MLB Guessing Game

Summary

MLB Guessing Game is a game in which a user is given the year by year statistics and is tasked with guessing who that player is. In the standard setting the pool of players begins in 1920 as that marks the beginning of what is known as the live-ball era. However, the pool of players for the game can be adjusted to include only hall of famers, only major award winners (MVP or CY Young), or debut date by decade. When playing a game, a player's year by year statistics and a hidden version of that player’s name are displayed to the user. The user has the option to guess the player, reveal more of the player’s name, or give up. Upon successful completion of a game, the time it takes for the user to guess the player, the amount of hints the user used, and the player’s name is displayed back to the user.

Subsystems

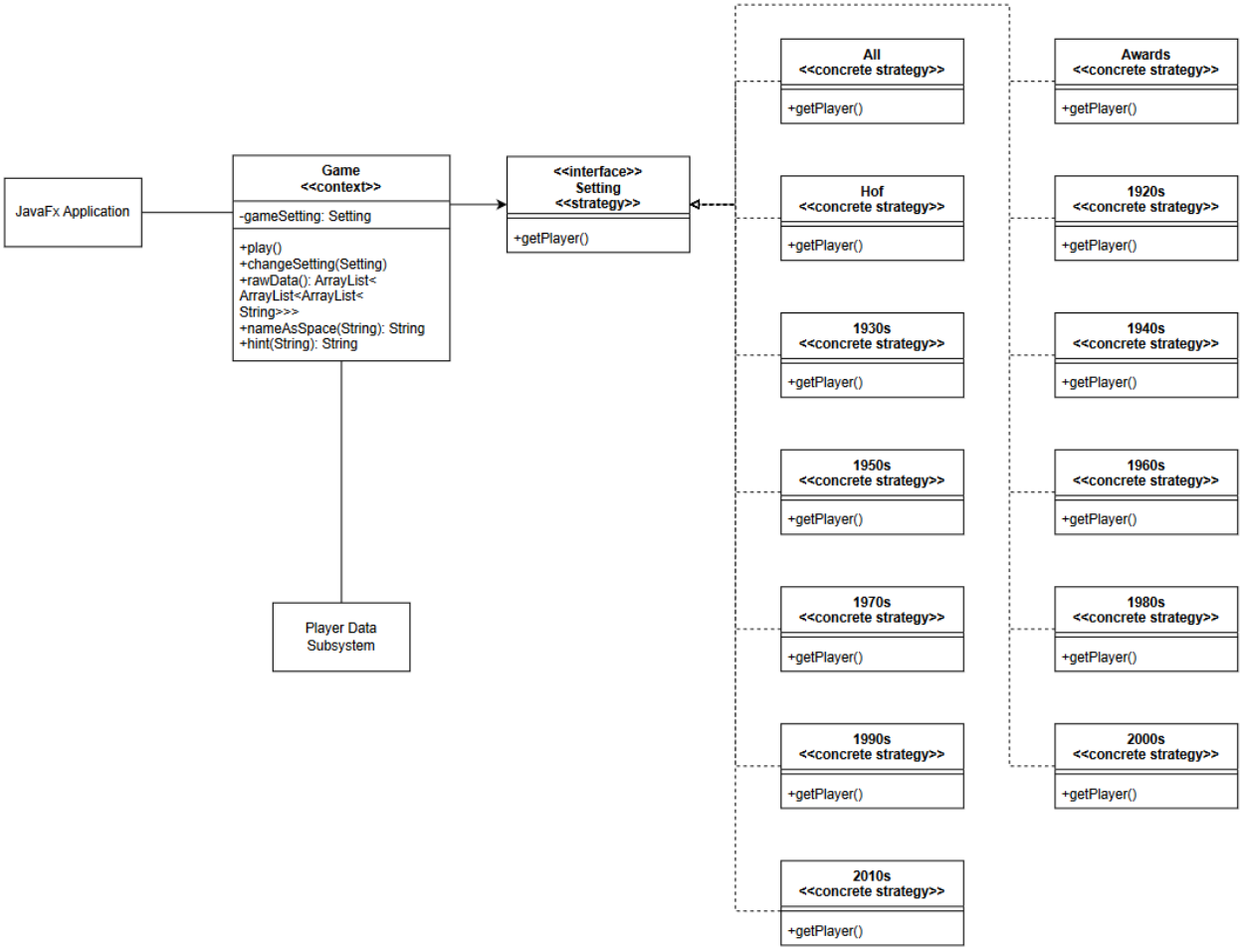
Game

Summary

The Game subsystem handles the functionality that goes into playing the game. This subsystem can be broken down into two major components: initializing a game, and playing and completing a game.

Games are initialized with a game setting that dictates the pool of players. The game settings are *All Players*, *Hall of Famers*, *Major Award Winners* (MVP or CY Young), and *decade of debut* starting from the 1920s to the 2010s and beyond. For all settings the pool of players only includes players with 1000 games played, and pitchers with 200 games played. In order to better achieve the game settings, the strategy pattern is applied. The strategy pattern makes it so that a family of player-sourcing algorithms can be used interchangeably. The application of the strategy pattern helps the system adhere to Open-Closed Principle as new game settings can be added by implementing the existing interface. The strategy pattern also increases cohesion as it leads to the creation of smaller classes with more narrowly defined responsibilities, these classes being the various concrete strategies.

Class Diagram



Strategy Pattern

Gof Pattern Name: Strategy		
Class	**GoF Participant Name**	**Participant's activity within the pattern in the context of the application (2-3 sentences).**
Game	Context	The actual game object. Maintains a reference to the PlayersDB in order to access the list of player information and statistics. Allows for the user to play and complete a game.
Setting	Strategy	Declares an interface common to all supported algorithms. Context uses this interface to call the algorithm defined by a ConcreteStrategy. Contains the getPlayer() method which gets a player and their stats to use for the game.

		getPlayer() only gets batters with 500 games and pitchers with 75 games
All	Concrete Strategy	A Setting that gets any player from the playersDB
Awards	Concrete Strategy	A Setting that only gets players who have won an MVP or CY Young
Hof	Concrete Strategy	A Setting that only gets player who are in the Hall of Fame
1920s	Concrete Strategy	A Setting that only gets player who debuted in the 1920s
1930s	Concrete Strategy	A Setting that only gets player who debuted in the 1930s
1940s	Concrete Strategy	A Setting that only gets player who debuted in the 1940s
1950s	Concrete Strategy	A Setting that only gets player who debuted in the 1950s
1960s	Concrete Strategy	A Setting that only gets player who debuted in the 1960s
1970s	Concrete Strategy	A Setting that only gets player who debuted in the 1970s
1980s	Concrete Strategy	A Setting that only gets player who debuted in the 1980s
1990s	Concrete Strategy	A Setting that only gets player who debuted in the 1990s
2000s	Concrete Strategy	A Setting that only gets player who debuted in the 2000s decade
2010s	Concrete Strategy	A Setting that only gets player who debuted in the 2010s decade and beyond

Player Data

Summary

The Player Data Subsystem handles the storage of player data. Data is stored using the PostgreSQL database. There are four databases. All databases have a playerkey entry which is used to link entries in different databases. The first database is called *Players* which stores a player's first and last name, their birthdate, their birth country, their debut date, and their final game date. The second database is called *Awards* which stores the MVP and CY Young winners, and the players in the Hall of Fame. The third database is called *Pitching* which stores pitching statistics, and the fourth database is called *Hitting* which stores hitting statistics. The statistical databases store entries per year. A pitching entry includes games, team, wins, loses, saves, earned run average, strikeouts, and innings. A hitting entry includes games, team, at-bats, runs, hits, doubles, triples, homeruns, runs-batted-in, steals, and walks. Data is initialized into PostgreSQL from a csv file. There is also a utility file which helps with PostgreSQL functionality.

Class Diagram