Driver & Interface Adapter

AppState

- Serializable Class that will store all of the current matches members
- Can be loaded and unloaded to save and reload a fantasy league’s data

Parent: None
Subclasses: None
Layer: Interface Adapaters

Relationships:

- SportsApp

DataContainer (Interface)

- DataContainer's subclasses will contain the data on players and teams
- When the app starts, data container subclass will be empty. Then, when a command is ran, it will check if it has the appropriate data, if not, it will load it in and save it, and if it does, it will just pass it right away

Parent: None
Subclasses: CSVDataContainer
Layer: Interface Adapaters

Relationships:

- SportsApp
- CSVDataContainer

CSVDataContainer

- Loads the necessary data from a CSV file
- Implements the methods set by the DataContainer interfaces: getPlayer and getTeam

Parent: DataContainer
Subclasses: None
Layer: Interface Adapaters

Relationships:

- DataContainer

SportsApp

Parent: None
Subclasses: None
Layer: Framework & Drivers

- Starting point of the app
- Prints starting instructions for the user to follow
- Accepts input from the user and passes it to the CommandManager
- Prints out the output received from the CommandManager

Relationships:

- CommandManager

CommandManager

- Parses the input string into a command and its arguments
- Identifies the command and passes it to an appropriate object

Parent: None
Subclasses: None
Layer: Interface Adapter

Relationships:

- InputParser
- PlayerStatManagerFacade
- PlayerStatComparerFacade
- PlayerStatPredictorFacade
- TeamStatManager
- TeamStatComparer
- TeamStatPredictor
- LeagueMemberManager

InputParser

Parent: None
Subclasses: None
Layer: Interface Adapter

- The class is responsible for parsing the user's input and extracting the arguments out of the input
- It will store the keyword command and the arguments for the command separately

- CommandManager

Related to Teams

TeamStatManagerFacade

- Facade class which accepts an argument requesting a statistic, checks the sport requested, and passes the argument to the appropriate sport's StatManager

Parent: None
Subclasses: None
Layer: Use Case

- HockeyTeamStatManager
- TennisTeamStatManager
- BaseballTeamStatManager

TeamStatManager (Abstract)

Parent: None
Subclasses: HockeyTeamStatManager, TennisTeamStatManager, BaseballTeamStatManager
Layer: Use Case

- Find or compute statistics about a given Team

- None

HockeyTeamStatManager

- Find or compute statistics about a given HockeyTeam

Parent: TeamStatManager
Subclasses: None
Layer: Use Case

- TeamManager
- HockeyTeam

TennisTeamStatManager

- Find or compute statistics about a given TennisTeam

Parent: TeamStatManager
Subclasses: None
Layer: Use Case

- TeamManager
- TennisTeam

BaseballTeamStatManager

- Find or compute statistics about a given BaseballTeam

Parent: TeamStatManager
Subclasses: None
Layer: Use Case

- TeamManager
- BaseballTeam

TeamStatComparerFacade

- Facade class which accepts an argument requesting comparison of statistics, checks the sport requested, and passes the argument to the appropriate sport's StatComparer

Parent: None
Subclasses: None
Layer: Use Case

- HockeyTeamStatComparer
- TennisTeamStatComparer
- BaseballTeamStatComparer

TeamStatComparer (abstract)

Parent: None
Subclasses: HockeyTeamStatComparer, TennisTeamStatComparer, BaseballTeamStatComparer
Layer: Use Case

- Compare two or more Teams on a given statistic

- None

HockeyTeamStatComparer

- Compare two or more Hockey Teams on a given statistic

Parent: TeamStatComparer
Subclasses: None
Layer: Use Case

- HockeyTeamStatManager

TennisTeamStatComparer

- Compare two or more Tennis Teams on a given statistic

Parent: TeamStatComparer
Subclasses: None
Layer: Use Case

- TennisTeamStatManager

BaseballTeamStatComparer

- Compare two or more Baseball Teams on a given statistic

Parent: TeamStatComparer
Subclasses: None
Layer: Use Case

- BaseballTeamStatManager

TeamStatPredictorFacade

- Facade class which accepts an argument requesting prediction of statistic, checks the sport requested, and passes the argument to the appropriate sport's StatPredictor

Parent: None
Subclasses: None
Layer: Use Case

- HockeyTeamStatPredictor
- TennisTeamStatPredictor
- BaseballTeamStatPredictor

TeamStatPredictor (abstract)

Parent: None
Subclasses: HockeyTeamStatPredictor, TennisTeamStatPredictor, BaseballTeamStatPredictor
Layer: Use Case

- Given a Teams past record, predicts if the Team will beat another Team

- None

HockeyTeamStatPredictor

- Given a Hockey Teams past record, predicts if the HockeyTeam will beat another HockeyTeam

Parent: TeamStatPredictor
Subclasses: None
Layer: Use Case

- HockeyTeamStatManager

TennisTeamStatPredictor

- Given a Tennis Teams past record, predicts if the TennisTeam will beat another TennisTeam

Parent: TeamStatPredictor
Subclasses: None
Layer: Use Case

- TennisTeamStatManager

BaseballTeamStatPredictor

- Given a Baseball Teams past record, predicts if the BaseballTeam will beat another BaseballTeam

Parent: TeamStatPredictor
Subclasses: None
Layer: Use Case

- BaseballTeamStatManager

Team (Abstract)

Parent: None
Subclasses: HockeyTeam, TennisTeam, BaseballTeam
Layer: Entity

- Store a team's name, home city, players, number of games played, number of wins, number of losses, number of ties, and rank
- Getters and Setters for above

- None

HockeyTeam

Parent: Team
Subclasses: None
Layer: Entity

- Store the information specified in team class
- Also stores goals for, goals against, face off win percentage, shots for, shots against, regulation wins, regulation plus overtime wins, shootout games won, and overtime losses
- Getters and Setters for above

- TeamManager

TennisTeam

Parent: Team
Subclasses: None
Layer: Entity

- Store the information specified in team class
- Also stores total tournaments played, tournament wins
- Getters and Setters for above

- TeamManager

BaseballTeam

Parent: Team
Subclasses: None
Layer: Entity

- Store the information specified in team class
- Also stores games started, complete games, shutouts, saves, save opportunities, innings pitched, hits allowed, runs allowed, earned runs, home runs allowed, hit batsmen, at bats, runs, hits, doubles, triples, home runs, run batted in, walks, strikeouts, stolen bases, caught stealing
- Getters and Setters for above

- TeamManager

TeamManager

Parent: None
Subclasses: None
Layer: Entity

- Store Teams, with getter (for Use Cases to resolve argument name into Team object)
- Create and record new Teams

- Team

Related to Members & Betting

LeagueMemberManager

Parent: None
Subclasses: None
Layer: Use Case

- Create and record the Members in the fantasy league
- Create and record the ongoing Matches
- Notify stored Matches when a Member bets on them or when their outcome is resolved

- Member
- Match

LeagueMember

Parent: None
Subclasses: None
Layer: Entity

- Represent a Member of a fantasy league, who bets on games
- Stores the Member’s name
- Tracks the amount of matches they have predicted correctly and incorrectly

- None

Match

Parent: None
Subclasses: None
Layer: Entity

- Store the two teams who are competing in the match
- Getters and setters for above
- Record and store which Members have bet on which outcomes of the match
- After the match ends, update players who bet correctly and who bet incorrectly

- MemberManager

Related to Players

PlayerStatManager

Parent: None
Subclasses: HockeyPlayerStatManager, TennisPlayerStatManager
Layer: Use Case

- Abstract Class which is Superclass of each sports' concrete stat manager class
- Stores player list and list of stats which can be returned.

- None

PlayerStatManagerFacade

Parent: None
Subclasses: None
Layer: Use Case

- Facade class which accepts an argument requesting a statistic, checks the sport requested, and passes the argument to the appropriate sport's StatManager

- HockeyPlayerStatManager
- TennisPlayerStatManager
- BaseballPlayerStatManager

HockeyPlayerStatManager

- Return the value of a stat (or all stats), given a hockey player's name, a season name, and a stat
- Stats that can be reported are:
  - See HockeyPlayer card (any of the information being stored by HockeyPlayer can be reported)

Parent: PlayerStatManager
Subclasses: None
Layer: Use Case

- HockeyPlayer
- DataContainer

TennisPlayerStatManager

- Return the value of a stat (or all stats), given a tennis player's name, a tournament name, and a stat
- Stats that can be reported are:
  - See TennisPlayer card (any of the information being stored by TennisPlayer can be reported)

Parent: PlayerStatManager
Subclasses: None
Layer: Use Case

- TennisPlayer
- DataContainer

BaseballPlayerStatManager

- Return the value of a stat (or all stats), given a baseball player's name, a a season, and a stat
- See BaseballPlayer card to see what stats can be reported

Parent: PlayerStatManager
Subclasses: None
Layer: Use Case

- BaseballPlayer
- DataContainer

PlayerStatComparer

Parent: None
Subclasses: HockeyPlayerStatComparer, TennisPlayerStatComparer
Layer: Use Case

- Abstract Class which is Superclass of each sports' concrete stat comparer class
- Stores player list and list of stats which can be compared.

- None

PlayerStatComparerFacade

Parent: None
Subclasses: None
Layer: Use Case

- Facade class which accepts an argument requesting comparison of statistics, checks the sport requested, and passes the argument to the appropriate sport's StatComparer

- HockeyPlayerStatComparer
- TennisPlayerStatComparer
- BaseballPlayerStatComparer

HockeyPlayerStatComparer

Parent: PlayerStatComparer
Subclasses: None
Layer: Use Case

- Compare two or more hockey players on a given statistic in a specific season
- Stats that can be compared:
  - number of games played
  - number of goals
  - number of assists
  - number of points
  - shooting percentage
  - number of shots

- HockeyPlayer
- DataContainer

TennisPlayerStatComparer

Parent: PlayerStatComparer
Subclasses: None
Layer: Use Case

- Compare two tennis players who participated in a competition based on a given stat
- Stats that can be compared are:
  - number of aces
  - number of double faults
  - number of serve points
  - number of first serves
  - number of break points saved

- TennisPlayer
- DataContainer

BaseballPlayerStatComparer

Parent: PlayerStatComparer
Subclasses: None
Layer: Use Case

- Compare multiple baseball players on a given stat for a season
- Statistics that can be compared are:
  - number of games played
  - number of at bats
  - number of runs
  - number of hits
  - number of home runs
  - number of runs batted in
  - number of strikeouts
  - average hits per bat

- BaseballPlayer
- DataContainer

PlayerStatPredictor

Parent: None
Subclasses: None
Layer: Use Case

- Abstract Class which is Superclass of each sports' concrete stat predictor class
- Stores player list and list of stats which can be predicted.

- None

PlayerStatPredictorFacade

Parent: None
Subclasses: None
Layer: Use Case

- Facade class which accepts an argument requesting prediction of statistic, checks the sport requested, and passes the argument to the appropriate sport's StatPredictor

- HockeyPlayerStatPredictor
- TennisPlayerStatPredictor
- BaseballPlayerStatPredictor

HockeyPlayerStatPredictor

Parent: PlayerStatPredictor
Subclasses: None
Layer: Use Case

- Given a hockey player's name and a stat, predict their future statistic using linear regression
- Stats that can be predicted are:
  - number of games played
  - number of goals
  - number of assists
  - number of points
  - shooting percentage
  - number of shots

- HockeyPlayer
- DataContainer

TennisPlayerStatPredictor

Parent: PlayerStatPredictor
Subclasses: None
Layer: Use Case

- Given a tennis' player's name and stat, predict their future statistic with linear regression
- Stats that can be predicted are:
  - number of aces
  - number of double faults
  - number of serve points
  - number of first serves
  - number of break points saved

- TennisPlayer
- TennisPlayerList

BaseballPlayerStatPredictor

Parent: PlayerStatPredictor
Subclasses: None
Layer: Use Case

- Given a baseball player's name and stat, predict their future statistic with linear regression
- Stats that can be predicted are:
  - number of games played
  - number of at bats
  - number of runs
  - number of hits
  - number of home runs
  - number of runs batted in
  - number of strikeouts
  - average hits per bat

- BaseballPlayer
- DataContainer

Player (Abstact)

Parent: None
Subclasses: HockeyPlayer
Layer: Entity

- Store player’s name
- Getter and setter for above

- None

HockeyPlayer

Parent: HockeyPlayer
Subclasses: None
Layer: Entity

- Store the season, position, number of games played, number of goals, number of assists, number of points, shooting percentage, number of shots, and skater shoots

- None

TennisPlayer

Parent: Player
Subclasses: None
Layer: Entity

- Store a tennis player's:
  - age
  - nationality (represented by the 3 letter IOC code for their country)
  - number of aces
  - number of double faults
  - number of first serves
  - number of serve points
  - number of break points saved
- Getter and setters for above

- None

BaseballPlayer

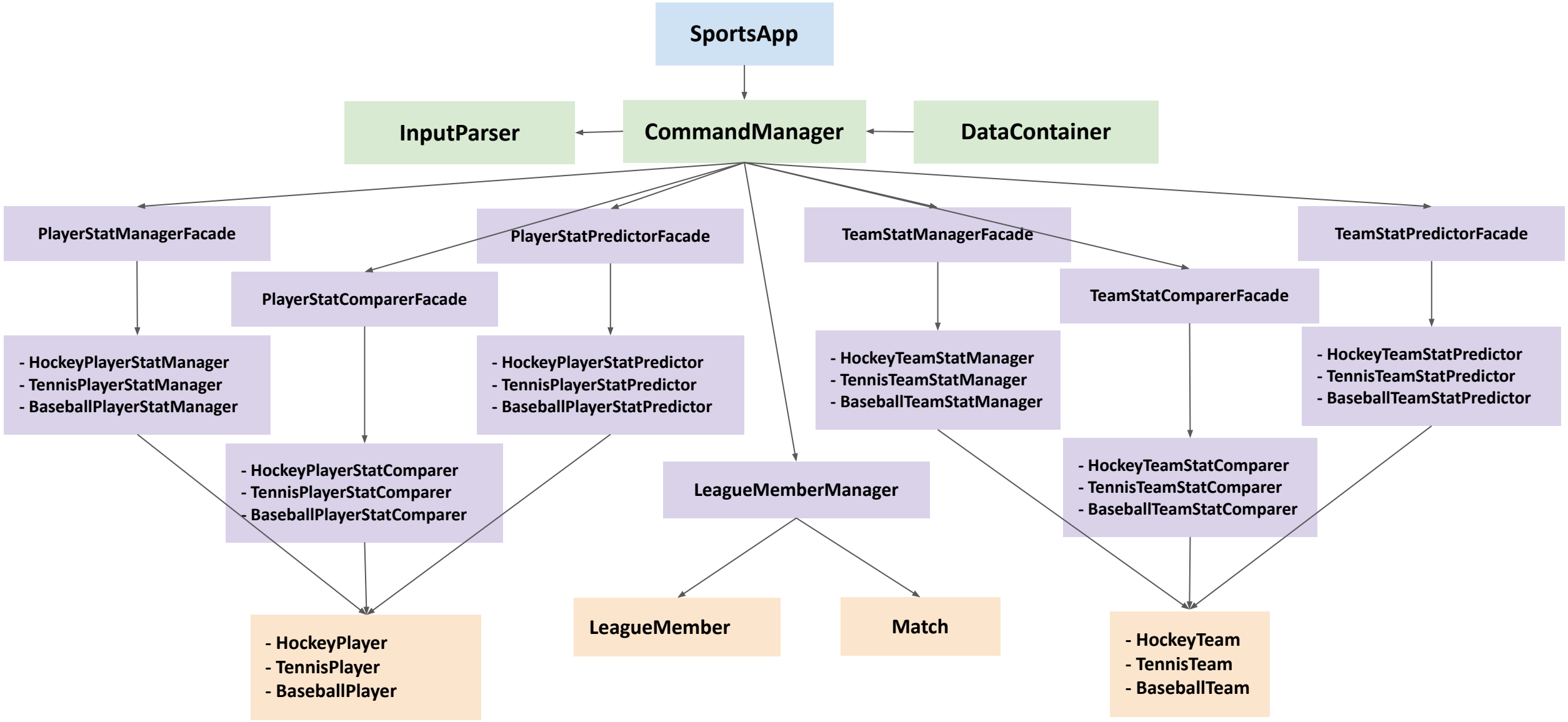
Parent: Player
Subclasses: None
Layer: Entity

- For all seasons, store a baseball player's:
  - position
  - games played
  - bats
  - runs
  - hits
  - home runs
  - runs batted in
  - strike outs
  - average hits per at bat
- Getter and setters for above

- None

- Framework and Drivers
- Interface Adapters
- Use Cases
- Entities

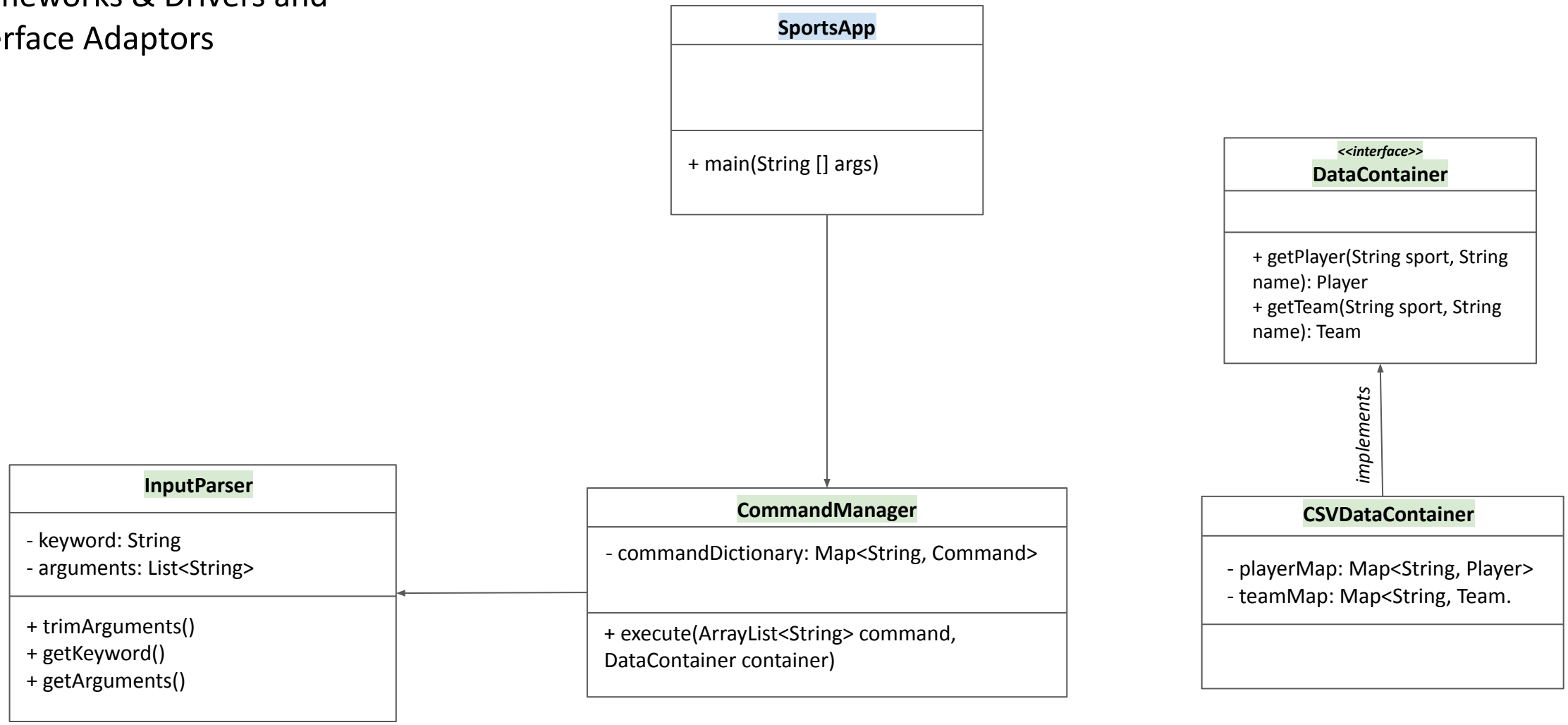
Simplified Class Diagram


SportsApp
InputParser
CommandManager
DataContainer
PlayerStatManagerFacade
PlayerStatPredictorFacade
TeamStatManagerFacade
TeamStatPredictorFacade
PlayerStatComparerFacade
TeamStatComparerFacade
- HockeyPlayerStatManager
- TennisPlayerStatManager
- BaseballPlayerStatManager
- HockeyPlayerStatPredictor
- TennisPlayerStatPredictor
- BaseballPlayerStatPredictor
- HockeyTeamStatManager
- TennisTeamStatManager
- BaseballTeamStatManager
- HockeyTeamStatPredictor
- TennisTeamStatPredictor
- BaseballTeamStatPredictor
- HockeyPlayerStatComparer
- TennisPlayerStatComparer
- BaseballPlayerStatComparer
LeagueMemberManager
- HockeyTeamStatComparer
- TennisTeamStatComparer
- BaseballTeamStatComparer
- HockeyPlayer
- TennisPlayer
- BaseballPlayer
LeagueMember
Match
- HockeyTeam
- TennisTeam
- BaseballTeam

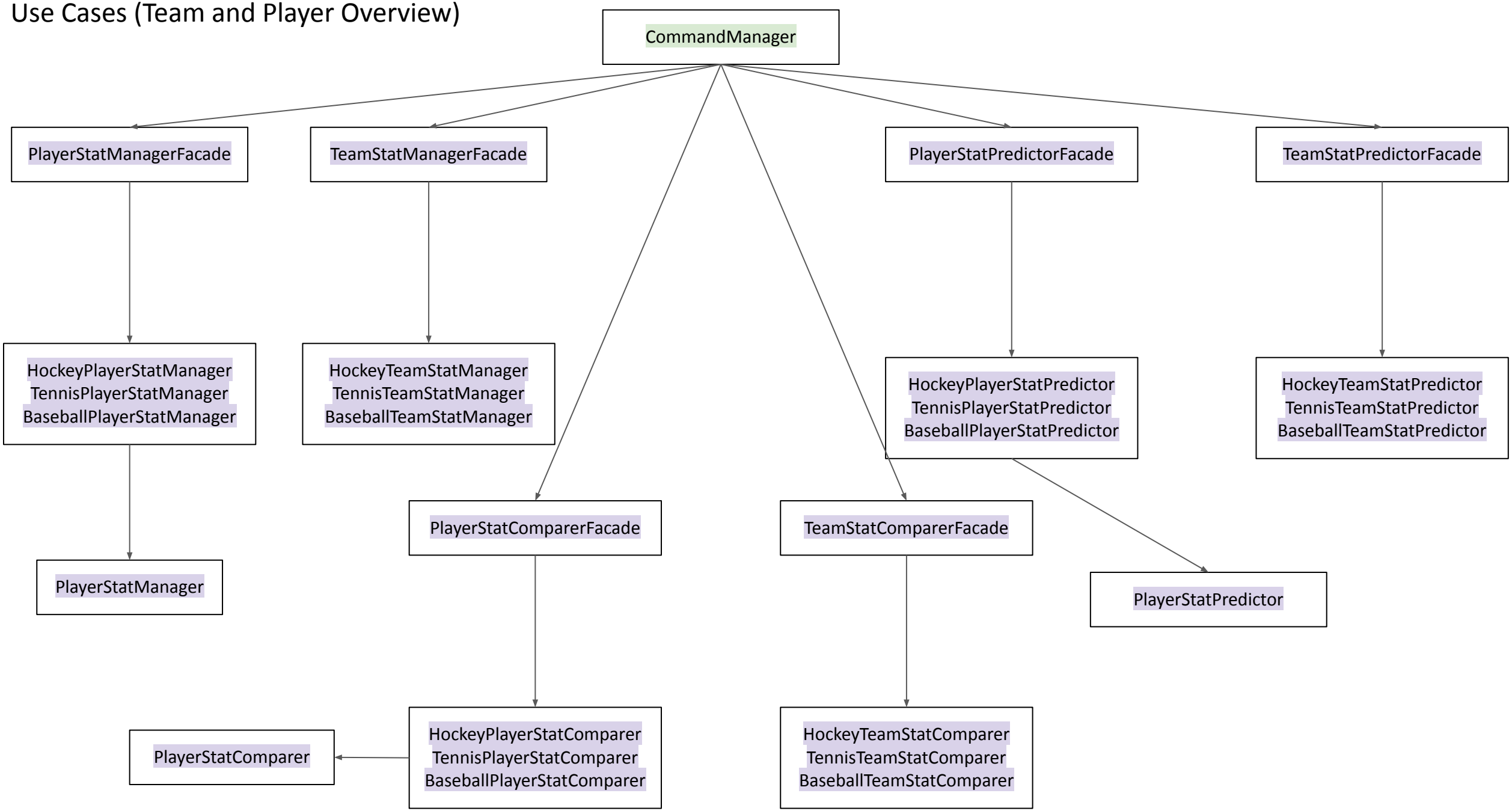
- Framework and Drivers
- Interface Adapters
- Use Cases
- Entities

Class Diagrams by Clean Architecture Layer

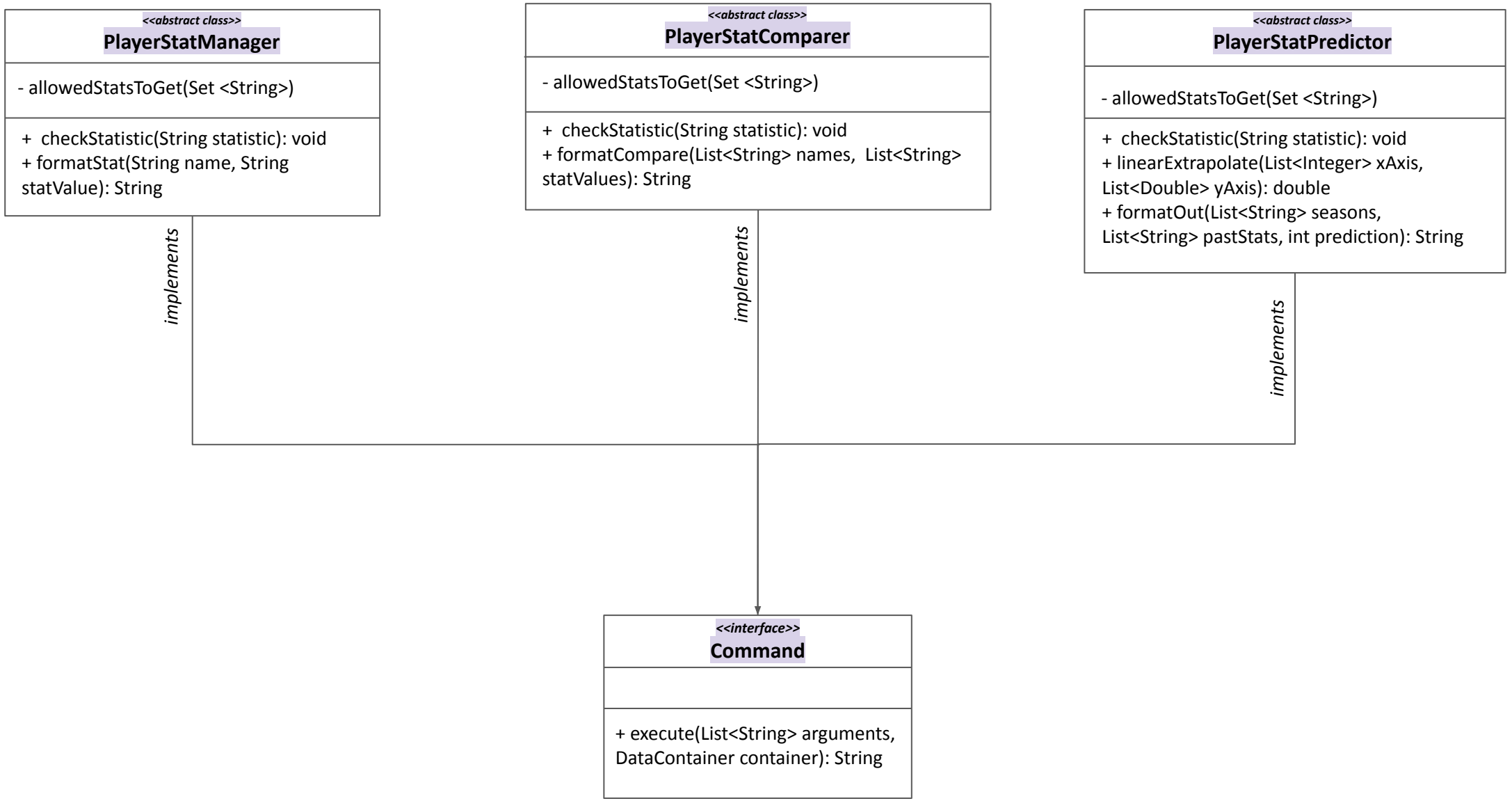
Frameworks & Drivers and Interface Adaptors



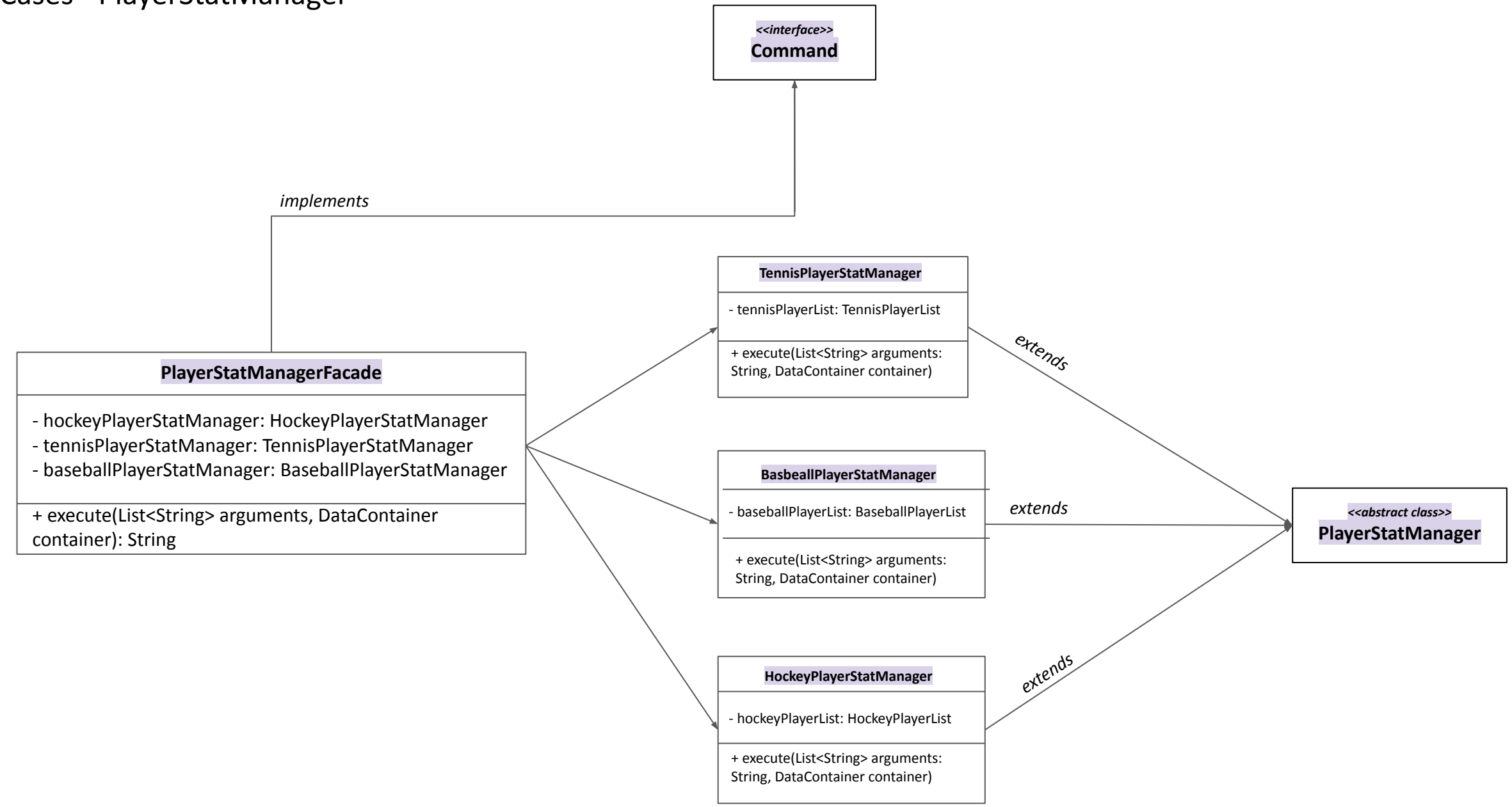
Use Cases (Team and Player Overview)



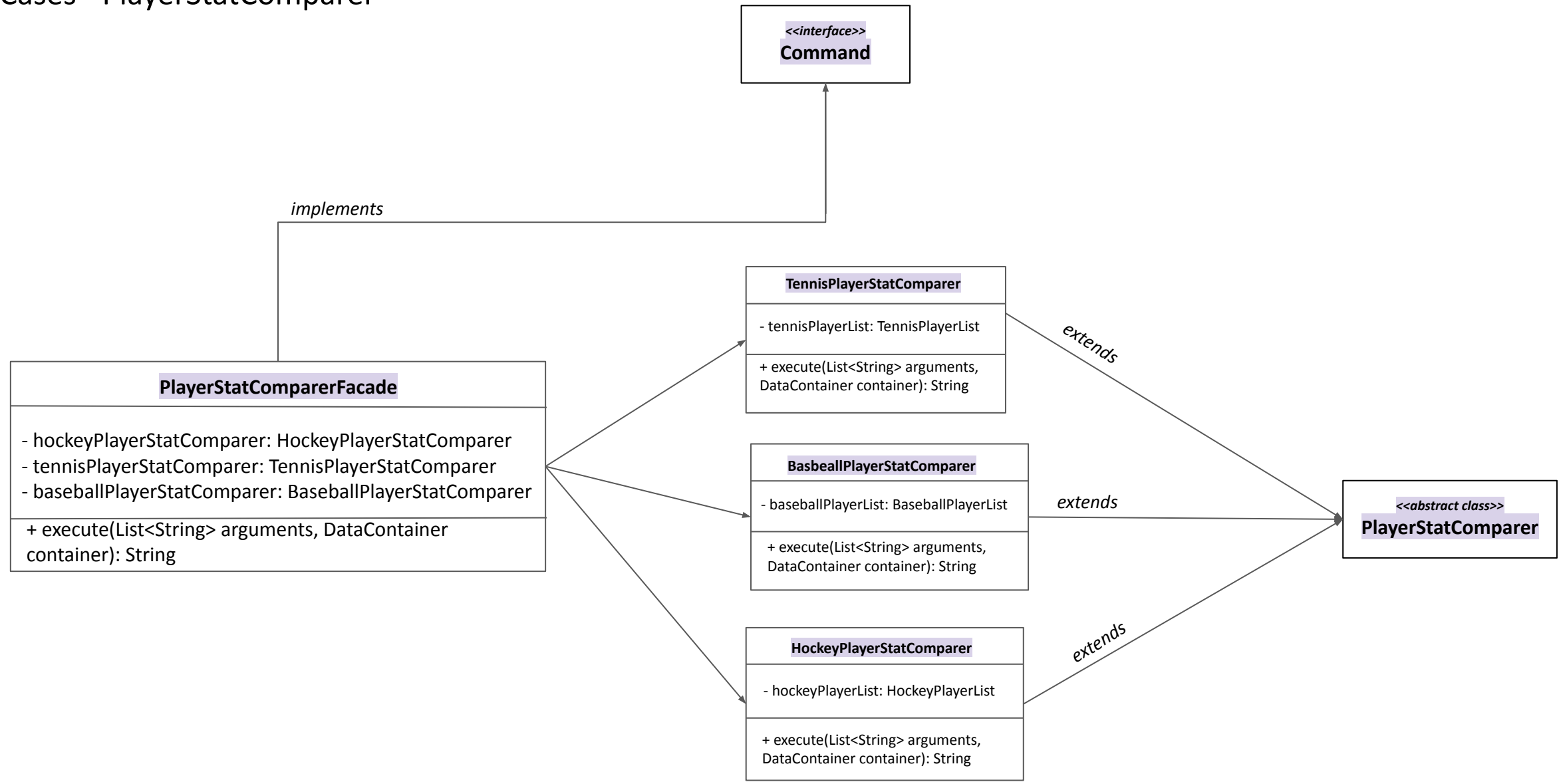
Use Cases - Abstract Classes and Interfaces



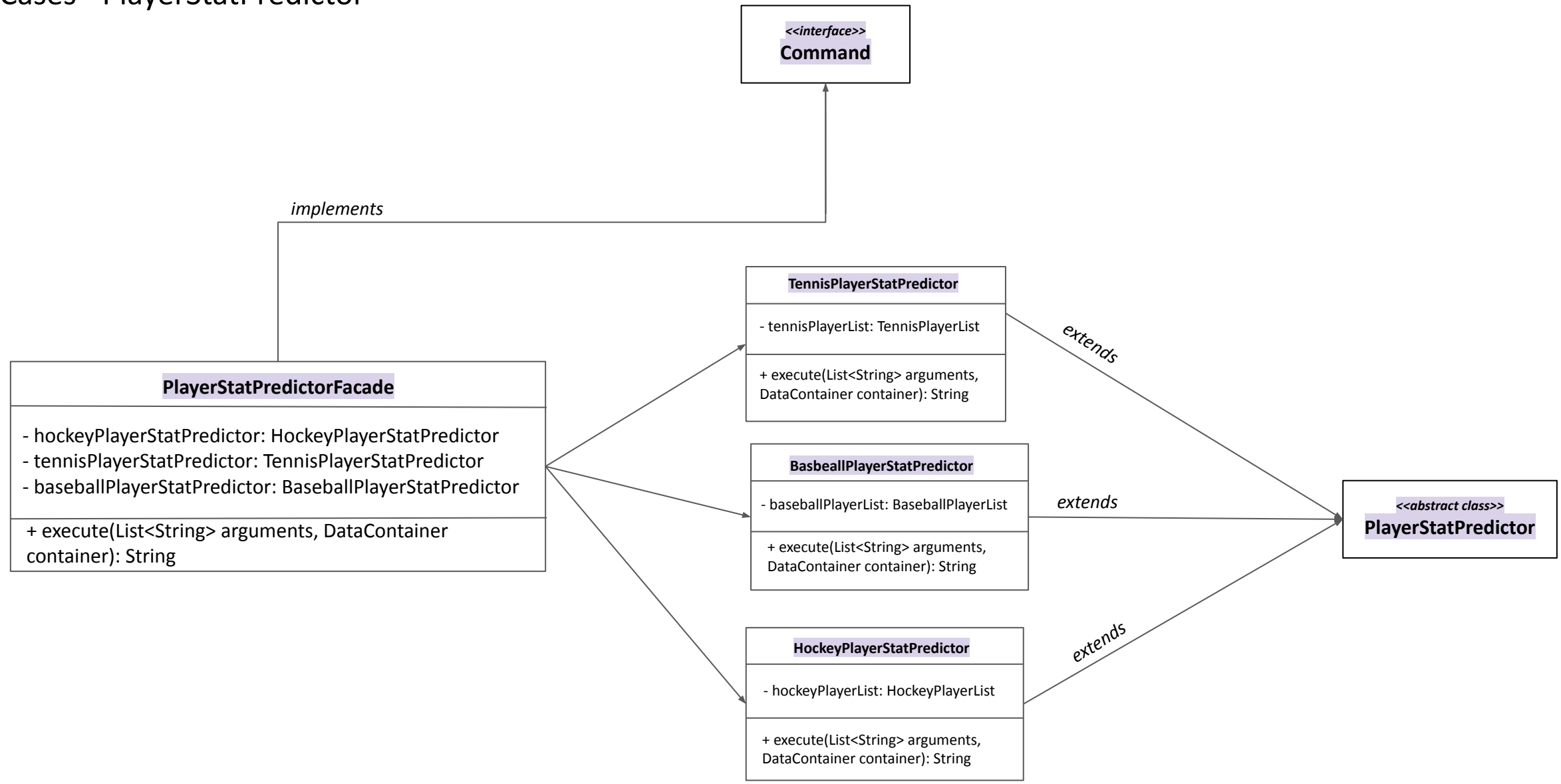
Use Cases - PlayerStatManager



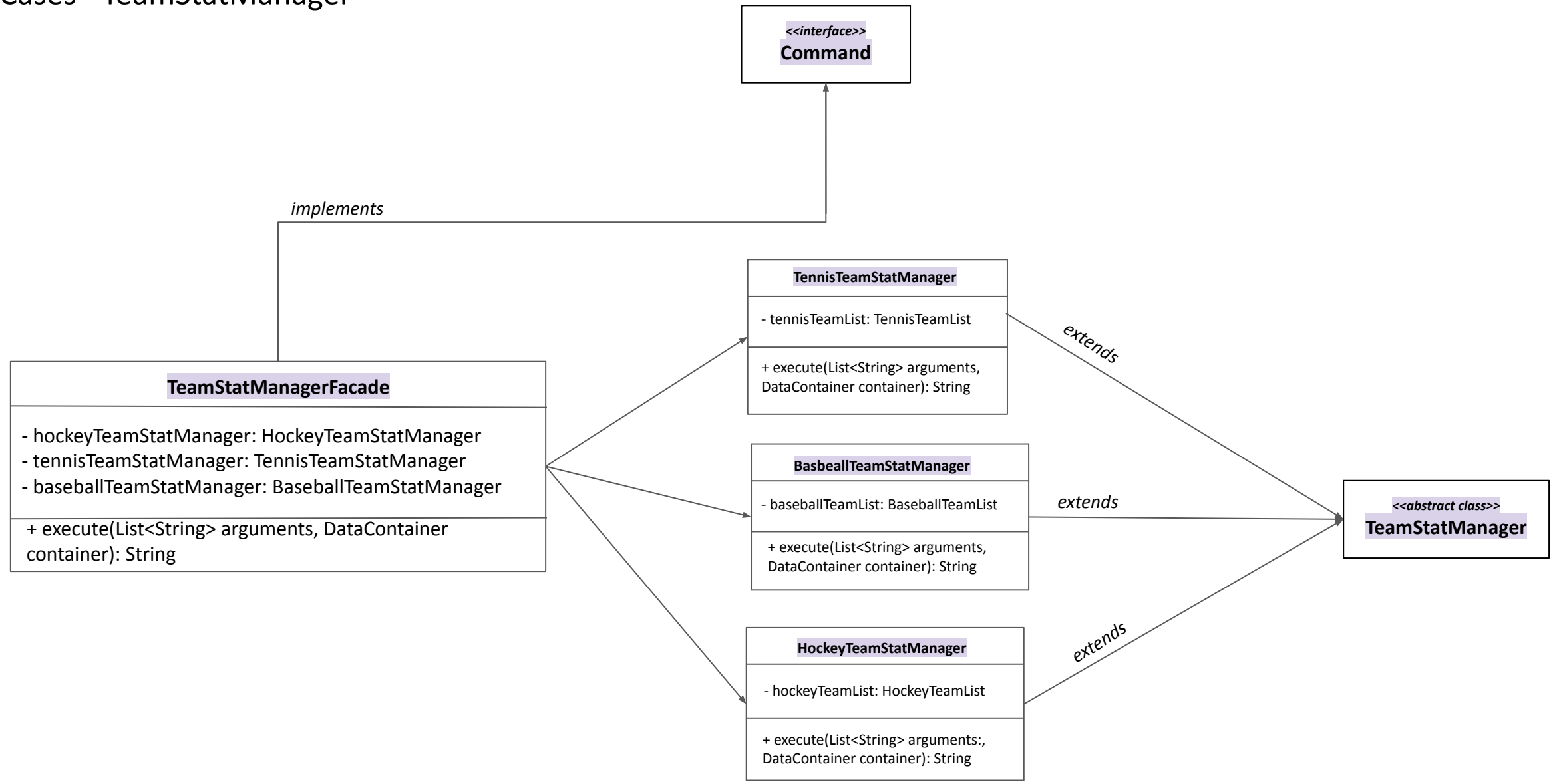
Use Cases - PlayerStatComparer



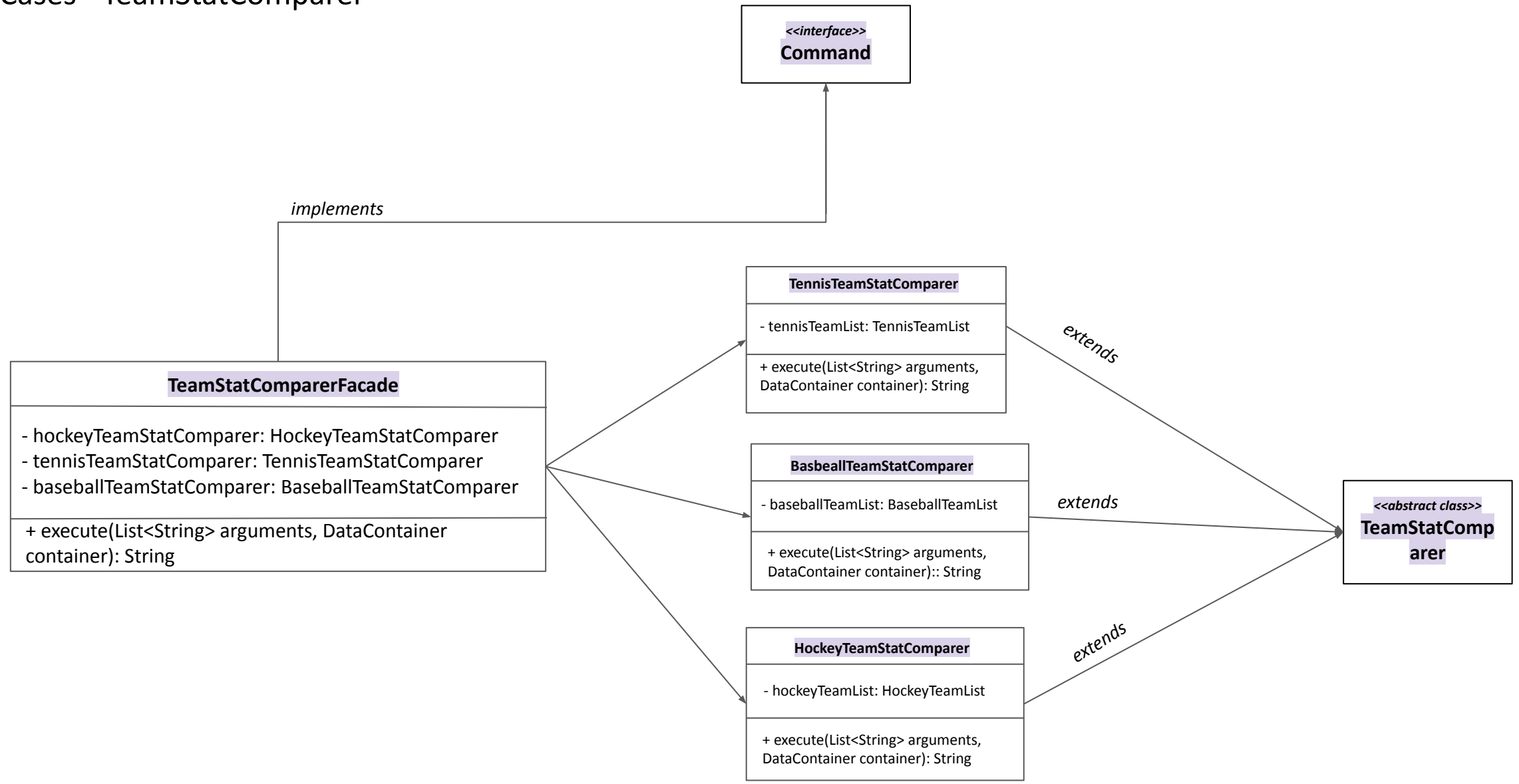
Use Cases - PlayerStatPredictor



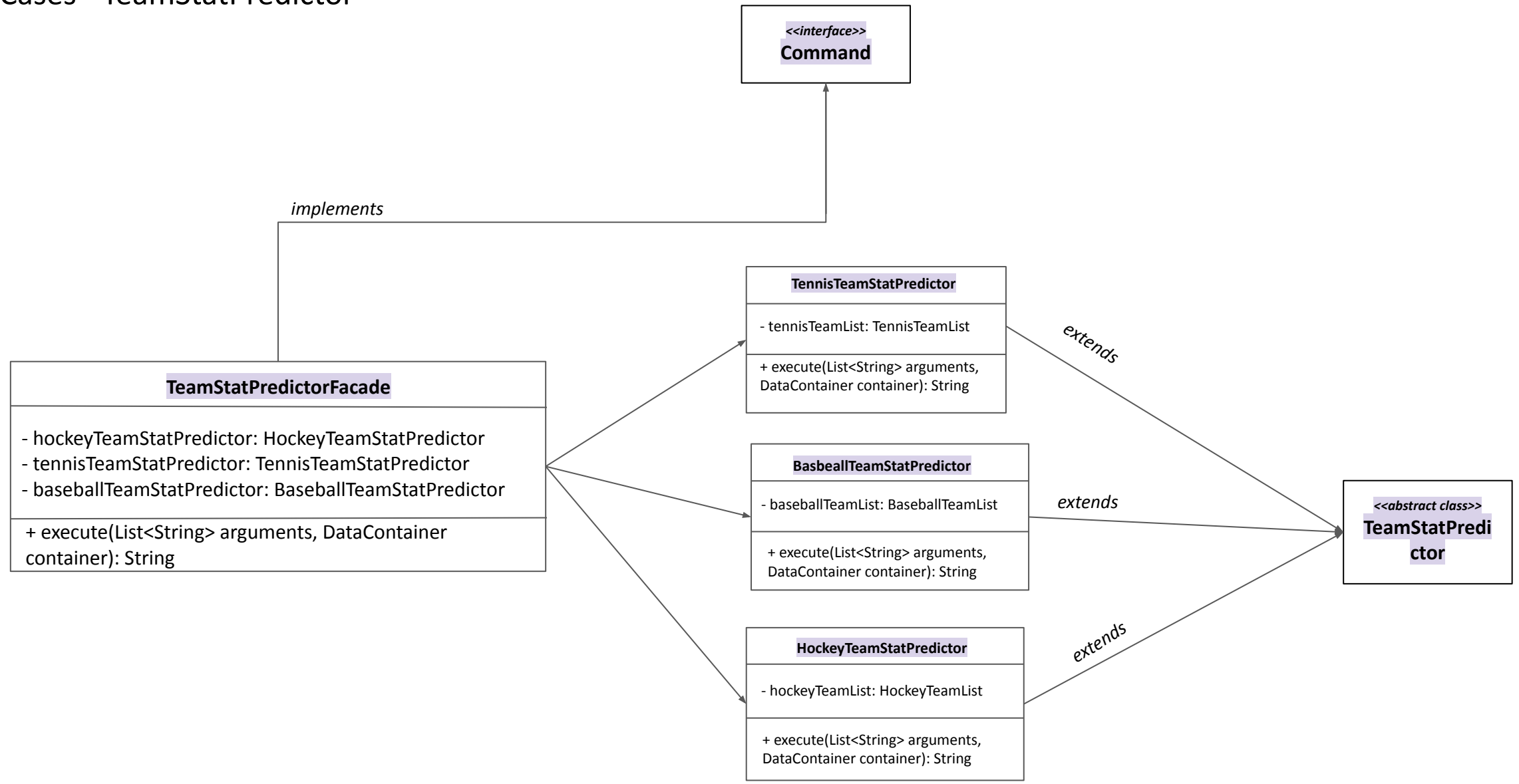
Use Cases - TeamStatManager



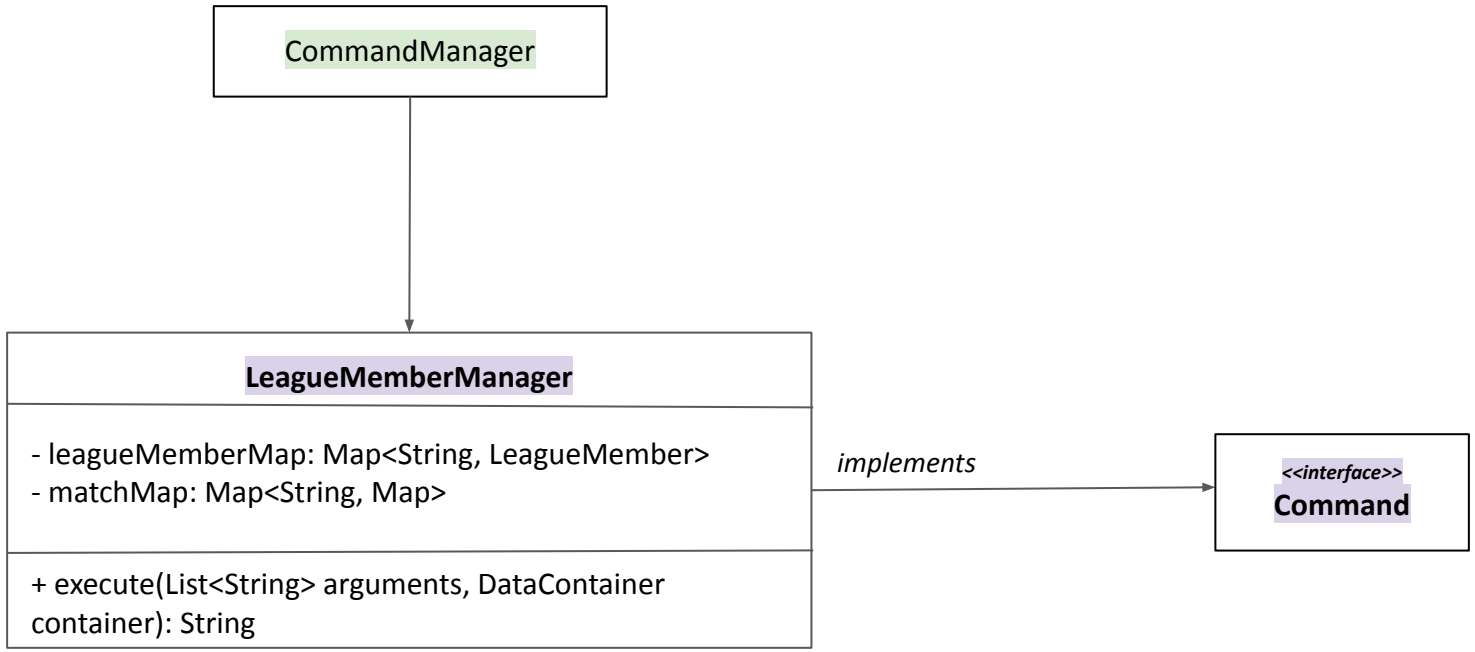
Use Cases - TeamStatComparer



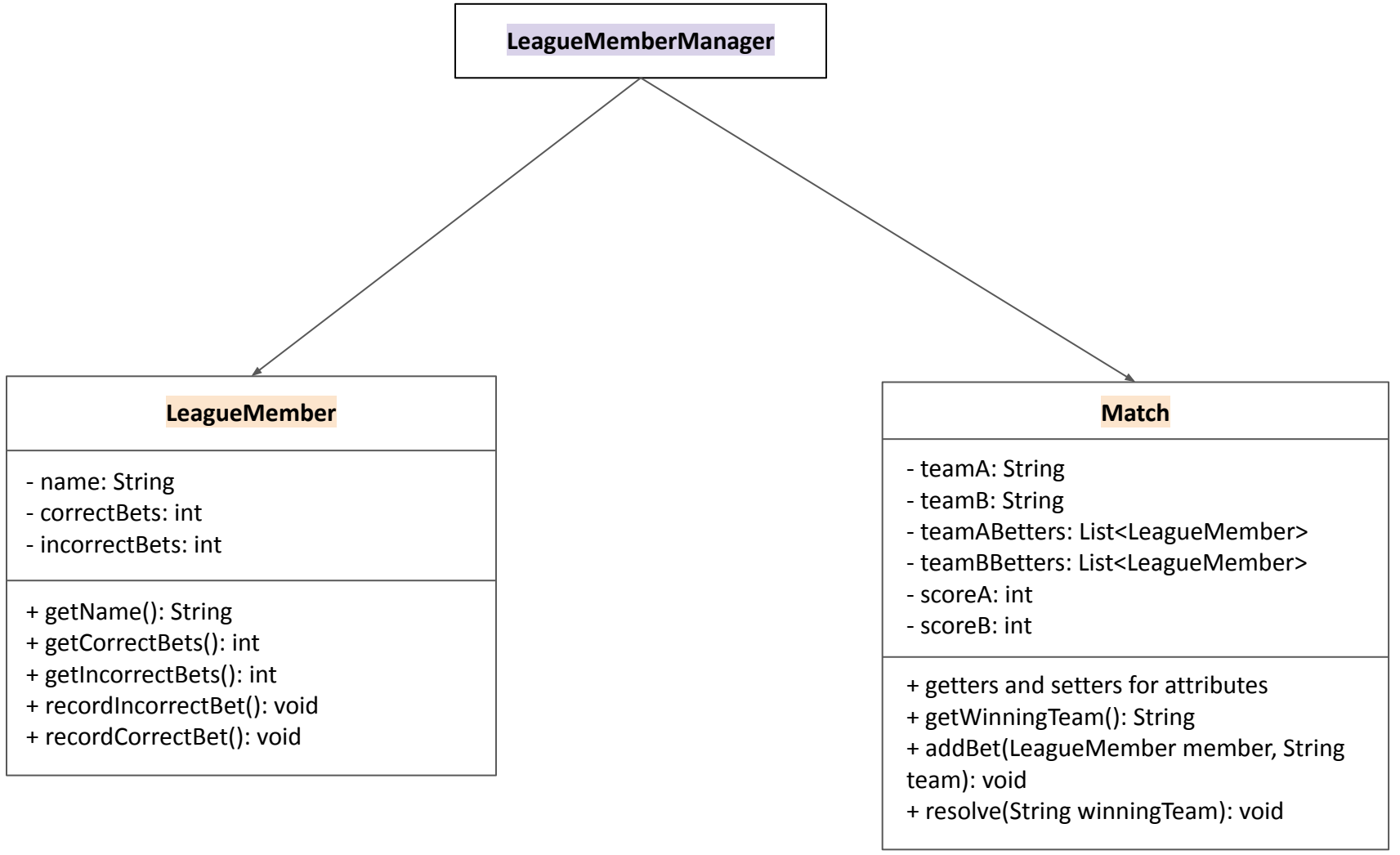
Use Cases - TeamStatPredictor



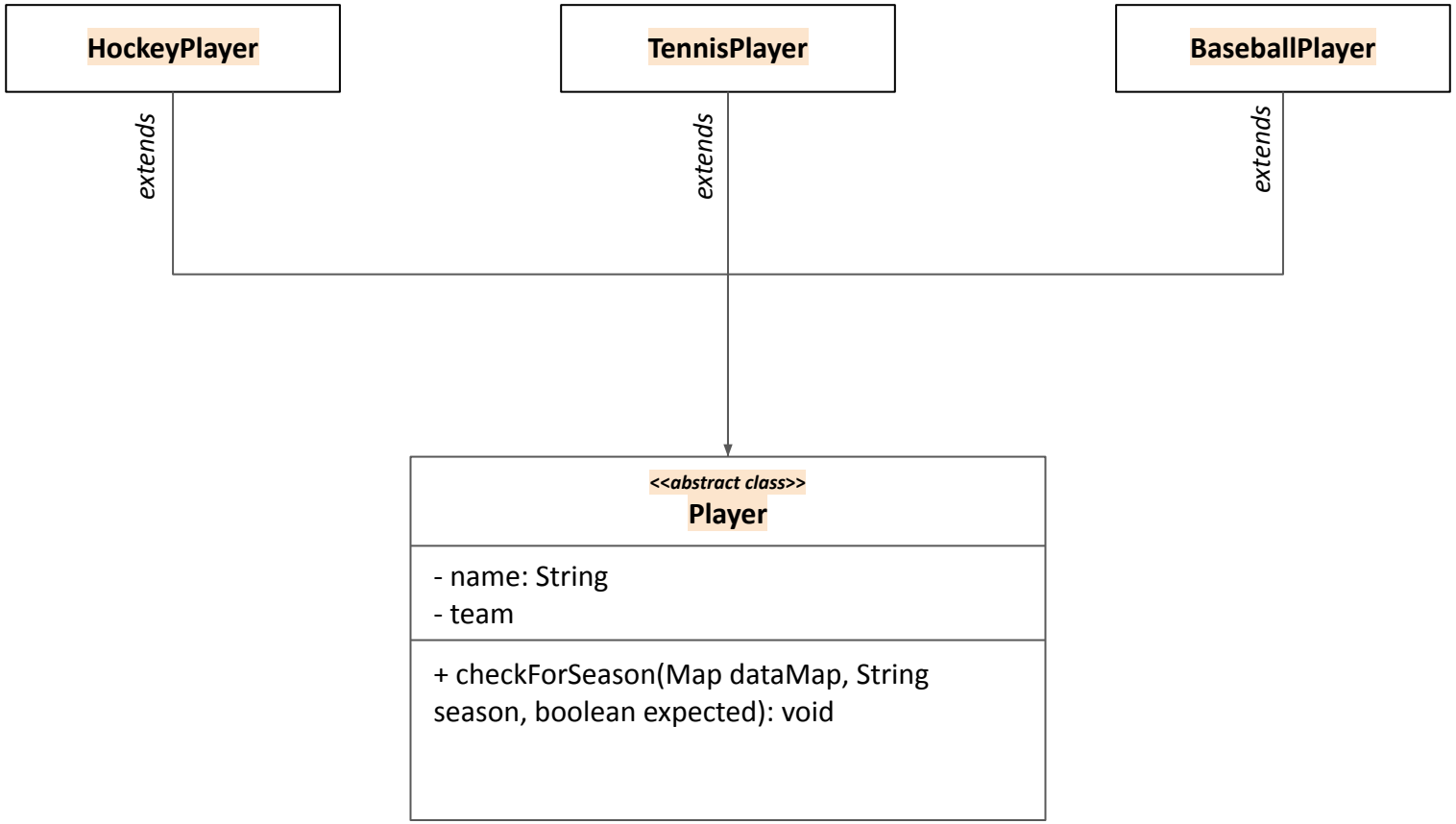
Use Cases - LeagueMemberManager



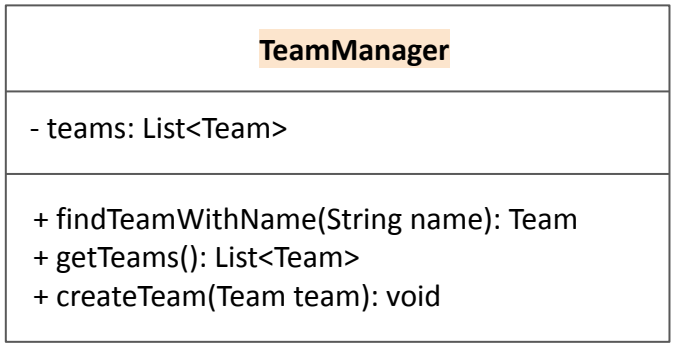
Entities - Fantasy League

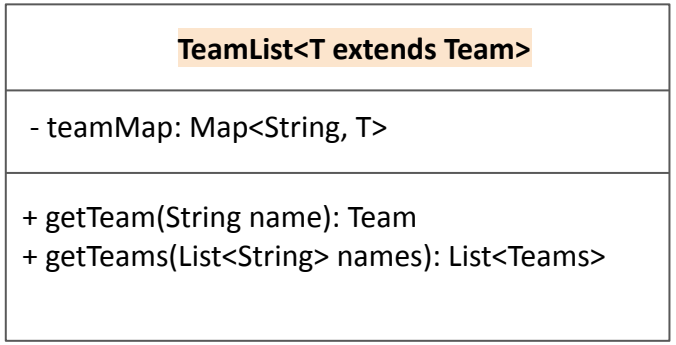


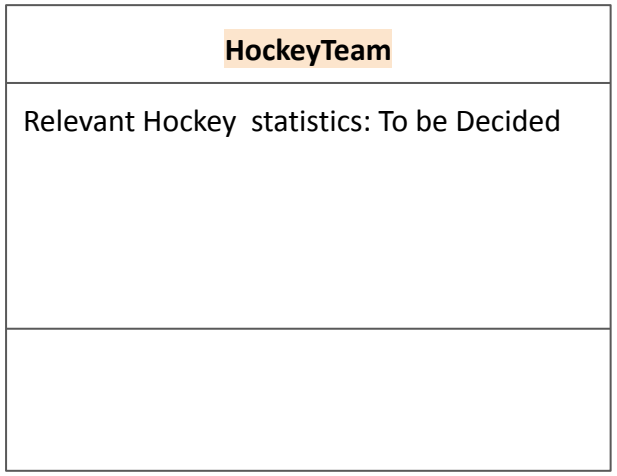
Entities - Player (cont.)

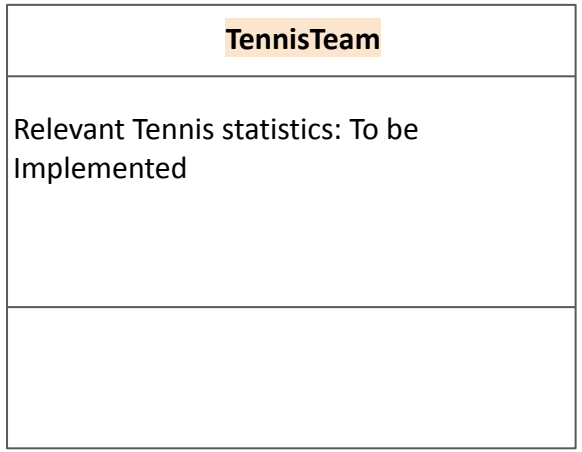


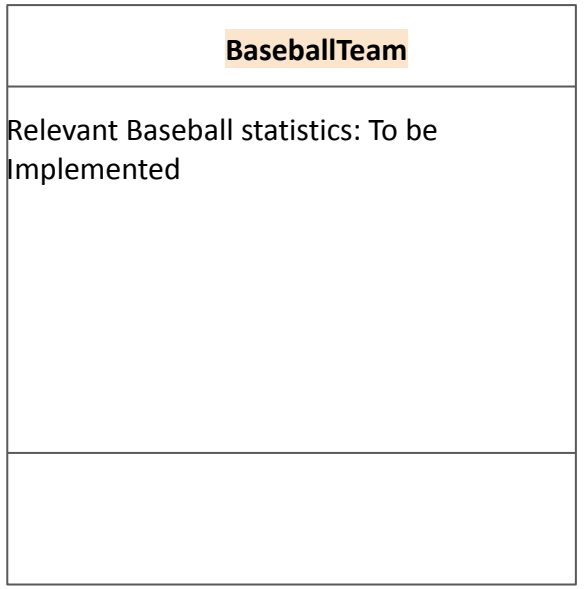
Entities - Team (cont.)











Entities - Team (cont.)