Rock-Paper-Scissors AI Game - Project Report

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1 Introduction

This report describes the development of a Rock-Paper-Scissors game implemented in PHP with AI functionality. The AI adapts by countering the player's last move, creating a more challenging experience. The game tracks the player's wins, losses, and ties using PHP sessions.

2 Features

The key features of this game include:

- Player chooses Rock, Paper, or Scissors through a web interface.
- AI adapts to counter the player's previous move.
- Game tracks wins, losses, and ties using PHP sessions.
- The interface displays choices and the outcome of each round.
- The game allows resetting scores.
- Security measures such as input validation and XSS protection.

3 Technologies Used

The game is built using the following technologies:

- PHP - for backend logic.
- HTML & CSS - for UI design.
- Sessions - for game state management.
- JavaScript (optional) - for enhanced UI interactions.

4 Code Overview

The game starts by initializing a session to store player statistics. The AI determines its move based on the player's last choice. A function processes the game logic and updates the scores. The UI displays the choices and results dynamically.

5 Security Measures

To ensure security and integrity, the game incorporates the following measures:

- Input validation to ensure only valid choices are accepted.
- `htmlspecialchars()` function to prevent XSS attacks.
- Proper session management to maintain game data integrity.
- Secure reset function to prevent unexpected behavior.

6 Conclusion

This Rock-Paper-Scissors game demonstrates the capabilities of PHP in handling user input, sessions, and dynamic AI decision-making. The game provides an engaging experience while maintaining security best practices. Future improvements may include a leaderboard system and additional game modes.