

The Effect of Low-Poly 3D Art Style on Player Immersion and Performance

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Bachelor of Art (Honours) Game Design

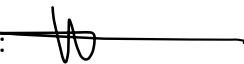
Faculty of Creative Industries

Universiti Tunku Abdul Rahman

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Declaration

I, Wong Teck Tean declare that this thesis report entitled “The Effect of Low-Poly 3D Art Style on Player Immersion and Performance” is my own original work except for the citation from the references. The report has not been accepted or submitted to any party and will only be submitted to Degree of Bachelor of Arts (Honours) Game Design under the University Tunku Abdul Rahman.

Signature: 

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Date: 1.10.2025

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Abstract

Crescent Bay is a 3D first-person fishing simulation and casual adventure game developed using the Unity game engine. The game combines fishing, resource collection, shop management, exploration, and light combat mechanics within a stylized low-poly coastal environment.

Players take the role of a protagonist who inherits a fishing business from his late uncle after being invited to Crescent Bay by his cousin, Lisa. Starting with basic equipment and a small raft, players must earn money and reputation by catching and selling fish while gradually improving their fishing skills and equipment.

This game features a low-poly art style, which makes the game run more smoothly while maintaining the player's immersion and engagement. To achieve these advantages, the game will maintain a consistent visual style and a simplified environment and interface structure, allowing players to remain immersed without distractions and ensuring optimal gameplay performance. Crescent Bay's game area is located in a coastal town with beautiful beaches, iconic lighthouse buildings, and European style shophouses and harbor streets, all complemented by soft and bright colors to create a relaxed atmosphere for the game. This allows players who enjoy casual games to immerse themselves in the experience.

Table of Contents

1.0 Project Introduction	8
1.1 Project Overview	8
1.2 Research Background.....	8
1.3 Problem Statement.....	8
1.4 Research Objectives	9
1.5 Research Questions	9
1.6 Research Hypotheses.....	9
1.7 Scope of Study	10
2.0 Literature Review.....	10
2.1 Player Immersion in Digital Games.....	10
2.2 Visual Art Style in Game Design.....	11
2.3 Low-Poly 3D Art Style	11
2.4 Player Performance in Games.....	11
2.5 Comparative Case Studies.....	12
2.5.1 ABZÛ (2016)	12
2.5.2 Raft (2022)	12
2.5.3 Comparative Insights	13
2.5.4 Comparative Insights Summary Table	13
3.0 System Specification	14
3.1 Game System Specification.....	14
3.1.1 Introduction	14
3.1.2 Fishing Mechanics	14
3.1.3 Fish Selling System	15
3.1.4 Exploration System.....	16
3.1.5 Combat Mechanics	17
3.1.6 NPC Task System	17
3.1.7 Game Flow Architecture.....	17
3.1.8 Hardware Tools Specifications	23

3.1.9 Software Development Tools.....	23
4.0 Design/Implementation	24
4.1 Art Direction	24
4.1.1 Visual Style.....	24
Style References	24
4.1.2 Characters.....	25
4.1.3 Environment Design	31
4.1.4 User Interface Design.....	36
4.1.4.1 Main Menu Design	37
4.1.4.2 In-Game HUD Design.....	37
4.1.4.3 Shop Interface Design	38
4.1.4.4 Pause Menu Design	40
5.0 Research Methodology.....	40
5.1 Research Design	40
5.2 Game Prototype Development	40
5.3 Participants	41
5.4 Data Collection Methods	41
5.4.1 Questionnaire	41
6.0 Questionnaire Results	42
6.1 Demographic Information	42
6.2 Player Immersion & Visual Experiences	45
6.3 Section C: Game Performance Experience	49
7.0 Discussion & Conclusion	52
7.1 Interpretation of Findings.....	52
7.2 Future Directions	52
7.3 Conclusion.....	53
8.0 References.....	53
9.0 Appendices	54
9.1 Appendix A – Logbook	54

9.2 Appendix B – Survey (Google Form)	66
9.3 Appendix H.....	73

1.0 Project Introduction

1.1 Project Overview

Thanks to technological advancements, many gaming devices and hardware have seen significant improvements, resulting in more realistic and immersive visual experiences. Regarding visual quality, current devices are capable of rendering high-quality graphics or high-poly 3D assets without needing to reduce the poly count of 3D assets for performance optimization. This greatly simplifies game development, and we've recently seen many indie game developers creating high-quality visuals. This research project was conducted for a 3D fishing simulation and casual game called “Crescent Bay”, which uses a low-poly 3D art style. Therefore, this study investigates the impact of low-poly art style on player immersion and game performance.

Crescent Bay is a 3D first-person simulation, casual and management game focused on fishing, management and selling fish gameplay. This game is developed by the Unity game engine and features low-poly models and consistent visual aesthetics. We understand that high-quality game models and visuals are crucial for the player's gaming experience, but time constraints prevent the use of extended periods for creating high-poly models and high-quality visuals. Therefore, this final year project involves a study to evaluate how the chosen low-poly art style affects player immersion and their performance during gameplay.

1.2 Research Background

In the gaming world, many players prefer high-quality visuals because they provide an immersive gaming experience. However, this doesn't mean that visual quality is more important than game mechanics. The reason is that many players cannot afford expensive high-performance PCs to enjoy high-quality games. But some games don't need high-quality visuals and can still be enjoyable through gameplay mechanics alone. For example, as (Addo, A., 2017) points out, many indie game developers neglect high-quality visual art because it's too costly, they rather not hiring 3D artists and designers to save money and time. Therefore, they compensate for visual shortcomings by focusing on engaging game mechanics and finding various ways to do so.

1.3 Problem Statement

In this era, many games have developed high-quality graphics and realistic visual effects, and most players believe that high-poly visual art is the only way to bring a sense of immersion to the game. However, realistic graphics usually require high computing power, which may lead to

device overheating and performance degradation, resulting in lag and affecting the immersive gaming experience.

Games using a low-poly art style can improve performance and enhance the gaming experience through interesting mechanics, but whether the immersive experience can be maintained remains controversial.

1.4 Research Objectives

- a) To implement a consistent low-poly visual art style to achieve simplicity, clarity, and performance efficiency in Crescent Bay.
- b) To evaluate the effect of low-poly 3D art style on player immersion during gameplay.
- c) To analyze player performance such as gameplay efficiency and responsiveness in a low-poly game environment.

1.5 Research Questions

- a) How does a low-poly 3D art style affect player immersion in a simulation game environment?
 - This study is based on player feedback after game interaction and experience and aims to determine whether low-poly visuals maintain or reduce player immersion in the game.
- b) Does the use of low-poly 3D visuals influence player performance during gameplay?
 - This study uses player data from the game to analyze and evaluate whether low-poly art style affects or improves player performance, such as recognition and comprehension speed.

1.6 Research Hypotheses

The hypothesis is the relationship between low-poly 3D visual art, player's immersion, and gameplay performance on research questions.

- a) How does a low-poly 3D art style affect player immersion in a simulation game environment?
 - People don't need incredibly realistic visuals to achieve an immersive experience. Even childhood cartoons can create a sense of immersion by attracting viewers through artistic design. Low-poly art style, through artistic consistency, dreamlike environmental design, and reduced visual distractions, can still provide an immersive gaming experience.

- b) Does the use of low-poly 3D visuals influence player performance during gameplay?
- Low-poly art style represents a simplified visual environment, providing clearer object layouts and improving player recognition agility, task completion efficiency, and interaction response speed. In addition, poor game and device performance and lag issues directly impact player performance. However, low-poly art style is widely recognized as a method to improve game stability without interfering with the player's immersive experience.

1.7 Scope of Study

- a) Target participants
- The target participants are casual gamers and students aged 15 to 29, as they are a very active age group when it comes to games, especially girls, who tend to prefer casual games rather than complex and violent ones.
- b) Platform
- Crescent Bay develop in single-player game for the PC platform using the Unity game engine and it's not designed for mobile or console platforms.
- c) Game Genre and Design Scope
- Crescent Bay game genre focuses on fishing, resource management, and sales mechanisms and it plays as a first-person perspective.
- d) Visual Scope
- Crescent Bay focuses on low-poly 3D art style and does not apply any high-poly and realistic assets.

2.0 Literature Review

2.1 Player Immersion in Digital Games

Immersion is a key indicator of a game's quality for players. Existing research suggests it's an experience that immerses players in the game's virtual world (Keywords, 2026). When a game provides optimal immersion, players' attention is focused on the game world, while the sense of reality gradually fades.

It has several different states:

- Engagement - Players are focused and find the game experience enjoyable.
- Engrossment - As real-world distractions decrease, players' emotional investment deepens.

- Complete Immersion (or Presence) - Players feel truly "present" in the game world, blurring the lines between virtual and reality.

2.2 Visual Art Style in Game Design

Visual art style influences the visual appeal of a game and determines its genre. For example, early 8-bit pixelated games evoked nostalgia in players and offered easy-to-learn game worlds. Modern games, on the other hand, often blur the lines between reality and virtuality with realistic graphics, creating immersive experiences (Artola, 2024).

The Key Visual Styles in Video Games include:

- Pixel Art
- 3D Realism
- Cel-Shading
- Isometric / Tilt-Shift
- Low Poly Art
- Hand-Drawn & 2D Animation

2.3 Low-Poly 3D Art Style

The low-poly 3D art style uses textures to mask low-poly, low-detail models to achieve a minimalist style. It is both economical and time-saving, and also give games unique designs and excellent performance (Razinkova, 2025).

Its advantages include:

- Game Performance Optimization
- Simple and Recognizable Aesthetics
- Fast Production Cycles
- Perfect for Indie Games

2.4 Player Performance in Games

Player performance refers to a player's efficiency in a game. It's typically measured in time, such as task completion time, reaction speed, and cognitive abilities. Furthermore, overly complex graphics and low contrast can make it difficult for players to understand the game content.

Minimalist visuals, on the other hand, improve visual clarity and help players easily find their way within the game.

2.5 Comparative Case Studies

2.5.1 ABZÛ (2016)

Overview

ABZÛ is a beautiful underwater adventure and exploration game developed by Giant Squid. This game also uses a low-poly art style with beautiful atmosphere design to create an immersive experience. Following the journey of a diver exploring the ocean and restoring life using sonar calls, the gameplay allows the player to freely navigate underwater environments ranging from open water and natural caverns to ancient ruins.

Visual Art Style

The game clearly lacks realistic graphics and uses low-poly models. The vibrant colors and lighting create a relaxed and comfortable atmosphere and enhance the sense of immersion.

Immersion Design

ABZU's immersive experience stems from the fusion of various elements, such as environmental storytelling, sound effects, smooth animation, and a consistent and harmonious visual design.

Case Study Focus

This case study focuses on how ABZU simplified visual design and implement environmental consistency to achieve immersion experience for player without using realistic visual art style and high-poly assets.

2.5.2 Raft (2022)

Overview

Raft is a survival and sandbox video game developed by Redbeet Interactive. The game set on Earth in an endless ocean caused by climate change, players are placed on a small raft circled by sharks, and they must manage their hunger and thirst to survive. players can reel in debris floating in the ocean and use these materials to expand their raft into an expansive base, forge tools, make amenities to aid in survival, and create navigational equipment to explore islands throughout the gameplay experience.

Visual Art Style

Raft uses a middle-low-poly art style paired with vibrant colors and a clear environment. They also avoid being overly flashy in terms of visual texture, while maintaining their aesthetic appeal and consistency.

Immersion Design

Raft's immersive experience isn't achieved through realistic graphics, it relies on game exploration mechanics, environmental interaction, sound effects, and a management system.

Case Study Focus

This case study explored how simplified visual textures and the use of clean color schemes can enhance immersion in a game environment. The game also demonstrates that a simple visual style and consistent art style, combined with diverse gameplay mechanics, can still create player engagement and immersion.

2.5.3 Comparative Insights

Both ABZÛ and Raft employ similar methods, such as stylization and simplicity, to create an immersive atmosphere and sense of engagement. This demonstrates that immersion doesn't rely on realistic visuals but is achieved through a combination of design elements, such as art style, storytelling, and game mechanics. Therefore, this result further solidifies Crescent Bay's design direction.

2.5.4 Comparative Insights Summary Table

Game	Art Style	Immersion Method	Performance	Relevance to Crescent Bay
ABZÛ	- Stylized Art Style - Low-Poly	- Environmental storytelling - Harmonious atmosphere - Audio Effect	- Optimize recognition & readability - Optimize Performance	Support in implementing relaxing and immersion exploration
Raft	- Stylized Art Style - Middle Low-Poly	- Survival mechanic - Exploration - Environment interaction	- Optimize recognition & readability - Optimize Performance	Support in optimizing ocean environment and gameplay to improve player engagement

Table 2.5.4: Comparative Insights Summary Table

3.0 System Specification

3.1 Game System Specification

3.1.1 Introduction

This section mainly describes the main features and mechanics of Crescent Bay revolves around fishing, selling fish, earning rewards, upgrading equipment, exploring, and combat. Players can loop these gameplays every day in game. For example, preparing equipment and travelling to the sea to catch fish. After returning to the harbor, players can sell the fish they catch to earn money and fame points.

The rewards earned can then be used to upgrade better fishing rods, weapons, and boats, allowing players to access more dangerous sea zones containing rarer fish and valuable materials. Players can also accept tasks from NPC clients to gain additional rewards and progress through side-story content. This gameplay loop is designed to provide continuous progression while maintaining a relaxing and casual gameplay experience.

3.1.2 Fishing Mechanics



3.1.2 Fishing Mechanics (Mini Game)

Fishing is the primary gameplay mechanic in *Crescent Bay*. Players use fishing rods to catch different species of fish in various sea zones. At the beginning of the game, players receive a Level 1 Bamboo Fishing Rod.

To catch fish, players must cast the fishing rod into the water by clicking left mouse and wait for a fish to bite the bait. Once a fish is hooked, a Quick Time Event (QTE) mini-game appears. During the QTE sequence, players must control an indicator within a target area on a rail bar

using mouse input. When maintaining the indicator within the target area, it fills the catch progress bar until full to allow the player to catch the fish.

Different fishing zones contain different fish rarity levels:

- Zone 1 mainly contains 1-star fish
- Zone 2 mainly contains 2-star fish
- Zone 3 mainly contains 3-star fish

Higher rarity fish are more difficult to catch but provide higher selling value.

3.1.3 Fish Selling System



3.1.3 Fish Selling System

After fishing, players return to the fish shop located at Crescent Bay Harbor to sell their catches. Players interact with the cashier machine to begin the selling session.

During the selling process, customers place fish orders within a limited time period. Players must drag the correct fish from their inventory or fish tank inventory onto the cutting board before selling them. Successfully fulfilling orders rewards the player with money and fame points. The number of customer orders increases as the player gains more fame points.

Incorrect fish orders, dead fish, or rotten fish may result in penalties that reduce the player's earnings or reputation.

Fish freshness is also an important gameplay mechanic:

- Fish stored normally become dead fish on the next day
- Dead fish become rotten fish on the next day
- Fish placed inside the fish tank remain alive longer

3.1.4 Exploration System



3.1.4 Exploration System (Ocean Zone)

Players can freely explore the sea and nearby islands using boats. The world of *Crescent Bay* contains three sea zones arranged sequentially from the harbor outward.

Zone 1

Zone 1 is the safest area and is located closest to the harbor. This zone mainly contains common fish species (1-star) and minimal danger. However, seagulls may steal fish stored in the boat inventory.

Zone 2

Zone 2 contains stronger fish species(2-star), a small island with collectible materials, and shark attacks. Sharks may damage the player's raft while exploring the area.

Zone 3

Zone 3 is the most dangerous area in the game. This zone contains rare fish species(3-star), shark attacks, pirate patrol boats, and a large island occupied by pirates. Players may encounter combat situations while exploring this zone.

Exploration encourages players to upgrade their equipment in order to survive increasingly dangerous environments and obtain better rewards.

Resource Collection System

Players can collect materials from islands during exploration. The collectible materials include:

- Iron Ore
- Bauxite Ore
- Coal Ore

Collected materials are used for purchasing and upgrading weapons. Players may also sell collected materials to the weapon shop in exchange for additional money. This mechanic provides alternative methods for earning income and encourages exploration activities.

3.1.5 Combat Mechanics

Combat occurs during pirate encounters, harbor attack events, and side-story missions. Players can equip weapons to defend themselves against enemies. Available weapons include:

- Spear
- Pistol
- SMG

Pirate enemies patrol dangerous sea zones and attack the player when approached. The side-story boss battle contains multiple combat phases with increasing difficulty, requiring players to dodge attacks and find opportunities to counterattack.

3.1.6 NPC Task System

Players can interact with NPC clients located around Crescent Bay Harbor to accept optional tasks.

Tasks usually require players to:

- Catch specific fish
- Collect certain materials

Completing tasks rewards players with additional:

- Money
- Fame points

3.1.7 Game Flow Architecture

There is no fixed flow between the various game mechanics in Crescent Bay, players can choose what they want to do among the diverse game mechanics. However, there is also a specific flow for each individual game mechanic.

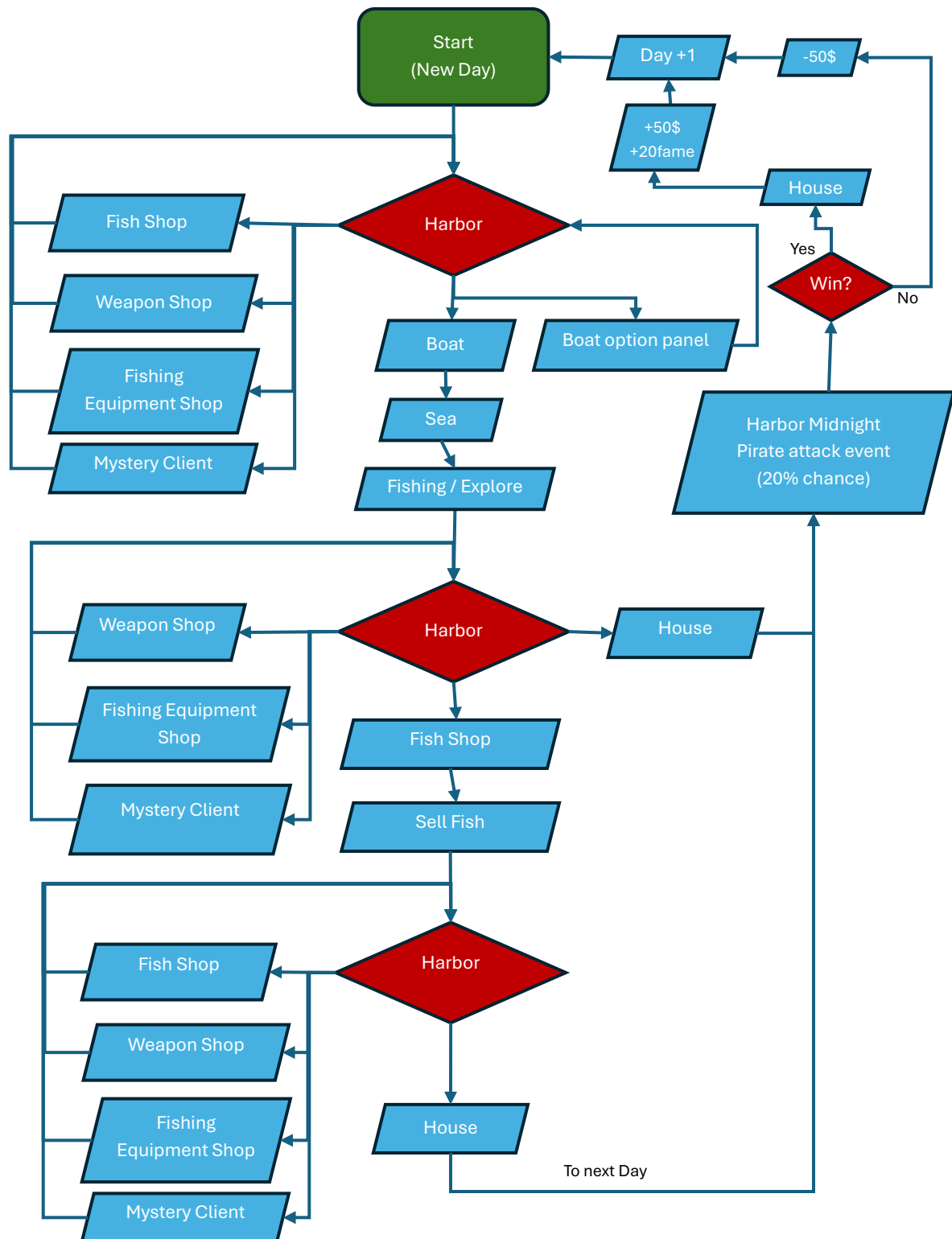


Figure 3.1.7.1: Game flow of a days

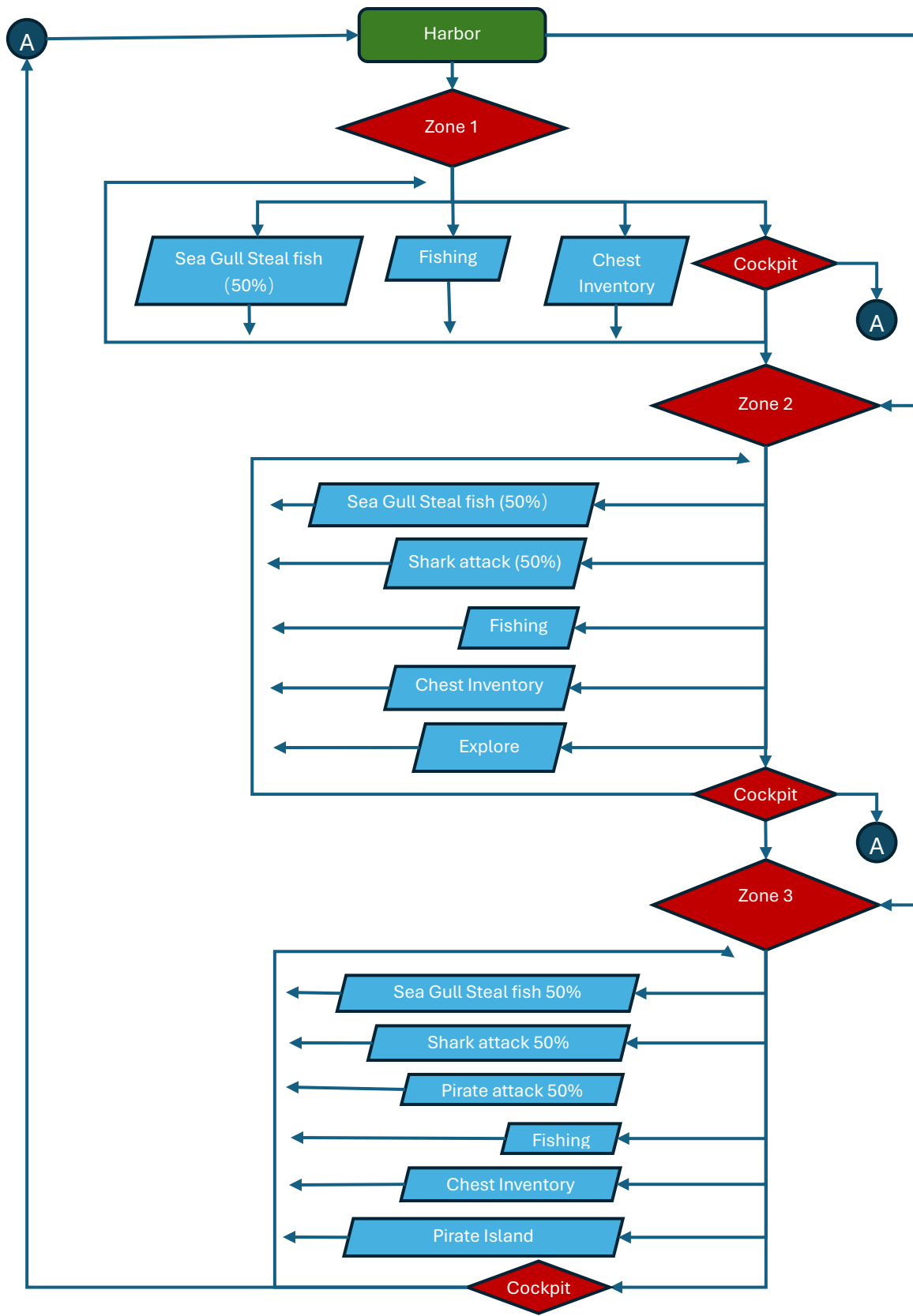


Figure 3.1.7.2: Flow on the ocean and Islands

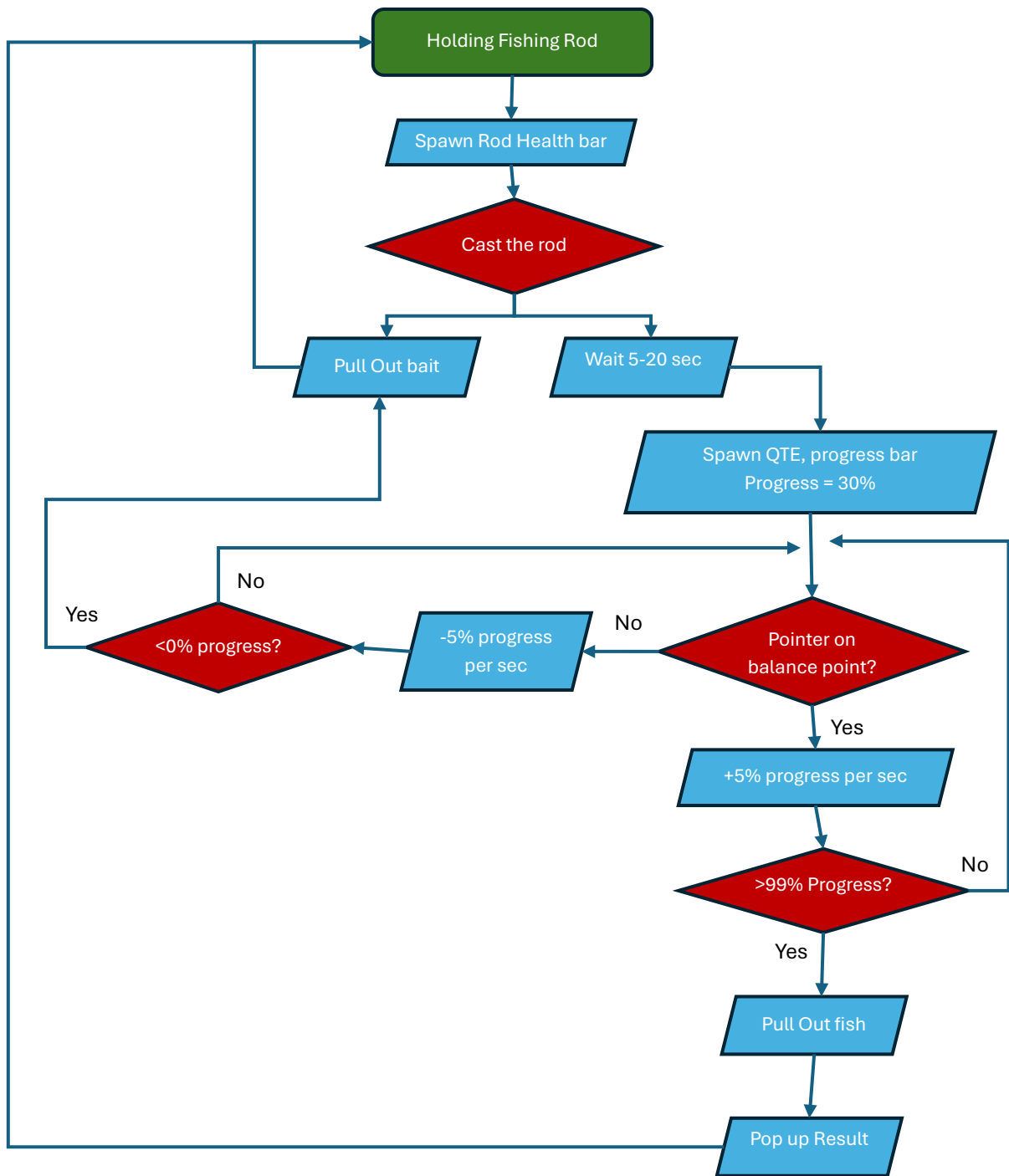


Figure 3.1.7.3: Fishing Flow

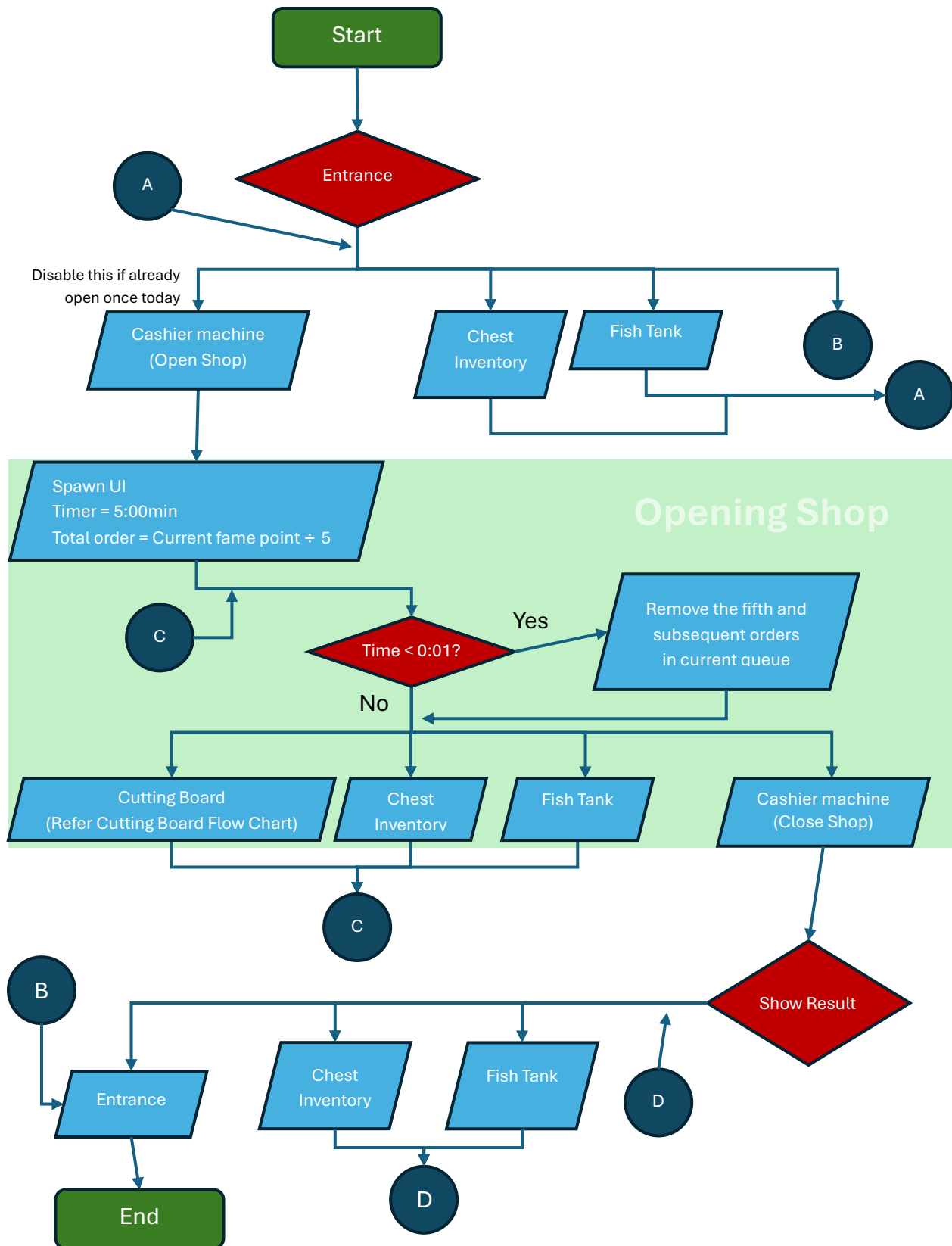


Figure 3.1.7.4: Fish Shop Scene Flow

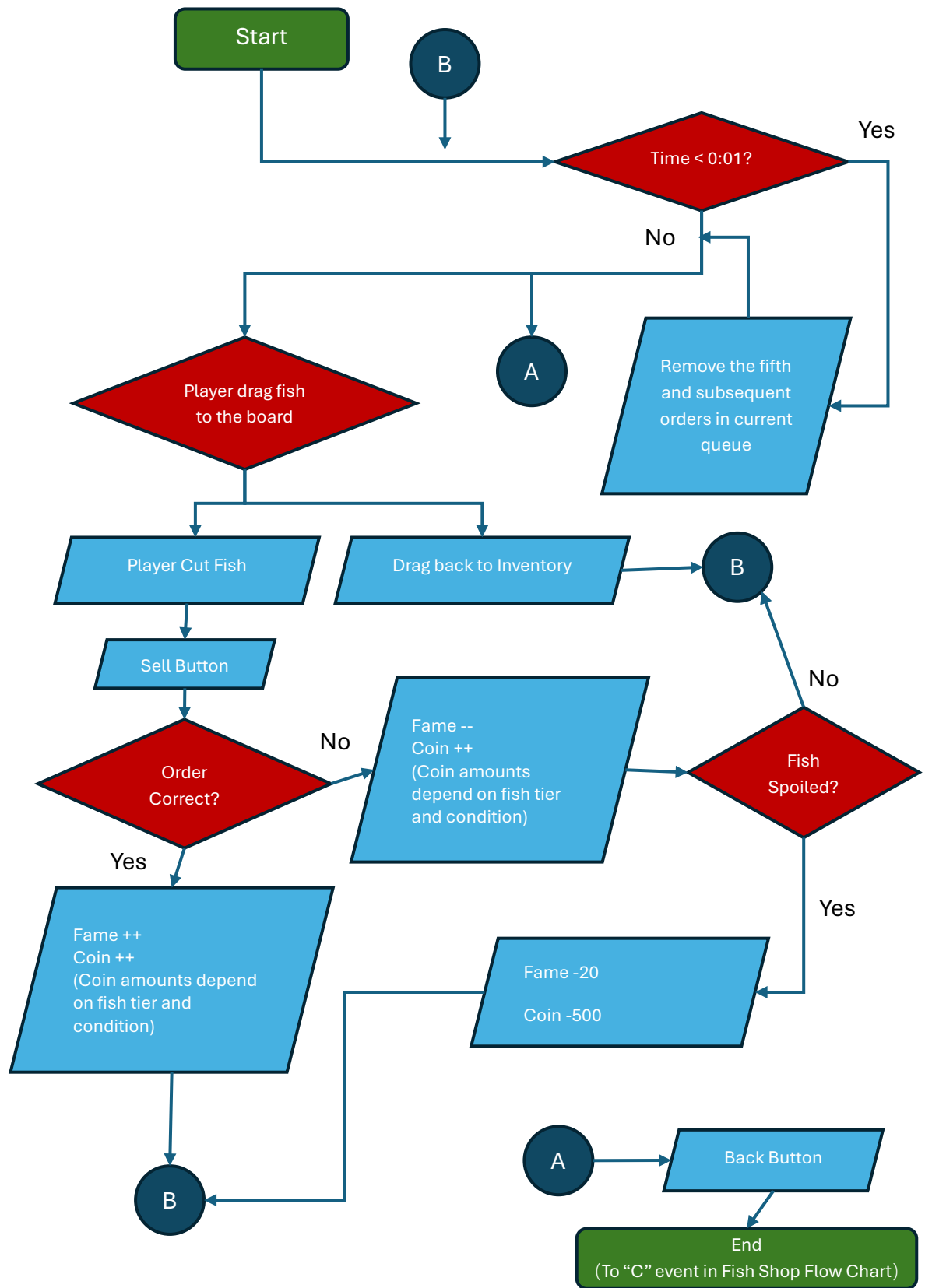


Figure 3.1.7.5: Selling Fish Flow

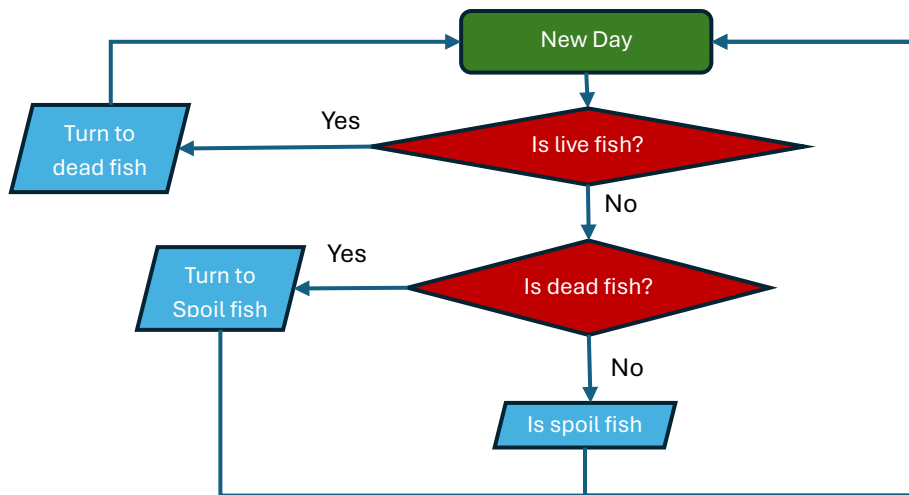


Figure 3.1.7.6: Inventory Flow for Fishes

3.1.8 Hardware Tools Specifications

Specification	Minimum	Recommended
OS	Windows 10 (64-bit)	Windows 10/11 (64-bit)
CPU	Intel i3 7th Gen	Intel i5 / Ryzen 5
RAM	8 GB	8 GB
GPU	Integrated Graphics	GTX 1050 or higher
Storage	2 GB HDD	5 GB SSD

Table 3.1.8: Minimum vs Recommended Specifications

3.1.9 Software Development Tools

Category	Tools / Platforms
Game Engine	Unity 3D
Art & Assets	Adobe Photoshop, Illustrator, 3Ds Max
Audio Editing	Adobe Premiere Pro
Version Control	GitHub
Communication	Discord, WhatsApp

Table 3.1.9: Development Toolchain

4.0 Design/Implementation

4.1 Art Direction

4.1.1 Visual Style



4.1.1.1: Overall Visual Art

Crescent Bay uses a low-poly 3D art style as the main visual direction of the game. The low-poly style was chosen to create a simple, stylized, and visually appealing environment while maintaining smooth performance on mid-range hardware devices.

The game combines bright colors, simplified geometric models, and stylized textures to create a relaxing and immersive atmosphere suitable for casual simulation gameplay. Compared to realistic graphics, the low-poly visual style helps reduce visual complexity while still maintaining environmental detail and player immersion.

Style References

This visual design direction is inspired by friendslop games such as Totally Reliable Delivery, PEAK, Raft, and Lethal Company. Most of these games employ a low-poly art style because their essence lies in allowing players and friends to enjoy the game together, rather than appreciating the artistic design of the environment. Therefore, they typically prioritize gameplay over visuals. Thus, these games attract players through their gameplay, which is exactly what Crescent Bay aims to achieve.

4.1.2 Characters



4.1.2.1: Character Design

The character models use low-poly and simplified body structures, stylized proportions, and minimal facial details. Despite the simplified design, the NPCs remain visually recognizable and suitable for a casual simulation game. The simplified low-poly character design also helps reduce animation complexity and improves rendering performance while maintaining a lively harbor atmosphere.



4.1.2.2: Lisa Character (Guider)



4.1.2.3: Pirate Character 1



4.1.2.4: Pirate Character 2



4.1.2.5: Pirate Boss Character



4.1.2.6: Hostage Character



4.1.2.7: Hostage's Mother Character



4.1.2.8: Shop Staff Male Character



4.1.2.9: Shop Staff Female Character



4.1.2.10: Passer Female Character 1



4.1.2.11: Passer Female Character 2



4.1.2.12: Passer Female Character 3



4.1.2.13: Passer Male Character 1



4.1.2.14: Passer Male Character 2



4.1.2.15: Passer Male Character 3

4.1.3 Environment Design



4.1.3.1: Environment Design

The game world is centered around Crescent Bay Harbor, which acts as the main hub area for player activities. The buildings are inspired by European coastal town architecture, creating a warm and peaceful harbor environment suitable for the fishing simulation gameplay experience. The harbor contains various important locations such as:

- Fish shop
- Weapon shop
- Fishing rod shop
- Boat shop
- Dormitory
- Restaurant area
- Docking area

The environment design combines natural coastal landscapes with stylized urban elements to create a peaceful fishing village atmosphere. The sea surrounding the harbor is divided into multiple exploration zones with increasing levels of danger and rewards. This environmental progression encourages players to explore further areas as they upgrade their equipment and boats. Several environmental elements are designed to improve immersion and exploration, including:

- Rocky cliffs
- Pine forests

- Beaches
- Wooden docks
- Stone walkways
- Bridges
- Coastal railings
- Lighthouse landmark



4.1.3.2: Dormitory, Fish, Weapon, Fishing Rod Shop and Restaurant



4.1.3.3: Docking area and Boat Shop



4.1.3.4: Stone walkways



4.1.3.5: Lighthouse Landmark & Pine Forests



4.1.3.6: Rocky Cliffs & Coastal Railings



4.1.3.7: Beaches



4.1.3.8: Bridge

4.1.4 User Interface Design



4.1.4: UI Pre-production Draft

The UI uses large buttons, rounded panels, bright colors, and minimalistic layouts to ensure readability and accessibility for players. The interface design emphasizes simplicity and ease of navigation to support the casual gameplay experience. Most interface elements use soft color tones such as orange, yellow, blue, and white to create a friendly and relaxing atmosphere that matches the coastal environment of the game.

The UX design of Crescent Bay focuses on creating a relaxing, simple, and beginner-friendly gameplay experience. Gameplay systems such as fishing, shopping, exploration, and quest tracking are designed to be straightforward and intuitive so that players can quickly understand the game mechanics without extensive tutorials.

4.1.4.1 Main Menu Design



4.1.4.1 Main Menu

The menu interface features the harbor environment and lighthouse as the background scene to immediately introduce the visual identity and atmosphere of Crescent Bay. Large, stylized text buttons are used to improve visibility and make navigation simple for players. The game logo is displayed prominently to strengthen the branding and identity of the project.

4.1.4.2 In-Game HUD Design



4.1.4.2 HUD Design

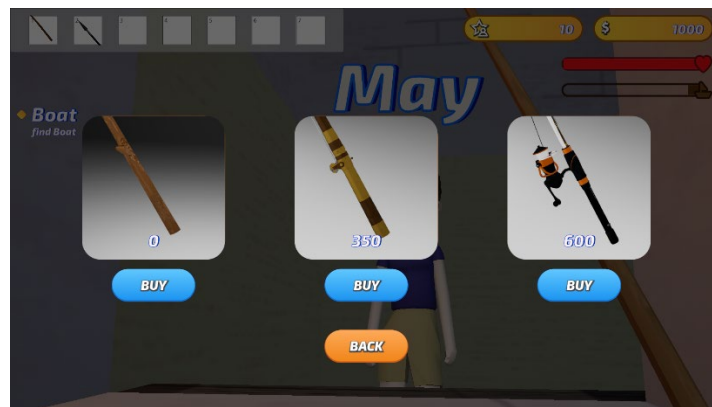
The HUD includes:

- Inventory slots

- Health bar
- Boat health bar
- Money display
- Fame point display
- Tutorial guidance display

The inventory system is displayed at the top-left corner of the screen, allowing players to quickly access equipped items by pressing 1-7 number key. Player status health are displayed on the top-right side of the screen to provide immediate visual feedback during exploration and combat situations. Tutorial objectives are displayed on the left side of the screen to guide players through gameplay progression.

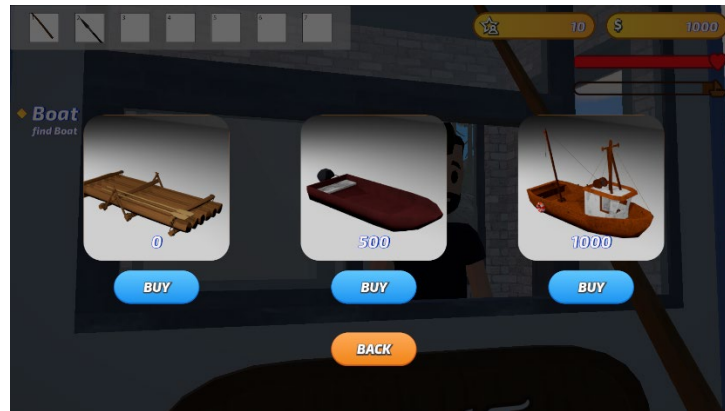
4.1.4.3 Shop Interface Design



4.1.4.3.1 Fishing Rod Shop



4.1.4.3.2 Weapons Shop



4.1.4.3.3 Boats Shop

The game contains multiple shops such as Fishing rod shop, Weapon shop, and Boat shop, each shop interface uses a similar layout structure to maintain interface consistency throughout the game.

The shop UI displays:

- Item image previews
- Item prices
- Purchase buttons
- Required materials for advanced equipment

The equipment progression is visually presented from lower-tier items to higher-tier items, helping players understand progression clearly. The weapon shop also contains a material-selling system where players can sell collected ores and resources for additional money.

4.1.4.4 Pause Menu Design



4.1.4.4 Paused Menu

By pressing ESC to open pause menu provides players with quick access to important game functions such as:

- Tasks (To view the active quest info)
- Save (To save the game)
- Settings (Adjust BGM and SFX volume)
- Exit (Exit the game)

5.0 Research Methodology

5.1 Research Design

The purpose of this study is to collect player feedback and performance data based on their game interaction experiences, and to use this data to evaluate and analyze the research title that is Impact of low-poly 3D art style on player immersion and performance.

Participants will be based on their experience in the game that are also using low-poly visual art style and complete a questionnaire assessing immersion and gameplay experience. Quantitative research methods will be used to analyze the data to determine the relationship between low-poly art style and immersive experience.

5.2 Game Prototype Development

The game to be evaluated in this study is Crescent Bay, a 3D first-person simulation, casual and management game focused on fishing, management and selling fish gameplay. It features low-

poly models and has a consistent visual design aesthetic, while also maintaining an immersive experience. Low-poly art style is also used for applications with lower visual complexity, such as environment design, character design, interactive objects, and user interface design. Once the results of this research are available, the status and importance of the low-poly art style on Crescent Bay will be determined.

5.3 Participants

The majority of participants in this study will be university students, as the study will take place in university buildings. Secondly, university students are generally more likely to have an interest in and experience with games. While there are no age restrictions, we also expect participants to be between 18 and 35 years old, as this is the target audience for games.

5.4 Data Collection Methods

This study used questionnaires only to collect data. This study does not use Crescent Bay game experience for data collection, including player experience feedback and performance observations from Crescent Bay, because it would be unfair and inaccurate to evaluate and define research results based on a single game. Therefore, relying on participants' extensive gaming experiences is the optimal choice for assessing the research question. This method not only assesses whether low-poly art affects immersion but also provide insights into the game experience from a non-developer's perspective, it provides developers with better sources of inspiration to emulate and improve.

5.4.1 Questionnaire

Questions related to assessing player immersion and engagement will be addressed using a five-point Likert scale, allowing participants to make their choices. The questionnaire will be divided into two parts: player immersion and visual experience, game performance experience.

Participants are required to rate their level of agreement based on the following scale:

1 = Strongly Disagree

2 = Disagree

3 = Neutral

4 = Agree

5 = Strongly Agree

6.0 Questionnaire Results

This survey used Google Forms to investigate and collect data, and a total of 17 responses were received.

6.1 Demographic Information

What is your age group?

7 responses

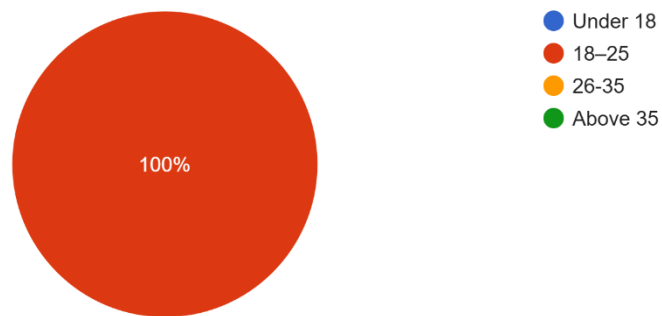


Figure 6.1.1 Age Group Distribution

All survey participants were between 18 and 25 years old, indicating that most gamers are young people.

What is your cultural or national background?

7 responses

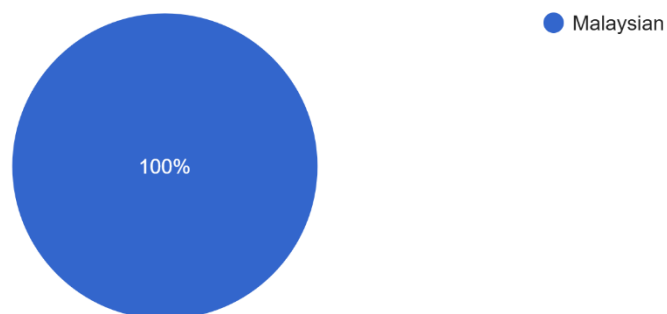


Figure 6.1.2 Nationality Distribution

All respondents were Malaysians, and the majority were university students.

Gender
7 responses

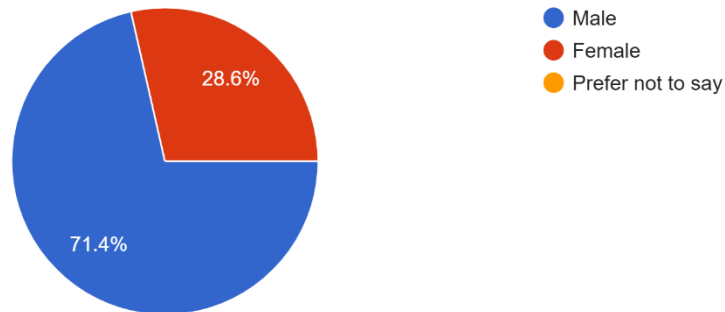


Figure 6.1.3 Gender Distribution

All respondents were willing to disclose their gender, with the majority being male (71.4%) and female (28.6%).

How often do you play video games?
7 responses

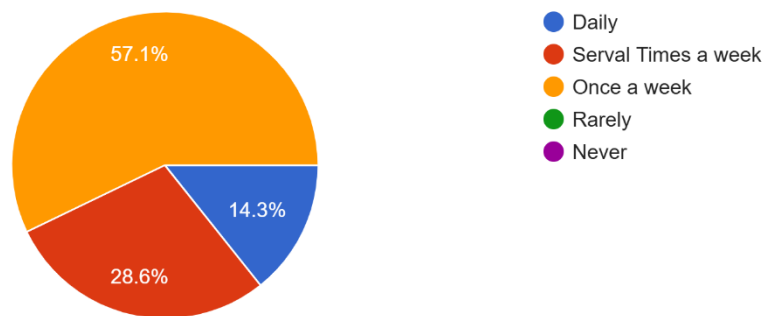


Figure 6.1.4 Gaming Frequency

Of all respondents, the majority (57.1%) play games once a week, while 28.6% play several times a week and 14.3% play daily. This indicates a trend of decreasing gaming frequency among university students.

What platform(s) do you primarily use to play video games?

7 responses

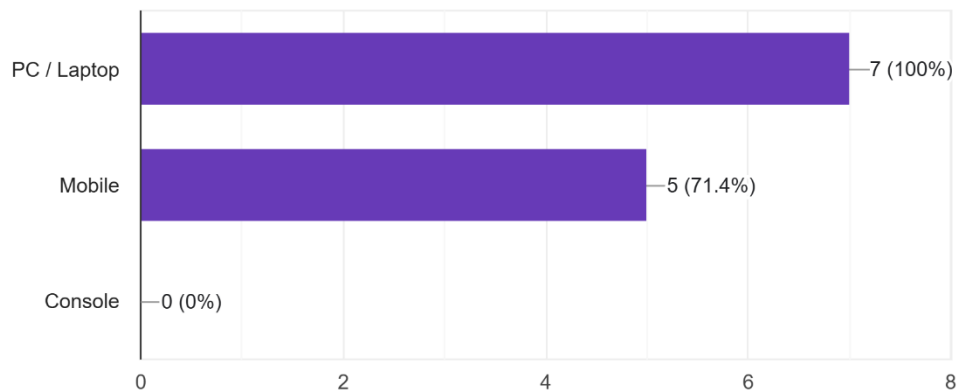


Figure 6.1.5 Game platform user distribution

This was a checkbox question, meaning participants could select more than one answer. The results showed that 100% of participants played games on a computer and 71.4% played games on both a mobile phone and a computer.

What type of games do you usually play?

7 responses

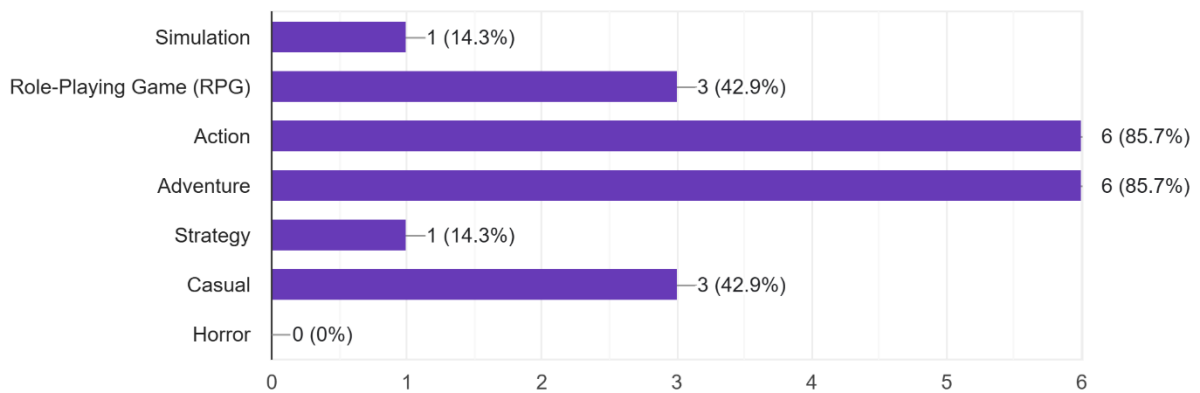


Figure 6.1.6 Game Type Preference

The most popular game genres were Action and Adventure, both accounting for 85.7%, likely due to the higher proportion of male participants. Other popular genres included Simulation (14.3%), RPG (42.9%), Strategy (14.3%), and Casual (42.9%).

Are you familiar with games that use a low-poly art style?

7 responses

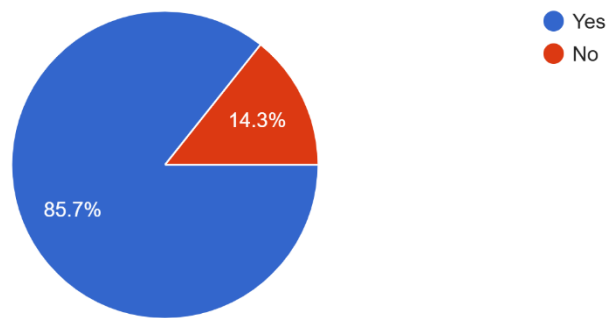


Figure 6.1.7 Low-poly game awareness

Most people are familiar with low-poly art style games (85.7%), while 14.3% are not. This means that the majority of participants have been exposed to and are familiar with this type of game.

6.2 Player Immersion & Visual Experiences

I felt very engaged in exploring the game environment with its low-poly art style.

7 responses

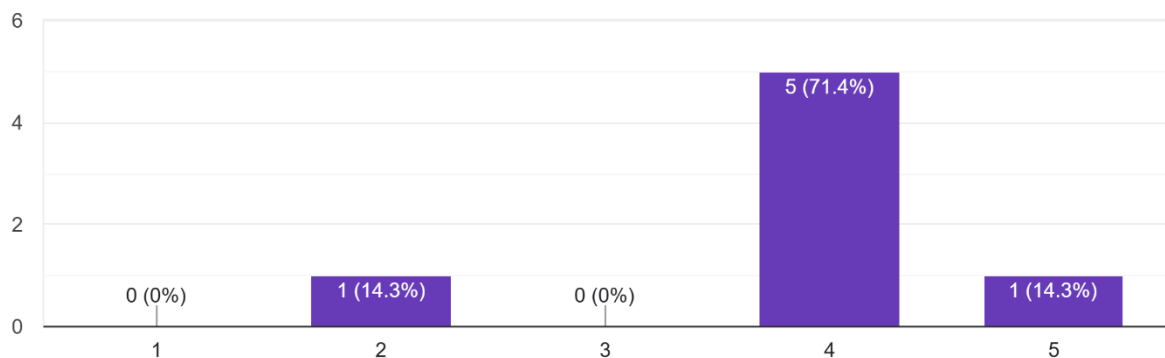


Figure 6.2.1 Game Engagement

Most participants agreed that low-poly art style games were engaging. Only 14.3% were in the minority: strongly agreeing and disagreeing.

I felt immersed in the game environment with its low-poly art style.

7 responses

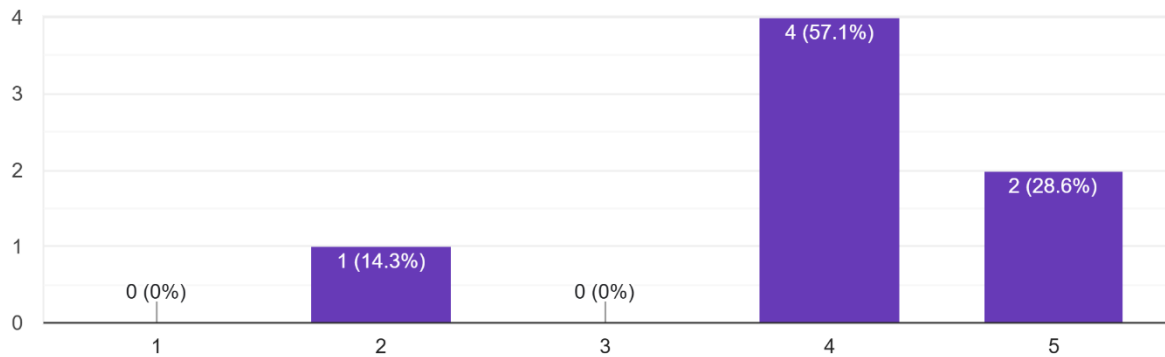


Figure 6.2.2 Game Immersive

The majority of participants also agreed that low-poly art style games offer a sense of immersion (57.1%). The remainder disagreed (14.3%) and strongly agreed (28.6%).

The low-poly game atmosphere doesn't distract me from focusing on the game.

7 responses

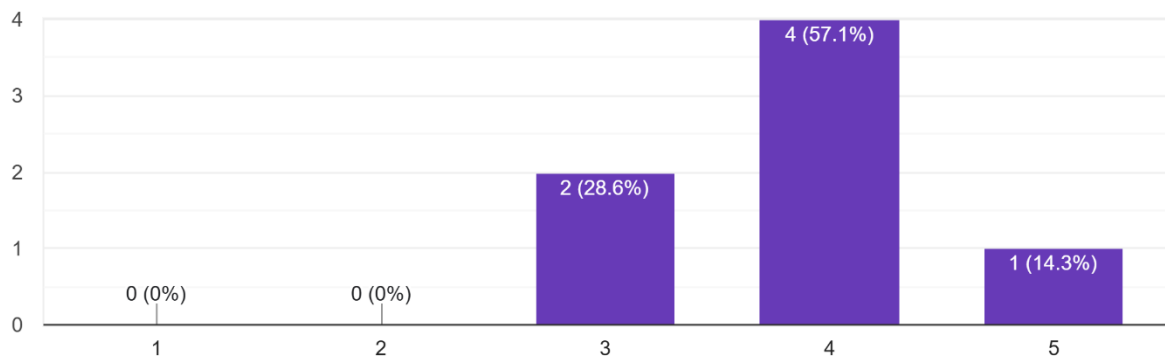


Figure 6.2.3 Game Atmosphere Distraction

Most participants agreed that they were not influenced by the atmosphere in low-multilateral games, with 28.6% remaining neutral and 14.3% strongly agreeing.

The low-poly art style was visually appealing.

7 responses

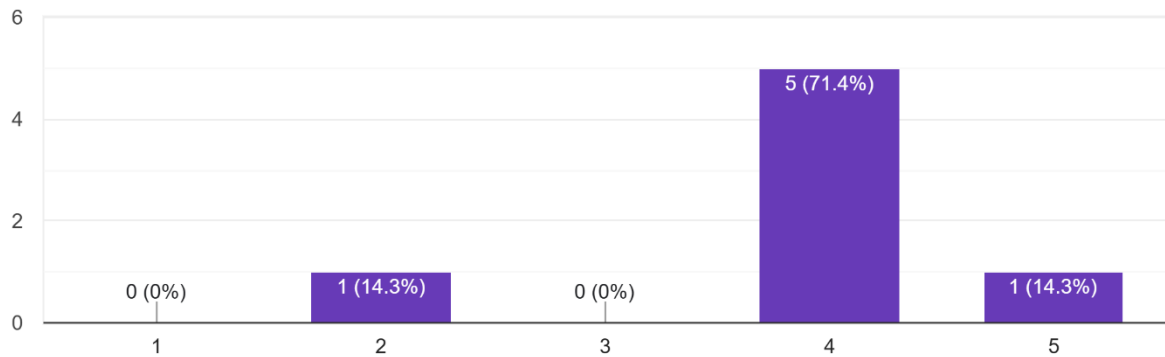


Figure 6.2.4 Visual Attraction

Most participants agreed that low-poly artistic visuals are quite appealing (71.4%), but they remained somewhat reserved in the "strongly agree" box. The remaining 14.3% disagreed and 14.3% strongly agreed.

The low-poly art style usually matched the atmosphere of the game.

7 responses

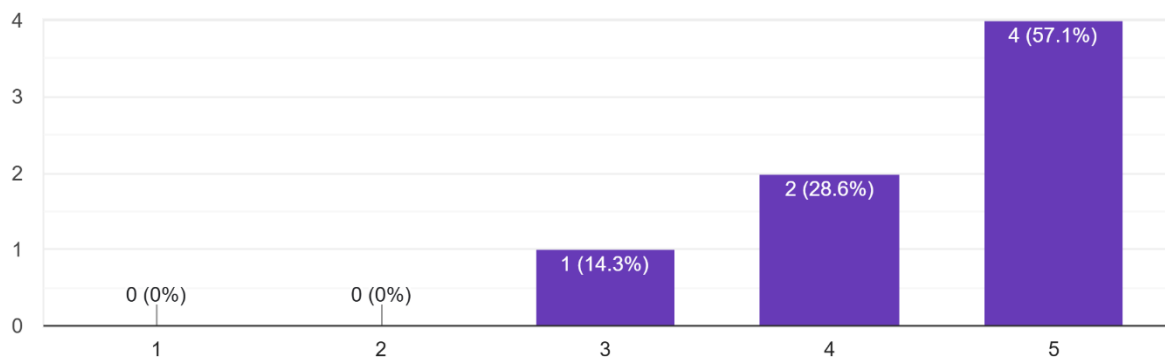


Figure 6.2.5 Game Atmosphere Adaptation

The majority of participants (57.1%) chose "strongly agree," indicating that the low-poly art style of most commercial games typically matches the game's atmosphere. The remaining respondents (28.6%) agreed, and 14.3% were neutral.

A clean visual design reduces unnecessary distractions.

7 responses

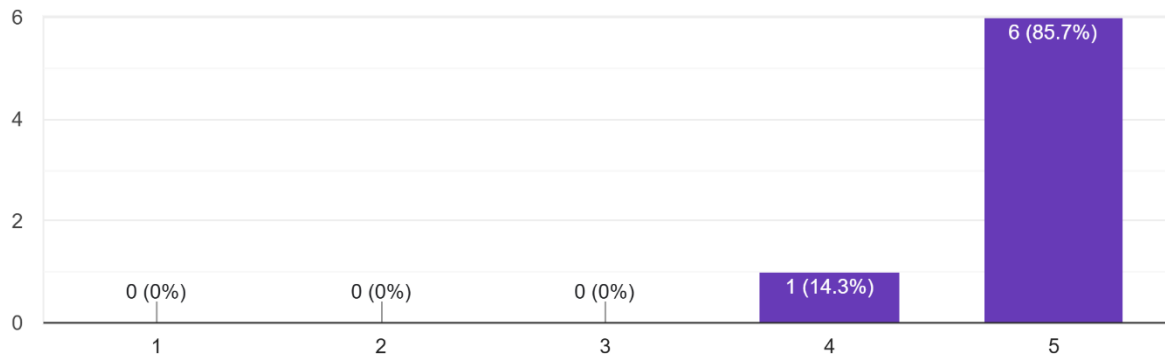


Figure 6.2.6 Distractions reduction

Nearly all participants (85.7%) strongly agreed, and 14.3% agreed, and the idea that a simple visual design reduces unnecessary distractions is also common sense.

The low-poly or simplified visuals made objects easier to recognize

7 responses

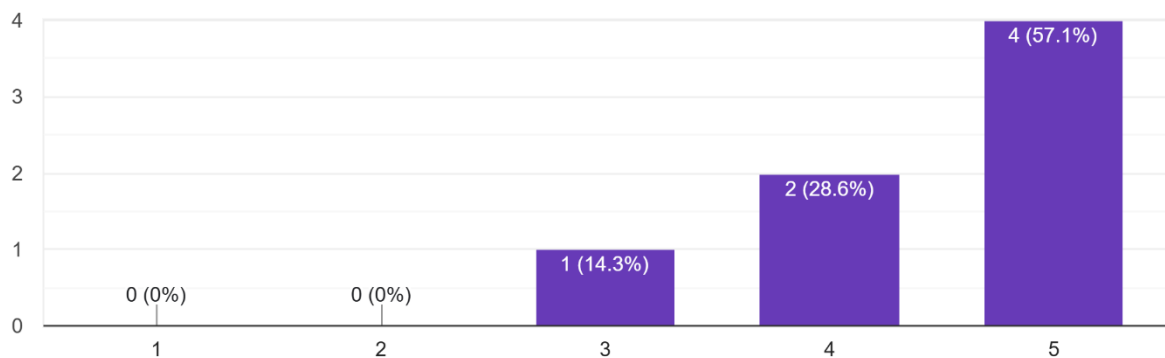


Figure 6.2.7 Visual simplicity and Recognizability

The majority of respondents (57.1%) strongly agreed, 28.6% agreed, and 14.3% were neutral. The fact that no one disagreed indicates that the statement that a simple visual design makes it easier for players to identify objects is a common and universally accepted fact.

6.3 Section C: Game Performance Experience

Low-poly games run smoothly.

7 responses

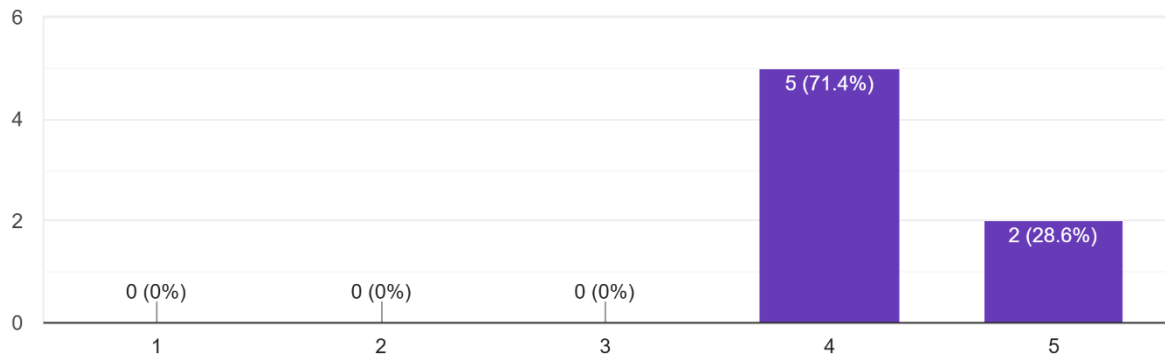


Figure 6.3.1 Game smoothness

The majority of participants (71.4%) agreed that low-poly games run more smoothly, while 28.6% strongly agreed. This indicates that many people have likely experienced performance issues with low-poly games.

I am able to easily identify interactive objects in low-poly environments.

7 responses

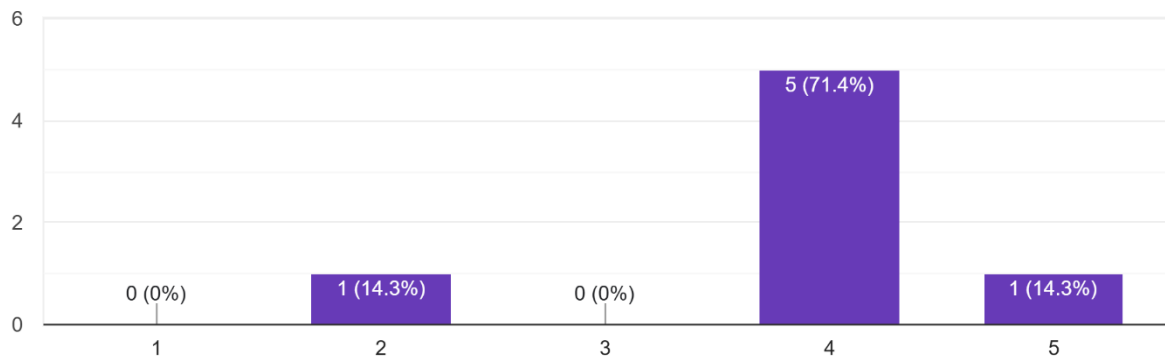


Figure 6.3.2 Objects Identification

The majority of respondents (71.4%) agreed that objects are easier to identify in low-poly environments, while 14.3% strongly agreed. However, surprisingly, 14.3% of participants disagreed.

The simplified visual design makes the gameplay easier to understand.

7 responses

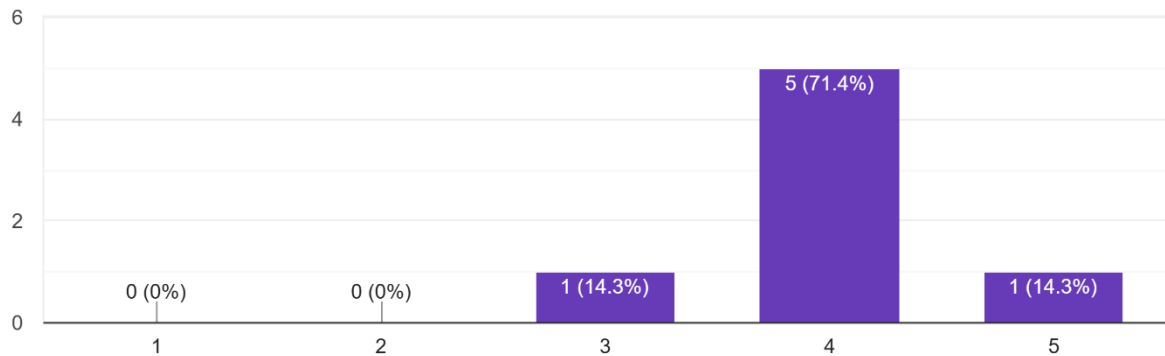


Figure 6.3.3 Game mechanics comprehension

71.4% of participants agreed that a simple visual design makes gameplay easy to understand, with 14.3% strongly agreeing. However, 14.3% were neutral, which may be due to complex gameplay or flawed gameplay guidance.

I am interested in continuing to experience low-poly visual game.

7 responses

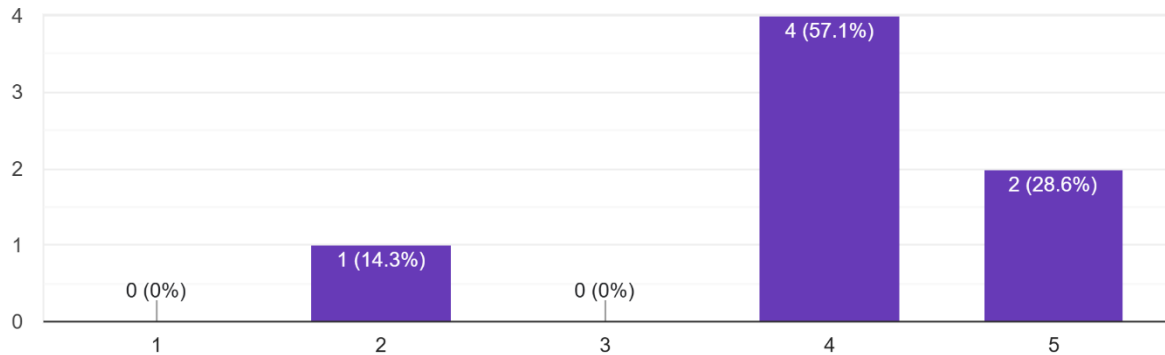


Figure 6.3.4 Interest level

57.1% of participants were willing to continue experiencing low-poly games, 28.6% were very willing, while 14.3% disagreed.

The last question is asking which low-poly game left a deep impression on participants. Five people answered this question.

1. Peak
2. Roblox
3. Mario N64, it's the first console game I've played, and its art style of a vibrant cartoon style really sold the effect and did not fail even though of its technical limitations.
4. Minecraft, survive game
5. "Ape escape" on psp

7.0 Discussion & Conclusion

7.1 Interpretation of Findings

Firstly, the questionnaire survey revealed that the participants were all young gamers, most of whom had experience with games featuring low-poly art style. This ensured that the research had identified the right research subjects and the appropriate data to collect.

Regarding the immersive and visual experience of low-poly art style games, most participants' responses tended to be in favor of the answer. This indicates that low-poly art style does not destroy the immersive and visual experience of games and also proves the previous assumption that games do not necessarily need realistic visuals to achieve an immersive gaming experience. In addition, most participants agreed that low-poly art is visually appealing, matches and is consistent with the overall game environment, and its simple design makes it easy to identify key objects. This demonstrates that game developers only need a consistent concept of art style and texture to keep low-poly games attractive.

Regarding player performance in low-poly games, most participants agreed that the experience was smoother, and the simple design made it easier for them to understand the gameplay and direction. This confirms the earlier assumption that low-poly games maintain stability and provide a simple visual design that allows players to easily recognize and understand the game, improving reaction speed and task completion efficiency.

Regarding interest in low-poly games, most participants expressed interest in games with a low-poly art style and indicated they would continue playing this genre. Additionally, several participants answered the final question, listing low-poly art style games that impressed them, such as Peak, Roblox, Mario N64, Minecraft, and Ape Escape.

In conclusion, this study demonstrates that low-poly games do not negatively impact player immersion, visuals, or gameplay performance when visual design is appropriately applied.

7.2 Future Directions

1. Because the questionnaire participants all shared similar attributes, such as age and nationality, this could introduce flaws and inaccuracies in the research and survey. Therefore, future studies could extend the research period and obtain data from participants with more diverse attributes.
2. With technological advancements, game development equipment has improved, enabling it to support high-poly and more realistic games. Furthermore, AI technology is gradually replacing human development, reducing development costs. Therefore, these factors may impact the reliance on low-poly games, and the research and investigations about this issue may execute in future.

3. While it has been verified that the low-poly art style is suitable for use in games and can lead to game optimization, but achieving visual consistency and appeal still presents certain challenges. Therefore, further research and investigation may be necessary to determine how to utilize the low-poly art style to achieve visual consistency and appeal.

7.3 Conclusion

In conclusion, this research and investigation have verified that the low-poly art style is still suitable for use in games, and that proper visual design can maintain immersive experience and player performance. Therefore, the low-poly art style can be used to determine the design direction in this game development project “Crescent Bay”. We also hope that Crescent Bay will be successfully developed and well-received by players, contributing to the development of low-poly games and demonstrating its benefits.

8.0 References

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9.0 Appendices

9.1 Appendix A – Logbook

Project Paper Consultation Logbook	
Project Title	Crescent Bay
Student Name	Wong Teck Tean
Student ID	2302168
Year/Semester	Y3S2
Supervisor	Dr. Simon Ang

WEEK 01	
Comments: Group forming	<u>Supervisor signature:</u> 
Progress (please circle the feedback) 1 2 3 4 5 Poor Satisfactory Good	Date:
WEEK 02	
Comments: - Generate game concept - Meeting discusses	<u>Supervisor signature:</u> 
Progress (please circle the feedback) 1 2 3 4 5 Poor Satisfactory Good	Date:

WEEK 03	
Comments: • Amend and improve game idea • Sketch game scene reference • Assigning work for team member	<u>Supervisor signature:</u> 
Progress (please circle the feedback) 1 2 3 4 5 Poor Satisfactory Good	Date:
WEEK 04	
Comments: • Prepare presentation slide • Amend and improve game sketches • Update game document for programmer • Research and decide the 3D assets layout and size. Then brief with teammate	<u>Supervisor signature:</u> 
Progress (please circle the feedback) 1 2 3 4 5 Poor Satisfactory Good	Date:

WEEK 05	
Comments: • Create gameplay flow chart. • Sketch more references for teammates. • Amend the map layout for level designers. • List out the required 3D assets that need to create for 3D artists. • Begin working in 3D modeling e.g. raft, dock.	Supervisor signature: 
Progress (please circle the feedback) 1 2 3 4 5 Poor Satisfactory Good	Date:
WEEK 06	
Comments: • Create more 3D models	Supervisor signature: 
Progress (please circle the feedback) 1 2 3 4 5 Poor Satisfactory Good	Date:

WEEK 07	
Comments: • Create more 3D assets • Create and DESIGN UI layout and assets • Create presentation slide	<u>Supervisor signature:</u> 
Progress (please circle the feedback) 1 2 3 4 5 Poor Satisfactory Good	Date:

Project Paper Consultation Logbook	
Project Title	Crescent Bay
Student Name	Wong Teck Tean
Student ID	2302168
Year/Semester	Y3S3
Supervisor	Dr. Simon Ang

WEEK 01	
Comments: - Follow up the progress from programmer due to the unfinished main mechanics. Attempted ask for idea amendment to giving easy work for programmers and avoid the main mechanic development stuck too long. But they ignored and insisted on doing it. - Assign teammate to redesign the shop layout due to the suggestion from lecturer in consultation section. - Created more gameplay flow <u>chart</u>, to make it easier for programmers to understand (e.g. <u>Fishing</u>, fish selling, fish cutting, fish tank, inventory)	Supervisor signature: 
Progress (please circle the feedback) 1 2 3 4 5 Poor Satisfactory Good	Date:

WEEK 02	
Comments: • Creating 3D assets and animation (Shop characters, tile texture amends) • Created all UI assets and layout	<u>Supervisor signature:</u> 
Progress (please circle the feedback) 1 2 3 4 5 Poor Satisfactory Good	Date:

WEEK 03	
Comments: • Creating 3D assets (Fence, brick) • Less progress this week due to the CNY holiday	<u>Supervisor signature:</u> 
Progress (please circle the feedback) 1 2 3 4 5 Poor Satisfactory Good	Date:

WEEK 04	
Comments: • Creating 3D assets (e.g. tile 2, stair, pirate boss) • Placed and decorated tile, stair assets in unity	<u>Supervisor</u> signature: 
Progress (please circle the feedback) 1 2 3 4 5 Poor Satisfactory Good	Date:

WEEK 05	
Comments: • Creating 3D assets (e.g. pirates1, ores) • Placed and decorated fence assets in unity • Planned all the characters dialogues in tutorials section	<u>Supervisor</u> signature: 
Progress (please circle the feedback) 1 2 3 4 5 Poor Satisfactory Good	Date:

WEEK 06	
Comments: Creating 3D assets (e.g. motorboat, spear, pistol, machete, rifleAK47)	<u>Supervisor</u> signature: 
Progress (please circle the feedback) 1 2 3 4 5 Poor Satisfactory Good	Date:

WEEK 07	
Comments: - Planning and sketch storyboard for starting cutscene. - Creating 3D assets (e.g. fishing boat, Shop Roof, passer npc1 male & female)	<u>Supervisor</u> signature: 
Progress (please circle the feedback) 1 2 3 4 5 Poor Satisfactory Good	Date:

WEEK 08

Comments: • Creating 3D assets (e.g. bench, streetlamps, hostage, cage) • Placed and decorated <u>bench</u>, streetlamps, roof assets in unity	<u>Supervisor signature:</u> 
Progress (please circle the feedback) 1 2 3 4 5 Poor Satisfactory Good	Date:

WEEK 09

Comments: • Placed and decorated more assets for environment to prepare cutscene shooting (assets e.g. light house, fence, streetlamp) • Modify terrain in unity duplicate and place assets for improve decoration (e.g. rocks, terrain texture, tree)	<u>Supervisor signature:</u> 
Progress (please circle the feedback) 1 2 3 4 5 Poor Satisfactory Good	Date:

WEEK 10	
Comments: - Placed and decorated more assets for environment to prepare cutscene shooting (assets e.g. Restaurant, chair, table, patio umbrella, potted plant) - Creating 3D assets (e.g. fishing rod2, SMG gun, car, passer npc2 & 3) - Review and playtest game, list out the Missing parts. - Seeking advisors to help programmers solve problems, due to the development facing difficulty.	<u>Supervisor signature:</u> 
Progress (please circle the feedback) 1 2 3 4 5 Poor Satisfactory Good	Date:

WEEK 11	
Comments: - Created all the item image for inventory icon, shop image (e.g. fishing rod, Fishes, Ore, Weapons) - Finalize the environmental assets placement and decoration - Amended the fish selling and fish tank system to help programmers boost the development speed. - Amend the UI assets and layout	<u>Supervisor signature:</u> 
Progress (please circle the feedback) 1 2 3 4 5 Poor Satisfactory Good	Date:

WEEK 12	
Comments: • Edit Cutscene video • Writing thesis • Planning for ending cutscene	<u>Supervisor signature:</u> 
Progress (please circle the feedback) 1 2 3 4 5 Poor Satisfactory Good	Date:

WEEK 13	
Comments: • Test Play and feedback • Sketch ending cutscene storyboard • Create character animation for ending cutscene • Assign cutscene animation task to teammate	<u>Supervisor signature:</u> 
Progress (please circle the feedback) 1 2 3 4 5 Poor Satisfactory Good	Date:

WEEK 14

Comments:

- Test Play and feedback
- Edit Ending Cutscene
- Sketch Trailer Storyboard
- Searching audio assets
- Edit Trailer video
- Design name card and poster

Supervisor signature:

Progress (please circle the feedback)

1 2 3 4 5
Poor Satisfactory Good

Date:

9.2 Appendix B – Survey (Google Form)

The Effect of Low-Poly 3D Art Style on Player Immersion and Performance

This survey is conducted as part of an undergraduate research study exploring the effect of low poly 3d art style on player immersion and performance. Your responses are anonymous and will be used solely for academic purposes.

Estimated
completion time: 5–8 minutes.

wongtecktean@1utar.my [Switch account](#)



 Not shared

* Indicates required question

Section A: Demographic Information

What is your age group? *

- ☐ Under 18
- ☐ 18–25
- ☐ 26–35
- ☐ Above 35

What is your cultural or national background? *

- ☐ Malaysian
- ☐ Other: _____

Gender *

- ☐ Male
- ☐ Female
- ☐ Prefer not to say

How often do you play video games? *

- ☐ Daily
- ☐ Serval Times a week
- ☐ Once a week
- ☐ Rarely
- ☐ Never

What platform(s) do you primarily use to play video games? *

- ☐ PC / Laptop
- ☐ Mobile
- ☐ Console

What type of games do you usually play? *

- ☐ Simulation
- ☐ Role-Playing Game (RPG)
- ☐ Action
- ☐ Adventure
- ☐ Strategy
- ☐ Casual
- ☐ Horror
- ☐ Other: _____

Are you familiar with games that use a low-poly art style? *

- ☐ Yes
- ☐ No

Section B: Player Immersion & Visual Experiences

I felt very engaged in exploring the game environment with its low-poly art style. *

1 2 3 4 5

Strongly Disagree Strongly Agree

I felt immersed in the game environment with its low-poly art style. *

1 2 3 4 5

Strongly Disagree Strongly Agree

The low-poly game atmosphere doesn't distract me from focusing on the game. *

1 2 3 4 5

Strongly Disagree ☐ ☐ ☐ ☐ ☐ Strongly Agree

The low-poly art style was visually appealing. *

	1	2	3	4	5	
Strongly Disagree	☐	☐	☐	☐	☐	Strongly Agree

The low-poly art style usually matched the atmosphere of the game. *

	1	2	3	4	5	
Strongly Disagree	☐	☐	☐	☐	☐	Strongly Agree

A clean visual design reduces unnecessary distractions. *

	1	2	3	4	5	
Strongly Disagree	☐	☐	☐	☐	☐	Strongly Agree

The low-poly or simplified visuals made objects easier to recognize *

	1	2	3	4	5	
Strongly Disagree	☐	☐	☐	☐	☐	Strongly Agree

Section C: Game Performance Experience

Low-poly games run smoothly. *

1 2 3 4 5

Strongly Disagree Strongly Agree

1 2 3 4 5

Strongly Disagree ☐ ☐ ☐ ☐ ☐ Strongly Agree

I am able to easily identify interactive objects in low-poly environments. *

1 2 3 4 5

Strongly Disagree ☐ ☐ ☐ ☐ ☐ Strongly Agree

1 2 3 4 5

Strongly Disagree ☐ ☐ ☐ ☐ ☐ Strongly Agree

The simplified visual design makes the gameplay easier to understand. *

1 2 3 4 5

Strongly Disagree ☐ ☐ ☐ ☐ ☐ Strongly Agree

1 2 3 4 5

Strongly Disagree Strongly Agree

I am interested in continuing to experience low-poly visual game. *

1
2
3
4
5

Strongly Disagree
☐
☐
☐
☐
☐
Strongly Agree

Which low-poly game left a deep impression on you? Why? (optional)

Your answer

Back

Submit

Clear form

9.3 Appendix H

Final Project Title Form

Fill in the information below as detailed as you can after confirming project title.

Project Type:

☒ Product Based Project

☐ Research Based Project

Student ID	Student Name	Email & Contact no
2302168	Wong Teck Tean	wongtecktean@lutar.my
2203311	Chong Shu Ning	2203311@lutar.my
2200655	Chin Yi Chung	chinyc37@lutar.my

2300418	Chin Kar Heng	winston@lutar.my
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Supervisor: Dr. Simon Aug

Project Title: Crescent Bay

Project description:

This is a four-person team, consisting of three designers and one programmer developing a game call “Crescent Bay”, it is a 3D first-person fishing simulation and casual adventure game developed using the Unity game engine. The game combines fishing, resource collection, shop management, exploration, and light combat mechanics within a stylized low-poly coastal environment. Players take the role of a protagonist who inherits a fishing business from his late uncle after being invited to Crescent Bay by his cousin, Lisa. Starting with basic equipment and a small raft, players must earn money and reputation by catching and selling fish while gradually improving their fishing skills and equipment.

Student name	Individual Project Scope
Wong Teck Tean	The Effect of Low-Poly 3D Art Style on Player Immersion and Performance.
Chong Shu Ning	Social realism in a game's design can increase immersion and player engagement
Ching Yi Chung	How cozy narratives reduce stress. Why players love rebuilding personal identity in games.

Ching Kar Heng	How loop-based gameplay affects player motivation, retention, and sense of progression.
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