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RPG Game Demon Slayer: Shadows of the Moon

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Abstract: *"Demon Slayer: Shadows of the Moon" is a captivating 2D top-down RPG that invites players to step into the shoes of Tanjiro Kamado as he embarks on his harrowing journey inspired by Season 1 of the beloved anime. Set in a beautifully hand-drawn world reminiscent of Taisho-era Japan, players will navigate lush forests, eerie mountains, and bustling villages, all while confronting the dark forces of demons that threaten humanity.*

Players will experience a rich narrative filled with emotional depth as they seek to avenge their family's tragic fate and protect Tanjiro's transformed sister, Nezuko. The game features engaging quests, character interactions, and challenging encounters with iconic demons, each requiring unique strategies and tactics to defeat.

Utilizing a dynamic combat system, players can switch between melee and ranged attacks, mastering a variety of breathing techniques and weapon styles as they level up and unlock powerful abilities. The top-down perspective enhances exploration and combat, allowing players to discover hidden secrets and treasures throughout their journey.

In "Demon Slayer: Shadows of the Moon," players will forge friendships, face moral dilemmas, and ultimately determine their path as a hero. Will you have the courage to confront the darkness and fulfill your destiny as a demon slayer? The fate of your world lies in your hands.

Keywords: RPG Game, 2D Orthographic, Pixelated Game, Tanjiro Kamado, Demon Slayer, Tile-Based Mapping, NPC Interactions, Inventory System, Quest System, Story-Driven RPG

I. INTRODUCTION

Welcome to *[Tanjiro's Adventure]*, a thrilling 2D pixelated RPG where you step into the shoes of a brave Demon Slayer in a world plagued by demonic threats. Set in a beautifully crafted orthographic environment, this retro-style game invites you to explore vast, handcrafted locations filled with danger, secrets, and ancient relics. As a young warrior, you'll master various breathing techniques, each offering unique abilities to help you confront increasingly powerful enemies. The gripping storyline, inspired by the Demon Slayer universe, follows your journey of revenge, courage, and sacrifice as you forge alliances and uncover hidden truths about your lineage and the demon scourge. Every decision shapes your path, with dynamic combat and tactical challenges testing your skills at every turn. Will you follow the path of honor or let darkness consume you? Your choices lead to multiple endings, making each playthrough a new adventure. Prepare for intense battles, exploration, and a richly immersive world as you rise to become a legendary Demon Slayer in *[Tanjiro's Adventure]*.

Beyond combat, exploration plays a key role in the game. As you travel across the landscape, you'll uncover hidden paths, rare items, and ancient relics that can enhance your powers and aid you in battle. The world is vast, offering countless opportunities to discover new quests, solve challenging puzzles, and engage in side stories that will deepen your connection to the world and its characters. Every corner of this 2D orthographic world tells a story, and every enemy you face brings you one step closer to becoming a legendary Demon Slayer.

In *[Tanjiro's Adventure]*, the choices you make matter. With multiple story paths and endings, your decisions will determine whether you rise as a hero or fall into darkness. The game offers replayability, encouraging you to return to its richly crafted world again and again, each time with new challenges and experiences. Are you ready to wield your blade, harness the power of breathing techniques, and face the demonic threats that endanger humanity? The fate of the world rests on your shoulders, and your destiny awaits.

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II. METHODOLOGY

Our RPG Game was developed using Java in Eclipse, following a structured approach: planning the storyline and features, designing the 2D pixelated environment, implementing mechanics, testing for bugs, and refining for final deployment. The key features and functionalities are outlined below:

Hardware Integration:

The RPG game has minimal hardware requirements since it is a 2D pixelated game built in Java. It runs on standard PCs or laptops without the need for high-end specifications. The game relies on a keyboard for movement and interactions, with optional mouse support for UI navigation. It does not require external controllers or advanced graphics hardware, making it accessible on most systems.

Software Integration:

The RPG game is built in Java using Eclipse, integrating libraries for graphics, input handling, and save/load functionality. It runs as a standalone application without requiring external game engines, ensuring compatibility across standard PC environments.

1. Java-Based Development:

Developed using Java to ensure cross-platform compatibility and efficient game logic handling.

2. Eclipse IDE:

Utilized for structured development, debugging, and project management.

3. Library Integration:

Graphics & Input Handling:

Uses Java libraries to manage sprite rendering and user interactions.

File Management:

Implements Java's built-in file handling for saving and loading game progress.

Standalone Application:

Lightweight & Independent:

Runs without external game engines, making it easy to install and distribute.

Performance Optimized:

Designed to function smoothly on standard PC hardware with minimal system requirements.

The RPG game integrates Java-based development with essential libraries and a standalone structure, ensuring smooth gameplay and easy accessibility.

Our RPG game, "Tanjiro's Adventure," is a 2D orthographic pixelated game built in Java using Eclipse. The player takes on the role of Tanjiro, moving through different locations, interacting with

NPCs, and solving puzzles to uncover the mystery of his missing family. The game does not feature combat, instead relying on dialogue-based progression where players must gather clues from NPCs and the environment to move forward.

One of the core mechanics involves puzzle-solving, particularly finding keys to unlock doors and access new areas. Players must explore thoroughly, paying attention to hints and objects that might help them progress. The game also includes a save and load system, allowing players to store their progress and continue from where they left off.

As the story unfolds, Tanjiro gradually pieces together information, only to reach a humorous and unexpected conclusion—his family was never in danger. Instead, they were simply attending a kitty party with Muzan and had forgotten to inform him, making his entire journey unnecessary. This comedic twist subverts traditional RPG expectations, making the game lighthearted and engaging.

Despite its simplicity, the game focuses on storytelling, exploration, and logic-based problem-solving, offering players an enjoyable experience. With minimal hardware requirements, it runs efficiently on standard PCs without the need for high-end specifications.

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III. IMPLEMENTATION

3.1 Software Implementation:

1. Java-based development:

The game is developed using Java, following an object-oriented programming approach to efficiently manage various game elements such as the player, NPCs, and puzzles. Each component is handled through separate classes, making the code modular, easy to debug, and scalable for future enhancements.

2. Eclipse IDE:

The game is built in Eclipse IDE, which provides a structured coding environment with syntax highlighting, debugging tools, and project management features. This helps streamline development, detect errors efficiently, and ensure smooth integration of different game components.

3. Graphics and rendering:

Java's built-in graphics libraries are used to render 2D pixelated sprites in an orthographic view. The game ensures smooth movement and interaction of characters while maintaining a lightweight design that does not require external game engines.

4. Input handling:

The game processes keyboard inputs for movement and interactions, allowing seamless control over Tanjiro's actions. It listens for real-time user input, ensuring responsive navigation and interaction with NPCs and objects in the game environment.

5. Save and load system:

A file-handling system is implemented to allow players to save their progress and reload it later. This feature prevents players from having to restart the game every time, providing a more immersive and user-friendly experience.

6. Dialogue and clue system:

The game includes a predefined dialogue system where NPCs provide hints and information. This system is crucial for story progression, requiring players to pay attention to dialogues and gather clues to uncover the mystery behind Tanjiro's missing family.

3.2 Hardware Implementation:

1. System requirements

The game is designed to run on standard PCs and laptops with minimal hardware requirements. It does not require high-end specifications, making it accessible to a wide range of users.

2. Input devices

The game primarily uses a keyboard for player movement and interactions. Optional mouse support may be included for navigating the game's UI, such as menus and dialogue selection.

3. Display and rendering

The game runs on a standard computer monitor with a fixed resolution suited for 2D pixelated graphics. Java's rendering system ensures smooth performance without needing advanced GPUs.

4. Storage and memory usage

Since the game is lightweight, it consumes minimal RAM and storage space. The save/load system utilizes simple file handling, ensuring that player progress is stored efficiently without excessive memory usage.

5. Compatibility and portability

As a Java-based application, the game is compatible with multiple operating systems, including Windows, macOS, and Linux. It does not rely on any external gaming hardware, making it easy to install and runon various systems.

6. Performance optimization

The game is optimized for smooth performance on low-end hardware by using efficient coding techniques. It avoids unnecessary resource consumption, ensuring a lag-free experience even on older devices.

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IV. TESTING AND VALIDATION OF SOFTWARE

1. Introduction:

Testing and validation are essential to ensure the reliability, functionality, and performance of the RPG game. This section outlines the testing methodologies used, test cases executed, and validation results to confirm that the game meets both functional and non-functional requirements.

2. Testing Methodologies:

2.1 Unit Testing

Unit testing was conducted to verify the proper functionality of individual game components, including:

- Player movement and collision detection with obstacles and NPCs
- Dialogue system displaying correct NPC responses and clues
- Puzzle mechanics ensuring doors unlock upon collecting the required keys
- Save and load system correctly storing and retrieving player progress

2.2 Functional Testing

Functional testing ensured that all game features operated as expected. The key test cases included:

- Accurate movement and interaction with the game environment
- Proper execution of the dialogue system when talking to NPCs
- Correct functioning of the puzzle-solving mechanics, such as using keys to unlock doors
- Save and load system restoring the game state without errors

2.3 Performance Testing

Performance tests were conducted to evaluate the game's efficiency and responsiveness, focusing on:

- Smooth frame rates and seamless player movement without lag
- Memory usage optimization to prevent excessive resource consumption
- Quick loading times when starting, saving, and loading the game

2.4 Compatibility Testing

The game was tested on different hardware configurations and operating systems to ensure broad compatibility, covering:

- Various screen resolutions and aspect ratios to maintain visual consistency
- Different PC specifications, including low-end and high-end systems
- Operating systems such as Windows, macOS, and Linux to verify cross-platform support

2.5 Usability Testing

A group of users tested the game to assess:

- Ease of navigation and responsiveness of player controls
- Clarity of dialogue text and effectiveness of provided clues
- Overall user experience and engagement throughout the storyline

3. Validation

To validate the game's mechanics and storyline, feedback was gathered from test players. The validation focused on:

- The effectiveness of puzzle-solving elements and clue-based progression
- Player understanding of the storyline and interactions with NPCs
- Ensuring the final game outcome (Tanjiro discovering his family at a kitty party) was delivered as intended

IV. TEST RESULTS

Test Case	Expected Outcome	Actual Outcome	Status
Player movement	Smooth movement in all directions without lag	Movement works as expected	✓ Pass
NPC interaction & dialogue system	NPCs display correct dialogues and provide clues properly	NPC dialogues work correctly	✓ Pass
Puzzle-solving mechanics	Keys unlock the correct doors when collected	Doors unlock properly	✓ Pass

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Save and load system	Game state is stored and retrieved accurately	Save/load functions correctly	✓ Pass
Performance (FPS & memory usage)	Stable frame rate and optimal memory usage	Smooth performance observed	✓ Pass
Compatibility on different OS	Runs without issues on Windows, macOS, and Linux	No OS-related issues detected	✓ Pass
Usability (navigation & controls)	Easy-to-use controls and intuitive navigation	Players found it user-friendly	✓ Pass
Story progression and ending	Player can uncover clues and reach the final scene properly	Ending sequence works as expected	✓ Pass

V. DISCUSSION

The RPG Game successfully integrates interactive gameplay, engaging story progression, and intuitive mechanics. Below is a detailed analysis of its implementation, strengths, and areas for improvement.

1. Game Mechanics Implementation Details

• **Player Movement & Controls:** Smooth and responsive movement using keyboard input for navigation across the game map.
• **NPC Interaction:** Dialogue system allows players to converse with NPCs and gather clues related to the storyline.
• **Puzzle System:** Players must find keys and solve challenges to progress, unlocking new areas.
• **Save & Load Functionality:** Ensures player progress is stored and can be resumed at any point.

Challenges & Solutions:

• **Pathfinding Issues:** Adjustments made to collision detection to prevent the player from moving through obstacles.
• **Dialogue Clarity:** Structured NPC responses with hint-based interactions to guide players effectively.

2. User Interface (UI) & Experience

Dynamic UI:

- A simple pixelated interface designed to align with the game's retro aesthetic.
- Inventory system to display collected items (e.g., keys).

Dialogue System:

- Text-based dialogue with multiple NPCs, allowing engaging interactions
- Ensures key information is easily readable and accessible.

Optimizations:

- Adjusted text box positioning for better readability.
- Improved interaction prompts for smooth gameplay flow.

3. Background Processing & Game Logic

Event Trigger System:

- Players must interact with NPCs in a specific order to progress through the game.
- Key events are triggered based on collected items and solved puzzles.

Performance Optimization:

- Efficient memory management prevents lag during gameplay.
- Collision detection optimized to ensure smooth player movement.

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4. Game Environment & World Design

Map Navigation:

- A structured game world with different locations and locked areas that require puzzle-solving to access.
- NPC placement designed to naturally guide players towards story progression.

Environment Interactions:

- Objects within the game can be examined for additional clues and lore.

5. Strengths & Weaknesses

Strengths:

- **Engaging Storyline:** A humorous twist on the Demon Slayer universe, keeping players entertained.
- **Puzzle-Solving Gameplay:** Encourages critical thinking without requiring combat mechanics.
- **Simple & Lightweight:** Designed for smooth performance, even on low-end systems.

Weaknesses & Improvements:

- **Limited Visuals:** Could be improved with better animations or graphical effects.
- **No Combat System:** While the game focuses on puzzle-solving, additional mechanics could enhance engagement.
- **Future Enhancement:** Expand side quests or add collectible lore items to deepen the game's world-building.

6. Future Directions and Recommendations

Future improvements could include additional puzzle mechanics, enhanced UI elements, and better animations to make interactions more immersive. Adding more side quests and NPC interactions would also enrich gameplay. Additionally, expanding the game's saving system for multiple save slots and refining the dialogue mechanics with branching storylines could provide a more dynamic experience.

VI. CONCLUSION

The development of the RPG Game successfully integrates interactive storytelling, puzzle-solving mechanics, and an engaging mystery-driven narrative. By allowing players to navigate the game world, interact with NPCs, and gather clues, the game creates an immersive experience without relying on traditional combat mechanics. The implementation of a dialogue system, key-based puzzle progression, and a save/load feature ensures smooth gameplay and replayability. Despite its strengths, certain limitations such as minimal visuals, lack of combat elements, and a simple UI can be improved in future iterations. Enhancements like more detailed animations, additional side quests, and an expanded story could further enrich the player's experience. Implementing a more dynamic NPC interaction system and refining puzzle complexity would also add depth to the gameplay.

In conclusion, the RPG Game serves as an engaging and humorous take on the Demon Slayer universe, providing an enjoyable experience through exploration and problem-solving. With future improvements in world-building, interactivity, and graphical enhancements, the game has the potential to become a more immersive and polished adventure for players

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