The Impact of Music on Player Immersion within Story-driven Games

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Declaration

I, Lee Kang, declare that this research paper entitled “The Impact of Music on Player Immersion within Story-driven Games” is solely based on my own work except where for where citations have been acknowledged. I hereby declare that this project has never been submitted previously to any other party and will be submitted under the Degree of Bachelor of Arts (Honours) Game Design, under the Universiti Tunku Abdul Rahman.



Lee Kang

21 May 2025

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Additionally, I am also indebted to my amazing teammates in Team Spaghetti Code, Lai Wei Jay, Then Yee Hen and Yap Mei Ying for their cooperation and passion throughout the development of this project. Without their help, Hullbound would not have been created let alone developed and submitted as a finished product.

Lastly, I would also like to thank my family, friends and everyone who came to play our game during its exhibition for their feedback and support. This project would not be what it is without all of those who came to give their thoughts, feedback and assistance. Thank you for your continued belief in me and my projects.

Abstract

This is a research paper detailing not only the development of my group's final product assignment for the final year project but also an analysis of the impact of music on player immersion within story-driven games. While there are analyses of music and its interaction with player immersion in video gaming, there is not as much detailed about specifically its implementation within the narrative design of said games. The research within this paper involves a questionnaire passed around to video gaming audiences and inquires about their opinions and experiences with soundtracks and their impact on player immersion within game worlds and narratives. It is clear based on this research that there is a clear causal link between elements and qualities of a soundtrack and the emotional response within players; specifically in areas of melody, harmony, instruments used and genre. This research could prove useful to game developers and composers as it lays out the most important elements of a soundtrack that should be cared for when creating an immersive mood for a game.

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1.0 INTRODUCTION

This report was prepared by Lee Kang (2204332) for the Bachelor of Arts (Honours) Game Design Final Year Project (FYP), course code, UJMZ30510. This report will analyze the impact of music on player immersion within story-driven games as well as the details of the author's game project for this course.

For the development of the FYP game project, the author is joined by his project team "Spaghetti Code", consisting of the members shown below.

Member Name	**Course**
Lai Wei Jay	Game Design (GS)
Lee Kang	Game Design (GS)
Then Yee Hen	Game Development (GV)
Yap Mei Ying	Game Design (GS)

Table 1. Team Members of Spaghetti Code

The supervisors throughout this project are Ms. Chow Mee Mooi and Dr. Ang Kok Yew.

1.1 GAME BACKGROUND

Two game ideas were originally pitched during the proposal section of pre-production. **“There is Nothing in this Cave Worth Dying For”**, a hybrid 2D platformer and point and click puzzle adventure game where you play as a university student who has to escape a Lovecraft-inspired cavern with a dangerous monster inside, and “**Hullbound”**, a story-driven tank simulation psychological horror game where the player is a tank gunman who has to survive the horrors of nuclear war. After some discussion, **Hullbound** was chosen as the game that would be developed for this project.

1.1.1 GAME OVERVIEW

Hullbound is a story-driven tank simulation psychological horror game. The player takes control of a tank gunman, stationed inside a prototype heavy tank during the height of the Cold War alongside your commander, Major Stanislav “Voron” Voroshilov and driver, Junior Sergeant Alexei Popov. The game sees the tank crew sent to Berlin, Germany on a mission to break through enemy lines. The gunner’s job is simple; manage the artillery and fire at any enemies before they shoot first. However, as the crew witnesses more and more of the horrors of war firsthand, they realize that the tank is not the only thing that is breaking down. The player has to make important decisions to keep themselves alive and must handle the enemy, their crewmates and their own sanity.

1.1.2 GAMEPLAY

The gameplay in Hullbound is split into two main sections, the inside of the tank where the player does maintenance and talks with their crewmates and the scope where the player engages in combat with enemy troops.

Interior Gameplay

The interior of the tank is played in a point-and-click style where the player can click on objects to interact with them.

Game Mechanic	Description
Conversation and Dialogue Choices	When not in combat, the player will occasionally have conversations with their crewmates, Voron and Alexei. These conversations typically give the player more information about the state of the world, their crew members and their history. At certain points, the player will be forced to make choices which can affect both gameplay and their relationship with their colleagues. These choices will affect the final outcome of their journey. - **Q** and **E** to advance dialogue and pick between choices
Ammunition Reloading	The ammunition reloading screen is accessed by clicking on the autoloader inside the tank. In order to reload ammunition, the player must drop the shells and propellant charges in their corresponding slot in the ammunition carousel. By clicking on them with the **Left Mouse Button**.
The Red Book	There is a red book that can be clicked on inside of the tank. It contains information on all the various systems in the game as well as some lore information for the player to read through. It has sections that include:

	- Tank Description (Includes information about the tank and its ammunition) - Enemy Description (Includes information about the enemies and their weaknesses) - Commands and Controls (Information on how the game works) - Characters and Diary (Information on the lore and story)

Table 2. Gameplay Inside the Tank

Gunner Gameplay

The scope view is activated when the player clicks on the tank scope inside the tank. It is played in a first-person shooter style.

Game Mechanic	**Description**
Shooting	The player takes control of the tank's turret to shoot at enemies: - **WASD** to move the turret's view around and aim at enemies; **Left Click** to fire a round - If the player manages to shoot an enemy enough times, they kill the enemy; however, if the player is shot at enough times, they die - After every shot, the tank takes some time to reload

Ammunition Types	The tank comes equipped with 3 types of ammunition; **Armour-Piercing Discarding Sabot (APDS)**, **High Explosive Anti-Tank (HEAT)** and **Machine Gun**. - **APDS** ammo is the primary ammunition against most tanks but it is ineffective against angled armor; it also has a flat trajectory making it easier to aim - **HEAT** ammo is better for engaging with light-armoured targets and structures but has less power and requires more precision when aiming - The **machine gun** fires a high rate of ammunition that is effective against infantry and light vehicles but is weak against armoured vehicles - The player can swap between APDS and HEAT ammo by using the **Scroll Wheel** and can activate the machine gun by pressing **Spacebar**
Energy Management	Over the course of combat, the player must also manage the tank's energy consumption by toggling on and off 4 parts of the tank's power system, **NVG, MZ, Trav** and **Elev**. - NVG (toggled with **1**) - MZ (toggled with **2**) - Trav (toggled with **3**) - Elev (toggled with **4**)

Table 3. Gameplay during Combat

1.1.3 GAME STORY

Hullbound is set in an alternate universe setting where the Cold War escalates into a full-blown conflict between the Soviet Union and NATO. The game takes place during this conflict as the Soviets desperately push back enemy forces in Germany.

The player plays as a Soviet tank gunner, piloting the turret of cutting-edge, nuclear-proof heavy tank, the T-279. They are sent to the front lines of Berlin to recapture it from the enemy; accompanying them on their mission are their commander, Major Stanislav "Voron" Voroshilov (a war veteran who had a close relationship with the player's father), and the tank driver, Alexei Popov (a rookie fresh out of military school). Their orders are simple, make it to Berlin and engage with any enemies encountered.

The game starts with a flashback to the Berlin Wall crisis, showing the Soviet forces being overwhelmed by the NATO military and the player and their crew getting wiped out by enemy fire. The player then wakes up in a hospital to the appearance of Major Voron, who informs them that their father, a fellow war veteran, was deported for disobedience to the regime. Major Voron recruits the player into his squad for his next mission, claiming that they can still "redeem their family name".

The player is placed in a new tank stationed right in front of the Oder River; their mission is to make it to Berlin while dealing with the barrage of enemy troops that await them. They start in the farmland outside of the city where they witness the horrors of war firsthand and occasionally gain more information about Major Voron and their father through brief conversations. Voron views the regime as infallible and is deadset on reclaiming Berlin from the enemy by any means necessary; he also views the player's father as a coward for abandoning their country in its most greatest time of need. After

getting onto the Autobahn, the group finally arrives in Seelow, a modest town that has been completely taken over by NATO forces. They continue to gun down enemy tanks and infantry en route to Berlin until… a massive explosion is seen in the distance, a nuclear bomb has been detonated on Germany.

The game ends with a monologue about the futility of war and how it leads to nothing but destruction and ruin for those involved with it, and those who never wanted to be part of it to begin with…

1.1.4 GAME ART

The art style of Hullbound takes inspiration from two distinct influences and combines them into a unique visual identity:

Inside the Tank

The interior of the tank is made up of 2D illustrations. The inspirations for the art style used in this section are the unsettling, grainy imagery of bodycam footage.

Outside the Tank

The world outside the tank is rendered in low-poly style 3D; reminiscent of the art style of old PlayStation horror games like Silent Hill or Resident Evil.

1.1.5 MARKET RESEARCH

The following games were chosen as potential competitors and inspiration for Hullbound as they share one or more elements in gameplay or aesthetic.

Iron Lung



Image 1. Iron Lung Screenshot

Iron Lung is a submarine simulation and psychological horror game developed by David Szymanski in 2022. The game sees the player piloting a submarine in an ocean of blood; they are tasked with going to specific places in the ocean, and are only able to navigate using the camera and a map. As there are no viewing ports to see outside, the player must navigate using the photographs taken by the submarine's camera as well as a proximity sensor, and must use these alone to avoid crashing into the ocean walls.

Hullbound takes a lot of inspiration from Iron Lung; especially in its use of claustrophobic horror and oppressive atmosphere. In both games, you are piloting around a massive, awkward vehicle trying to survive impossible and overwhelming odds. Iron Lung was massively popular for an independently-released game by one developer, and helped popularize a whole genre of horror around seemingly mundane work. Currently, the game sits at over 300 thousand copies sold and even has a movie adaptation that became a hit at the box office. It is clear to see that this is the type of gameplay experience that Hullbound should strive for.

Gunner, Heat, PC!



Image 2. Gunner, Heat, PC Capsule Art

Gunner, Heat, PC! is a tank simulation game developed by Radian Simulations in 2022. The player controls a tank during the conflicts between the armor units of the USA, USSR, and both East and West Germany (Gunner, HEAT, PC! On Steam, n.d.). In missions, players are placed in control of individual armoured vehicles and lead platoons of AI teammates as they try to complete mission objectives while fighting off enemy forces. Currently, the game's singleplayer campaign is made up of a series of missions without much story in between.

Gunner, Heat, PC! was one of the main inspirations for Hullbound's setting and gameplay, taking the simulator-like experience of the game and wrapping it around an intense and horrific tale about the consequences of war. With over 200 thousand copies sold, there is clear evidence that tank simulators have an audience that is hungry for more stories and experiences to be told involving these massive pieces of machinery.

No, I'm Not a Human

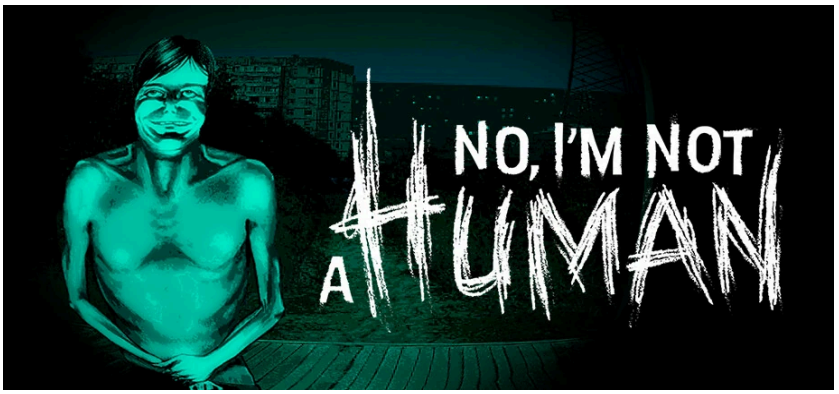


Image 3. No, I'm Not a Human Capsule Art

No, I'm Not a Human is a first-person horror video game developed by Trioskaz in 2025 (No, I'm Not a Human on Steam, n.d.). The game sees the player hiding in their home in a world where solar activity has majorly increased, making being outside during the day fatal. Every night, people will arrive at their doorstep to take shelter from the sun; however, some of these people are not humans, but instead hostile "Visitors". The player has to discern the humans from the "Visitors" by examining them for anomalies or quirks. Depending on their actions throughout the game, the player can get several different endings.

The story of Hullbound, and the presentation of said story, draws parallels with No, I'm Not a Human. Hullbound aims to create an oppressive and paranoid atmosphere where one wrong move could spell the player's doom. It is a hopeless scenario that the player is forced to claw out of just to survive that blends the horrific with the surreal; similar to the experience of No, I'm Not a Human. Additionally, the surrealist and creepy art style of the game was one of the main inspirations for Hullbound's own art. The game has sold over 500 thousand copies and has become a staple of modern horror gaming showing that weird and quirky horror titles are still a very appealing genre to many players.

1.1.6 UNIQUE SELLING POINTS (USPs)

USP	**Description**
The horrors of war through a unique perspective	Hullbound is a game about witnessing the horrors of warfare firsthand. Most games about tanks focus on just using the vehicle during combat but Hullbound aims to combine the combat-centric tank gameplay with a narrative and themes that showcase the depravity of the war that these tanks are involved in. Focus is not just placed on the tank combat but also the story and character interactions.
An intense narrative with shocking decisions	The narrative of Hullbound is full of shocking moments that blend the reality of warfare with surreal and psychological elements to keep players on their toes. The story forces players to consider moral dilemmas as sometimes the morally “right” choice is not always the best choice. There are also certain scenes with intense exchanges between characters and dropped bombshells that will surely shock the player as well.

Table 4. Hullbound’s Unique Selling Points

1.1.7 SYSTEM REQUIREMENTS

Aspects	**Minimum Specification**	**Recommended Specification**
Operating System	Windows 10	Windows 10/11
Processor	Intel Core i5	Intel Core i7
Graphics	RX460	RX570
Memory	4GB RAM	8GB RAM
Storage	4GB available space	

1.2 PROJECT SCOPE

1.2.1 PROJECT ROLES

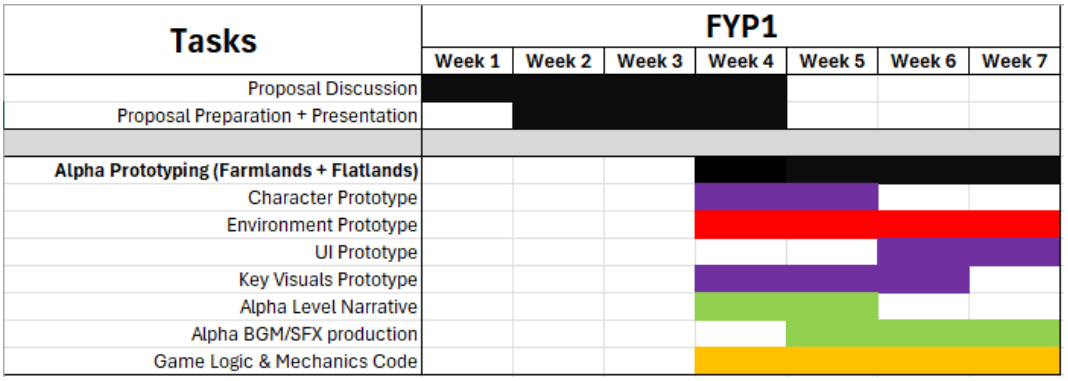
Members	**Roles**	**Tasks**
Lai Wei Jay	- Game Director - Level Designer - Sound Designer - Story Writer	- Designed the narrative, dialogues, scripted events, - Designed the level, enemy placements, asset & environmental placements & details - Designed the SFX, voice acting & VFX
Lee Kang	- Programmer - UI Designer - 3D Modeller	- Created 3D assets and props - Designed and programmed UI menus - Assisted lead programmer with dialogue implementations
Then Yee Hen	- Lead Programmer	- Programmed enemy AI behaviour - Programmed tank mechanics, movement & combat - Implemented scripted events & game logic
Yap Mei Ying	- Lead Artist	- Designed main menu, UI, characters, enemy sprites & promotional materials

Table 5. Project Roles of Team Spaghetti Code

Members	Research Topics
Lai Wei Jay	Horrors of War: Historical Trauma in Game Design
Lee Kang	The Impact of Music on Player Immersion within Story-driven Games
Then Yee Hen	Maintainability Comparison Between Condition-Based and Flag-Based Trigger Systems in Visual Novels
Yap Mei Ying	Study on The Employment of Fine Art Traditions in Video Games

Table 6. Research Topics of Team Spaghetti Code

1.2.2 GANTT CHART



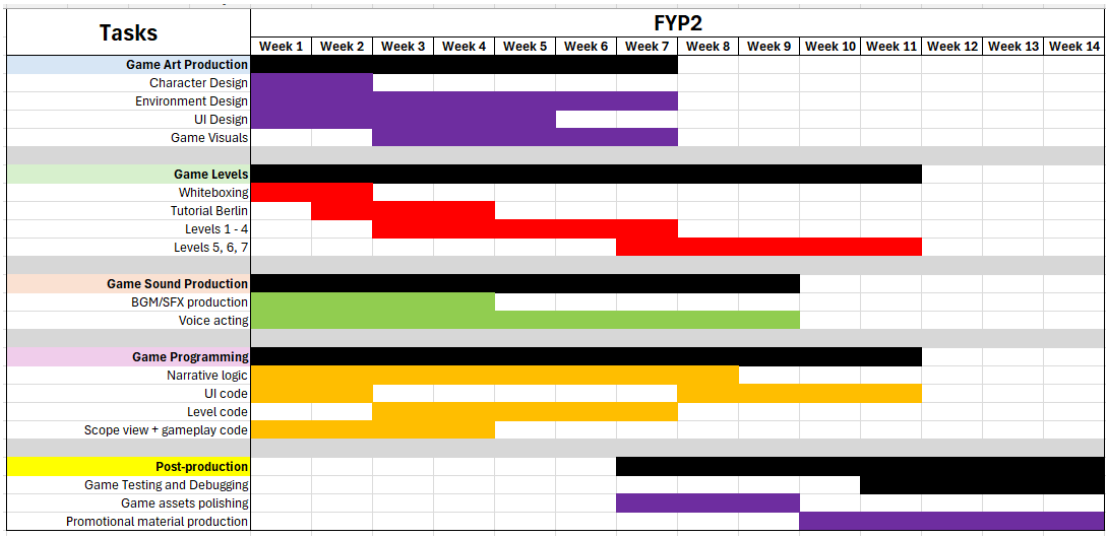


Image 4 & 5. Gantt Chart for FYP1 & FYP 2.

1.2.3 BUDGET & RESOURCES

Budget Allocation

The money spent during the development of Hullbound and its allocation are listed as below.

Category	**Quantity**	**Price (RM)**
Posters	3	65.00
Name Cards	4 boxes	104.00
Keychains	15	50.90
Stickers	60	9.00
Leaflets	30	21.60
Tags	4	14.00
Total	**-**	**264.50**

Table 7. Budget of Hullbound

Resources

The development tools used during the development of Hullbound are listed as below.

Development Resources	**Description**
Unity Game Engine	Unity (ver. 6000.2.12f1) is the game engine that the game was developed in.
Ink Unity Plugin	Ink is a narrative scripting language and editor used for making visual novel-style dialogue within games that offer simpler syntax to create branching story paths.
Visual Studio 2025	Visual Studio is an integrated development environment (IDE) used to develop software programs; it was used to write the C# code of Hullbound.
Adobe Photoshop	Photoshop and Krita are both raster graphics editors and digital art software used to create the 2D illustrated assets in the game.
Krita	
Adobe Illustrator	Illustrator is a vector graphics editor and design software used to create the UI elements within the game.

Adobe After Effects	After Effects is a digital effects and motion graphic software that was used to make many of the sound effects within the game as well as to create the teaser trailer.
Autodesk Maya	Maya is a 3D computer graphics application used to model and texture the 3D assets within the game.
GitHub Desktop	GitHub is a developer platform that allows developers to store and share their code. It was used to allow project collaboration and synchronization between team members.
Google Docs	Google Docs is an online word processor and was used to record and keep track of the game's details in its game design document.
Discord	Discord and Whatsapp are both instant messaging platforms used to allow team members to facilitate communication with each other and the supervisors.
Whatsapp	

Table 8. Resources Used to Create Hullbound

2.0 LITERATURE REVIEW

2.1 RESEARCH TOPIC

This section will focus on the research topic of this project, being an analysis of “The Impact of Music on Player Immersion within Story-driven Games”.

2.1.1 INTRODUCTION

“Immersion” is a common topic brought up by many game developers, especially in marketing materials. “The most immersive [insert genre here] game ever made!” is a typical slogan one might find on the latest triple A release with high-fidelity graphics and populated open worlds (Contreras & Contreras, 2024). However, it is important to take a step back from the hype and buzzwords to analyse just what makes immersion such a sought after element in video gaming and how can a developer fine-tune it to create truly amazing video games.

Player immersion can be defined as the psychological experience of being transported into a virtual world; that is, when the player is no longer viewing the game as a virtual world separate from their own and actively inserting themselves into its setting, ignoring their real world surroundings in favour of the game’s (“What Is Video Game Immersion?,” 2026). There is no one defined way to immerse the player in a game; instead, it is simply the culmination of many different aspects of game design that work in tandem to create a seamless and engrossing experience for the player; one such element, and the focus of this research paper, is music.

For as long as video games have existed as an artform, music has always been an integral, albeit understated, element of the medium. Over the course of a playthrough, players usually latch onto the visuals, game mechanics or narrative of a game and often relegate sound and audio design as simply

auxiliary factors in the immersiveness of a video game (Tenberg, 2026). However, music has been shown to reliably enhance the emotional resonance and psychological impact of storytelling which is one of the main elements contributing to immersion. Therefore, it is important to analyse the impacts of soundtrack qualities on the immersiveness of storytelling in video games.

2.1.2 PROBLEM STATEMENT

Music soundtracks are an integral part of any video game and can provide emotional context and depth to the storytelling of a scene or level. There needs to be more understanding on how music can be employed to improve the immersive qualities of a game's storytelling and setting. By performing this analysis, game developers can better understand the mechanism behind soundtrack design both in composition and production to create more immersive gaming experiences that resonate with players through music. Thus, this research paper aims to analyse how music impacts player immersion specifically within story-driven games; the author aims to discover the links between musical qualities and storytelling elements and find practical implementations within his own work on Hullbound.

2.1.3 RESEARCH OBJECTIVES

The major goal of this research assignment is to investigate the relationship between different qualities of music and its impact on the immersion players feel when experiencing a story-driven video game. Specifically, this study seeks to:

R1: To identify the manipulatable qualities of music in video game soundtracks that produce meaningful effects on player immersion.

R2: To examine the influence of these specific qualities on the player experience, specifically in terms of player and narrative immersion

2.1.4 RESEARCH QUESTIONS

To achieve these objectives, the research will address the following questions:

Q1: What qualities of music (i.e. tempo, instruments and melody) offer a significant effect on a player's experience within a game?

Q2: How do these qualities affect a player's immersion within a game world in story-driven experiences?

2.2 LITERATURE REVIEW

2.2.1 PLAYER IMMERSION

According to the Cambridge Dictionary, immersion is defined as “the fact of becoming completely involved in something”; that is to say, when a piece of media entices a person to suspend their disbelief and accept a virtual experience (i.e. reading a book or watching a movie) as if it were their actual reality (“Immersion Through Video Games,” 2003; I*mmersion*, 2026) . As such, immersion in video gaming can be stated as the state in which a player feels as if they are genuinely “inside” a game world, where they are so focused on the actions and outcomes of a game’s world that they temporarily lose their sense of self-consciousness and perception of reality (Huang, 2023).

Immersion usually happens subconsciously. When a player plays a game and experience its world, they form a mental model of the its make-believe space through various sensory cues and any assumptions about the world that they may have; if this mental model is able to convince a player (whether consciously or unconsciously) to favor the virtual experience as their point of reference over the real world, then it can be said that the player is immersed in the game world (Madigan, 2015) . Based on this assessment, there are also two related states that correlate with total immersion and will also be used in discussing total immersion (or spatial presence), engagement and engrossment. Engagement is the state in which the player is paying attention and finds a gaming experience interesting while engrossment represents the emotional investment a player has towards a game. These two states, a player’s engagement and engrossment with a game, can also be stated as elements measuring how immersed a player is in a game world.

It is important to consider what characteristics of games could lead to immersion. According to Madigan, there are two general categories; those that

create a rich mental model of a game environment and those that create consistency between elements in that environment.

In terms of the richness of the mental model, it essentially states that the more a player can experience and understand about the world, the richer their mental model of the world will be. In immersion, suspension of disbelief is the most important asset as it is the main element that allows the player to experience a game world without putting up logical barriers. For example, if a game utilizes multiple channels of complete sensory information (employing dense soundscapes or detailed and consistent level design), it forces the player to allocate brainpower to understanding and navigating the world instead of questioning it. Additionally, by providing fewer blanks within a game's setting, it allows players to experience the world without having to think about its logic and rules as well as provides more context clues for players to comfortably make assumptions that do not pull them out of the world.

Consistency among game traits, on the other hand, deals with having all elements in a game world be congruent and not contradictory as contrivances can be one of the biggest enemies of immersion. One such example of the importance of consistency is believable behaviour from things in the game world; that is to say that, things that appear in a game should, ideally, behave consistently with the rules set up in the game's setting, or at least, the player's expectation for how they may behave. Glitches, as an example, are considered immersion breaking, because they force objects in a game to act in sporadic ways that do not align with how the player expects them to act. This is also why games with many interactable objects are considered immersive as they allow the player to interact with items in a way that may be more consistent with how they might function in the real world, matching their expectations.

Immersion is an important part of any game developer's arsenal of tools to create engaging and fun experiences. This is because immersion breaks down

the barriers of disbelief that a player might experience when within a game's settings; thus, allowing them to form deeper emotional connections with a game's world, characters and story. Additionally, immersion also keeps players stimulated while playing a game and triggers their natural reward centres even for minute or boring tasks. Essentially, immersion keeps players engaged and engrossed in a game.

2.2.2 IMMERSION IN STORYTELLING

Story and narrative are some of the most important building blocks to crafting an immersive experience for players. Narrative immersion, which is the player's ability to be absorbed and engaged with the storyline of a game, is an important quality that can aid in increasing player engagement and emotional connection with a game's world (*Narrative Immersion*, n.d.). Narrative immersion comes from the intersection of many different elements of game design such as its storytelling techniques, visual identity, world-building and level design, et cetera, and can tap into a player's emotions and cognition to deliver gaming experiences that resonate on a personal level.

Building immersion through storytelling can be done through many ways. However, the above mentioned elements can also be applied to narrative storytelling; that is, richness and consistency. Richness of narrative elements can be described as the particularity in which the details of a story are expounded; this can range from how a scene is portrayed visually to how in-depth the lore and history of a world is to how characters speak during dialogue. The richness of a story setting can affect how vividly the player can experience the world and how willing they are to connect with it. Furthermore, consistency in the narrative means that all elements within a story should behave similarly to the player's expectations and should not contradict the internal logic of the setting. For example, this includes characters behaving in ways consistent with their personalities and previous behaviours, avoiding plot holes where plot elements contradict past events in the story and even the

pacing of story scenes where players have an expectation of how long or short an interaction should be.

However, there is also an additional element to storytelling that can affect a player's immersion in a game, the emotional engagement. On a surface level, this can mean that the story of a game should cause players to be emotionally invested with the characters and their outcomes, whether it be empathizing with their cause or enjoying experiencing their personalities. Essentially, a player should feel as though they are experiencing the story alongside its characters where the stakes of the story feel real and the player should care about whether they succeed or fail. However, as games are also an interactive medium, there is also another dimension of emotional engagement, player choice and agency. This is the reason why games with multiple choices and branching narratives tend to feel more immersive for players as they feel that actions in-game create tangible effects on the game world, and that their choices, however small, carry weight with them. When players believe that the things in game have meaningful consequences, it forces genuine emotional engagement with the setting that can lead to players feeling more immersed.

2.2.3 EFFECT OF MUSIC ON IMMERSION

Background music, that is, music played to accompany something else, has been a staple of video games for nearly as long as the medium has been around, and has long been used as a way for game designers to affect player's emotions and experiences while playing a game ("Background Music," 2026) . Music can serve many different purposes in a game; for example, as a narrative device, a tone setter or to enhance the aesthetic or thematic qualities of a game (Fu, 2015) . However, what connects all these different purposes together is that music is used to appeal to the player's emotions. Whether that be the excitement from a fast-paced soundtrack to the melancholy of a somber piece or even the unease when the soundtrack fades out and only silence remains,

music can be used to directly affect how a player feels during parts of a game and can enhance the emotional qualities of a given scene.

Due to these emotional attributes, music also plays an important role in player immersion. While it may seem contradictory that a non-diegetic (not existing within the game world) audio element would increase a player's engrossment within the setting, research has shown that music does increase certain attributes related to immersion within players, such as loss of time and emotional resonance (Evans, 2018). Music contributes heavily to the overall auditory soundscape of the game; and while diegetic sound effects contribute to building the physical sense of presence of a game world, music often helps build the emotional qualities of said world. For example, a game's soundtrack can dictate how the player may react to a scene using characteristics such as tempo, instruments, key signature or melody and rhythm. These musical elements can change how an in-game stimulus is experienced by providing context cues to the player that clue them into the mood. This is greatly important as well for the narrative, music can be used to anchor and enhance story elements and scenes by eliciting appropriate emotional responses from players; for example, by building up suspense or releasing emotional catharsis. Moreover, similar to other musical forms like movie and opera, soundtracks can also employ leitmotifs and musical themes to enhance the player's emotional connection to specific characters and scenes through recognizable musical moments. Essentially, the player is able to connect emotionally with the happenings of a game through its soundtrack.

Basically, what this means is that music plays two main roles in driving immersion within video games; appealing to the setting and appealing to emotions. Appealing to the settings is using music to elaborate and expound on the details of a game world, using the soundtrack to communicate elements of the setting non-verbally through cues such as instruments used, mood of the song or similarities to real-world musical elements. These soundtracks help flesh out a world in the mental model of a player and allows them to have a

greater understanding of the mood and atmosphere of a world without requiring lengthy exposition, creating a greater sense of engrossment. Appealing to emotion, on the other hand, means using music to enhance the emotions behind the narrative of a world; it is not about what the world is like but about what the characters in the world are going through. These soundtracks aim to allow the player to better connect with the characters in this world, providing more emotional investment and thus, a greater sense of engagement.

2.3 GAME REVIEW

2.3.1 NIGHT IN THE WOODS

Night in the Woods is an adventure game developed by Infinite Fall and Secret Lab released in 2017 (*Night in the Woods on Steam*, n.d.) . The game is set in a world of anthropomorphic animals and follows a young woman named Mae Borowski, a college dropout who is returning home to her hometown of Possum Springs. The game revolves around the player, as Mae, exploring Possum Springs and interacting with and reconnecting with the residents. The game mainly focuses on its narrative with themes of mental health and reckoning with the passage of time, with Mae experiencing mental issues such as dissociation and having to reckon with the fact that her hometown is crumbling under economic instability and that things cannot stay the same as they used to be.

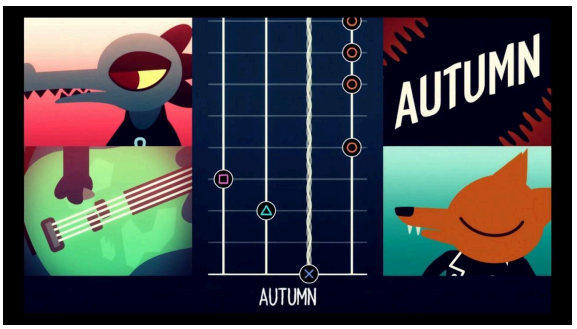


Image 6. Screenshot of Night in the Woods.

Night in the Woods is a game that uses its music to represent its themes and ideas of nostalgia and mental health; it is a game that wants you to feel what its characters are feeling not just through the story but through its soundtrack as well. The soundtrack primarily utilises indie-folk and rock elements to evoke an intimate and raw quality that matches with the game's personal and bittersweet narrative; the composer specifically stated that they wanted to reflect mundane melancholy of small town life (Wiechers, 2023) . The game also masterfully uses musical themes and leitmotifs to create emotional connections and associations between the player and their surroundings; for example, by providing specific melodies for characters and important concepts that get remixed and reused throughout the game. These small musical elements aid in triggering an emotional response from the player subtly are aids in deepening the link between the story and the gameplay experience through music. It also gets the player into a flow state, getting them invested in the story and its characters without drawing them out of the experience with obvious musical tricks. It creates a unique atmosphere that wholly immerses the player into its world.

Furthermore, the usage of music within the game becomes far more overt during the band practice mini-games; the player controls Mae as she plays bass with her band in a rhythm game. These sections are meant to evoke classic emotions of teenage angst and coming-of-age stories by employing the trope of starting a garage band. The songs even feature lyrics that speak to the characters' mental struggles and feelings towards small town life. The game uses this experience and its music to create a deeper emotional connection between the player and Mae and her relationships without requiring exposition or lengthy monologues.

2.3.2 UNTITLED GOOSE GAME

Untitled Goose Game is a comedic puzzle stealth game developed by House House and released in 2019 (*Untitled Goose Game on Steam*, n.d.) . The game

sees the player controlling an unnamed goose as they bother and torment the inhabitants of a village; the player must use their goose abilities (honk, duck, run, flap and grab object) to complete various tasks, mostly consisting of bothering the villagers (for example, stealing certain objects or tricking a human to do something).



Image 7. Screenshot of Untitled Goose Game.

The game uses its soundtrack to enhance its immersiveness through its unique implementation of the music tracks. Specifically, the game uses a recording of Claude Debussy's Preludes as its soundtrack; a decision made that was inspired by early silent cinema and slapstick cartoons. The developers wanted to emulate the classic soundtracks of those films where a live piano player would follow the action occurring on-screen, speeding up, slowing down or adding flourishes in tandem with the action and humour (Couture, 2023). This was recreated in the final game by making the music react dynamically to the on-screen action using a wide variety of chopped-up music clips and stitching them together to match the current player's actions (*Interview: The Sound of Untitled Goose Game*, 2019) .

This leads to a soundtrack that interacts directly with the player's actions and creates a soundscape that enhances the game's comedic moments through well-timed musical motifs. For example, the game seamlessly switches between music tracks depending on whether the player is wandering peacefully, being sneaky or causing chaos; everything from the articulation to

the tempo is changed on the fly. Not only does it properly set the tone of the world and setting through its callbacks to classics in the slapstick comedy genre, the soundtrack effectively strengthens the player's immersion within the game world by reinforcing their emotional connection with their actions through the tone of the background music. This creates an experience that draws the player's attention and bridges the gap between what the player is feeling and what the game is showing; creating a seamless experience where the player truly feels like the goose they are controlling.

2.4 SUMMARY

To summarize, player immersion is an important element of game design that happens when a player is so engaged and engrossed in the setting of a world that they completely lose the sense of self-consciousness and place within reality; to them, the game world is reality. There are two main ways of thinking about triggering immersion; elements that add to the richness or detail of a world and elements that add to its consistency. Both have their advantages and place in building a sense of immersion within the player. Within storytelling specifically however, lies another factor, emotional engagement with the narrative, characters and world. Players ought to feel that they are experiencing the world alongside the characters within the story and as games are an interactive medium, they should also feel a sense of consequence to their actions as well. Lastly, music also has a great effect on player immersion due to this connection with emotional resonance. Music helps to build the overall emotional identity of a game through its use of tempo, instruments, key signature or melody and rhythm. These elements can change how a player receives stimuli from the rest of the game and colours how they interact with the game world.

Additionally, the analysis of Night in the Woods and Untitled Goose Game also expose other ways that music can be utilized to create a sense of immersion. Whether it be the weaving of music directly into a game's narrative and use of

period appropriate genre signifiers like in Night in the Woods or a dynamic soundtrack that directly reacts to the actions of the player like in Untitled Goose Game, there are many ways for games to creative incorporate its soundtrack into its design to instill immersion.

3.0 METHODOLOGY

3.1 RESEARCH DESIGN

This research aims to acquire both quantitative and qualitative data through mixed methods research on the effects of music on player immersion in story-driven games. Both numerical and narrative data are required to establish cause-and-effect relationships between disparate qualities in music and gaming experiences, and to explore their underlying reasons and meanings; thus, providing a deeper contextual understanding of the research topic.

3.1.1 SCOPE

The goal of this research is to investigate the relationship between various qualities within a game's soundtrack and how these elements can influence the immersiveness of a story-driven game; this is done through asking a series of questions regarding their opinions of respondents on immersiveness within game stories and narratives and how that connects to specific elements of a game's soundtrack. The data collection for this questionnaire was done throughout the UTAR February 2026 semester.

3.1.2 SAMPLING

Within this research, the population is defined as a varied sample of participants (n=18) who are hobbyist video gamers. The chosen participants were given a survey with both numerical and text-based questions to be answered. Purposive sampling was utilized during this study as survey respondents were based on their knowledge and experience with video gaming, specifically, gamers who had an interest in story-driven video games. These respondents were chosen as they could potentially provide the greatest firsthand insight into the relationship between musical soundtracks and storytelling and immersion in video games.

3.2 DATA COLLECTION METHOD

Questionnaire

In order to acquire the necessary data for this research project, an online research instrument prepared with Google Forms was distributed to 15 participants using the aforementioned purposive sampling method based on their prior knowledge and interest in video gaming.

The survey is split into two parts; the mandatory quantitative section with multiple choice questions and the optional qualitative section with open-ended questions. The multiple choices section consists of 22 questions across 4 sections. The first 2 sections, Demographics and Immersion are used to acquire background information on the respondents' views and opinions on gaming and immersion while the latter sections revolve around their thoughts on music and its effects on player immersion. For most questions, the 5-point Likert Scale rating is utilised; however, some questions ask for true/false answers or choosing multiple answers from a list. To acquire qualitative data and more in-depth opinions from respondents, there is also an optional open-ended section at the end of the survey involving 4 questions. These questions ask respondents to detail moments when a game's soundtrack affected them in certain ways and ask them to elaborate on the experience and what factors in the music led to them feeling the way they did.

The following are a list of the questions asked in the questionnaire:

Section 1 - Demographics	
How often do you play video games?	Multiple Choice (Never, Rarely, Sometimes, Often)

Are you a fan of story-driven video games? (Games that focus on story and narrative over gameplay, i.e. The Last of Us, Detroit: Become Human, Firewatch, Disco Elysium)	Multiple Choice (Yes, Neutral, No)
In your opinion, how interested are you in music in general?	5-point Likert Scale (Strongly Disagree to Strongly Agree)
Are you a fan of video game soundtracks?	Multiple Choice (Yes, Neutral, No)
Section 2 - Immersion in Story-Driven Games	
I believe that player immersion is a very important factor to my enjoyment of a game.	5-point Likert Scale (Strongly Disagree to Strongly Agree)
I can feel more immersed in a game when I can resonate emotionally with the narrative and characters.	5-point Likert Scale (Strongly Disagree to Strongly Agree)
I believe emotional resonance (how the world makes you feel) is more important than the detail of the worldbuilding in creating player immersion.	5-point Likert Scale (Strongly Disagree to Strongly Agree)
I believe that immersion is strongest when I feel that the game world is reacting	5-point Likert Scale (Strongly Disagree to Strongly

dynamically to my actions as a player.	Agree)
Section 3 - Music and Immersion pt. 1	
I believe that music has a strong impact on my immersion in a game.	5-point Likert Scale (Strongly Disagree to Strongly Agree)
The soundtrack of a game has enhanced my enjoyment of its story in the past (whether it be during gameplay or a cutscene).	5-point Likert Scale (Strongly Disagree to Strongly Agree)
Games can utilize music to create a unique and immersive identity that benefits the narrative.	Multiple Choice (I agree, I disagree)
Music and soundtracks in video games have made me feel emotional before.	5-point Likert Scale (Strongly Disagree to Strongly Agree)
When you think of your favourite soundtracks in games, what parts of the music usually comes to mind? (choose 2)	Checkboxes (**Tempo/Rhythm** (how fast the song is), **Instruments** (i.e. organic instruments vs electronic), **Melody/Harmony**, **Timbre/Production** (the song's tone and how it's produced), **Structure/Arrangement**, **Genre** (the style of music))

In your opinion, what parts of music have elicited the greatest emotional response from you? (choose 2)	Checkboxes (**Tempo/Rhythm** (how fast the song is), **Instruments** (i.e. organic instruments vs electronic), **Melody/Harmony**, **Timbre/Production** (the song's tone and how it's produced), **Structure/Arrangement**, **Genre** (the style of music))
Section 4 - Music and Immersion pt. 2	
A track's energy has directly led to my own mood changing during a game. (For example, feeling pumped up during a fast song, or feeling mellow during a slow song)	5-point Likert Scale (Strongly Disagree to Strongly Agree)
I believe that the instruments used in a game's soundtrack play an important part to how the player relates to the world. (For example, a game using an 8-bit soundtrack vs an orchestra can make everything feel different)	5-point Likert Scale (Strongly Disagree to Strongly Agree)
I have felt that the melody of a song can change how I feel about a game experience. (For example, sad melodies make scenes feel sadder)	5-point Likert Scale (Strongly Disagree to Strongly Agree)
I have noticed that the production of a song has influenced my emotions in gaming. (For example, aggressive/distorted sounds vs clean sounds)	5-point Likert Scale (Strongly Disagree to Strongly Agree)

The way a song is structured influences the way I approach the narrative. (For example, songs with repeating hooks vs songs with different sections that don't repeat)	5-point Likert Scale (Strongly Disagree to Strongly Agree)
A song's genre can evoke vivid emotional responses within me.	5-point Likert Scale (Strongly Disagree to Strongly Agree)
Tick the qualities that have drawn you out of your immersion while playing video games (if any).	Checkboxes (**Tempo/Rhythm** (how fast the song is), **Instruments** (i.e. organic instruments vs electronic), **Melody/Harmony**, **Timbre/Production** (the song's tone and how it's produced), **Structure/Arrangement**, **Genre** (the style of music))
I believe that these qualities of music can affect how the player experiences a game's narrative.	5-point Likert Scale (Strongly Disagree to Strongly Agree)
Section 5 - Open-ended Questions	
Please describe a moment in a video game where the soundtrack stood out to you? Why did it stick out?	
Was there ever a moment in a game's story where you felt that the music enhanced the	

narrative? Elaborate.	Paragraph
Has there ever been a moment where you felt that a game's soundtrack was holding back your enjoyment? Please describe that experience.	
Elaborate on a time where a game's soundtrack has immersed you into its setting before. (Not just stood out to you, but made you feel like you were in the game's world)	

Table 9. List of Questions in Questionnaire.

3.3 DATA INTERPRETATION

There were a total of 18 respondents who answered the questionnaire; all 18 answered the quantitative questions while 7 of them also answered the open-ended qualitative questions.

Section 1: Demographics

The demographics section of the questionnaire is designed to acquire a baseline understanding of respondents' opinions on video gaming and music which is essential in providing context for their answers within later sections.

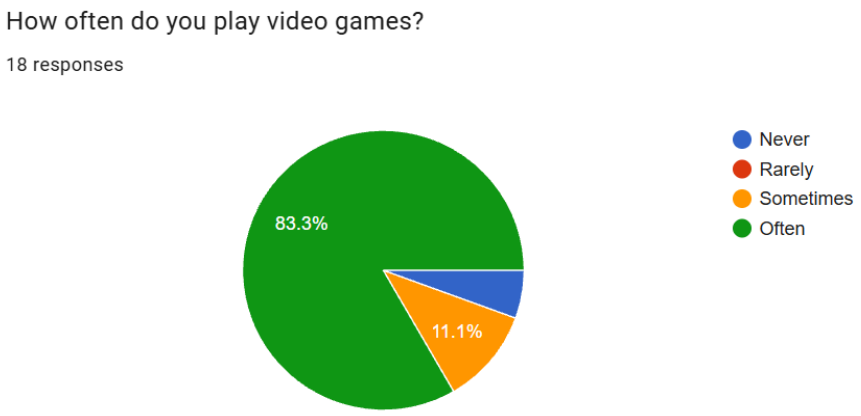


Figure 8. Response distribution for “How often do you play video games?”

The first question posited to respondents is how often they engaged in video gaming. Unsurprisingly, most respondents said **often** with over 83% percent choosing that option and 11% choosing **sometimes**. There is one outlier however as one respondent chose **never**, this provides an interesting control group that can provide insights outside of the usual echo chamber of gamers.

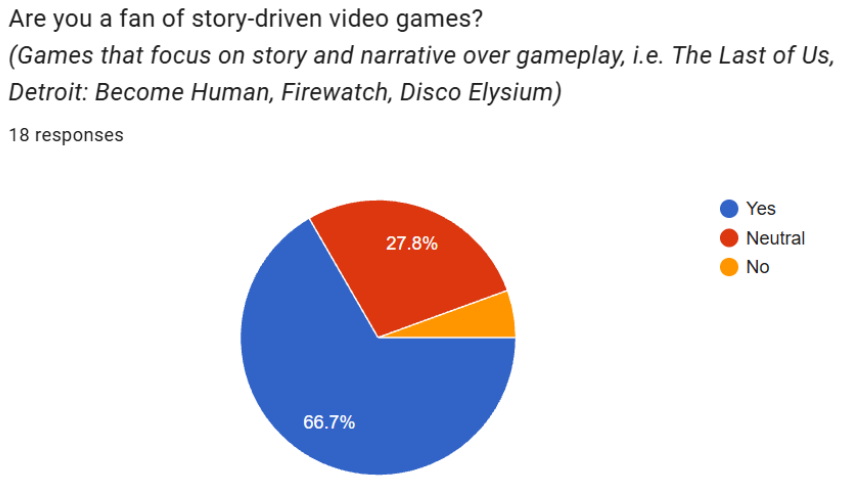


Figure 9. Response distribution for “Are you a fan of story-driven video games?”

The second question asks if respondents are fans of story-driven games; once again, this question is important for colouring the interpretation of a respondent's following answers. Most respondents were at least receptive to the idea of story-driven games with a third of respondents choosing **yes** while another 28% said that they were **neutral**. Once again, there is an outlier with a single respondent picking **no.**

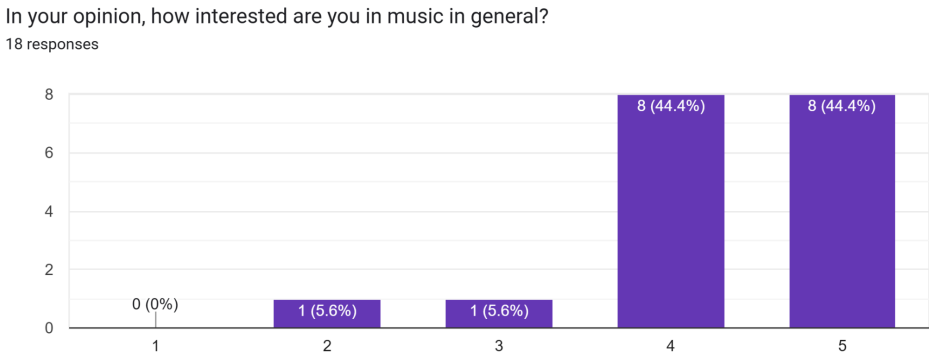


Figure 10. Response distribution for "In your opinion, how interested are you in music in general?"

Based on the 5-point Likert Scale, 1 stands for Strongly Disagree, 2 stands for Disagree, 3 stands for Neutral, 4 stands for Agree, and 5 stands for Strongly Agree.

This question asks whether respondents are fans of music in general, not just video game soundtracks. Most respondents agreed that they are interested in music with about 89% of participants choosing that they have an **above average** amount of interest. On the other hand, 1 respondent felt **neutrally** about music and another 1 respondent **disagreed** that they have an interest in music in general.

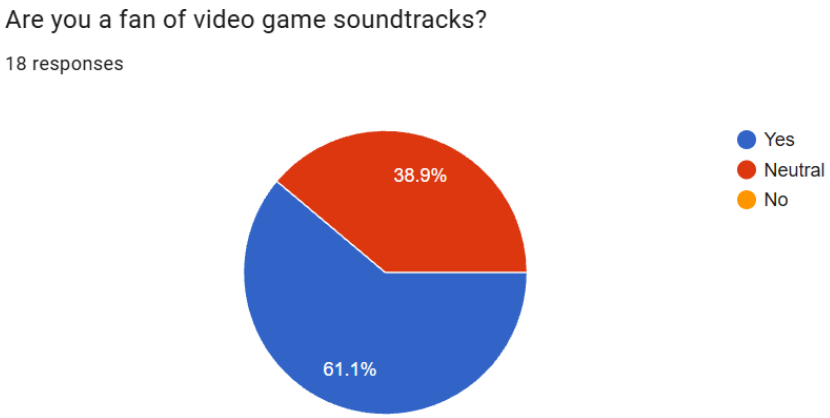


Figure 11. Response distribution for "Are you a fan of video game soundtracks?"

The last question of the demographics section asks if respondents were a fan of video game soundtracks. All respondents were at least receptive towards video game soundtracks with 61% of them saying **yes** while the rest were **neutral**.

Section 2: Immersion in Story-Driven Games

The following section interrogates respondents on their opinions on immersion within video games and their stories and asks questions about the link between player immersion and a player's experience of the narrative.

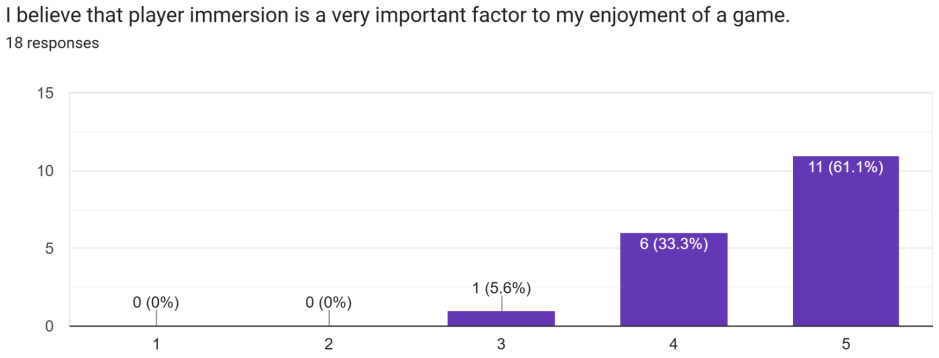


Figure 12. Response distribution for “I believe that player immersion is a very important factor to my enjoyment of a game.”

This question asks if players believe that player immersion is an important factor to game enjoyment and asks respondents to rank it on a 5-point Likert Scale. Only 1 respondent felt **neutral** towards immersion, whilst the majority of respondents **agreed** (33.3%) and **strongly agreed** (61.1%) that player immersion positively impacts their experience.

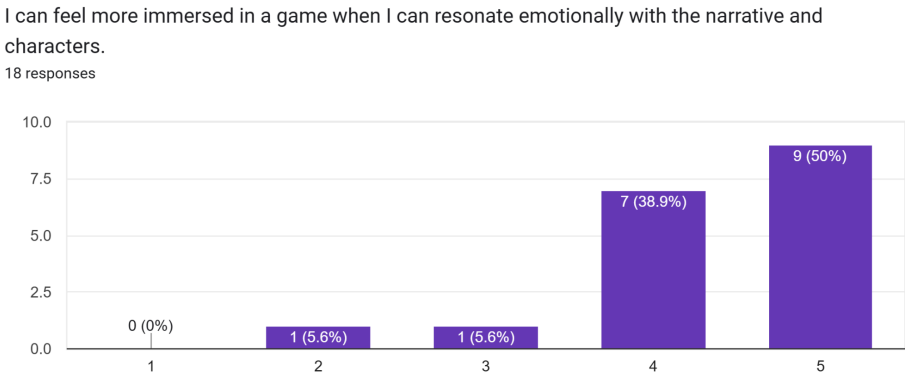


Figure 13. Response distribution for “I can feel more immersed in a game when I can resonate emotionally with the narrative and characters.”

When discussing the impact of story and narrative on game immersion. 1 respondent **disagreed** with the notion of relating to a game's narrative and characters, whilst another respondent felt **neutral** to the concept. Most respondents, however, felt much more immersed (38.9% **agreed** and 50% **strongly agreed**) when they are able to relate to the game's narrative.

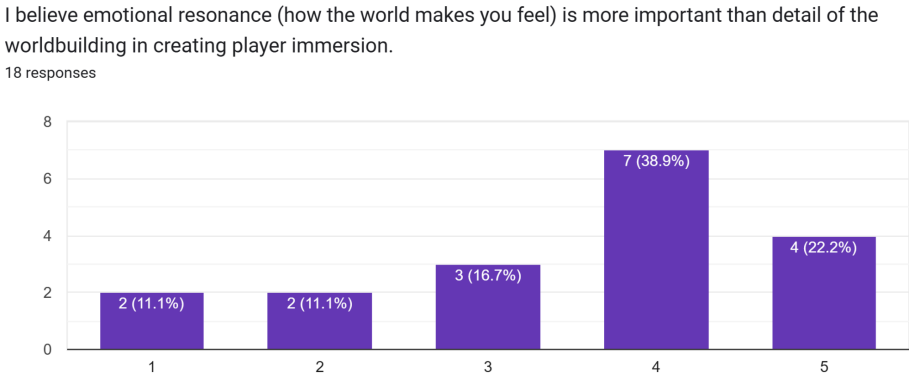


Figure 14. Response distribution for "I believe emotional resonance (how the world makes you feel) is more important than detail of the worldbuilding in creating player immersion."

A few respondents (2 respondents **strongly disagreed** and 2 respondents **disagreed**) do not think that emotional resonance takes precedence over worldbuilding for player immersion. 3 respondents are **neutral** to the concept, while 38.9% of respondents **agreed** and 22.2% of respondents **strongly agreed** with the idea. This suggests a preference that player emotion and atmosphere takes center stage during gameplay as opposed to detailing and cohesion, as narrative games players are more drawn towards the narrative than the world around it.

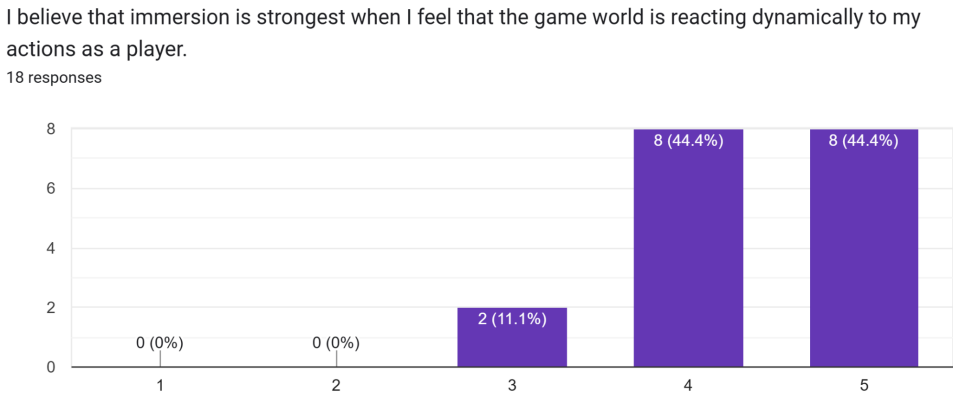


Figure 15. Response distribution for “I believe that immersion is strongest when I feel that the game world is reacting dynamically to my actions as a player.”

In regards to player immersion and dynamic worlds, there are only 2 respondents who felt **indifferent** to the question, while 44.4% of respondents respectively **agreed** and **strongly agreed** that a dynamic and reactive game world improves immersion. As most narrative driven games nowadays incorporate story and gameplay choices to affect the game's plot progression, players are given more control over a game's narrative. Players seem to have a preference for game worlds that react directly to the player's gameplay actions.

Section 3 - Music and Immersion pt. 1

This section questions respondents about their opinions specifically about music and its relation with player immersion.

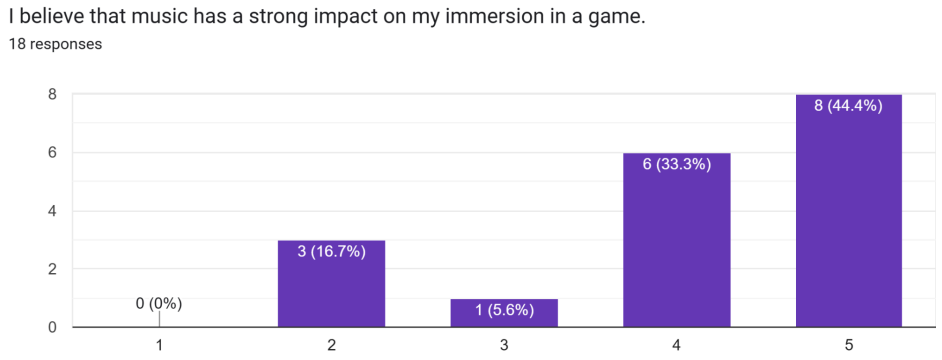


Figure 16. Response distribution for “I believe that music has a strong impact on my immersion in a game.”

16.7% of respondents **disagree** with music impacting their immersion, and one respondent felt neutral. Other respondents (33.3% **agreed** and 44.4% **strongly agreed**) take into account music driving the game's narrative forward.

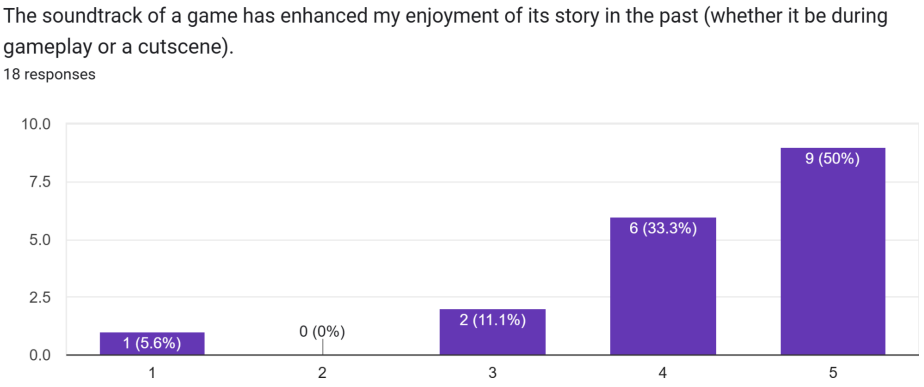


Figure 17. Response distribution for "The soundtrack of a game has enhanced my enjoyment of its story in the past."

When respondents were asked if soundtracks had enhanced their enjoyment of a game's story in the past, 1 respondent **strongly disagreed**, and 2 respondents felt **neutral** to soundtracks enhancing the game's enjoyment. However, most respondents (83%) **support** the idea that a good soundtrack can elevate the experience of cutscenes and gameplay.

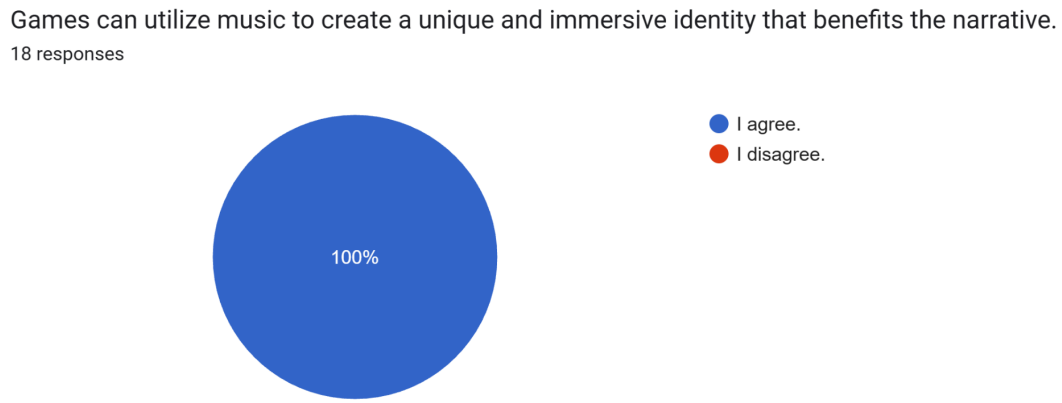


Figure 18. Response distribution for "Games can utilize music to create a unique and immersive identity that benefits the narrative."

All respondents think that games **should** utilize music to enhance a setting and emotional tone to create an unique identity that drives the narrative forward.

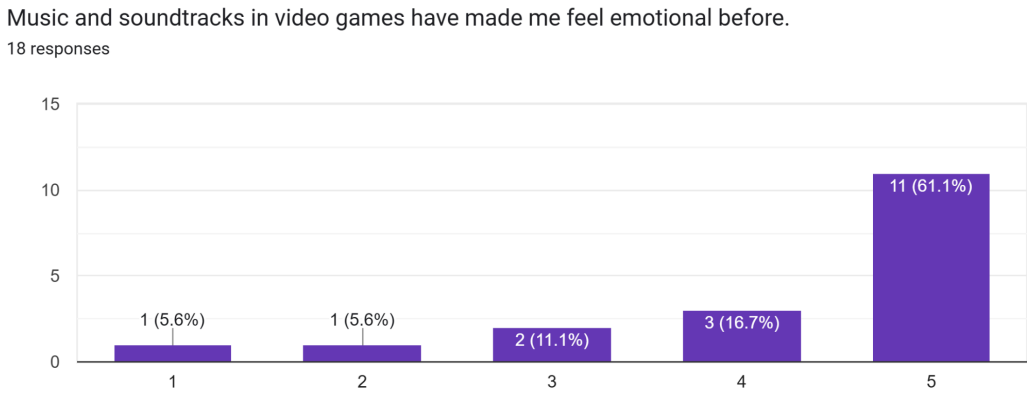


Figure 19. Response distribution for "Music and soundtracks in video games have made me feel emotional before."

When asked about whether music and soundtracks have made respondents emotional before, two respondents said that they were **not moved** by a game's soundtrack before, and another two respondents felt **indifferent** to the idea. 77.8% of respondents claimed that they **were moved** by video game soundtracks before. This proves that video games soundtrack can provoke just as strong of a response as other musical media to tell a story.

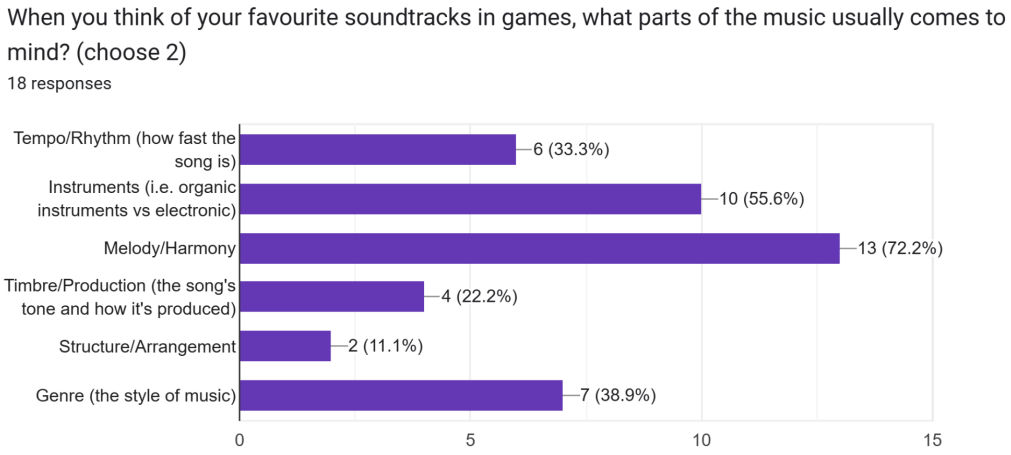


Figure 20. Response distribution for “When you think of your favourite soundtracks in games, what parts of the music usually comes to mind?”

In regards to parts of music that affects the players' liking of them, most respondents responded that **melody and harmony** are the most imperative aspects of their favourite soundtracks, with 72% of respondents sharing this opinion, as people will often recognise and identify the quality and preference of music by its melody and progression. Other notable answers are **instruments played** (55%) and the **genre of music** (39%). Different musical instruments do contribute to a unique sentiment and games often employ a specific genre to better capture the atmosphere of their world.

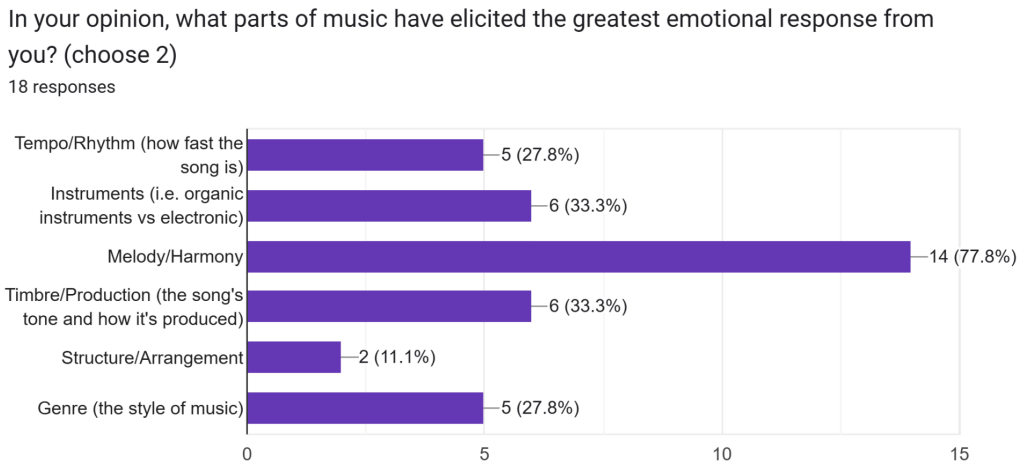


Figure 21. Response distribution for "In your opinion, what parts of music have elicited the greatest emotional response from you?"

Once again, **melody and harmony** takes precedence over other options when it comes to evoking an emotional response from music with nearly 79% of respondents sharing this opinion. Other options carry similar opinions, with the exception of **structure and arrangement** which has the least impact according to respondents with only 2 respondents feeling that it has led to the greatest emotional response.

Section 4 - Music and Immersion pt. 2

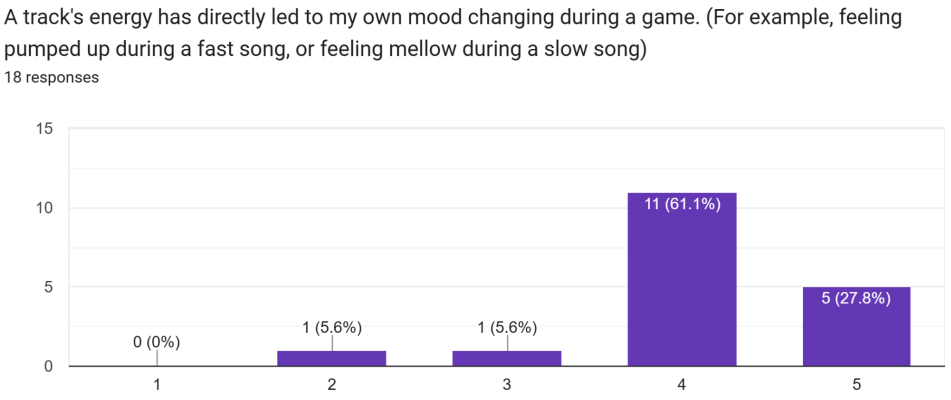


Figure 22. Response distribution for “A track's energy has directly led to my own mood changing during a game.”

When asked about music’s tempo and energy, one respondent **disagreed** and another felt **neutral** towards a track's energy affecting their mood during gameplay. All other respondents felt that they **have** had their mood change due to a game soundtrack's energy.

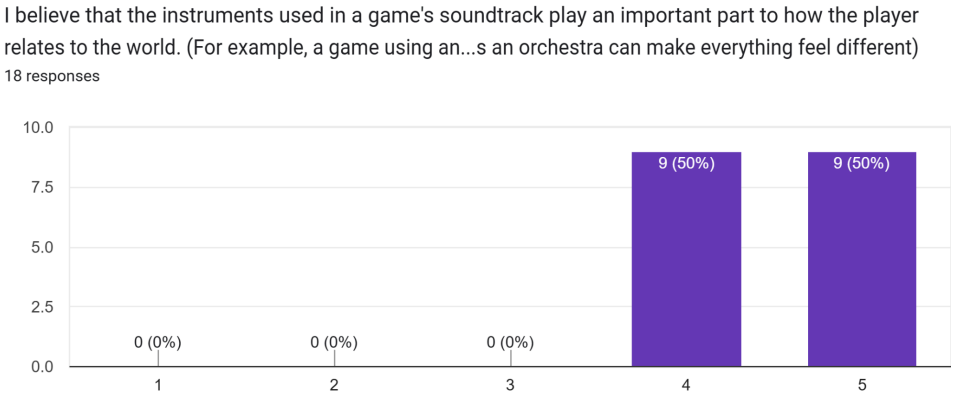


Figure 23. Response distribution for “I believe that the instruments used in a game's soundtrack play an important part to how the player relates to the world.”

All respondents either **agree** (50%) or **strongly agree** (50%) that instruments play a vital role in the relatability of the game's setting, as games do utilize different instruments to match the tone and setting.

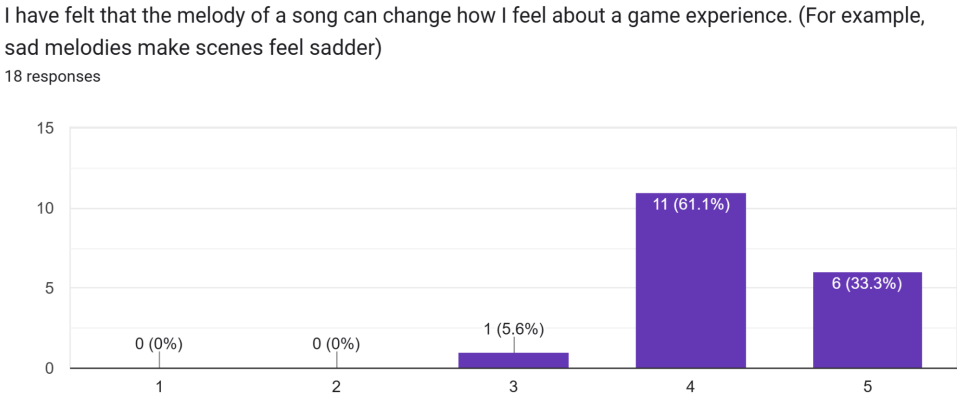


Figure 24. Response distribution for "I have felt that the melody of a song can change how I feel about a game experience."

When asked about the emotional response elicited by melody, 1 respondent responded **neutrally** while all others **agreed** (61%) or **strongly agreed** (33%) that melodies can change the game experience.

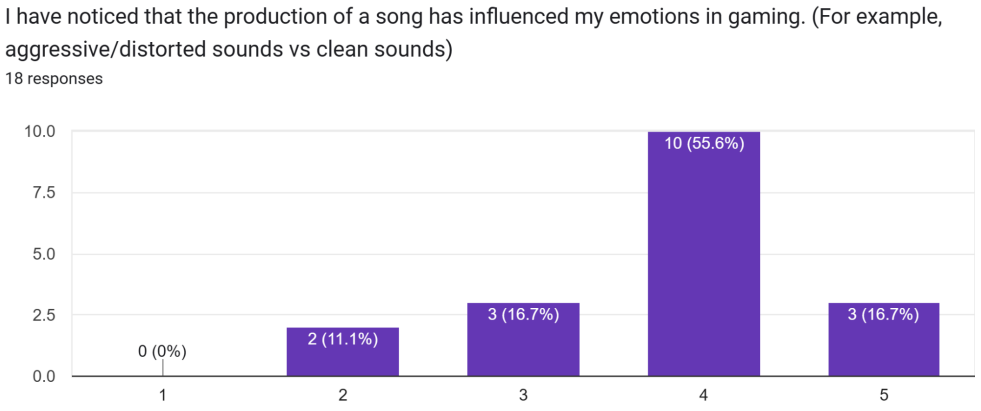


Figure 25. Response distribution for "I have noticed that the production of a song has influenced my emotions in gaming."

In response to music production, two respondents **disagreed** with music production tone influencing emotions during gaming. Three respondents were **neutral**, and most other respondents **agreed** (72%) that production does influence emotions during gaming.

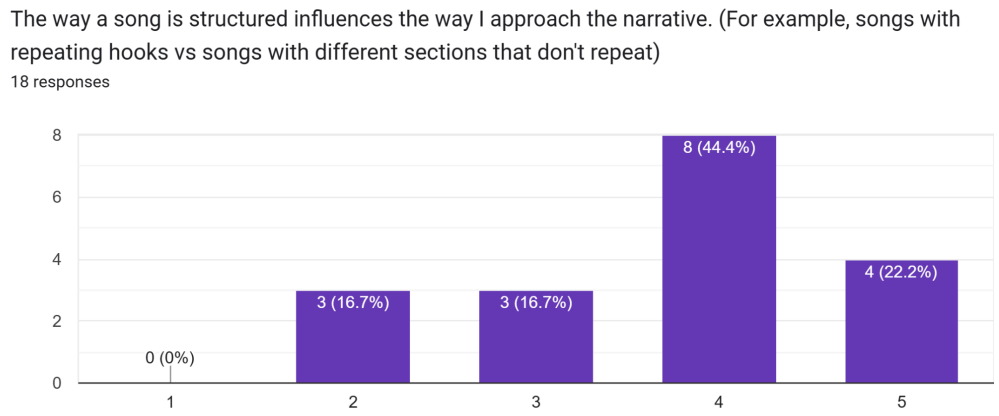


Figure 26. Response distribution for "The way a song is structured influences the way I approach the narrative."

When discussing the structure of songs influencing the way that the narrative is experienced, three respondents **disagreed** and another three felt **neutral** towards song structure influencing the narrative, with 66.6% respondents **agreeing** and **strongly agreeing** with the concept.

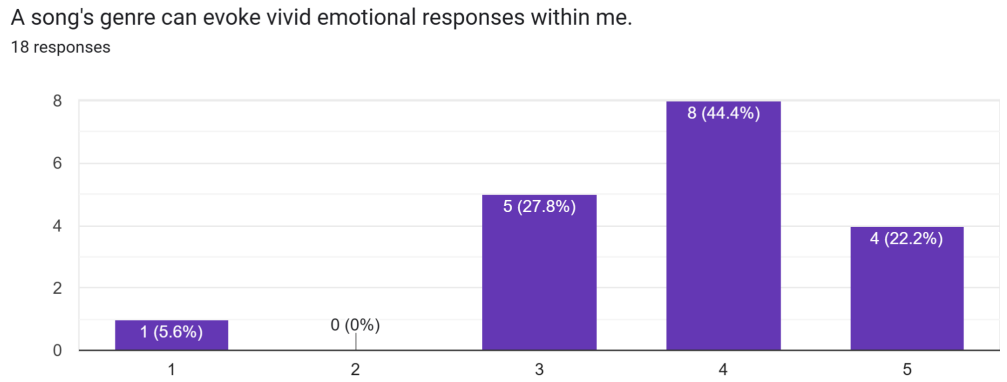


Figure 27. Response distribution for "A song's genre can evoke vivid emotional responses within me."

In reference to track genre, one respondent strongly **disagrees** while five respondents feel **neutral** towards song genres affecting emotional response. This suggests that players are not always paying mind towards song genres for video games, although most players still take it into account, with 44% of respondents **agreeing** and 22% of respondents **strongly agreeing**.

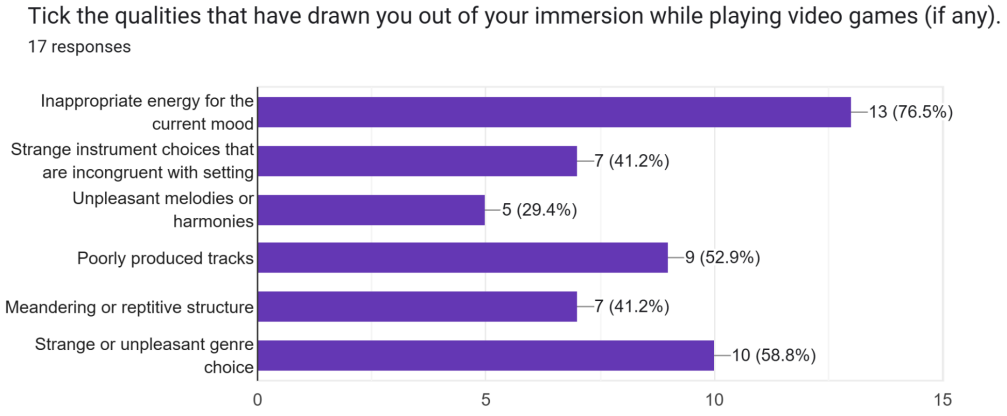


Figure 28. Response distribution for "Tick the qualities that have drawn you out of your immersion while playing video games."

According to the data, most respondents are heavily affected by the **soundtrack's energy** during gameplay, with over 76% of respondents choosing this quality as the one that has drawn them out of their immersion when done wrong. Other notable answers are **poorly produced tracks** (53%), and **strange or unpleasant genre** (59%)**.**

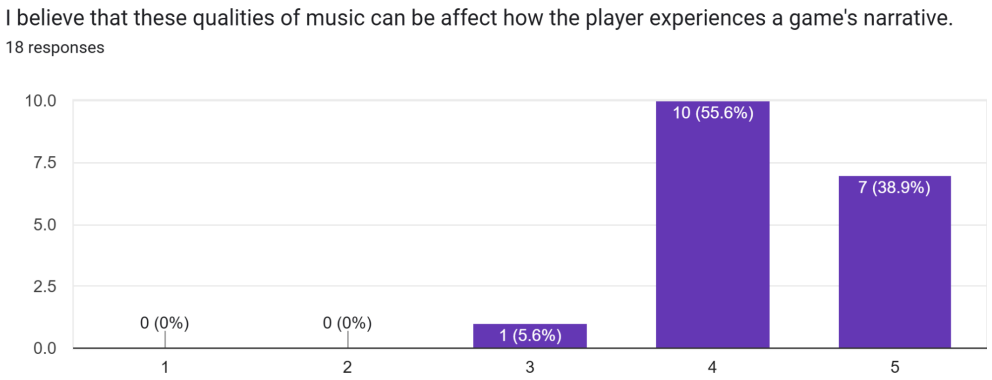


Figure 29. Response distribution for “I believe that these qualities of music can affect how the player experiences a game's narrative.”

Lastly, when asked if they believe that different qualities of music can potentially affect how a player experiences the narrative, everyone but 1 respondent (who chose **neutral**) **agreed** that music can have an impact on the game’s narrative experience.

Section 5 - Open-ended Questions

The following questions were open-ended subjective questions that asked respondents to detail their previous experiences with music and soundtracks in games. These will be further elaborated on in the discussion section.

Q1 - Please describe a moment in a video game where the soundtrack stood out to you? Why did it stick out?

This question was designed to ascertain the qualities of music that made it memorable in the minds of players. Respondents were asked to specify specifically what about a track stood out to them and what it made them feel.

Q2 - Was there ever a moment in a game's story where you felt that the music enhanced the narrative? Elaborate.

This question was used to ascertain moments in games where they used the soundtrack to enhance the storytelling which allowed further elaboration and context into the link between musical elements and storytelling quality.

Q3 - Has there ever been a moment where you felt that a game's soundtrack was holding back your enjoyment? Please describe that experience.

Conversely to the other questions, this one aims to see what elements of music, when done poorly, create the biggest dissonance that harms immersion. It is as important to consider what elements of music create the biggest impact when they are bad as much as considering when they are good.

Q4 - Elaborate on a time where a game's soundtrack has immersed you into its setting before.

The last question asks respondents to detail a time when a game immersed them into its setting by using its soundtrack. The most important and

informative question that tackles the research questions and objectives. It will be used in tandem with the context provided from the other questions to achieve an informed and researched answer.

3.3 DISCUSSION

After analysing all of the data presented, it is clear that many players believe that the proper inclusion and implementation of music within a game can drastically improve its level of immersion and enjoyability. In fact, the data suggests that music is also thought of as an important narrative tool that developers may use to strengthen the narrative of a game and the player's connection to its story, world and characters as many respondents also believed that the emotional impact of a game world held more weight than detail of worldbuilding. Essentially, the data shows that developers should focus more on how the game connects with players emotionally than analytically, suggesting that the suspension of disbelief and emotional connection are a developer's strongest assets when it comes to player and story immersion.

Now, onto the true findings of the research; according to the research data, most players agree that the melody and harmony of a piece of music has the greatest impact on both the enjoyability and emotional response of a game. This does make sense as melody tends to be the part of music that sticks with listeners the most, and the perceived mood of a melody would greatly affect how a scene is interpreted and experienced by the player. However, what is truly interesting is the rest of the rankings. In regards to the enjoyability of an individual track, the next most important elements of a song are the instruments used and genre of the song. However, in terms of emotional response from the listener, there is a slight difference with both instruments used and production tying for second place. This suggests that the elements that make a song enjoyable and immersive are potentially different, and that in order for developers to properly immerse players in their worlds and narratives, they ought to focus on the production and timbre of their tracks as well; of course, alongside considering the melody and instruments as well. On the flip

side, most respondents agreed that the structure or arrangement of a track is the least vital element to both the quality and emotional response of a track.

Respondents were also asked to consider the effects that these individual elements of music had on their immersion and emotions while playing a game. Many respondents agreed that musical elements have different effects on the listener and could create tangible and meaningful differences in the player experience. From the evidence provided, it is clear to see that players agree that while all elements of music could definitely affect the immersion of a game, it seems that instruments used and melody of a song had the greatest effect. Additionally, players mentioned that inappropriate usage of rhythm, genre and production had the greatest negative effect on players as well. Surprisingly, despite melody being one of the most important elements of music to most respondents, respondents mentioned that unpleasant melodies and harmonies do not harm their immersion as much as other elements.

Lastly, respondents were also asked to share their own personal experiences with video game soundtracks and immersion. This data was used to expand on the existing data with further context as well as to double check the existing data for its accuracy when compared to a more informative set of responses.

When discussing memorable moments in game soundtracks, one common thread between responses was actually two elements that had not been considered beforehand, timing and novelty. Some respondents not only stressed the importance of a track in terms of how it sounds but also when and where it is played. For example, moments where the music syncs up with the action or when a completely novel soundtrack moment flares up; that is when the listener's ears are perked up. Additionally, a common sentiment was also playing songs that matched the narrative tone of the scene it is; that is to say, moments of climax ought to be underscored by the most impressive songs in

the tracklist, whether they be maximalist instrumentals, sweeping melodies or intense production.

Next topic of discussion were moments where music enhanced or ruined a player's immersion in the story. Many of the respondents mentioned moments near the end of the games they played where the composers used previously heard melodies and recontextualized them for the final battle; as if they were using the music to force the player to reckon with their entire journey so far. Some respondents mentioned moments where the music broke free from its usual sound to deliver a shocking twist to the formula or when the music was directly used within a scene as a storytelling device. On the other hand, one of the biggest factors of music that could ruin a player's immersion according to respondents is when the music goes against the player's expectations. For example, a piece of music that doesn't fit the right mood or genre of the scene, when a piece of music constantly repeats itself to the point of grating on the listener or when a track becomes a meme among the community that the player cannot take it seriously.

Essentially, music ought to fit with the mood set by the aesthetics of the game; whether they be in terms of genre, instruments used, melodies played or energy of the track. Music can do magical things to the immersiveness of a game and its constituent elements can be utilized in interesting ways to accommodate any mood necessitated by gameplay.

3.4 LIMITATIONS & FUTURE WORK

There are few limitations of this study that ought to be acknowledged and addressed in any future work.

This study assumes that respondents have at least a basic understanding of video gaming and musical terminology; however, for some respondents, these assumptions proved inexact as they needed clarification on certain topics such as the meaning of timbre or what constitutes a story-driven game. This has potentially led to misunderstandings about the content of the questions that could skew the data away from the actual opinions of respondents. Thus, this ambiguity ought to be addressed in any future work by properly defining the terms set out in these questions and priming respondents with a crash course on the necessary background knowledge required to partake in the questionnaire.

Secondly, while the survey mostly focuses on gamers as they are the target demographic of the medium chosen in this study, it is also important to consider the views of non-video gamers as well. Not only to provide added variety to the data sample but because it also provides additional insights as to how the opinions of those within the gamer subculture differ from those of the average person. Any future studies conducted should utilize a bigger sample size with a more varied pool of respondents.

Lastly, the major limitation of this research project that ought to be considered for any future work is the overreliance on subjective opinions rather than empirical evidence. Many questions within the study rely on the past experiences and views of respondents which could potentially be skewed or biased due to flaws in their memory or emotional attachments to the game itself rather than the individual soundtracks. Therefore, any future studies conducted should address these issues by implementing two important elements. Firstly, the study should be conducted using a live experimental

approach by allowing respondents to play the same game with different types of music tracks to gain better and more objective insights that are not skewed by nostalgia or cloudy memory. Additionally, as immersion is a highly subjective and abstract variable that cannot be measured directly, it is best to employ operationalization within the research approach. This means, defining the concept properly and finding other measurable variables (such as heart rate or play time) to gain a more concrete understanding of the relationships and cause-and-effects that is quantifiable and empirical.

4.0 IMPLEMENTATION

4.1 3D MODELLING

Our initial concept for the 3D assets within Hullbound was to reference retro low-poly art from the late-90s era of gaming, think Playstation or Nintendo 64 visuals. This was chosen because we are fans of the art style and its charming aesthetic as the lack of detail and slight distorted look of everything complements the unsettling atmosphere we were trying to cultivate within the game. Essentially, these visual limitations cause the player to fill in the gaps with their own imaginations and can help build tension and discomfort that can be exploited by game developers to deliver horror and suspense. Additionally, we also felt that it would be advantageous to our workflow as the simpler models would mean that we could create more assets to flesh out our levels without needing to take up too much development time.

As Hullbound takes place in the grounded, gritty and grungy setting of wartime, I felt it important that the assets created also reflect that atmosphere. My frame of reference for the aesthetic I was going for with Hullbound's 3D models were classic survival horror titles like Silent Hill, Resident Evil and Dino Crisis which feature low-poly and jagged models with photorealistic (albeit pixelated) texturing. This visual style, lovingly called PSX by the gaming community, has become popular recently, especially in indie horror games and we felt that it was a brilliant choice for the aesthetic of our own game as well.

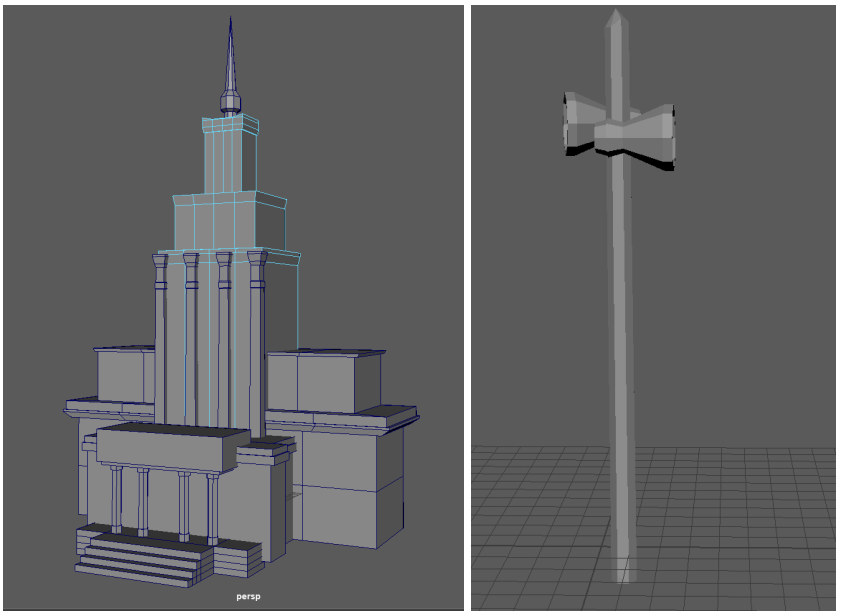
The following are some examples of the references for the visual identity of Hullbound:



Images 30 - 33. Screenshots from Silent Hill, Resident Evil 3: Nemesis, Dino Crisis & Clock Tower 2: The Struggle Within.

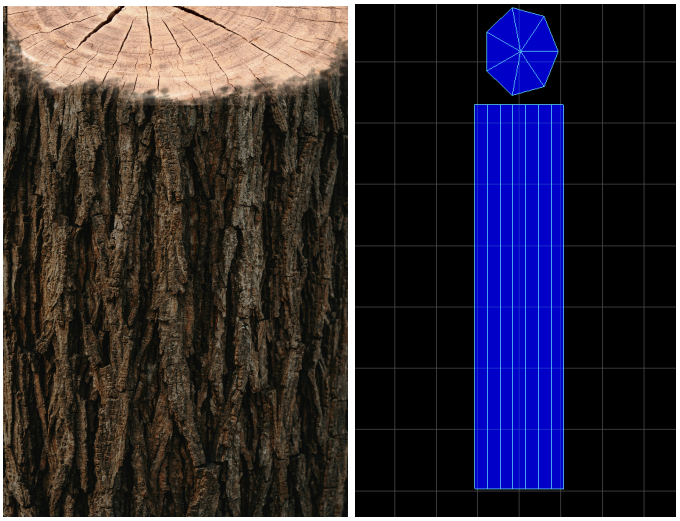
I was given a list of assets to create and a general map of the area (with placeholder models) by our level designer and was then tasked with creating said assets to be placed within the level. The first thing I asked for were some reference images for the individual assets that I could analyse when modelling the items; it was important that I had enough references so I could properly discern their shapes and sculpts.

Next, would be the modelling part of the process. I used Autodesk Maya to create the assets for Hullbound. Due to the low-poly art style, I ensured that the assets that I modelled did not contain too much detailed geometry and elected to keep the models simple with obvious polygonal faces throughout the sculpt. Based on the reference images provided, I began to sculpt the objects; mostly using simple techniques through the poly-modelling tools. I abstained from using any sculpting tools throughout the process as those would usually make the model look far too smooth and detailed for the low-poly aesthetic I was aiming for.



Images 34 & 35. Examples of Low-poly Modelling.

Then, came the process of texturing the models; I found most of the textures I used online through stock image websites. The goal was to use photorealistic textures on my jagged models to emulate the clashing and uncanny aesthetics of the PSX art style. I made sure to find textures that did not look perfect; I wanted concrete walls with cracks or metal textures with rust on them to really sell the feeling of being in a dirty warzone. I would also use Krita to modify these textures (such as by changing their color values or brightness) to better suit them to be applied on the models. I then applied these textures onto my models by creating a new Blinn material and changing the base colour to the image file. Afterwards, I UV unwrapped the models to ensure that the textures were applied properly without any major distortions or out-of-place areas.



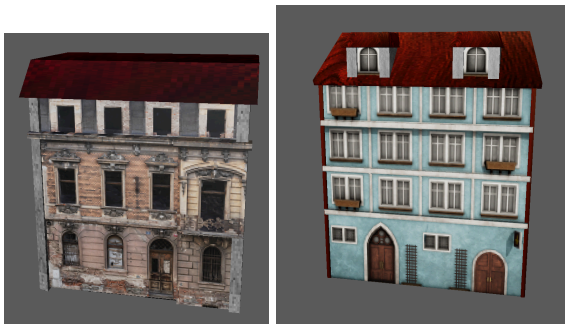
Images 36 & 37. Example of Textering and UV Unwrapping for the Speaker Pole Asset.

Once the model was fully prepped, I exported the model as an FBX file with the textures and sent it over to our level designer to be implemented into the game.

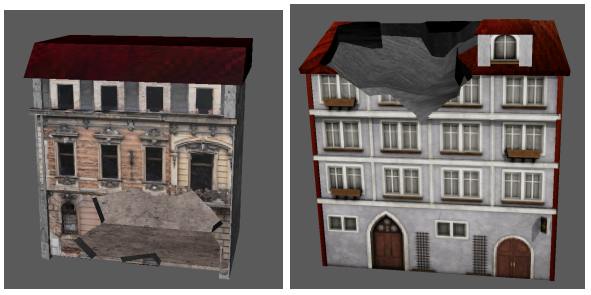
The following is a complete list of all the assets modelled for Hullbound.

	**German Residential Buildings (Normal & Damaged)** I was tasked with designing a couple different houses to be used in the city level of the game. The level designer requested that I create several different variations to ensure that the scene did not feel repetitive visually. Thus, I create a









Images 38 - 47. Residential House Models.

few different houses in different styles and sizes.

Additionally, I was told to create some houses with holes and destruction on them to properly sell the warzone feel of the level; additionally, some of these holes would also be populated with enemy troops to provide a more unique target for the player to fire at.

The destroyed houses were created by taking the original house models and adding a new object that essentially emulates where the crater in the house is and applying a boolean difference modifier that subtracts the crater from the house object, making a hole in the model.





Images 48, 49 & 50. Apartment Block Models.

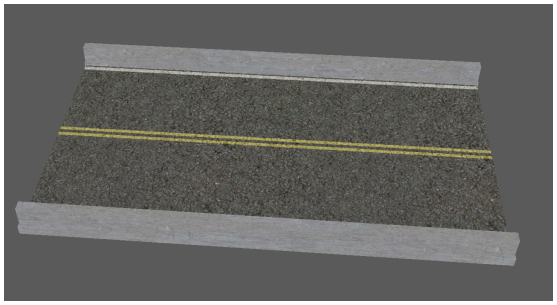
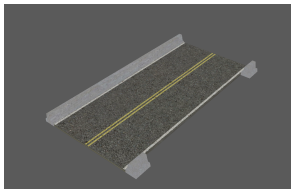
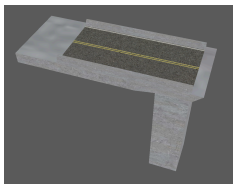
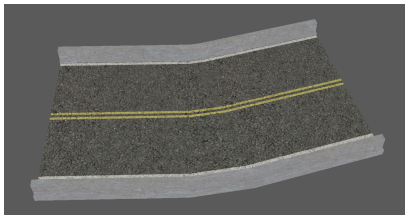
Apartment Blocks

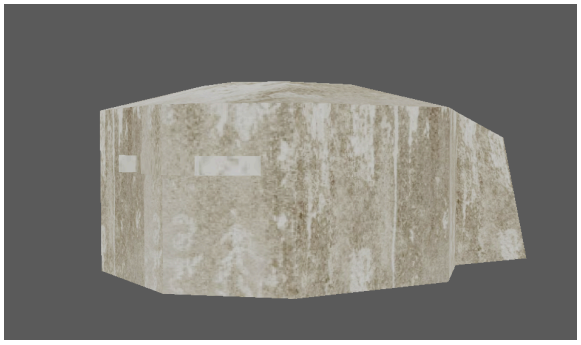
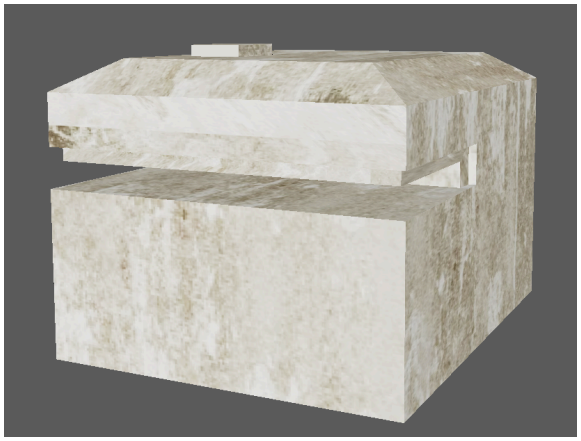
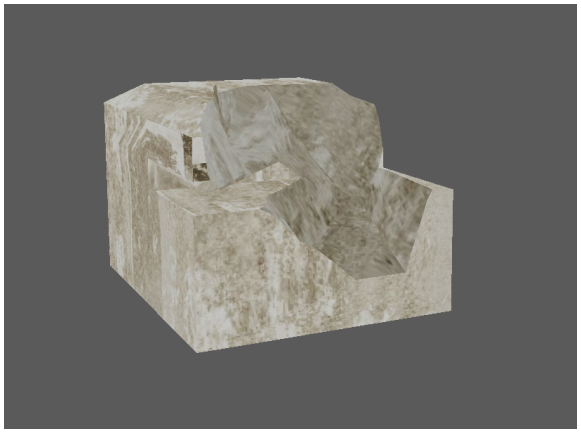
The apartment blocks were modelled similarly to the house; meant to provide visual variety to the city and also create an imposing atmosphere around the central court where the player inevitably finds themselves. The main focus of these assets was to create a sense of massive scale that towers over the player.



Consulate

This was the asset that took the longest time for me to model; serving as the centrepiece of the city level of the game, this building needed to be a towering figure that loomed over the rest of the level. Additionally, I needed to ensure that the architecture and look of the building was accurate to the time period as it was the most intricately detailed model in the whole game.

Image 51. Consulate Model.	The main reference for this model was the Grand Hotel International Prague in the Czech Republic and the textures used on this model were directly taken from images of that building.
 Image 52. Turret Model.	**Tank Turret** The tank turret is a simple model made for the combat scope during combat. As literally only the turret barrel would be visible during gameplay, I kept the rest of the model simpler in comparison.
    Images 53 - 56. Road Models.	**Roads & Bridge** The roads used during the Autobahn section of the game consist of a simple road texture and cement barriers. It was made to be modular so the level designer could easily place the roads down wherever he wanted and easily string them together seamlessly. There is also a version of the model with a bend to ensure that the road is not completely straight the whole time.

	I also created some variations of the road model for different sections of the highway. There is a variant with an opening for the player to enter the highway from the farmlands and a variant with a bridge as well.
   Images 57, 58 & 59. Pillbox Models.	**Pillboxes** **(Normal & Damaged)** The pillbox bunkers are a simple model found in the farmlands area of the map. The player is meant to attack these strongholds; thus, I create 2 different pillbox assets with a destroyed version (using the same technique as the destroyed residential building) for when the player successfully shoots at them.

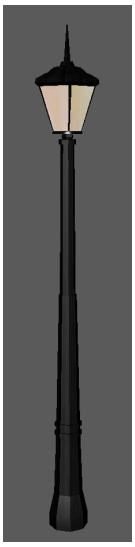
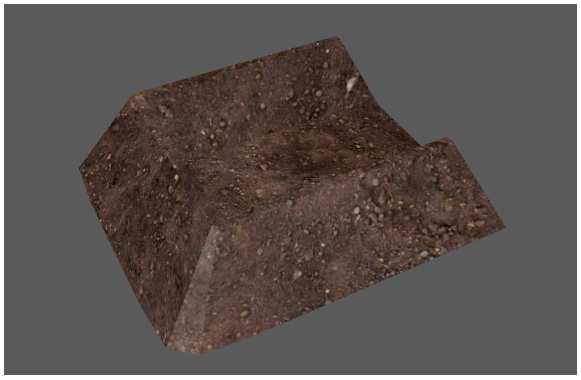
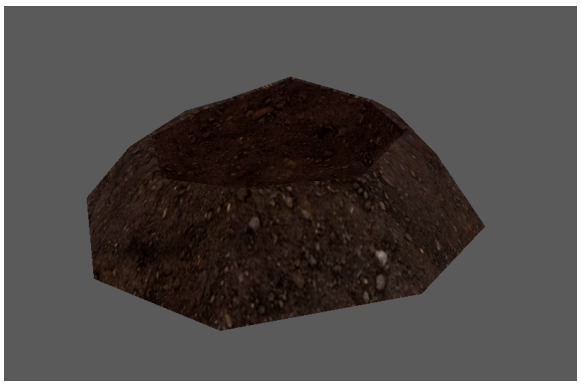
  Images 60 & 61. Lamppost and Speaker Pole Models.	**Lamppost & Speaker Pole** These two assets are mainly used as decoration in the city level. I mainly reference vintage cold war era aesthetics when designing these assets.
  Images 62 & 63. Dirt Mound Models.	**Dirt Mounds** There are two types of dirt mounds in the game; one again, these are mainly for decoration to sell the idea of a warzone that is actively being bombed. However, the top dirt mound is also used as a hiding spot for enemy tanks as well.

Table 10. List of 3D Asset Models.

4.2 UI DESIGN

I was placed in charge of some of the UI assets in the game as well; mainly, the heads-up display of the tank scope and the notebook found in the tank with lore and player controls. I created these 2D assets using Adobe Illustrator and Krita and then imported them into Unity for our main programmer to properly implement with the rest of the game mechanics.

Heads-up Display



Image 64. Heads-up Display UI Sprite Sheet.

The heads-up display was made to emulate the retro early computer terminal aesthetic of the computers used during the actual Cold War era; thus, neon green hues and blocky text was used in its design. I used Illustrator to create the boxes and text of the HUD elements and created a simple sprite sheet based on the specifications requested by our lead game designer. Essentially, the HUD is split into two sections, the power allocation and ammunition sections. In order to further solidify the retro computer aesthetic, I also superimposed an overlay of scanlines onto the HUD as well.

This was all compiled into a sprite sheet (with the scanlines sent separately so they can be overlaid in-engine) which was then given to our main programmer.

Red Book

There is a book placed inside the tank's hull that the player can interact with to gain important information about the worldbuilding, story and gameplay. I was tasked with translating the writings of our game designer into a visual book that could relay this information to the player.

First, I created the book background asset in Krita; it's just an open book with two blank pages which can then be filled with content by overlaying it on top of the page.



Image 65. Book Background.

The individual pages of the book are essentially images made in Adobe Illustrator with text and pictures overlaid on top of the background. I made several of these pages based on the requests of our game's writer; including:

- Table of Contents
- Tank Description
- Ammunition Description
- Autoloader Description
- Enemy Description
- Tank Controls
- Callout Commands
- Crew Members
- Logbook

The design of the pages use gritty fonts that emulate a typewriter's text and pictures that look like they were glued on top of the notes. This was done to really sell the idea that this was a soldier's personal notebook with scribblings of information in it.

The following are a collection of the pages within the notebook.

Contents

Tank Description

Ammunition Description

Autoloader Description

Enemy Description

Tank Controls

Callout Commands

Crew Members

Logbook

Tank Description



T-279

An experimental heavy tank armed with a 130mm cannon and a 14.5mm coaxial machine gun. Equipped with a state-of-the-art MZ 2A60 Autoloader, capable of loading shells in 6 seconds, eliminating the need for a human loader.

Major Voron personally selected me to be his gunner for this tank unit. I'm not quite sure why he chose me. Is it because of my father, my actions in Berlin or something else?

Ammuniton Description



Armour Piercing Discarding Sabot (APDS)

Penetration value: 450-600mm

Primary anti-armour round

High Velocity, flat trajectory

Can easily disable most NATO tanks in one hit

Reduced effectiveness against angled armour

High Explosive Anti-Tank (HEAT)



Penetration value: 400mm

Efficient in engaging light-armoured targets and structures

Low Velocity, arching trajectory

Penetration unaffected by distance

Still capable to engage tanks with, precise placement of shot is needed



Propellant Charge

Load in conjunction with ammunition

Must be handled with care

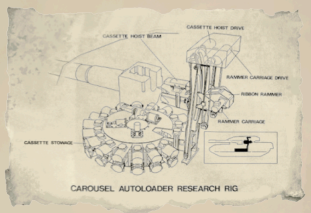
Improper loading of charge causes shots to be less effective

14.5mm Coaxial Machine Gun

Effective against infantry and light vehicles

High rate of fire

Autoloader Description



A state-of-the-art shell autoloader, as Major Voron puts it. Designed for the T-279, the autoloader provides consistent reload speed and sustained rate of fire. It removes the need of a human loader, improving combat efficiency by reducing human error.

If a shell is already loaded in the breach, it cannot be removed.

Fire the loaded shell before selecting and loading a new shell.

Press MMB to select shell type, press R to reload.

When reloading the autoloader, hold LMB to Drag and Drop the shells and propellant changes onto its respective stowage.

Loading failure for the shell causes decreased damage.

Enemy Description

M47 Patton



Armament:

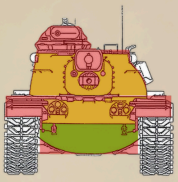
1x 90mm Cannon
1x 50. Cal Machine Gun
1x 30. Cal Machine Gun

Workhorse of NATO tanks, but gradually being replaced by improve variants.

Armour configuration outdated, single APDS shot should be suffice to destroy

90mm gun while light and manually loaded, still be wary of high rate of fire

M48 Patton



Armament:

1x 105mm Cannon
2x 50. Cal Machine Gun

Upgraded variant of M47, redesigned turret and added hull armour improved protection, would be harder to knock out.

Weakspot is lower plate of front armour, precise one APDS shot should kill it.

105mm capable of shooting APFSDS (Armour-Piercing Fin-Stabilized Discarding Sabot), could penetrate our armour.

NATO Infantry

Armed with an M14 or FN FAL battle rifle and a Bazooka for anti-tank roles. They operate in tandem with armoured vehicles, providing fire support, reconnaissance, and logistical support.

Structures

Bunkers and pillboxes left from the last war, now have been reactivated, reinforced and rearmed, ready to face a familiar foe once again.

Use HEAT shells to effectively damage reinforced structures.

Tank Controls

W
A S D — Move turret around

R — Reload

Use Coaxial Machine Gun
Space

Left Click: Interact & Fire

Middle Mouse Button: Select ammo type

Tab / Esc — Exit Tank Scope

Toggle Power Management
1 2 3 4

Q / E — Dialogue choices

Callout Commands

Ammo

AP	–	Load APDS
HEAT	–	Load HEAT
MG	–	Use Machine Gun

Direction

Left	–	Target is on the left
Right	–	Target is on the right
Front	–	Target is dead ahead

Enemy Type

Tank	–	Target is a tank
Troops	–	Target are troops
Bunker	–	Target is a bunker

Fire Command

Fire (Ogon)	–	Open fire
Shoot (Strelyat')	–	Open fire
Reengage	–	Reengage the same target
Next Target	–	Switch to next target
Cease Fire	–	Stop firing

Enemy Status

Hit (Tsel)	–	Target is hit
Destroyed (Popal)	–	Target is destroyed

Shot Landed

Over	–	Shot went over target
Short	–	Shot fell short in front of target

Autoloader

MZ	–	Next round is loaded

Crew Members

Major Stanislav "Voron" Voroshilov

Age: 38
WWII Tank Commander & Veteran

Served in the Great Patriotic War, fought at Kursk, Belarus and Germany. Promoted to platoon leader by 1945. A decorated officer with extensive combat experience on the Eastern Front.

After the war, he contributed to the development of armoured warfare doctrine and designs of modern Soviet tanks. During the uprising in Hungary in 1956, Major Voron was also present, and was directly involved in actions to suppress the unrest. I was still in army training when rumours spread about his conduct being... brutal.

Major Voron is fiercely loyal to the State and places absolute faith in discipline, duty and obedience. Handpicked by high command to serve as commander of our tank unit.

He appears to have personally known your father.

Junior Sergeant Alexei Popov

Age: 19
New recruit. Quick learner. Mechanically skilled

Fresh out of tank school, Alexei is young, anxious but practical at machinery although lacking combat experience. With Major Voron at the helm, he may be prone to stress under pressure, but tries to focus on carrying out his duty. He seems to show indifference towards the war.

Alexei is just as important as any of us in the tank, if we are to survive together.

Logbook

I grew up during the war.
I remember the sirens, the bombing and the fire. Villages burned to the ground, cities reduced to ruins. I could only follow mother into hiding when the Germans came.

The roads were clogged with people fleeing, while the army marched opposite of us to the front. German planes flew down and attacked the column. We walked for days until we reached safety.

I don't remember much about my father, he was called to serve when the Germans invaded in 1941. He never came back after the war.

Berlin Crisis, October 1961

My first deployment was at Berlin, the border crossing checkpoint at Friedrich-strasse. Tanks from both sides started appearing overnight, then escalated into an intense standoff.

It was early morning, I had been at my station for hours without sleep, all that I was hoping was the enemy pulling back without either side firing a single shot. The radio was going manic with conflicting orders, everyone was getting restless.

Suddenly, someone fired a shot, someone fell, and all hell broke loose. My worst fear has occurred.

In the carnage, I've managed to hold off. Dozens of enemy tanks destroyed, but at a cost. Our tank took a direct hit. We were on fire, I crawled out of the burning tank, and fell unconscious.

When I woke up I was in a military hospital, wrapped in bandages. I could hear groaning and screaming around me. Dread felt all over me, this would only mean one thing, war has begun between East and West.

An officer came in, introduced himself as Major Voron, and showed me documents regarding my father. Flipping it page by page, he explains that my father died in a labour camp, sent there for disobedience and abandoning his post.

He then handed me transfer orders, saying: "You can still redeem your family name. After your wounds are healed, you are to return to the front."

After the Major left, I could only stare at the ceiling in despair.
I have no other choice.

World at War Again

After the standoff at Berlin in 61', the Soviet Army had the initiative, pushing deep into Germany then reaching the border of the Low Countries by December. But harsh winter slowed down the offensive.

New Year, 1962, NATO launched a counter offensive, clear winter sky allowed NATO air power to wreak havoc on our convoys and tank columns. By February 1962, we were pushed back into Central Europe.

Spring 1962, I was sent to the Oder River, right on the German-Polish border. Yet again I witnessed the devastation of war. Columns of refugees and wounded soldiers marching against us, but this time I was the one going to the front.

Thick fog surrounds us, considered us lucky, because NATO airpower would not be able to attack us in this mist. We were able to reach the front in our new tank without facing resistance.

Images 66 - 82. Book Pages.

Menu Design

I also worked on some of the UI menus within the game; mainly the credits and settings screens. We continued with the retro computer terminal aesthetic using neon green as the main color of the font and sprites; additionally, I created a simple background with muted green binary code to add a bit of visual variety and flair. The font used is one inspired by retro terminal fonts.

For the credits page, we listed our team members, their roles and also included a picture of our team logo as well.



Image 83. Credits Screen.

For the settings page, it has a simple slider that is also neon green with the word “Settings” between two brackets, a reference to programming syntax.

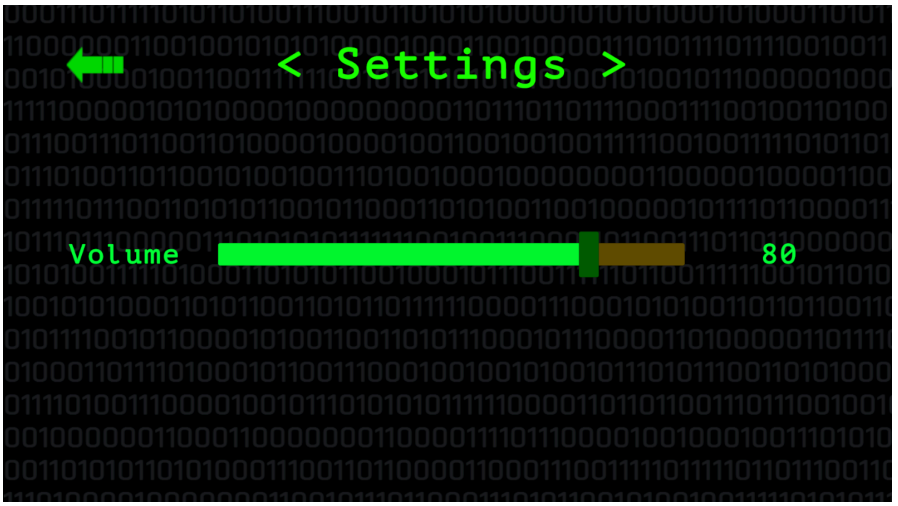


Image 84. Settings Screen.

4.3 PROGRAMMING

I assisted in some of the programming aspects of the game; mainly the dialogue manager which controls how the dialogue text box is displayed in-game, the book manager which controls how the book and its pages are shown and the autoloader minigame that the player plays when they want to reload ammunition.

Dialogue Manager

One of the first scripts that I made for the game was the base for the dialogue manager; essentially the script that dictates how the dialogue written is displayed to the player. We decided to integrate a Unity plugin called Inkle within the dialogue as it allows for easy scripting for things such as narrative choices, branching stories and tags for speaker names.

How Inkle works is simple; you write a series of lines in a file that form the basis of your story; you can also add choices and branches in the narrative using the syntax of the scripting language; it also allows you to add tags that you can attach to specific lines that can be parsed in the Unity script. My goal with the dialogue manager was to create a script that takes an Inkle file and its

associated text and tags and displays it in the text box UI; also, it needed to display player choices when needed as well.

The script essentially takes an Inkle file (usually from an associated trigger script) and displays it line-by-line in a text box on the text box UI; I designed it so that the text is also displayed one character at a time to create a typewriter effect that has better visual rhythm. It also reads any associated speaker tag (denoted using the #speaker tag) and uses it to display the current speaker's name. When the player presses the left mouse button, the dialogue advances to the next line in the Inkle file until it reaches a branching choice or the end of the story file. If the dialogue manager encounters a branching choice, it will enable the choice UI objects and prompt the player to make a choice by pressing either the Q or E key; then it will continue the story depending on which choice is made. If the script reaches the end of the story in the Inkle file, it will disable the text box UI asset.

There was also some debate within our group on how we would handle the text box as well. Our original idea, proposed by our main artist, was to have the text box appear only as the text appears. The following is a concept version of the script that I prototyped. How I made it is that essentially the background textbox is actually a duplicate of the actual text but with the rich text <mark> that adds a highlight to it and an alpha modifier that makes it slightly transparent. This helps create a textbox that generates with the text without requiring too much additional coding.

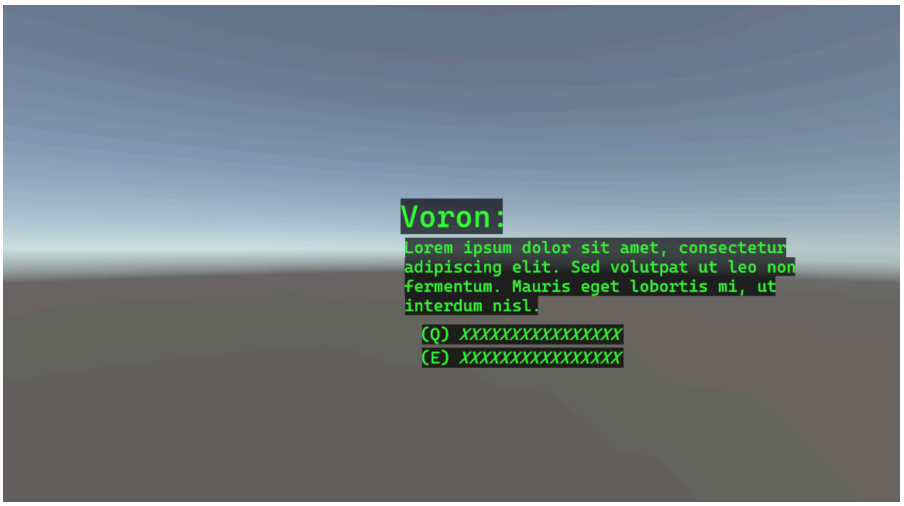


Image 85. Dialogue Text Box Original Design.

However, after some discussion with the programmer and artist. We refrained from using it due to readability and feasibility issues. Thus, we pivoted to a more standard text box design. This is one of the concept art that I made of what it would look like.



Image 86. Dialogue Text Box Original Design.

After this, I handed the script off to the main programmer to tweak and play around with to add further uses and features to; such as sound and connecting it to the actual game events.

Book Manager

The book manager is a script designed to handle the red book that the player can read in the tank interior. It is a book that has multiple sections about different aspects of the gameplay and story; I needed to design a script to allow the player to go to each different section and also cycle through the different pages within each section as well.



```
0 references
public class BookManager : MonoBehaviour
{
    int index;

    public PageObject[] sections;
    public PageObject currentSection;

    public Image pageRenderer;

    // Unity Message | 0 references
    private void OnEnable()
    {
        if (sections != null && sections.Length > 0)
        {
            currentSection = sections[0];
            index = 0;
            // FIX 1: Display the first page immediately
            if (currentSection.pages != null && currentSection.pages.Length > 0)
            {
                pageRenderer.sprite = currentSection.pages[index];
            }
        }
    }

    0 references
    public void ChangeSection(string sectionName)
    {
        index = 0;

        foreach (PageObject section in sections)
        {
            if (section.sectionName == sectionName)
            {
                currentSection = section;
                // FIX 2: Display the first page of the new section
                if (currentSection.pages != null && currentSection.pages.Length > 0)
                {
                    pageRenderer.sprite = currentSection.pages[index];
                }
                return;
            }
        }

        Debug.LogWarning($"Section '{sectionName}' not found!");
    }

    0 references
    public void ChangePage(bool nextPage)
    {
        if (nextPage && index < currentSection.pages.Length - 1)
        {
            index++;
        }
        else if (!nextPage && index > 0)
        {
            index--;
        }

        pageRenderer.sprite = currentSection.pages[index];
    }
}
```

Image 87. Script for the Book Manager.

Basically the left side of the book displays a table of contents which consists of a list of buttons that load each chapter onto the right page. The chapters are basically an array of image sprites (representing the individual pages) that can be cycled through using the arrow buttons on the book UI (the arrows

essentially increase or decrease the page index, changing which page in the array is displayed in the UI image).

Autoloader Minigame

The autoloader minigame was a script I worked on that manages how the player reloads their ammunition for the combat sections. The original idea behind it was that the player had to carefully load in the repellent charge and ammunition shells into their designated areas, and failure to do so properly would lead to complications when the player were to shoot them (ie. jamming or inaccuracy).

The way that we figured to make these mechanics work was as a physics-based minigame where the player had to nudge the items into their slots while dealing with realtime physics and a final quick time sequence where the player needs to stop a moving indicator at the right spot on a bar. Essentially, I made the bullets rigidbody physics objects that could be dragged around by the player's cursor and when they entered a collider at their designated slot. After that, the indicator bar would pop up with the triangle indicator moving back and forth and only stops when the player clicks on the mouse button. If it stops on the right area, designated in yellow and also a trigger collider, it would trigger a successful insertion and reload the player's ammunition; if not, then it would trigger a punishment.

After a couple of concept versions of the minigame however, we realized that the physics simulation version of the minigame was too much of a hassle for a minigame that did not really add much to the player experience outside of mild frustration from the janky physics. Thus, we elected to swap it out for a simple point-and-click system for reloading instead.

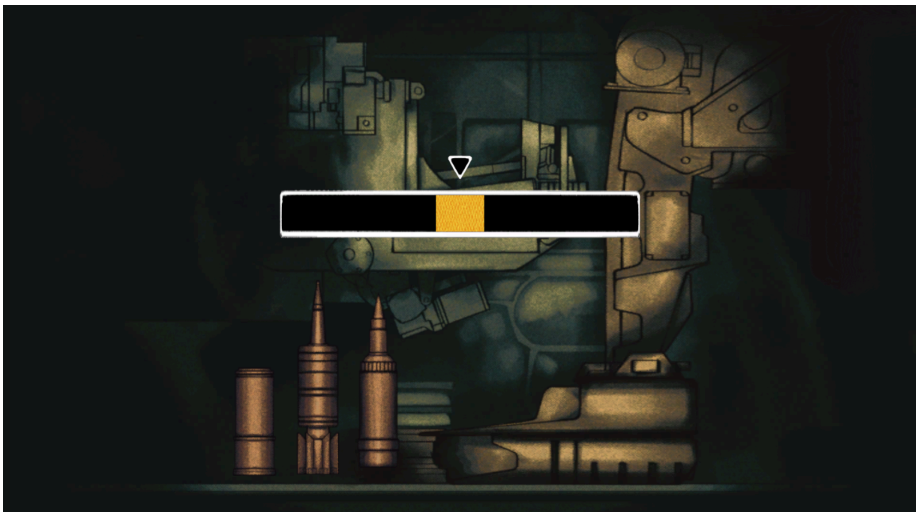


Image 88. Original Concept for the Autoloader Minigame.

4.4 PROMOTIONAL MATERIALS

Spaghetti Code Logo

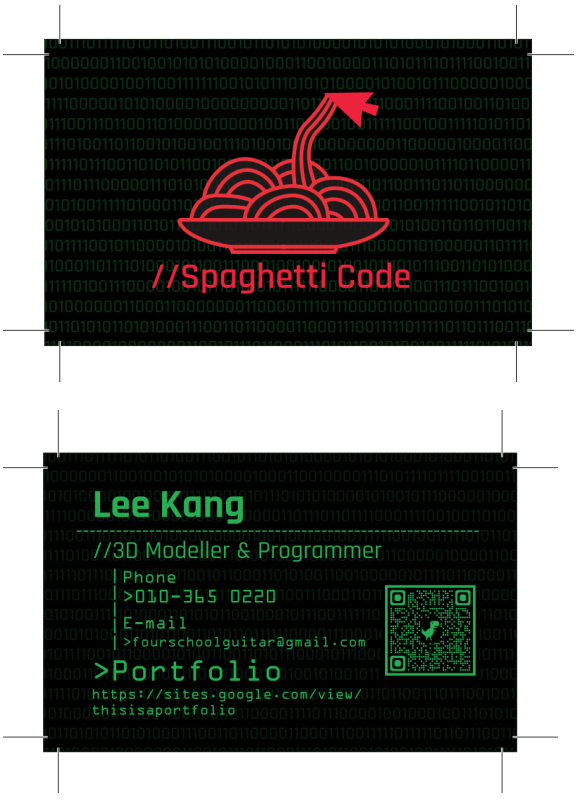
The logo of Spaghetti Code is a direct reference to its name; it is a bowl of spaghetti held up by a mouse cursor. The name comes from a common saying in programming; it just means unreadably messy code. I designed the logo in Adobe Illustrator; it consists mainly of simple linework to denote a plate of spaghetti and the cursor is holding it up like a fork.



Image 89. Spaghetti Code Logo.

Name Cards

I was in charge of designing the name cards for our individual group members to be handed out during the final exhibition. The theme for the design was based on our group name and the aesthetic of Hullbound; that is, computer code. I designed these cards in Illustrator using the assets already created previously, and included the necessary information for each of our members (name, role, phone number, e-mail, portfolio link and QR code). I used bold neon red and green to create a striking colour palette and used retro computer age-era fonts with embellishments and decorations reminiscent of early computer software terminal design.



Images 90 & 91. Name Card Designs.

I then exported these cards as PDF files to be printed.

5.0 RESULTS

5.1 DISCUSSION

In the end, we managed to successfully develop Hullbound as a completely playable experience from beginning to end. The final game comprises 3 main areas that the player must navigate by using their combat skills; Berlin (the prologue), the outskirts and the city.

The player starts in Berlin where the Berlin Wall has become the stage for a full-blown military showdown between NATO and Soviet forces. The player is shown the basics of tank combat while hell is breaking loose at the border; the pleasantries between both sides have ended and the time of war has begun. Unfortunately, the player's squadron is outmatched by opposing forces and they are wiped out by missile fire, with only the player as a lone survivor of their troop. They then wake up in the hospital to be greeted by Commander Voron, who briefs them about their father's exile for treason and recruits the player into a new operation, involving a new age tank and a journey to the front lines of Berlin.

The player is then placed into their new vehicle as they are introduced to their new crew, Commander Voron and Alexei, the driver. The three of them start out at the Oder River and must make their way to Berlin via Seelow, a city which is currently being occupied by American forces. Here is where the player's combat skills are tested as they have to man the tank's turret to fire at enemy tanks; all while managing the ammunition supply and power consumption of the different tank features. Players will face a few types of enemies, tanks, infantry and pillbox bunkers that they will have to gun down in order to advance. Occasionally, the player will also hear back from the commander or driver and have conversations that usually underscore how stressful and heartbreaking being in the trenches of warfare truly is.

By the time the player reaches the city, things have escalated to their extremes. The city has become a wasteland occupied by enemy troops and residential homes have been turned into makeshift cover for firing squads. The player and Alexei are mortified about this whole ordeal but Voron knows that all is fair on the battlefield. It all culminates at the battle of the consulate where a simple embassy building has been fortified and turned into a base for the enemy, and additionally, bombs start falling on the area from above.

The crew has barely any time to react however, as just as they are about to leave the city… the biggest bomb of them all falls onto the area. Germany has been hit by a nuclear bomb, and the player and their crew are right there to witness it detonate. The game ends with no real winners or consequences, just like how there are no true winners in war; only the suffering of millions of innocents.

5.2 LIMITATIONS & FUTURE WORK

Several aspects of the game and its design are limited by constraints experienced by the group members during development. These limitations will be discussed within this section as well as some suggestions on how they could be added in any future updates to the project.

Limited Asset Variety and Animations

Hullbound's art assets are fairly limited due to time and manpower constraints as our group only has 2 artists, one for 2D assets and the other for 3D assets. This has led to a lack of variety in the art of the game as priority needed to be given to the most important elements of the game and little time could be afforded to create variations to break up any monotony in environment or enemy design. This also meant that creating detailed animations for some of the story beats of the game, a design element that was originally planned for the final game, was not able to be accomplished in time. Thus, the final product, while looking polished, lacks the detail and variety to truly excel in a visual and level design department.

One of the biggest casualties of these constraints are the cutting of enemy sprite animations and crewmate emotions. It was originally planned that enemy tanks and infantry would be animated when they moved or attacked the player, and that the player's tank crew would change their expressions when talking to the player. Unfortunately, due to the increased complexity of adding the system (having to add it within the dialogue manager and connecting it to trigger within the dialogue scripts themselves), it was excluded from the final build.

Perhaps future updates or versions of the game could implement this lost system to increase the visual flair of the game and boost immersion and player enjoyment of the story and gameplay.

Simplified Tank Mechanics

Many mechanics originally planned during pre-production had to be cut for the final release unfortunately; one again, due to manpower constraints. One such example of a game mechanic that was planned but ultimately scrapped or greatly simplified is the autoloader minigame. Originally, it was intended to be a physics-based game where the player had to carefully load the propellant charge and bullet shells individually by dragging them into their appropriate slots. They would have to actively deal with the physics of the items and if they improperly loaded either, there would be a penalty to the accuracy of their shots. The system was even implemented at some point but was cut because the team could not get the physics system to reliably work in a way that did not feel frustrating for the player to use. Another example of a scrapped mechanic is the power system; in the current game, power consumption is a mild challenge for the player to deal with and mainly only deters them from having everything on at the same time. However, the original intention for the system was to have the max power reduced gradually over the course of the game and force players to play more strategically and seriously consider what to turn on or off during combat.

If development on Hullbound were to continue, finding a way to properly implement these mechanics within the current flow of the game would definitely be a top priority to increase the stress factor and challenge which is important to the tense atmosphere we want to create.

2.5D Aesthetic

One of the main quirks of Hullbound was actually brought about by our limitations; that is, the 2.5D aesthetic that melds 3D levels with 2D sprites. This was mainly done as our original intention, a completely 3D game, did not feel feasible due to our lack of experience with 3D modelling. Thus, we

compromised by making only the level environments outside the tank's scope 3D while all other assets, including the tank interior and enemy sprites, 2D. While this certainly gave the game a unique visual identity, it also became somewhat cumbersome from a coding perspective as it required many workarounds on the programming side to make things look right, especially during combat. It also means that the visuals of the game feel very clashing as different art styles are placed on top of each other without much regard for how well they might interact with one another.

It would be ideal for future versions of the game to either ditch the 2D art entirely for combat to improve the aesthetic and gameplay, or we would have to work harder to find a better way of fitting the 2D sprites within their environment in a way that feels more natural and less cartoonish.

Story Limitations

One of the biggest tragedies of the project is the amount of cut story scenes that did not make it to the final build of the game. The original version of Hullbound's story involved many more character scenes and player choices that really delved deeper into the history of the main character and his relationship with both Voron and Alexei; unfortunately, much of it was cut to accommodate some of the changes to the level design. For example, there originally was a scene where the player would be tasked with deciding whether to kill a group of fleeing enemy soldiers or not; it was meant to exemplify the horrors of war and how morality falters on the battlefield. In the end, we could not implement that scene in time. The same goes for the multiple endings planned, originally these choices would have led to different narrative endings; however, due to the lack of the previous choices throughout the gameplay, we decided to streamline the story into a tight narrative package that we could sink more time and care into perfecting.

If we had more time, the multiple endings and character scenes would definitely have been in the game as they really are at the core of the message our game is trying to tell.

5.3 PROBLEMS & CHALLENGES FACED

Personally speaking, some of the challenges that I faced during the development of Hullbound mainly stemmed from lack of time and miscommunication with group members.

One of the main issues we had to tackle was a lack of time to properly invest into the game; not only does this project require us to produce a game and a research report on top of several milestone presentations, we were also juggling this project with several other assignments from other university courses as well. This, unfortunately, led to our focus being diverted from the project and fractured among several other essay, development and art assignments as well. Essentially, we could not give Hullbound all the attention that it deserved due to the tight deadlines and workload brought about by the 3 other courses we were taking simultaneously. Personally, I think that we handled our time management as well as we could all things considered but there were definitely improvements that could have been made with better planning or communication.

On the subject of communication, our team's lack of proper communication with each other also led to a couple of mishaps throughout the development process. I was lucky enough that these issues did not affect me too much but it still did happen a couple of times; mostly, with our main programmer. As an assistant programmer, I elected to help out with certain smaller chunks of the code in order to lighten his workload but due to me not properly asking or confirming certain things, it accidentally led to work that needed some tweaking to work properly. One such example was when I was creating the

autoloader minigame; I had not realized that our main programmer wanted the tank's interior done with UI elements and accidentally designed it to work using game objects which required him to rework the code and remake the mechanic to change it. Another time was when I was working on the game's dialogue scripts and had not realized that some of them were already done beforehand, leading to redundant work that was not going to be used and effectively wasted my time because I did not think to ask. Essentially, I learnt that proper communication and documenting of the work done is an incredibly important aspect of project planning that when ignored, leads to disastrous consequences.

Lastly, one of the biggest challenges we faced when developing Hullbound was reining in the team's ambition when it came to certain aspects of its design. As mentioned previously in the limitations section, there were many mechanics and design elements planned for the game that did not make it to the final release. This overambition led to us working on mechanics and ideas that we had no time to feasibly implement without major sacrifices and it shows in places. Thus, we learnt as a group that project scope is a critical element to figure out and properly consider before starting a project; it is easy to be overambitious but being realistic is the mark of a truly disciplined game developer. Another important lesson that we learnt is the art of the pivot; that is to say, when things go awry thanks to ambition or other setbacks, being agile and flexible is an important skill to have. One should not be afraid to change the design away from the original intentions if it can lighten the workload and speed up the development process as long as it does not severely harm the game's design.

6.0 CONCLUSION

Hullbound is a game that tackles a lot of heavy themes of war, allegiance and propaganda; all layered underneath the intense combat-focused tank gameplay. It is a game that blends action with story and aims to appeal to a player's animalistic instincts as much as it wants to appeal to the heart as well. It is a juxtaposition that mirrors the truth behind the real life wars happening in our world as well.

To conclude, I would like to say that it has been a pleasure creating this project as my final assignment within Universiti Tunku Abdul Rahman. Hullbound is a special game as it is the culmination of all of my work for the past 3 years, not just from a standpoint of technical skill but also the connections and friendships I've made along the way. In the end, my team and I have made a unique product that tested my current technical abilities and the resolve I had to see this through to the end. For that, I am eternally grateful.

Along the way of finishing up the game and this research paper, there were certainly challenges and stumbles; however, thanks to the support of my friends and lecturers, we managed to work things out and keep things rolling. The final game, while certainly not perfect, has a unique premise and months of passion and love poured into it. It has certainly been an amazing learning experience for me that I will forever cherish for the rest of my game development career, and something that will forever change the way I see game development moving forward.

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8.0 APPENDICES

8.1 LOGBOOK

Project Paper Consultation Logbook	
Project Title	HULLBOUND
Student Name	LEE KANG
Student ID	2204332
Year/Semester	Y3S1
Supervisor	Mr. SIMON ANG KOK YEW

WEEK 01	
Comments: Formed a group with the name Spaghetti Code: Lai Wei Jay, Lee Kang, Then Yee Hen, Yap Mei Ying Started brainstorming ideas for our game proposal: - ***Hullbound***, a game where you are a gunner in a tank during a war when a nuclear bomb gets detonated. You and your crew must fight to survive the aftermath. - ***There is nothing in this cave worth dying for***, you find an artifact in a cave and are now stuck inside its walls. You must solve puzzles and find items deeper in the cave to find a way out; all while a monster is chasing after you.	**Supervisor signature:** 
Progress (please circle the feedback) 1 2 3 4 5 Poor Satisfactory Good	**Date:**
WEEK 02	

Comments:	**Supervisor signature:**
Consulted with our supervisor over our game ideas; ***Hullbound*** was the preferred choice of the two. Also received some advice regarding the story and sound design for the game. Started creating our proposal presentations for both of our game ideas. I am placed in charge of ***There is nothing in this cave worth dying for***'s proposal pitch. Fleshed out the game's core concept and story a bit more; including what the artifact is and the lore behind it and the caves. Proposal elements that are finished: - Game Introduction - Genre, Theme and Gameplay - Game Background I have also sent Mei Ying art references and concepts for her to use for concept art. We had a group discussion over which game we would eventually choose (if both proposals are approved by our supervisors), ***Hullbound*** won the vote. We spent the rest of the meeting elaborating more on the game in terms of gameplay and story.	
Progress (please circle the feedback) 1 2 3 4 5 Poor Satisfactory Good	**Date:**

WEEK 03	
Comments: Continued working on the game proposals: - Target Market - Market Research - System Requirements - Unique Selling Points	**Supervisor signature:** 

Discussed with group to create Gantt Chart and budget plans	
Progress (please circle the feedback) 1 2 3 4 5 Poor · Satisfactory Good	**Date:**
WEEK 04	
Comments: Decided on an individual research topic: *The Impact of Sound Design on Player Immersion* Presented our two proposals during FYP consultation and explained our intentions for our game: - **Hullbound** was officially chosen as our FYP assignment - Got feedback on our proposal; mainly in regards to project scope and gameplay mechanics	**Supervisor signature:**
Progress (please circle the feedback) 1 2 3 4 5 Poor Satisfactory Good	**Date:**

WEEK 05	
Comments: Elaborated on the previously decided roles and gameplay concepts with the whole group: - Solidified game map and flow of level - Expanded on the gameplay loop, involving minigames and mechanics when within the tank's interior - Further brainstorming on the story and events that could occur during gameplay - Delegated starting tasks for every member; mine is to write the dialogue for the game's story	**Supervisor signature:**

Created a GitHub repository for the whole group to work on the project together.	
Progress (please circle the feedback) 1 2 3 4 5 Poor Satisfactory Good	**Date:**

WEEK 06

Comments: Had a discussion with teammates about the story direction and dialogue of the game: - Suggested certain changes to the story flow as well as events to portray the enemy as a larger threat to the player - Solidified the backstory of the game and the plot events during the game's campaign - Discussed important information that should be relayed to the player during each dialogue section Started work on the story dialogue: - Tutorial - Area 1: The Oder River	**Supervisor signature:**
Progress (please circle the feedback) 1 2 3 4 5 Poor Satisfactory Good	**Date:**

WEEK 07

Comments: Implemented Ink *(dialogue plugin)* into the game project files. - Created the dialogue UI element & associated scripts - Created a prototype for the cutscene system to be used later on *(currently only used to display text but can support images in later builds)* - Implemented dialogue for the tutorial Continued work on the dialogue: *(Had to map out the dialogue branches and choices)*	**Supervisor signature:**

- Area 1: The Oder River	
Progress (please circle the feedback) 1 2 3 4 5 Poor . Satisfactory Good	**Date:**

Project Paper Consultation Logbook	
Project Title	HULLBOUND
Student Name	LEE KANG
Student ID	2204332
Year/Semester	Y3S2
Supervisor	Mr. SIMON ANG KOK YEW

WEEK 01	
Comments: Had a discussion before the semester with groupmates discussing the work to be finished and delegated the remaining tasks. - I was given **3D modelling and UI Design** duties & Jay took over **dialogue writing** Started work on the first batch of **3D models** for the game: - Tank Turret - Pillboxes - Dirt Mounds Finished modelling and texturing.	**Supervisor signature:**
Progress (please circle the feedback) 1 2 3 4 5 Poor Satisfactory Good	**Date:**

WEEK 02

Comments:	**Supervisor signature:**
Continued working on **3D models** for the city level. - 2 types of apartment complexes - Autobahn Roads *(straight & bent)* Finished modelling and texturing.	
Progress (please circle the feedback) 1 2 3 4 5 Poor Satisfactory Good	**Date:**

WEEK 03

Comments:	**Supervisor signature:**
Assisted in coding the **dialogue manager** properly with implementation of player choices and the Inkle plugin Began work on the book UI by creating a **book manager** script that allows players to check different sections and flip through different pages and started preparing the individual book pages on an Illustrator project *(also drew the open book background sprite)*	
Progress (please circle the feedback) 1 2 3 4 5 Poor Satisfactory Good	**Date:**

WEEK 04	
Comments: Using the art assets and writing sent by Jay, created the **individual pages** of the book in Photoshop and implemented them in the game with the book manager Sketched concept art of the **tank scope HUD**; involving different ammo types and energy rerouting indicators Began working on the **FYP research report** and pivoted my topic to "The Impact of Music on Player Immersion within Story-driven Games" to better reflect current role. - Worked on the introduction & basic outlining	**Supervisor signature:**
Progress (please circle the feedback) 1 2 3 4 5 Poor Satisfactory Good	**Date:**

WEEK 05	
Comments: Created the **tank scope HUD** using Illustrator and added it into the game - Had a meeting with Yee Hen to discuss its implementation and connecting it to his code Continued work on the **research report**, finishing Chapter 1 which discusses the game overview *(Game Summary, Art, Story, Budget, Tools used, etc…)*	**Supervisor signature:**
Progress (please circle the feedback) 1 2 3 4 5 Poor Satisfactory Good	**Date:**

WEEK 06	
Comments: **Recorded the callout sounds** during combat with the group at the audio lab in UTAR; I was the technical operator who managed the digital audio workstation *(DAW)*.	**Supervisor signature:** 
Progress (please circle the feedback) 1 2 3 4 5 Poor Satisfactory Good	**Date:**

WEEK 07	
Comments: Worked on the **autoloader minigame system** by programming the system of placing the charge and ammunition into their slots to determine what ammo is loaded - Had a meeting with the team to discuss the system and concluded that it needed to be reworked - Changed the system to a simply clicking to reload Started work on the **music soundtrack** for the game; had several back and forth's with Jay about the musical direction of the game and trying to pinpoint a central theme. Made the calm theme for the **game's soundtrack** *(aka the music that plays when out of combat)*	**Supervisor signature:** 
Progress (please circle the feedback) 1 2 3 4 5 Poor Satisfactory Good	**Date:**

WEEK 08

Comments:
Back to **3D modelling** for the City level:

- Worked on 7 variants of German housing
- Dirt mounds
- Lamp posts & speaker poles

Modelled, UV mapped & textured

Made the tension theme for the **game's soundtrack** *(aka the music that plays when ramping into combat)*

Supervisor signature:



Progress (please circle the feedback)

1 2 3 4 5

Poor Satisfactory Good

Date:

WEEK 09

Comments:
More **3D modelling**:

- Destroyed variants *(about 7)* of the houses and pillboxes
- Road bridge for Autobahn section

Modelled, UV mapped & textured

Received the final dialogue from Jay for the Autobahn to the city and started **importing the dialogue** into Inkle files to be used in the dialogue scripts *(being mindful of tags and player choices)*

Supervisor signature:



Progress (please circle the feedback)

1 2 3 4 5

Poor Satisfactory Good

Date:

WEEK 10	
Comments: Final **3D model**; the consulate building. Took 2 days alone just to model this and texture it. Received the art assets for the **autoloader carousel** and replaced the placeholder sprites with the final ones Continued work on the **research report**. Started work on Chapters 2 & 3, literature review and methodology.	**Supervisor signature:**
Progress (please circle the feedback) 1 2 3 4 5 Poor Satisfactory Good	**Date:**

WEEK 11	
Comments: Continued **implementing the dialogue** into the game; specifically the endings. Mostly did the **research report**; continued doing the methodology and implementation. (If you ever put a questionnaire put it here) Made the combat theme for the **game's soundtrack** *(aka the music that plays when in combat)*	**Supervisor signature:**
Progress (please circle the feedback) 1 2 3 4 5 Poor Satisfactory Good	**Date:**

WEEK 12

Comments:

UI Implementation .

- Worked on UI menus (Main Menu, Settings & Credits) scripts; especially **the Settings**, handling sound sliders and visual options
- Created menu design sketches for Mei Ying to reference when drawing the menu art

Supervisor signature:



Progress (please circle the feedback)

1 2 3 4 5

Poor Satisfactory Good

Date:

WEEK 13

Comments:

Had a meeting with Mei Ying about the art direction for **promotion materials** and designed some of the ones required for the exhibition:

- Group Logo
- Business Cards

Continued working on the **research report**, implementation and discussion.

Supervisor signature:



Progress (please circle the feedback)

1 2 3 4 5

Poor Satisfactory Good

Date:

WEEK 14	
Comments: Completed work on the **presentation** slides for the final beta **demo showcase**: - Introduction to the Game - Premise & Gameplay Received approval from lecturers and prepared the files for printing and **printed** the business cards & posters for the exhibition at ArchPrint. Had a meeting to prepare the beta game build for the demo showcase. - Finished some story scripts *(mainly cutscenes)* - Playtested for bugs and glitches	**Supervisor signature:**
Progress (please circle the feedback) 1 2 3 4 5 Poor Satisfactory Good	**Date:**

WEEK 15	
Comments: Presented the game during the **demo showcase** and got feedback from lecturers. - I presented the challenges faced and lessons learnt section Had a **final discussion** as a group about the **finishing touches** on our game. Based on the lecturer's feedback, added new features to the game such as a greater focus on the story through more character interactions and sprite animations. - Implemented the new dialogue written into Inkle files	**Supervisor signature:**
Progress (please circle the feedback) 1 2 3 4 5 Poor Satisfactory Good	**Date:**

8.2 QUESTIONNAIRE FORM

Final Year Project Research Project: The Impact of Music on Player Immersion within Story-driven Games

Hello, my name is Lee Kang and I am a Game Design student currently taking my final year project in University Tunku Abdul Rahman. My research assignment is regarding how music affects player immersion within the story of video games; specifically, how certain qualities of music can affect different facets of player immersion, like engagement, emotional resonance and mental models of game worlds.

This survey comprises of **4 sections** and a total of **XX questions**. I would like to invite you to participate in this survey to acquire the necessary data for my research.

Responses are recorded anonymously and will be used strictly for academic purposes only.

Thank you!

* Indicates required question

1. I have read and understood the terms above. *

   I voluntarily agree to participate in this survey, and I understand that my responses will remain anonymous, confidential, and used solely for academic purposes.

   Mark only one oval.

   - ◯ Yes, I consent.

Demographics

2. How often do you play video games? *

   Mark only one oval.

   - ◯ Never
   - ◯ Rarely
   - ◯ Sometimes
   - ◯ Often

3. Are you a fan of story-driven video games? *
(Games that focus on story and narrative over gameplay, i.e. The Last of Us, Detroit: Become Human, Firewatch, Disco Elysium)

Mark only one oval.

- ◯ Yes
- ◯ Neutral
- ◯ No

4. In your opinion, how interested are you in music in general? *

Mark only one oval.

	1	2	3	4	5	
Not	◯	◯	◯	◯	◯	Interested

5. Are you a fan of video game soundtracks? *

Mark only one oval.

- ◯ Yes
- ◯ Neutral
- ◯ No

Immersion in Story-Driven Games

Immersion is the state in which a player feels if they are genuinely "inside" a game world, where they are so focused on the actions and outcomes of a game's world that they temporarily lose their sense of self-consciousness and perception of reality.

6. I believe that player immersion is a very important factor to my enjoyment of a game. *

Mark only one oval.

	1	2	3	4	5	
Stro	◯	◯	◯	◯	◯	Strongly Agree

7. I can feel more immersed in a game when I can resonate emotionally with the narrative and characters. *

Mark only one oval.

	1	2	3	4	5	
Stro	◯	◯	◯	◯	◯	Strongly Agree

8. I believe emotional resonance (how the world makes you feel) is more important than detail of the worldbuilding in creating player immersion. *

Mark only one oval.

	1	2	3	4	5	
Stro	◯	◯	◯	◯	◯	Strongly Agree

9. I believe that immersion is strongest when I feel that the game world is reacting dynamically to my actions as a player. *

Mark only one oval.

	1	2	3	4	5	
Stro	◯	◯	◯	◯	◯	Strongly Agree

Music and Immersion pt. 1

This section aims to acquire a better understanding of the important qualities of music that lead to player immersion.

10. I believe that music has a strong impact on my immersion in a game. *

Mark only one oval.

	1	2	3	4	5	
Stro	◯	◯	◯	◯	◯	Strongly Agree

11. The soundtrack of a game has enhanced my enjoyment of its story in the past *(whether it be during gameplay or a cutscene)*. *

Mark only one oval.

	1	2	3	4	5	
Stro	◯	◯	◯	◯	◯	Strongly Agree

12. Games can utilize music to create a unique and immersive identity that benefits the narrative. *

Mark only one oval.

- ◯ I agree.
- ◯ I disagree.

13. Music and soundtracks in video games have made me feel emotional before. *

Mark only one oval.

	1	2	3	4	5	
Stro	◯	◯	◯	◯	◯	Strongly Agree

14. When you think of your favourite soundtracks in games, what parts of the music usually comes to mind? *(choose 2)* *

Tick all that apply.

- [ ] Tempo/Rhythm (how fast the song is)
- [ ] Instruments (i.e. organic instruments vs electronic)
- [ ] Melody/Harmony
- [ ] Timbre/Production (the song's tone and how it's produced)
- [ ] Structure/Arrangement
- [ ] Genre (the style of music)

15. In your opinion, what parts of music have elicited the greatest emotional response from you? *(choose 2)* *

Tick all that apply.

- [ ] Tempo/Rhythm (how fast the song is)
- [ ] Instruments (i.e. organic instruments vs electronic)
- [ ] Melody/Harmony
- [ ] Timbre/Production (the song's tone and how it's produced)
- [ ] Structure/Arrangement
- [ ] Genre (the style of music)

Music and Immersion pt. 2

This section aims to acquire a better understanding on how manipulating musical qualities can affect the immersion of a game.

16. A track's energy has directly led to my own mood changing during a game. *(For example, feeling pumped up during a fast song, or feeling mellow during a slow song)* *

Mark only one oval.

	1	2	3	4	5	
Stro	◯	◯	◯	◯	◯	Strongly Agree

17. I believe that the instruments used in a game's soundtrack play an important part to how the player relates to the world. *(For example, a game using an 8-bit soundtrack vs an orchestra can make everything feel different)* *

Mark only one oval.

	1	2	3	4	5	
Stro	◯	◯	◯	◯	◯	Strongly Agree

18. I have felt that the melody of a song can change how I feel about a game experience. *(For example, sad melodies make scenes feel sadder)* *

Mark only one oval.

	1	2	3	4	5	
Stro	◯	◯	◯	◯	◯	Strongly Agree

19. I have noticed that the production of a song has influenced my emotions in gaming. *(For example, aggressive/distorted sounds vs clean sounds)* *

Mark only one oval.

	1	2	3	4	5	
Stro	◯	◯	◯	◯	◯	Strongly Agree

20. The way a song is structured influences the way I approach the narrative. *(For example, songs with repeating hooks vs songs with different sections that don't repeat)* *

Mark only one oval.

	1	2	3	4	5	
Stro	◯	◯	◯	◯	◯	Strongly Agree

21. A song's genre can evoke vivid emotional responses within me. *

Mark only one oval.

	1	2	3	4	5	
Stro	◯	◯	◯	◯	◯	Strongly Agree

22. Tick the qualities that have drawn you out of your immersion while playing video games *(if any)*.

Tick all that apply.

- [ ] Inappropriate energy for the current mood
- [ ] Strange instrument choices that are incongruent with setting
- [ ] Unpleasant melodies or harmonies
- [ ] Poorly produced tracks
- [ ] Meandering or reptitive structure
- [ ] Strange or unpleasant genre choice

23. I believe that these qualities of music can be affect how the player experiences a game's narrative. *

Mark only one oval.

	1	2	3	4	5	
Stro	◯	◯	◯	◯	◯	Strongly Agree

Thank you for finishing the close-ended questions.

I would like to thank you for providing your input for my research. This data will prove invaluable for my research project.

You are welcome to continue answering the open-ended questions or feel free to simply submit the form now.

Thank you!

24. Would you like to answer the open-ended questions? *

Mark only one oval.

- Yes *Skip to question 25*
- No

Open-ended Questions

Please answer the following questions in the form of a short paragraph.

25. Please describe a moment in a video game where the soundtrack stood out to you? Why did it stick out? *

26. Was there ever a moment in a game's story where you felt that the music enhanced the narrative? Elaborate. *

27. Has there ever been a moment where you felt that a game's soundtrack was holding back your enjoyment? Please describe that experience. *

28. Elaborate on a time where a game's soundtrack has immersed you into its setting before. *(Not just stood out to you, but made you feel like you were in the game's world)* *

Thank you for answering the open-ended questions!
This is the end now, for real.

8.3 FINAL PROJECT TITLE FORM

Project Type:

✓ Product Based Project

Research Based Project

Student Name	Student ID	Email & Contact no
Lai Wei Jay	2305701	jaylai@1utar.my 016-986 3986
Lee Kang	2204332	foustringedguitar@1utar.my 010-365 0220
Then Yee Hen	2205069	alistair@1utar.my 018-281 6733
Yap Mei Ying	2204775	zasper@1utar.my 018-383 0883

Supervisor: Dr. Ang Kok Yew

Project Title: Hullbound

Project Description:

Hullbound is a psychological horror tank simulation, story-driven game. It blends the action gameplay of tank combat with an emotional tale about war. The core theme of the narrative focuses on the conflict between duty and morality, the deterministic cycle of war, and manipulation of truth through propaganda. Our aim of the game is to instill the feeling of hopelessness, dread and despair brought on by the horrors of war through an immersive visual auditory design. Whereby many video games and popular media tend to romanticize, generalize or glorify war, our game instead will not be downplaying the sheer brutality that soldiers and civilians may face during war.

Student Name	Individual Project Scope
Lai Wei Jay	**Lead Narrative & UX Designer** - Designed the narrative, dialogues, scripted events, - Designed the level, enemy placements, asset & environmental placements & details - Designed the SFX, voice acting & VFX
Lee Kang	**Technical Artist & Programmer** - Created 3D assets and props - Designed and programmed UI menus - Assisted lead programmer with dialogue implementations
Then Yee Hen	**Lead Programmer** - Programmed enemy AI behaviour - Programmed tank mechanics, movement & combat - Implemented scripted events & game logic
Yap Mei Ying	**Lead 2D Artist** - Designed main menu, UI, characters, enemy sprites & promotional materials

8.4 PERMISSION SHEET

FACULTY OF CREATIVE INDUSTRIES

UNIVERSITI TUNKU ABDUL RAHMAN

Date: 20 May 2026

PERMISSION SHEET

It is hereby certified that Lee Kang (ID No: 2204332) has completed this final year project and thesis entitled "The Impact of Music on Player Immersion within Story-driven Games" under the supervision of Ts Dr Ang Kok Yew (Supervisor) from the Department of Game Studies, Faculty of Creative and Industries, and Ms Chow Mee Mooi (Co-Supervisor) from the Department of Game Design, Faculty of Creative and Industries.

I hereby give permission to the University to upload a softcopy of my final year project and thesis in pdf format into UTAR Institutional Repository, which may be made accessible to UTAR community and public.

Yours truly,



Lee Kang