CS 101 Algorithms & Programming I - Fall 2021 - Section 2 Quiz 4 - **Week of December 13, 2021**

Below are a couple of classes for representing *players* and *teams* that the players play for. A team should know about the players that play for the team as well as the player knowing about their team. Now that you know how to properly store and refer to a collection of objects, make the necessary changes in these classes to reflect this fact.

Make sure you pay attention to the principle of information hiding but due to limited space, do not worry as much about style and checking of any invalid values being specified.

```
public class Player {
  private static int count = 0;
  private int ID;
  private String name;
  private int jerseyNo;
  private Team team;
  public Player(String aName, int aJerseyNo) {
    this.ID = ++Player.count;
    this.name = aName;
    this.jerseyNo = aJerseyNo;
  }
  public int getID() { return this.ID; } // no set method
  public String getName() { return this.name; }
  public void setName(String aName) { this.name = aName; }
  public int getJerseyNo() { return this.jerseyNo; } // no set method
  public Team getTeam() { return this.team; }
  public void setTeam(Team aTeam) { this.team = aTeam; }
  public String toString() {
    return this.name + " with jersey number " +
      this.jerseyNo + " currently plays for " +
      this.team.getName() + " (" + this.team.getShortName() +
      ") which has " + this.team.getNoOfPlayers() +
      " players";
  }
}
```

```
public class Team {
  private int count = 0;
  private String name;
  private String shortName;
  private ArrayList<Player> players;
  public Team(String aName, String aShortName) {
    this.name = aName;
    this.shortName = aShortName;
    this.players = new ArrayList<Player>();
  }
  public String getName() { return this.name; } // no set method
  public String getShortName() { return this.shortName; } // no set method
  public int getNoOfPlayers() { return this.players.size(); } // no set
method
  public void addPlayer(Player player) {
    this.count++;
    this.players.add(player);
    player.setTeam(this);
  }
  public void removePlayer(Player player) {
    this.count--;
    this.players.remove(player);
    player.setTeam(null);
  }
}
```

Name: _____ ID: _____ Signature: _____