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Proposal

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JUNGLE SURVIVAL: BUILD AND CRAFT

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Initial Contextual Report

COMP1682 Final Year Project

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Abstract

The project "Jungle Survival: Build and Craft" endeavors to provide a dynamic gaming experience tailored to the specific needs of adventurous gamers seeking thrilling survival challenges in a digitally crafted jungle environment. Simultaneously, the game is designed to function as a strategic tool for players, allowing them to immerse themselves in the world of survival, resourcefulness, and strategic thinking. This project aims to elevate the gaming experience in the modern digital world by bridging the gap between the desire for immersive, survival-based gameplay and the provision of a highly engaging and challenging gaming environment. As players venture into the heart of the jungle, they will test their survival skills, adaptability, and decision-making, resulting in exhilarating and memorable gaming interactions. "Jungle Survival: Build and Craft" seeks to provide the quintessential elements sought by today's gamers, with its intricate gameplay mechanics and a uniquely immersive world that sets it apart from the crowd, promising an unforgettable journey through the wild and untamed jungle.

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I am incredibly grateful to my beloved family and friends for their continuous support and inspiration. Their encouragement and affection have been a steady source of strength, guiding and enabling me to overcome the obstacles I've faced along my academic path.

Finally, I would want to thank each and every one of the kind participants who so kindly gave of their time and knowledge. Their tremendous efforts would have made this scholarly endeavor impossible to complete.

I want to sincerely appreciate each and every one of you for your unwavering encouragement and invaluable advice as I strive for academic success.

Sincerely, Chi Trien Nguyen

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1. Introduction

1.1. Background

Video games provide a means to improve a human's cognitive skills, impacting various cognitive subcategories. After reviewing 27 experimental and literature review studies, the results confirm that video games enhance cognitive skills, particularly in areas like perception, attentional control, and decision-making (Reynaldo et al., 2021). High school and undergraduate students who engage with video games demonstrate superior cognitive abilities compared to those who do not partake in gaming.

Building upon these advantages and acknowledging the dynamic global gaming market characterized by constant technological evolution and a growing demand for immersive gaming experiences, this proposal chooses to develop a game that not only aligns with market trends but also aims to harness and enhance the benefits that games offer. The gaming industry has seen remarkable growth recently, with a diverse range of titles captivating players of all ages. In this context, 'Survival Game Build and Craft' emerges as a timely and innovative entry. With the gaming community seeking fresh and engaging experiences, this proposal centers its game development on an immersive survival adventure, expertly integrating resourcefulness, adaptability, and strategic thinking, all within the challenging backdrop of a post-apocalyptic world. 'Survival Game Build and Craft' is designed to cater to a diverse spectrum of gamers, including survival enthusiasts and narrative aficionados. Positioned to thrive in a competitive market, this game offers the quintessential elements sought after by today's gamers, featuring intricate gameplay mechanics and a uniquely immersive world that distinguishes it from the rest.

1.2. Aims

This project aims to create a game for entertain and also helps players improve their knowledge, awareness that can be gain during their journey in the game.

1.3. Objective

1.3.1. Project phases

The project is the combine of six phases of implementation:

Initiation phase:

- Actions I am undertaking to achieve this objective:

- **Create project plan (3 days):** During this phase, I will design a detailed project plan that outlines the scope, objectives, and strategies for my project. It will serve as a roadmap for the entire project.
- **Create Gantt chart (2 days):** In this part of the initiation phase, I will create a Gantt chart, a visual representation of the project schedule. It will help me track tasks, dependencies, and timelines.
- **Create report documentation (2 days):** This task involves documenting the initial project setup and plans. It will help keep all stakeholders informed about the project's goals and progress.

- **The desired results I aim to achieve through this objective:** The actions within this phase, including creating a project plan, Gantt chart, and report documentation, contribute to a comprehensive understanding of the project's scope, objectives, and strategies. These actions provide a roadmap for the entire project, enabling informed decisions regarding project management. Furthermore, they enhance the assessment of the project's feasibility and potential for success.

Research and Analysis phase:

- Actions I am undertaking to achieve this objective:

- **Research on game concept and design (3 days):** I will explore and define the game's concept and design, which forms the foundation for my project.
- **Analyze market and player needs (2 days):** This task focuses on understanding the target market and player requirements, ensuring that my game caters to their expectations.
- **Competitor analysis (4 days):** Analyzing competitors' games will provide insights to help me make my game unique and competitive.
- **Art style and graphics research (4 days):** I will determine the art style and graphics to be used in the game during this phase.
- **Create a detailed project schedule (2 days):** I will develop a comprehensive project schedule that outlines specific tasks and deadlines to guide the project.

- The desired results I aim to achieve through this objective: The research on game concept and design, market analysis, competitor analysis, and art style and graphics research lead to a profound understanding of the gaming landscape. These activities empower the development of a game concept that resonates with the target audience and differentiates itself from competitors. They enhance the project's ability to meet player needs and expectations, thereby increasing appeal.

Development phase:

- Actions I am undertaking to achieve this objective:

- **Artwork and graphics design (6 days):** In this phase, I will focus on creating the visual elements of my game, including artwork and graphics.
- **Level design and environment creation (4 days):** I will design the game's levels and environments to ensure they align with the game's concept.
- **Character development and animations (animal AI) (15 days):** I will work on creating the characters, their animations, and any AI needed for animals in the game.
- **Programming and coding (56 days):** This extensive phase involves writing code to bring the game to life and implement various features.
- **Sound and music integration (2 days):** I will integrate sound effects and music into the game to enhance the player's experience.
- **Internal playtesting and iterations (5 days):** I will carry out internal playtesting to identify issues and refine the game through iterations.
- **Bug tracking and resolution (15 days):** I will address and fix any bugs and issues that arise during playtesting and development.
- **Create report documentation (5 days):** I will document the development process and any significant findings during this phase.

- The desired results I aim to achieve through this objective: The various development tasks, including artwork and graphics design, level design, character development, programming, sound integration, playtesting, and bug resolution, collectively contribute to the proficiency in game development. They result in a visually captivating and well-designed game with fully developed characters and a polished user interface. The internal playtesting and iterations continuously refine and improve the game, ensuring quality and playability.

Implementation phase:

- Actions I am undertaking to achieve this objective:

- **Platform-specific adaptation (e.g., PC) (5 days):** I will adapt the game for specific platforms, such as PC, to ensure optimal performance.
- **Performance optimization (10 days):** I will optimize the game's performance to run smoothly on various devices.
- **Game content integration (10 days):** I will integrate all game content, ensuring that it functions correctly.
- **Create report documentation (5 days):** I will document the implementation phase's activities and outcomes.

- The desired results I aim to achieve through this objective: The platform-specific adaptation, performance optimization, and game content integration tasks enhance the capability to adapt the game for different platforms and ensure optimal performance. They also contribute to effective game content integration and maintenance of functionality.

User testing and feedback phase:

- Actions I am undertaking to achieve this objective:

- **Alpha testing with an internal team (3 days):** I will conduct alpha testing with an internal team to uncover and address early-stage issues.
- **Beta testing with a selected group of players (3 days):** I will invite a group of players to participate in beta testing to gather feedback.
- **Addressing user feedback and bug fixes (4 days):** I will address user feedback and fix any identified bugs.
- **Continuous playtesting and improvements (3 days):** I will continuously playtest and make improvements to enhance the gameplay.
- **Create report documentation (2 days):** I will document the testing phase and feedback received.

- The desired results I aim to achieve through this objective: Alpha testing, beta testing, and addressing user feedback activities contribute to proficiency in quality assurance and user testing. They help uncover and resolve issues early in the development process. Continuous playtesting and improvements further enhance skills in gameplay enhancement. The documentation of testing and feedback received provides valuable experience in reporting and addressing user concerns.

Closing phase:

- Actions I am undertaking to achieve this objective:

- **Final quality assurance and testing (4 days):** I will conduct a final quality assurance check and testing to ensure the game is ready for launch.
- **Create user guides and documentation (4 days):** I will develop user guides and documentation to assist players.
- **Launch the game (2 days):** I will launch my game, making it available to players.
- **Monitor player feedback and address issues (2 days):** I will continuously monitor player feedback and address any issues that may arise.
- **Create report documentation (3 days):** I will document the closing phase activities, final results, and lessons learned.

- The desired results I aim to achieve through this objective: The final quality assurance and testing, user guide and documentation creation, game launch, and ongoing issue resolution activities collectively enhance the capability in quality assurance and final preparations for game release. The continuous monitoring of player feedback and issue resolution sharpens the ability to address player concerns promptly. The documentation process during the closing phase further improves skills in reporting, documenting final results, and drawing lessons from the project.

1.4. Methodology Choice

My "Jungle Survival: Build And Craft" project leverages the DSLC framework, specifically Scrum, to navigate game development dynamically and efficiently. By breaking the project into sprints and embracing iterative development, we ensure collaboration, adaptability, and continuous improvement. This approach guides us through design, scoping, launch, and control phases, guaranteeing an immersive jungle survival experience for players.

2. Literature Review

2.1. Main Discussion

The gaming industry has recently witnessed significant expansion, with a diverse array of titles captivating players of all ages. This growth is driven by technological advancements and an increased demand for immersive gaming experiences. Survival games have emerged as a popular choice for players worldwide due to their unique features that combine entertainment and educational elements.

2.1.1. Background to Survival Games

To gain a deeper understanding of survival games, it is essential to explore their defining characteristics. Survival games are characterized by an emergent, player-driven storyline and a sandbox simulation playstyle. Players are thrust into challenging environments teeming with adversaries that must be overcome, such as monsters or predatory animals. These games require players to continuously search for essential resources, including food, water, and materials for crafting more advanced items and tools. The open-ended design of survival games provides a wide range of gameplay experiences, catering to diverse player preferences (Rogers, K., Kamm, C., & Weber, M., 2016).

2.1.2. Notable Examples Of Survival Games

Two prominent examples of survival games that have garnered substantial attention are Minecraft and ARK: Survival Evolved.

- Minecraft

Since its original release in 2011, Minecraft has sold over 48 million copies across all gaming platforms. The premise of Minecraft is straightforward: players mine, gather, build, and interact within a world composed entirely of colorful cubes. Unlike traditional construction toys like Lego, Minecraft's digital environment allows for nearly limitless creativity without the constraints of physical building materials. The permissive stance of developer Mojang regarding modifications and other uses of their intellectual property encourages enthusiasts to create music, art, and animations inspired by the game (Garrelts, N., 2014).

- ARK: Survival Evolved

ARK: Survival Evolved offers an abundance of survival challenges across its vast, open-world environments known as ARKs. Players begin with minimal supplies on a daunting island and must strive to stay nourished and hydrated while evading lifelike dinosaurs and other creatures. From primitive tools like throwing spears to advancing up the technology tree, players must navigate a perilous early game phase, where dilophosaurs may attack, and a triceratops could demolish their thatch huts in the middle of the night (Hafer, L., 2022).

2.1.3. Diverse Approaches and Counterarguments

While these survival games share common elements, there is a wide range of approaches and variations within the genre. Some players prefer realism, while others prioritize accessibility and creativity. Modding communities significantly influence the longevity and appeal of these games. The balance between challenge and accessibility remains a point of contention among players and developers.

2.2. Game engines, programming language and the relevant between them

2.2.1. Game Engine

Game engines are complicated pieces of software designed to make game creation more efficient and labor-intensive. They are commonly known as software development kits (SDKs) for game development. Although games may be created without the use of middleware, game engines make many common jobs in game development easier, such as creating sprites, handling situations, camera movement, AI, physics simulation, and so on. To utilize game engines efficiently and to expand and interact with other components, developers must understand and make judgments on trade-offs between security and usability, as well as maintainability. Architectural patterns can aid in the simplification of this decision-making process by providing a solution that is suitable in a certain scenario. Despite extensive research on understanding the software architecture of complex systems such as linux, firefox, and open-source software systems, there is little research on understanding the architecture of game engines, specifically Unreal Engine, despite being one of the most widely used open-source game engines (Agrahari, V. & Chimalakonda, S., 2021).

Epic Games Inc. created the Unreal Engine, and the engine was used to create the first game. Its primary application was in FPS games, but it was also beneficial in other game genres such as MMORPG, Stealth, Adventure, and so on. The source code is written in C++, and the most useful aspect is its portability; it is being utilized by many game developers. The game engine has won several honors, including the Guinness World Record for the most successful gaming engine. Unreal Engine 4 is the official stable version. It is compatible with Windows, Mac OS, Oculus Rift, Xbox, PlayStation, Nintendo, and other platforms used in the gaming business today (Salama, R. & Elsayed, M., 2021).

2.2.2. Programming Language

C++ is a general-purpose programming language meant to make serious programming more pleasant. Except for minor differences, C++ is a superset of the C programming language. C++ was created to be a better C, to promote data abstraction, and to facilitate object-oriented programming. Simula67 and Algo1684, in addition to C, were major inspirations on the creation of C++. C++ has been in use for almost four years and has been used in many areas of system programming, such as compiler development, data base management, graphics, image processing, music synthesis, networking, numerical software, programming environments, robotics, simulation, and switching. It features a very portable implementation and over 1500 installations, including AT&T 3B, DEC VAX, Intel 80286, Motorola 68000, and others (Stroustrup, B., 1986).

2.2.3. The relevant between game engine and programming language

Unreal Engine's core programming language, C++, is pivotal in shaping the game engine's capabilities. C++ stands out for its efficiency in delivering high-performance code, a crucial factor in the resource-intensive world of gaming. Its object-oriented nature aligns perfectly with the structured demands of game development, facilitating modular and maintainable systems. C++'s versatility spans various domains, from compiler development to networking, enabling Unreal Engine to offer a broad range of features, including advanced AI and graphics rendering. Moreover, C++'s portability ensures that Unreal Engine can be deployed on multiple platforms, extending the reach of games created with this engine. In essence, C++ is the backbone of Unreal Engine, driving its success and contributing to immersive gaming experiences.

Due to Unreal Engine's immense flexibility and robust support for 3D game development, this proposal leverages its capabilities in the creation of "Jungle Survival: Build and Craft." Unreal Engine, known for its versatility and advanced feature set, accelerates the development process by offering high-quality graphics, physics simulations, and a wealth of pre-built assets. With a dedicated community, extensive documentation, and frequent updates, the engine ensures a promising development experience. Its features perfectly align with the project's goals, facilitating the creation of immersive jungle environments and complex gameplay mechanics.

2.3. Conclusion

In this proposal, the central challenge at hand is the development of a video game, "Jungle Survival: Build and Craft." The primary objective of this project is to create a gaming experience that not only entertains but also serves as a platform for enhancing cognitive skills, including perception, attentional control, and decision-making.

The proposal begins by addressing the project's context, its objectives, and the methodology employed to achieve them. Key considerations, including legal, social, ethical, and professional aspects, are integrated into the project plan to ensure its successful execution.

Furthermore, a comprehensive literature review explores the significance of survival games in the gaming industry, emphasizing their appeal and diversity, and it illustrates that there is a growing demand for immersive gaming experiences. This demand provides the foundation for the development of "Jungle Survival: Build and Craft," which seeks to cater to this demand by offering an engaging and challenging gaming experience.

The planning section of the proposal outlines a detailed Gantt chart, which organizes the project into phases and tasks, emphasizing the importance of a Scrum methodology to ensure adaptability and quality.

In summary, this proposal serves as a roadmap for addressing the challenge of developing a unique video game. It highlights the strategic approach employed to create an entertaining yet educational gaming experience, underlining the importance of the cognitive enhancement. The comparative analysis with other games showcases the uniqueness of "Jungle Survival: Build and Craft," and the structured project plan ensures its successful execution.

Moving forward, this project aims to delve deeper into the development of "Jungle Survival: Build and Craft," leveraging the insights and research findings presented in this proposal. The significance of this project lies in its potential to offer a gaming experience that not only entertains but also contributes to cognitive skill improvement, meeting the demands of modern gamers who seek both entertainment and education in their gaming experiences.

The results thus far have met our expectations, and we've discovered that there is a substantial market for games that offer immersive survival experiences with educational elements. As we continue with this project, we will explore more about the gaming industry, the reception of our game among players, and potential expansions and enhancements to our product.

In conclusion, the proposal sets the scene for the project by outlining the problem, objectives, and initial findings. It lays the groundwork for the development of "Jungle Survival: Build and Craft" and provides an overview of the direction the project will take.

3. Product Research

The table below is the comparision of the overall framework and specifics of each game including Jungle Survival. After reviewing and playing well-known games like as Minecraft and ARK, I examined their different strengths and flaws, gaining useful insights and features that I can add into my project to make it more well-organized and familiar to nearly all gamers.

Aspect	**Minecraft**	**ARK: Survival Evolved**	**Jungle Survival: Build And Craft**
Genre	Sandbox, Building, Survival	Sandbox, Dinosaur Sim	Sandbox, Building, Survival
Graphics	Pixelated, Blocky	Realistic, Detailed	Realistic, Detailed
Building	Extensive, Freedom	Structured Building	Structured Building
World Size	Virtually Infinite	Expansive Maps	Expansive Maps
Environments	Fantasy, Varied Biomes	Realistic, Prehistoric	Realistic, Fiction
Survival	Mild Threats	Frequent Dino Dangers	Frequent Animal Dangers
Exploration	Vast Underground, Oceans	Diverse Landscapes	Diverse Landscapes
Combat	Basic Melee, Archery	Firearms, Dino Taming	Basic Melee, Archery, Firearms
Taming	Not Available	Extensive Dino Taming	Not Available
Modding	Many Mods Available	Mod-Friendly	No Mod
Creative Mode	Yes for Creativity	Available for Building	No Creative Mode
Objective	Set Goals, Creativity	Survive in Dino World	Survive in post-apocalyptic World

Table 1 Comparison of three games.

Through the table compare information, the differences of Jungle Survival with the others is the objective, environment, modding…etc. Beside, in the gameplay the main function of the game such as Inventory System different than the other at it will sort item automatically which is the modern way a lot of game now not include.

4. Legal, Social, Ethical and Professional

My project is to create a game "Jungle Survival: Build and Craft". This is a game that the type of it is for entertainment and helping players in education, particularly in areas like perception, attentional control, and decision-making but this project need to pass legal, social, ethical, and professional considerations before start perform.

4.1. Legal Consideration

- **Copyright and Intellectual Property:** Ensure that all game content, including graphics, music, and code, does not infringe upon the copyrights or intellectual property rights of others.
- **Age Ratings and Content Regulation:** Comply with age rating requirements and content regulations in the gaming industry to avoid legal issues.

- **User Data Privacy:** Implement data protection measures to handle user data, considering laws like GDPR, COPPA, or other relevant data protection regulations.
- **Consumer Rights:** Understand and adhere to consumer rights laws, including refund policies, terms of service, and in-app purchases.

4.2. Social Consideration

- **Diversity and Representation:** Consider diversity and representation within the game characters and story to promote inclusivity.
- **Community Engagement:** Foster a positive gaming community through communication, feedback channels, and addressing player concerns.
- **Mental Health:** Be mindful of potential negative impacts on players' mental health and incorporate mechanisms to promote responsible gaming.

4.3. Ethical Consideration

- **In-App Purchases:** Maintain ethical in-app purchase practices, avoiding aggressive monetization strategies that may exploit players.
- **Game Addiction:** Implement features that encourage healthy playtime and discourage excessive gaming to address concerns about addiction.
- **Environmental Impact:** Consider the environmental footprint of the game's development and operations.
- **Fair Gameplay:** Ensure the game offers fair competition and does not encourage cheating or unfair advantages.
- **Community and Developer Interaction:** Uphold ethical communication with players, responding to concerns and criticisms constructively.

4.4. Professional Consideration

- **Professional Development:** Keep the development team up-to-date with the latest gaming technologies and trends.
- **Quality Assurance:** Prioritize quality and rigorous testing to minimize bugs and issues.
- **Player Support:** Provide reliable player support for technical and gameplay issues.
- **Community Management:** Engage with the gaming community professionally and positively, addressing concerns and feedback.
- **User Experience (UX):** Design the game with a focus on an enjoyable and intuitive user experience, with professional UI/UX principles.

5. Planning

I have developed a Gantt chart to facilitate the meticulous oversight of our project's implementation phases. Each segment of the project has been meticulously tailored and deconstructed into multiple small tasks appropriate with a designated timeframe for each task. In the table below, the column processor is stand for task priority, that mean the row has a specific number will be handle after the task carry this specific number handled.

No.	Task Name	Duration	Start Date	End Date	Predecessors
1.	**Jungle Survival: Build And Craft**	**146 days**	**Fri 9/15/23**	**Tue 4/16/24**	
2.	**Initiation phase**	**7 days**	**Fri 9/15/23**	**Mon 9/25/23**	
3.	Create project plan	3 days	Fri 9/15/23	Tue 9/19/23	
4.	Create Gantt chart	2 days	Wed 9/20/23	Thu 9/21/23	3
5.	Create report documentation	2 days	Fri 9/22/23	Mon 9/25/23	4
6.	**Research and Analysis phase**	**15 days**	**Tue 9/26/23**	**Mon 10/16/23**	
7.	Research on game concept and design	3 days	Tue 9/26/23	Thu 9/28/23	5
8.	Analyze market and player needs	2 days	Fri 9/29/23	Mon 10/2/23	7
9.	Competitor analysis	4 days	Tue 10/3/23	Fri 10/6/23	8
10.	Art style and graphics research	4 days	Mon 10/9/23	Thu 10/12/23	9
11.	Create detailed project schedule	2 days	Fri 10/13/23	Mon 10/16/23	10
12.	**Development phase**	**70 days**	**Tue 10/17/23**	**Tue 1/23/24**	
13.	Artwork and graphics design	4 days	Tue 10/17/23	Fri 10/20/23	11
14.	Level design and environment creation	2 days	Mon 10/23/23	Tue 10/24/23	13
15.	Character development and animations (animal AI)	10 days	Wed 10/25/23	Tue 11/7/23	14
16.	Programming and coding	35 days	Wed 11/8/23	Tue 12/26/23	15
17.	Sound and music integration	2 days	Wed 12/27/23	Thu 12/28/23	16
18.	Internal playtesting and iterations	5 days	Fri 12/29/23	Fri 1/5/24	17

19.	Bug tracking and resolution	9 days	Mon 1/8/24	Thu 1/18/24	18
20.	Create report documentation	3 days	Fri 1/19/24	Tue 1/23/24	19
21.	**Implementation phase**	**24 days**	**Wed 1/24/24**	**Tue 3/5/24**	
22.	Platform-specific adaptation (e.g., PC)	4 days	Wed 1/24/24	Mon 1/29/24	20
23.	Performance optimization	8 days	Tue 1/30/24	Fri 2/16/24	22
24.	Game content integration	8 days	Mon 2/19/24	Wed 2/28/24	23
25.	Create report documentation	4 days	Thu 2/29/24	Tue 3/5/24	24
26.	**User testing and feedback phase**	**15 days**	**Wed 3/6/24**	**Tue 3/26/24**	
27.	Alpha testing with an internal team	3 days	Wed 3/6/24	Fri 3/8/24	25
28.	Beta testing with a selected group of players	3 days	Mon 3/11/24	Wed 3/13/24	27
29.	Addressing user feedback and bug fixes	4 days	Thu 3/14/24	Tue 3/19/24	28
30.	Continuous playtesting and improvements	3 days	Wed 3/20/24	Fri 3/22/24	29
31.	Create report documentation	2 days	Mon 3/25/24	Tue 3/26/24	30
32.	**Closing phase**	**15 days**	**Wed 3/27/24**	**Tue 4/16/24**	
33.	Final quality assurance and testing	4 days	Wed 3/27/24	Mon 4/1/24	31
34.	Create user guides and documentation	4 days	Tue 4/2/24	Fri 4/5/24	33
35.	Launch the game	2 days	Mon 4/8/24	Tue 4/9/24	34
36.	Monitor player feedback and address issues	2 days	Wed 4/10/24	Thu 4/11/24	35
37.	Create report documentation	3 days	Fri 3/12/24	Tue 4/16/24	36

Table 2 Project Schedule.

Leveraging the Scrum approach, we will decompose the project into manageable sprints, each dedicated to specific features, mechanics, or facets of the game. This approach promotes adaptability in response to player feedback and guarantees a consistent level of quality throughout the game's development process.

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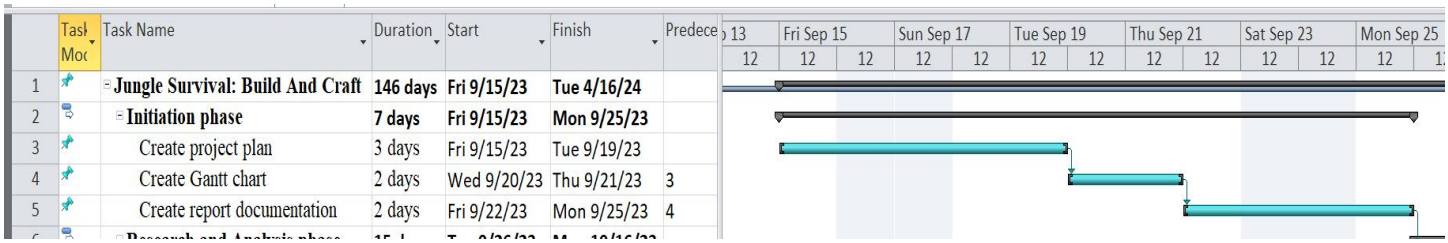
Appendix A - Project Schedule

These are the gantt chart of project:

- Initiation phase:



	Task Mode	Task Name	Duration	Start	Finish	Predecessors
1		**Jungle Survival: Build And Craft**	**146 days**	**Fri 9/15/23**	**Tue 4/16/24**	
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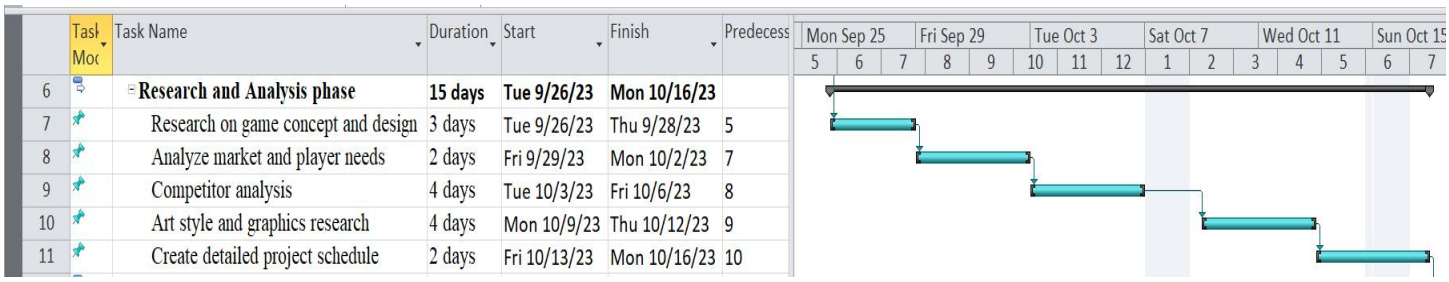
3		Create project plan	3 days	Fri 9/15/23	Tue 9/19/23	
4		Create Gantt chart	2 days	Wed 9/20/23	Thu 9/21/23	3
5		Create report documentation	2 days	Fri 9/22/23	Mon 9/25/23	4

Figure 1 Ganttchart Initiation phase

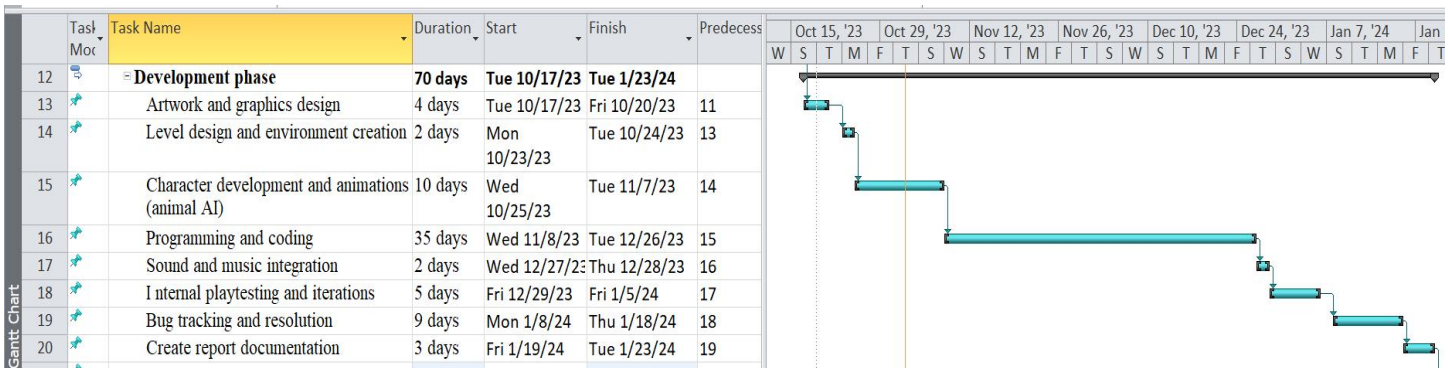
- Research and Analysis phase:



	Task Mode	Task Name	Duration	Start	Finish	Predecessors
6		**Research and Analysis phase**	**15 days**	**Tue 9/26/23**	**Mon 10/16/23**	
7		Research on game concept and design	3 days	Tue 9/26/23	Thu 9/28/23	5
8		Analyze market and player needs	2 days	Fri 9/29/23	Mon 10/2/23	7
9		Competitor analysis	4 days	Tue 10/3/23	Fri 10/6/23	8
10		Art style and graphics research	4 days	Mon 10/9/23	Thu 10/12/23	9
11		Create detailed project schedule	2 days	Fri 10/13/23	Mon 10/16/23	10

Figure 2 Ganttchart Research and Analysis phase

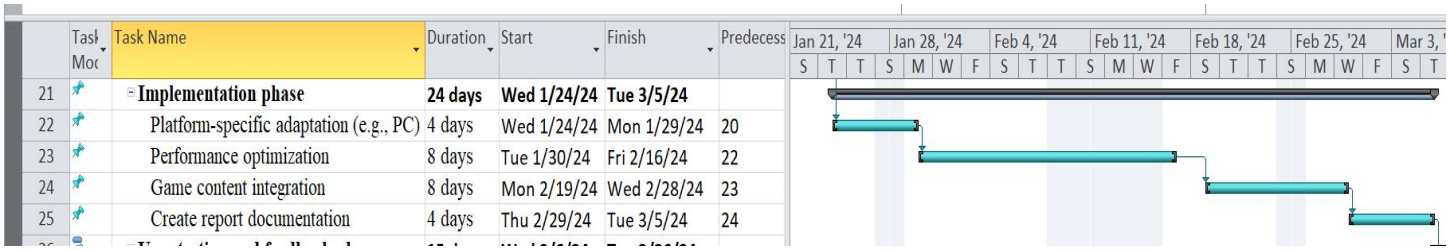
- Development phase:



	Task Mode	Task Name	Duration	Start	Finish	Predecessors
12		**Development phase**	**70 days**	**Tue 10/17/23**	**Tue 1/23/24**	
13		Artwork and graphics design	4 days	Tue 10/17/23	Fri 10/20/23	11
14		Level design and environment creation	2 days	Mon 10/23/23	Tue 10/24/23	13
15		Character development and animations (animal AI)	10 days	Wed 10/25/23	Tue 11/7/23	14
16		Programming and coding	35 days	Wed 11/8/23	Tue 12/26/23	15
17		Sound and music integration	2 days	Wed 12/27/23	Thu 12/28/23	16
18		I nternal playtesting and iterations	5 days	Fri 12/29/23	Fri 1/5/24	17
19		Bug tracking and resolution	9 days	Mon 1/8/24	Thu 1/18/24	18
20		Create report documentation	3 days	Fri 1/19/24	Tue 1/23/24	19

Figure 3 Ganttchart Development phase

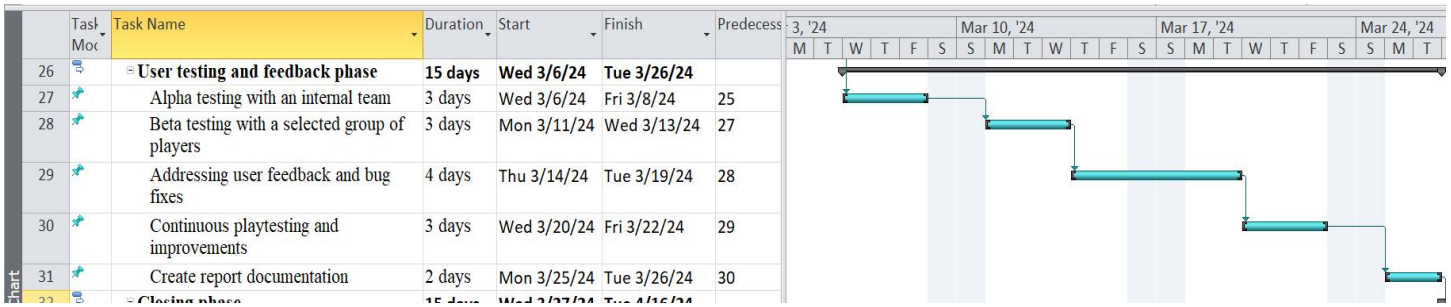
- Implementation phase:



	Task Mode	Task Name	Duration	Start	Finish	Predecessors
21		**Implementation phase**	**24 days**	**Wed 1/24/24**	**Tue 3/5/24**	
22		Platform-specific adaptation (e.g., PC)	4 days	Wed 1/24/24	Mon 1/29/24	20
23		Performance optimization	8 days	Tue 1/30/24	Fri 2/16/24	22
24		Game content integration	8 days	Mon 2/19/24	Wed 2/28/24	23
25		Create report documentation	4 days	Thu 2/29/24	Tue 3/5/24	24

Figure 4 Ganttchart Implementation phase

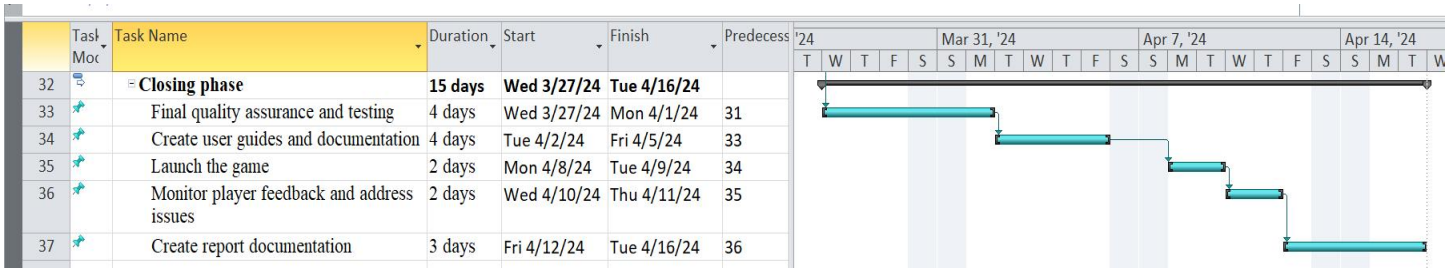
- User testing and feedback phase:



	Task Mod	Task Name	Duration	Start	Finish	Predecess
26		**User testing and feedback phase**	**15 days**	**Wed 3/6/24**	**Tue 3/26/24**	
27		Alpha testing with an internal team	3 days	Wed 3/6/24	Fri 3/8/24	25
28		Beta testing with a selected group of players	3 days	Mon 3/11/24	Wed 3/13/24	27
29		Addressing user feedback and bug fixes	4 days	Thu 3/14/24	Tue 3/19/24	28
30		Continuous playtesting and improvements	3 days	Wed 3/20/24	Fri 3/22/24	29
31		Create report documentation	2 days	Mon 3/25/24	Tue 3/26/24	30

Figure 5 Ganttchart User testing and feedback phase

- Closing phase:



	Task Mod	Task Name	Duration	Start	Finish	Predecess
32		**Closing phase**	**15 days**	**Wed 3/27/24**	**Tue 4/16/24**	
33		Final quality assurance and testing	4 days	Wed 3/27/24	Mon 4/1/24	31
34		Create user guides and documentation	4 days	Tue 4/2/24	Fri 4/5/24	33
35		Launch the game	2 days	Mon 4/8/24	Tue 4/9/24	34
36		Monitor player feedback and address issues	2 days	Wed 4/10/24	Thu 4/11/24	35
37		Create report documentation	3 days	Fri 4/12/24	Tue 4/16/24	36

Figure 6 Ganttchart Closing phase