Baseball Game Simulation Code Summary

This Python code simulates baseball innings using probabilistic outcomes based on real statistical data.

What the Code Does:

- It defines an enumeration of possible events in a plate appearance, such as walk, single, double, triple, home run, double play, out, and strikeout.
- The 'inning' function simulates one inning by processing plate appearances for each batter, updating base runner positions, and tracking outs and runs scored.
- It incorporates statistical data (e.g., walk rate, home run rate) with multipliers for each batting order position, adding realism to the simulation.
- Special cases like double plays and situational advances on outs are also handled.

Flexibility:

- The use of adjustable coefficient arrays makes it easy to modify probabilities for different players or teams.
- The modular design of the inning simulation allows for integration into larger game simulations or for adapting to different game scenarios.
- Running the simulation over a large number of innings produces reliable averages for game analysis.

Applications:

- Performance Analysis: Assessing how different batting orders or player statistics influence run production.
- Game Strategy and Coaching: Evaluating the impact of lineup changes or in-game decisions using

simulated outcomes.

- Educational and Research Purposes: Demonstrating the application of probability and simulation techniques in sports analytics.

Overall, this code serves as a robust tool for exploring various scenarios in baseball game analysis and can be tailored to simulate different conditions or team profiles.