**Rock Paper Scissors**

**Project Overview:**

This project implements a Rock-Paper-Scissors (RPS) game with an AI opponent that learns the player's behavior using machine learning. The goal is to predict the player's next move and play the winning counter-move.

**AI Method**

* **Type:** Supervised ML (Classification)
* **Algorithm:** Logistic Regression (scikit-learn)
* **Features:** Player’s last 3 moves
* **Prediction:** Next move → AI plays the counter to win
* **Model File:** model.pkl (trained from game\_data.csv)

**Tools Used**

* **Language:** Python
* **Game Engine:** Pygame
* **Libraries:** pandas, scikit-learn, joblib

**Results**

* AI starts randomly.
* After training (50+ rounds), AI improves and beats repetitive patterns.
* In tests, AI reached over **60% win rate** against predictable play styles.

**Challenges**

* Class imbalance when player repeats same moves
* Hard to train AI with random player behavior
* Initial CSV file format issues (solved with header fix)

GitHub : : <https://github.com/harunkiyagan/rock-paper-scissors-withAI>

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