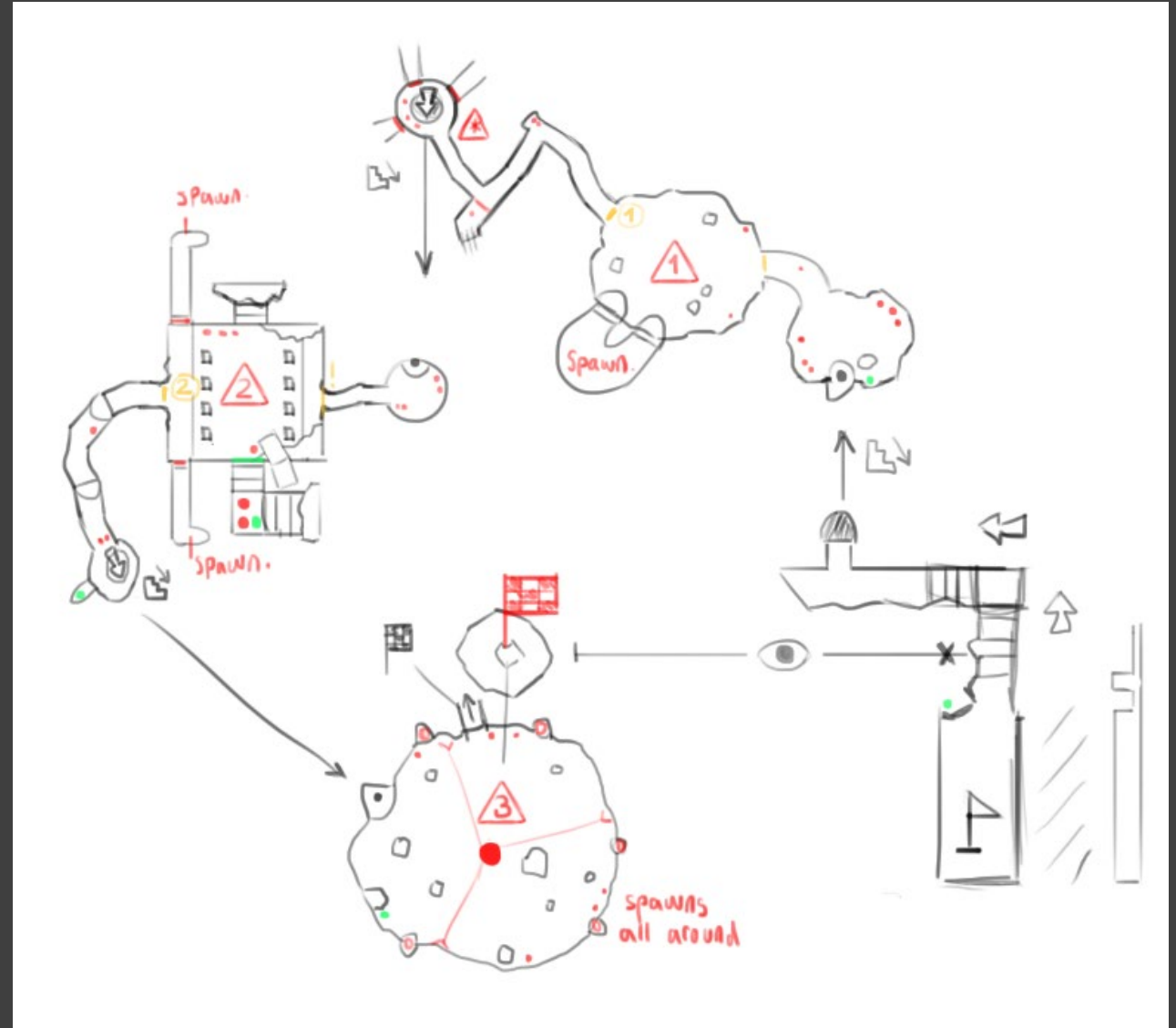
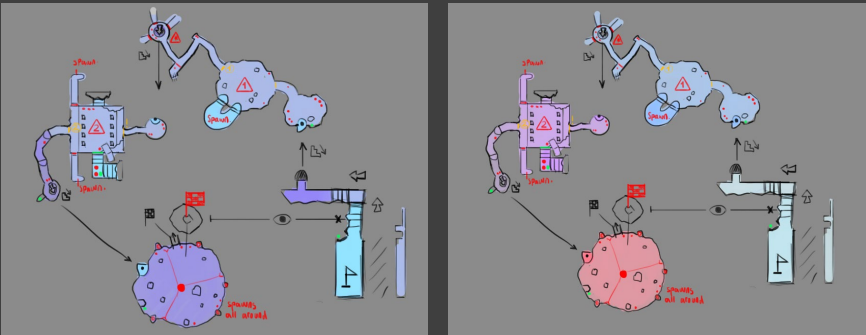


Early Map Plan via Key Moments (Gameplay Phases)

Research and Concept Vis

The Map was further fleshed out throughout production pushing for more narrative via gameplay, leading to 3 Major Areas, with plans on Height and Colour Theme, enemy placements (Red Dots), Events and Door Locks (Yellow Marks / Triangles), and Secrets (Green Dots). This was accomplished after researching into development cycles by studios such as Naughty Dog, such as the level design behind Uncharted.

Each area promoted a specific Gameplay Beat: Area 1 for Movement and Shooting, Area 2 for Exploration, and Area 3 for Extermination. Though these areas eventually changed design placement due to feedback and constraints, each gameplay beat is still in focus.



Secondary Event/Map Plan

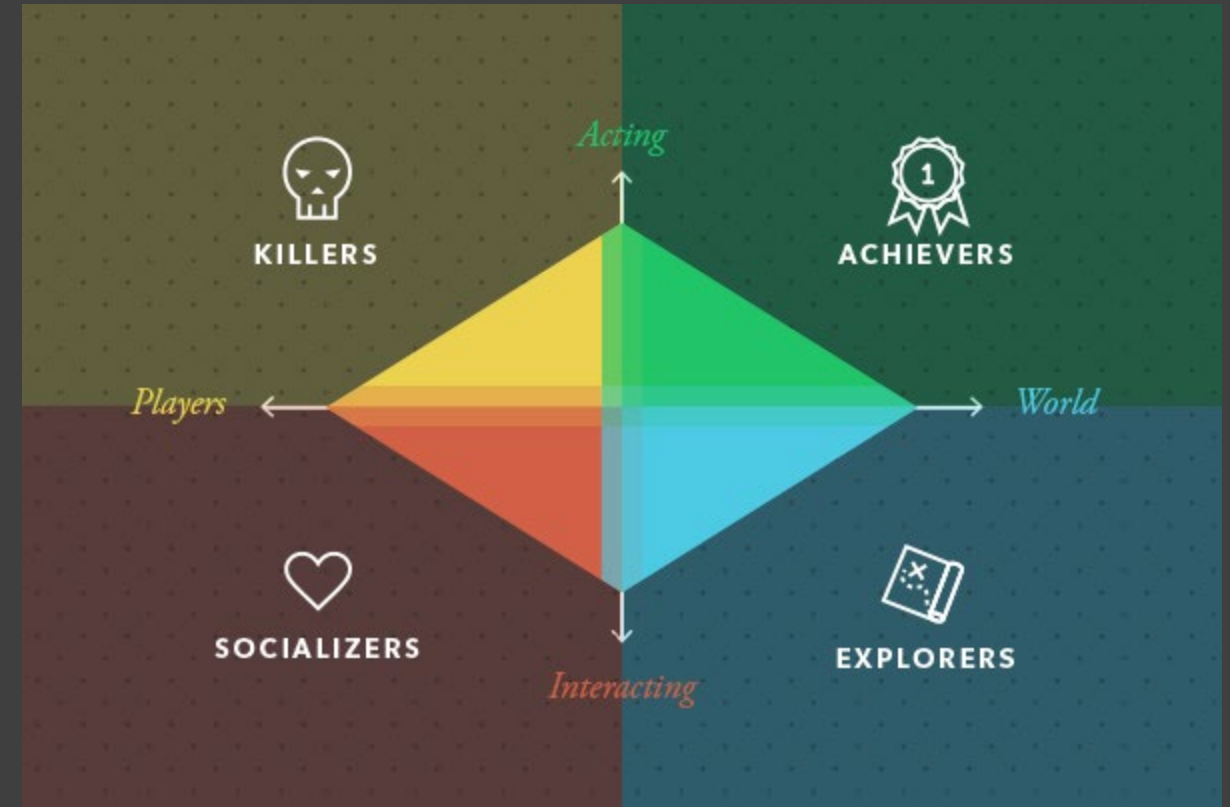
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To ensure the level feels fleshed out regardless of size, I focused on areas that different types of Players can find appealing.

Bartle's taxonomy of Player Types acted as a guide for content, such as items scattered around for the Explorers, different variations of enemy types and challenges for the Killers, and secret objectives for the Achievers.

I further pushed this by researching into Behavioral Game Design, and thinking how far each new type of content (e.g. a Power Up or a new Enemy) should be placed from each other to keep content enjoyable, whilst ensuring the level is enjoyed in short bursts with replay value.

These design plans helped continuously plan fun changes to the level flow and format.



Mission and Mechanical Breakdown

The Level's Mechanical Structure and Flow

Breakdown

After various iterations of designs focusing on Gameplay Location, I produced a Whitebox Blockout of the Organic Environment to promote clear shape understanding in 3D to updating the visual plans. Basic free-license textures were accumulated to help with the organic flow, as well and make better understanding with my time learning the Landscape Tool: UE4's organic surface sculpting system.

To ensure the dark Cave locations work best, each location had to be completely sealed into a measured box (using an orange block-out Material to measure to bounds of the room), to ensure there was no lighting issues during development.

From this, I loosely planned out the organic shape of the level; working in unlit mode to focus on direction and key focus areas for gameplay value.



Breakdown

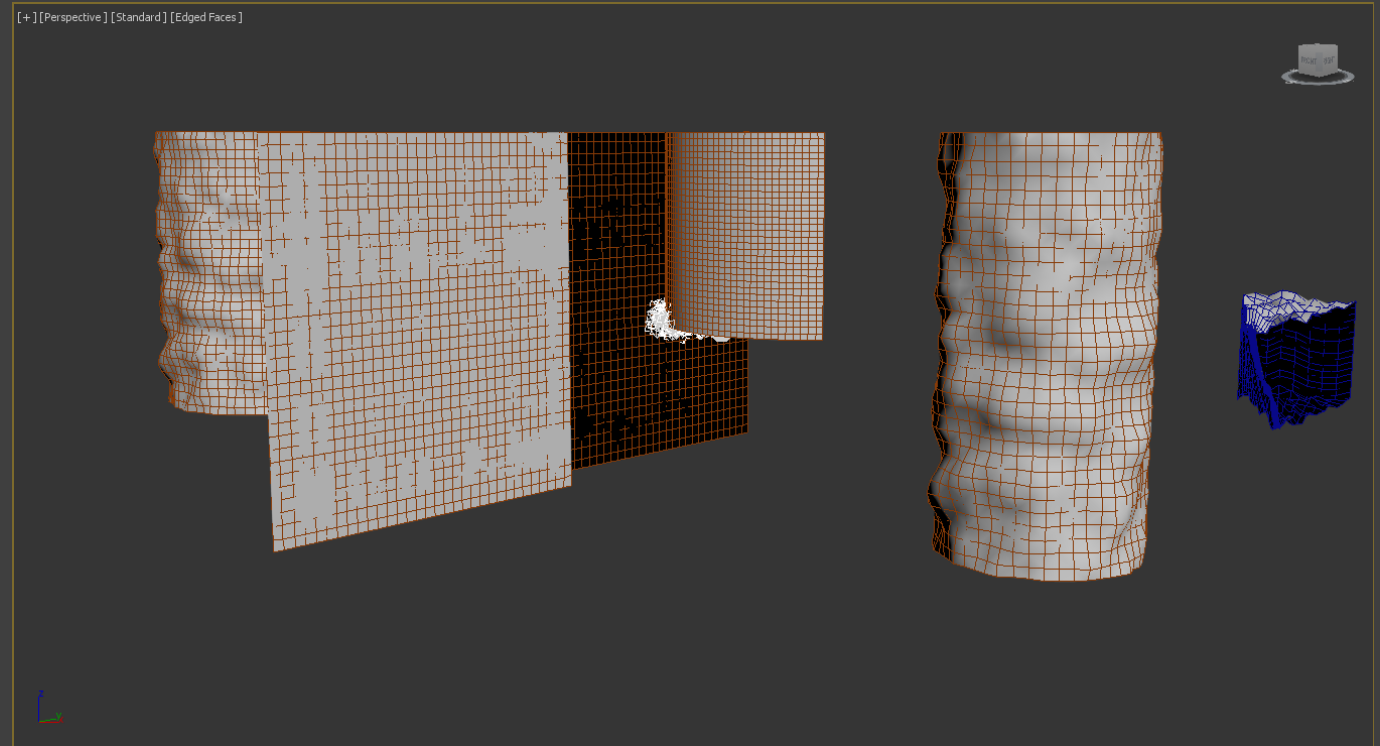


Key Object placement and basic visual blocking.

Breakdown

A variety of free-license assets were accumulated and modified to fit the visual theme of the environment and progression, using sites such as TurboSquid and Substance Share for asset collection, and applications such as Zbrush and 3DS Max for edits.

A main area was creating an organic-looking mesh series to act as Walls and Ceilings considering UE4's Landscape tool only provides detail efficiency on Floors. For this I used 3DS Max and Bitmap2Material to create fast Materials from online free-textures, and used the Displace modifier to copy it's visual properties of depth from the created Normal Map files to create an earthy-like plane, able to be shaped into different angles to act as curving tunnels, pillars, and frame structures around the cavern.



Breakdown



Wall placements to build onto the original blackout frame work.

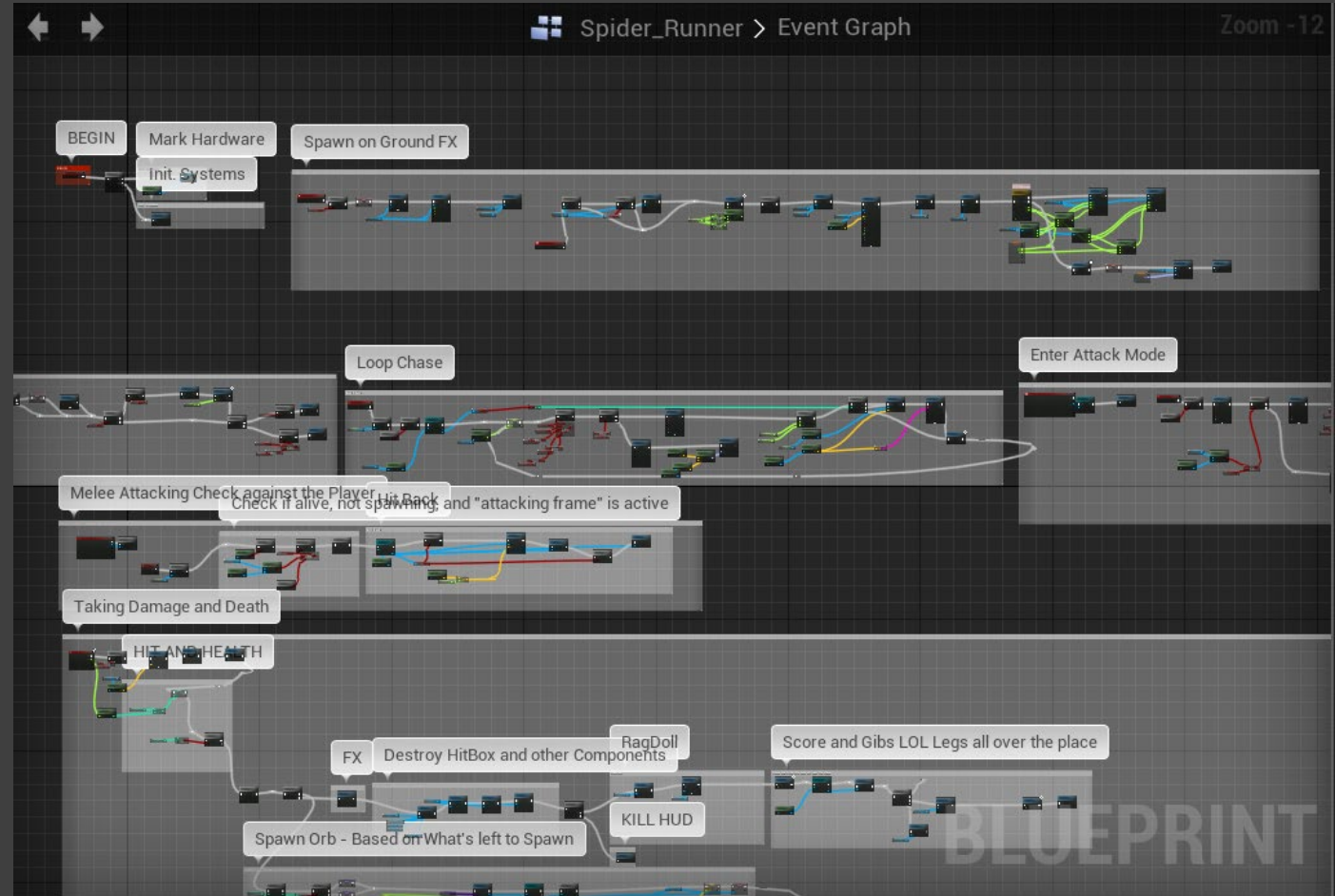
Breakdown

Visual Scripting / Blueprints were used to push the Level Design in ways such as having unique Enemy Types (Melee Runners or Projectile Throwers) to keep locations interesting and challenging. This meant using the base Blueprints provided and adding slight variations to functions without distancing too far from the original design plan for the Team's production.

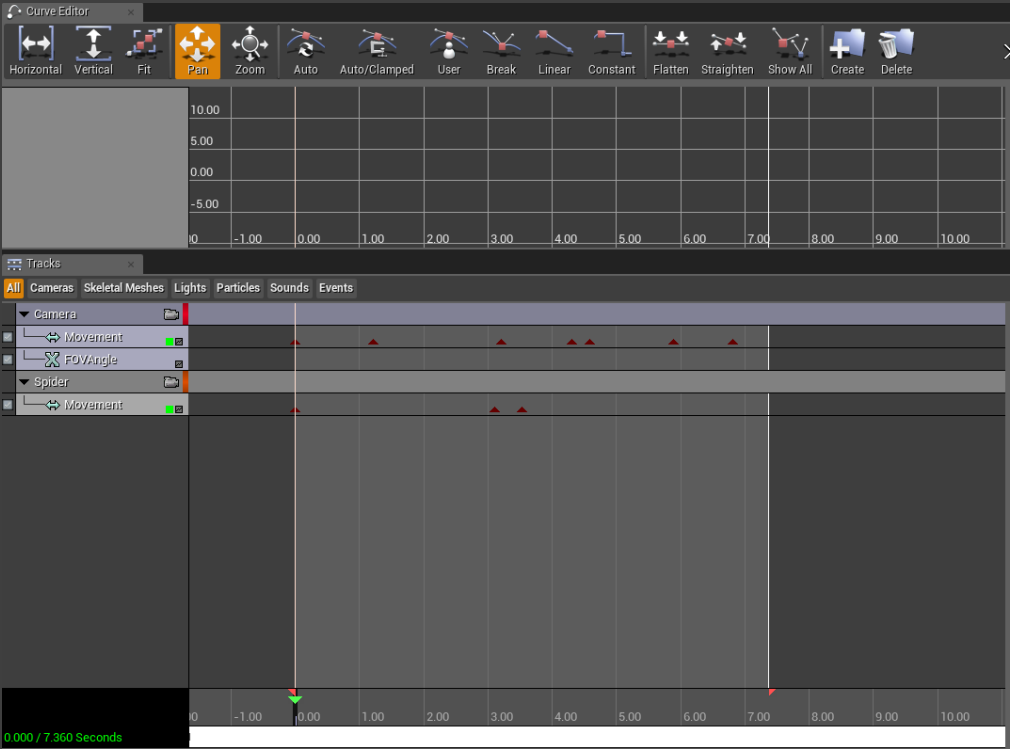
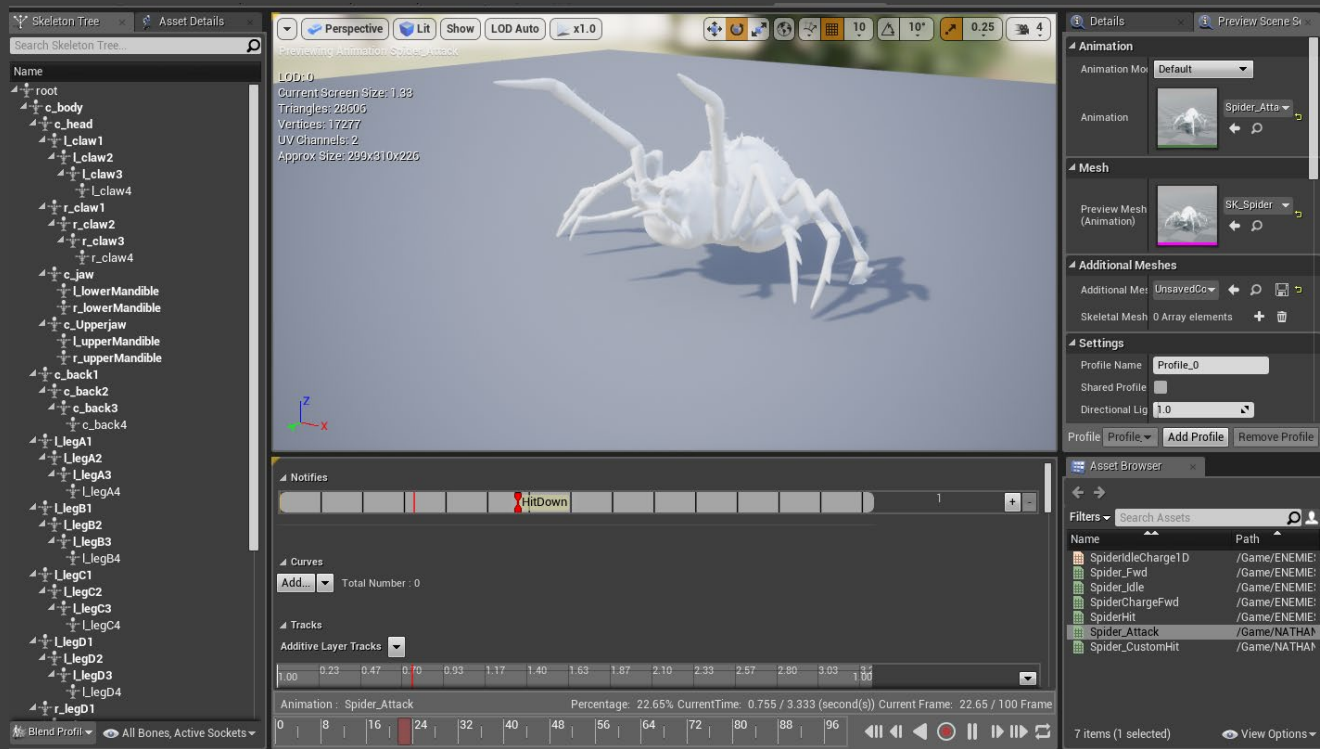
Instead, many functions were placed into Macros for each referencing, and Child Actors were made to use the variation functions without destroying the base BPs.

This was done in numerous areas:

- Enemy Types Settings (Sight/Triggers/Attack Type/Drop Total)
- Item Drops (Health or Score)
- Weapons (Pistol and Shotgun power differences)
- Level Cutscene Managing
- Player Speed Management (Sprint, Cutscene Control Variations)
- HUD (UI Changes and Important Popups)
- Customized Sound for Positive Reinforcement (Key Pickup)
- Animation BPs for clear readability (Spider Attack)



Breakdown



Example of Animation BP Edits, and Matinee Functions to utilize triggered cutscenes

Breakdown

As mentioned previously, each Zone pushed for a dedicated Gameplay Beat and theme.

In terms of gameplay, starting off small and simple with a Slow enemy centered in the screen, the first Zone has the Player test aiming and hitting things (such as Cocoons or the weak slow training enemy) to ready them for future tasks without unneeded dialogue.



Breakdown



Zone A's main area: Single centered Enemy and Practice Target.

Breakdown

The second zone, they are provided a new powerful weapon and a large space and multiple weak (albeit faster) enemies to try it on; promoting the feeling of control and power: suiting the narrative's Character (the ex-Cop).

The location features softer blue lighting and a clear light focus on the raised area (the Power Up Weapon) to guide the player, as well as a new mechanic to try out.



Breakdown



Zone B's main area: Battle Arena (Blue Key lights for Power Up focus and shift in Player Power). Prompting the theme of Extermination Gameplay.

Breakdown

The third Zone introduces height and depth to the map to keep things interesting, also shifting hues to more saturated reds as the Player proceeds deeper within the Caverns.

The area introduces Key Collection to open the door to the goal, as well as a new Enemy type (long range) to fight against; first solo, then in groups for elevation in difficulty.



Breakdown



Clear Goal markers prompt player to keep an eye out for the Shape Language and Colour to proceed, also acting as a Soft Lock for a new gameplay beat: Exploration.

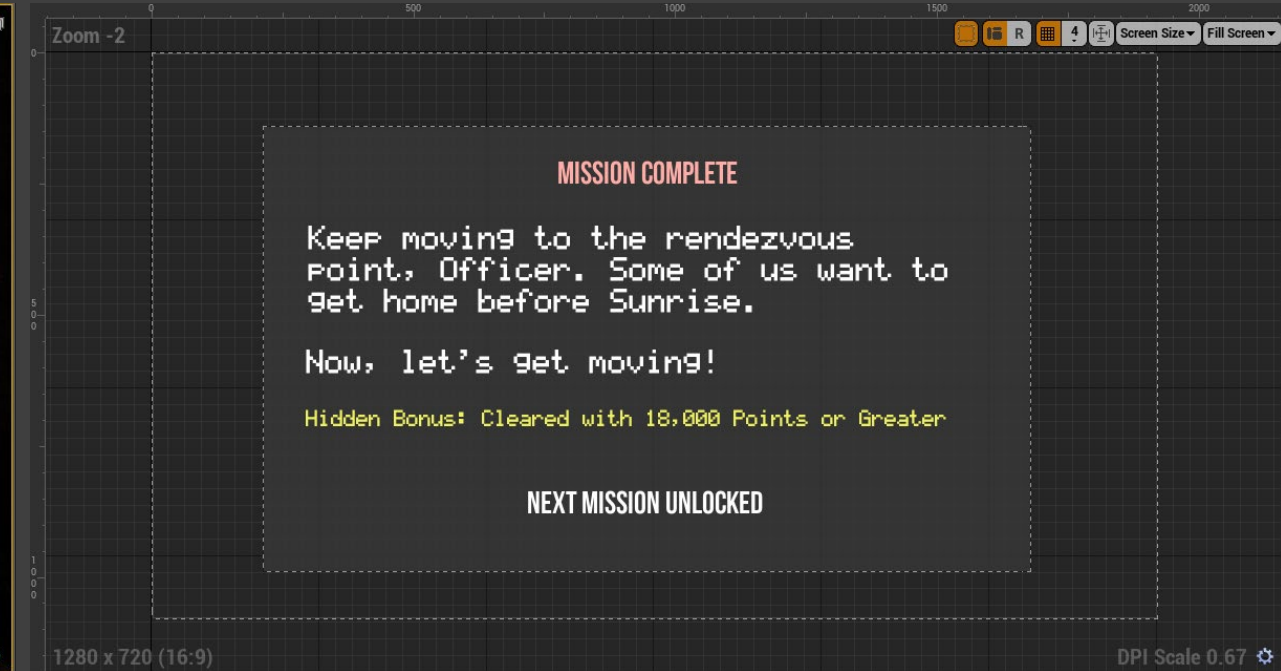
Breakdown

Glowing Items in the form of Badges are scattered around the Stage, acting as a positive reinforcement to promote level exploration rather than fast clear time, as well replay value without forcing anything onto the Player.

Each location requires a different function or flow to reach, meaning Players are rewarded for mastering the controls and the parameters.



Breakdown



Hidden Items scattered around and triggered Secret Text appearing upon completing conditions promote a light side challenge and replay value within the short mission bursts.

Breakdown



Finished Environments

Evaluation

Results and Critique
500-1000 Words

Evaluation

As a newcomer to the Unreal Engine, I believe I discovered a fair amount of new work flows and procedures when create a Level, and when designing a fast-paced FPS title.

To keep things interesting and challenge, I decided to tackle on Organic terrain rather than Hard Surface such as Streets and Sewers, however I believe I bit off more than I could chew and made blocking out more difficult to understand.

To fix this, I planned on making a Hard Surface area (A collapsed Subway Station) act as the second Zone, however this lead to losing control of the map size and scope and wasting a lot of time on rethinking mechanics and fixing systems that kept breaking during the shift in areas.

Eventually, I found ways to keep all of the desired mechanics and flow and place them in consistent location, focusing more on visual palette and brightness changes rather than clear splits in location, which saved time and allowed me to focus more on the Gameplay Value and how the Level Design accommodates it.



Evaluation

I was able to learn how to use Matinee sequences and prompt cutscenes to enrich a gameplay experience, however I do feel that with some noticeable lag on full screen, the overall optimization loss from Blueprints and the use of Light and Sound lead to some frame issues which when played in full screen can weaken the overall experience of a fast-paced title.

That said, the areas I was able to work on became further polished and added to the overarching gameplay feel, which ultimately if given more time and consideration, can have the bugs ironed out for a more optimal game.

Regardless, the skills learned and practiced along the way such as a clear Cinematic-to-Gameplay design and Level Plan/Flow can only lead to trying out new ways to master user-interaction through gameplay; and is something I'm looking forward to in the next project.

