

Samurai Slash Technical Documentation

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1 Introduction

In this documentation, you'll find detailed explanations of the various scripts, systems, and components that power Samurai Slash. Whether you're looking to delve into the architecture of the game, contribute to its development, or simply gain insight into its design philosophy, this guide will provide you with the essential knowledge needed to navigate the codebase effectively.

2 Folder Structure

In Samurai Slash, the organization of the codebase revolves around three core folders: **scenes**, **scripts**, and **assets**. Each folder plays a crucial role in defining the structure and functionality of the game.

- **Scenes:** The scenes folder serves as the repository for all the game's scenes, each representing a specific gameplay scenario or user interface element. From the immersive battlegrounds where the samurai engages in fierce combat to the intricate menus guiding players through their journey, every aspect of the game's visual and interactive elements is encapsulated within this folder.
- **Scripts:** Within the scripts folder lie the lifeblood of Samurai Slash: the scripts responsible for orchestrating the game's behavior and mechanics. These scripts govern everything from player movement and combat mechanics to enemy behavior and environmental interactions. With meticulous attention to detail and robust coding practices, the scripts in this folder bring the world of Samurai Slash to life, empowering players to embark on their epic quest with confidence and precision.
- **Assets:** The assets folder houses a treasure trove of visual and auditory delights, comprising the graphical and audio assets that define the aesthetic and atmosphere of Samurai Slash. From the razor-sharp katana wielded by the samurai to the thunderous roars of approaching adversaries, every asset in this folder is carefully curated to immerse players in the heart-pounding action and breathtaking landscapes of feudal Japan.

3 Main Scenes

Samurai Slash features two primary scenes that serve as the cornerstone of the player's journey: the **game_menu** scene and the **samurai_slash** scene. Each scene plays a distinct role in shaping the player's experience and guiding them through the immersive world of the game.

- **game_menu** Scene: Prominently displayed within the game_menu scene, the "Play" button beckons players to embark on their journey into the heart of the action. Upon pressing this button, players are seamlessly transitioned to the samurai_slash scene, where their skills will be put to the ultimate test. For those moments when duty calls or adventure must yield to reality, the game_menu scene offers a convenient "Quit" button, allowing players to gracefully exit the game and return to the outside world.
- **samurai_slash** Scene: The samurai_slash scene stands as the battleground where the epic struggle between the fearless samurai and hordes of adversaries unfolds. At its heart lies the **GameManager** script, a pivotal entity that orchestrates the entire gameplay experience, ensuring seamless coordination and relentless challenge for players.

4 Game Systems

Samurai Slash is driven by a robust game management system orchestrated by the **GameManager**. This central entity serves as the nerve center of the game, overseeing a multitude of critical functions that govern gameplay progression, player interaction, and overall user experience. The **GameManager** is the backbone of Samurai Slash, responsible for coordinating a myriad of game systems and mechanics. Its primary responsibilities include:

- **Wave Management:** Initiating and managing waves of enemies as the player progresses through the game. The **GameManager** orchestrates the timing and composition of enemy waves, ramping up the challenge with each successive wave.
- **Enemy Spawning:** Dynamically spawning enemies onto the battlefield in response to wave progression. The **GameManager** ensures a seamless and engaging combat experience by strategically deploying adversaries to confront the player.
- **Power-Up Distribution:** Dispensing power-ups and enhancements to aid the player in their quest for victory. From health boosts to temporary invincibility, the **GameManager** rewards skillful play and strategic decision-making by offering a variety of power-ups throughout the game.
- **Pause Management:** Monitoring player input and responding to commands such as pausing the game when the player presses the escape key.

The **GameManager** facilitates smooth transitions between gameplay and pause states, allowing players to take a moment to catch their breath or adjust settings as needed.

- **Player Status Monitoring:** Tracking the player's health and vital statistics to determine when the game should end. Upon the player's demise, the **GameManager** displays a menu offering options to restart the game or exit to the main menu, ensuring a seamless and intuitive user experience.
- **Enemy Lifecycle Management:** Through vigilant monitoring of enemy health states, the **GameManager** ensures that defeated adversaries are promptly removed from the scene, clearing the battlefield for the next wave of challenges. By orchestrating the deletion of enemies upon their demise, the **GameManager** maintains a dynamic and engaging combat experience that keeps players on the edge of their seats.

5 Game Objects

In *Samurai Slash*, the dynamic interplay between player and enemy characters forms the backbone of the gameplay experience. Through meticulously crafted scenes and scripts, each game object comes to life, imbued with unique behaviors and interactions that shape the flow of combat and challenge players to rise to the occasion. In *Samurai Slash*, the arsenal of game objects extends beyond the player and enemies to include power-ups that bestow temporary advantages upon the samurai in their quest for victory.

- Player Character:

- **Player Scene:** Within the player scene, players find themselves immersed in the heart-pounding action of *Samurai Slash*, traversing treacherous landscapes and engaging in epic combat encounters with skill and determination.
- **Player Script:** At the core of the player character's functionality lies the player script, a masterful blend of input handling, movement mechanics, combat logic, and animation management. Through a series of meticulously crafted animations, the player script brings the samurai's movements to life, evoking a sense of fluidity and precision that enhances the immersive nature of combat.
- **Collision Signals:** Through meticulously crafted collision signals, the player character reacts dynamically to the ebb and flow of combat, taking damage when struck by enemy attacks and responding with resilience and determination.

- Enemy Characters:

- **Enemy Scene:** Within the enemy scenes, players encounter a diverse array of foes, each meticulously designed to evoke a sense of danger and excitement. From shadowy forests to ancient temples, every environment serves as a backdrop for epic clashes and daring escapes.
 - **Enemy Script:** Driving the behavior of enemy characters is the enemy script, a sophisticated AI engine that governs movement, aggression, tactical decision-making, and animation management. Through a series of meticulously crafted animations tied to specific states—idle, chasing, and attacking—the enemy script imbues adversaries with a sense of intelligence and adaptability, ensuring that each encounter is a test of skill and strategy.
 - **Collision Signals:** Just as with the player character, collision signals play a crucial role in determining the outcome of battles between player and enemy. Through responsive collision detection and robust damage calculations, the enemy script ensures that combat in Samurai Slash is both thrilling and immersive.
- **Power-Ups:**
- **Power-Up Scene:** Each power-up is encapsulated within its own scene, seamlessly integrated into the dynamic landscapes of Samurai Slash to provide players with tactical advantages at key moments in combat.
 - **Power-Up Script:** At the heart of each power-up lies its script, a meticulously crafted engine of interaction, empowerment, and animation management that governs the behavior, effects, and visual representation of the power-up. Through a series of responsive signals, collision detection mechanisms, and animation triggers, the power-up script ensures that players are rewarded for their skill and strategy with timely boosts to their combat capabilities, accompanied by captivating visual effects that enhance the immersive nature of gameplay.
 - **Collision Signals:** In order to be activated, power-ups emit collision signals that detect when the player character comes into contact with them. Upon detection, the power-up signal triggers a series of events that grant the player its associated benefits before removing the power-up from the battlefield, ensuring that each power-up is a fleeting but impactful asset in the samurai's arsenal.

6 Data Management

In Samurai Slash, efficient data management lies at the core of seamless game-play experiences. Leveraging the power of scene loading and instantiation, the game dynamically populates the world with player characters, enemies, and power-ups, ensuring a rich and immersive environment teeming with challenges and opportunities.

- **Scene Loading:** Samurai Slash adopts a modular approach to data management, encapsulating player, enemy, and power-up data within dedicated scenes. These scenes serve as repositories for essential game objects, behaviors, and assets, facilitating streamlined development and enhanced scalability. Upon initialization of the game or relevant gameplay events, the GameManager script utilizes Godot's scene loading functionality to load scenes containing player, enemy, and power-up data into memory. This preparatory step ensures that essential game assets are readily available for instantiation when needed, minimizing loading times and enhancing the overall player experience.
- **Instantiation:** With scenes containing player, enemy, and power-up data loaded into memory, Samurai Slash leverages Godot's instantiation capabilities to dynamically spawn these game objects within the game scene as dictated by gameplay logic. When the GameManager script initiates a wave of enemies or spawns a power-up, it instantiates the corresponding scenes containing enemy or power-up data, respectively, within the game scene. Through this process, the game seamlessly populates the battlefield with adversaries and strategic assets, fostering a dynamic and engaging gameplay experience for players.

7 Enemy Types and Attacks

In Samurai Slash, adversaries come in various forms, each presenting unique challenges and combat strategies for players to overcome. Among these adversaries are melee enemies, which engage in close-quarters combat, and ranged enemies, which utilize both melee attacks and long-range projectile assaults to test the samurai's mettle.

- Melee Enemies:

- **Melee Attacks:** When in close proximity to the player character, melee enemies unleash a flurry of devastating melee attacks, slashing and thrusting with deadly precision in an attempt to break through the samurai's defenses and deliver a fatal blow.
- **Behavior:** Melee enemies exhibit a straightforward combat pattern, prioritizing direct confrontation and relentless aggression over subtlety or finesse. Through a combination of swift movements and punishing strikes, these adversaries seek to overwhelm the samurai with sheer force of numbers and ferocity.

- Ranged Enemies:

- **Melee Attacks:** Similar to melee enemies, ranged adversaries are capable of engaging in close-quarters combat when the player character draws near. Utilizing swift and calculated strikes, these enemies attempt to

exploit openings in the samurai's defenses and capitalize on moments of vulnerability.

- **Long-Range Projectile Attacks:** In addition to melee attacks, ranged enemies possess the ability to unleash devastating long-range projectile assaults, launching a barrage of deadly projectiles at the samurai from a safe distance. These projectiles pose a significant threat to the samurai's health and well-being, requiring quick reflexes and nimble footwork to evade.
- **Bullet Spawning:** To execute their long-range projectile attacks, ranged enemies spawn projectiles—such as arrows, fireballs, or magical bolts—each time they unleash a volley of ranged assaults. These projectiles home in on the samurai's position with unerring accuracy, challenging players to stay on the move and maintain situational awareness amidst the chaos of battle.

8 Bullet Types

In the world of Samurai Slash, adversaries wield an array of deadly projectiles, each imbued with its own unique properties and capabilities. From arrows and fireballs to lightning bolts and magical spheres, these projectiles pose a formidable threat to the samurai's quest for victory, challenging players to remain vigilant and agile in the face of relentless onslaughts.

- Arrow:

- **Damage:** Low
- **Speed:** Very Fast
- **Behavior:** Arrows travel swiftly and silently through the air, capable of piercing through multiple targets with ease. Their speed and precision make them a favored weapon for the **Skeleton Archer**, allowing them to maintain distance from the samurai while unleashing a relentless barrage of deadly projectiles.

- Fireball:

- **Damage:** Moderate
- **Speed:** Moderate
- **Behavior:** Fireballs streak across the battlefield with blistering speed, leaving trails of searing flames in their wake. Upon impact, they explode in a fiery inferno, engulfing nearby targets in a conflagration of destruction. Their high damage output and area-of-effect capabilities make them a potent weapon against even the most resilient foes. These are used by the **Fire Wizard**

- **Lightning Ball:**

- **Damage:** High
- **Speed:** Moderate
- **Behavior:** Lightning balls streak across the battlefield with moderate speed, crackling with electrical energy as they seek out their targets. Upon impact, they unleash a devastating burst of lightning that arcs between nearby foes, dealing damage to multiple targets simultaneously. This is used by the **lightning wizard**

- **Magic Sphere:**

- **Damage:** Very High
- **Speed:** Moderate
- **Behavior:** Magic spheres glide gracefully through the air, leaving shimmering trails of arcane energy in their wake. Upon impact, they unleash a burst of mystical energy. This is used by the **Dark Magician**

- **Fire Sphere:**

- **Damage:** Moderate to Very High (over time)
- **Speed:** Fast
- **Behavior:** Fire spheres drift lazily through the air, emanating waves of intense heat that sear and scorch anything caught in their path. While slower than other projectiles, their persistent damage over time makes them a formidable threat that cannot be ignored, forcing players to navigate the battlefield with caution and precision. This is used by **Kitsune**

9 Outro

Thank you for delving into the technical documentation of **Samurai Slash**. May your journey be filled with excitement, challenge, and countless moments of triumph as you embark on your quest to become the ultimate samurai warrior.