**NBA Management System**

**Introduction**  
  
 The professional basketball requires efficiency in overall management of players’ stats, teams’ information, and additional game data. The more the teams start to use data in their decision making, the more efficient system to monitor performance and enhance strategies is needed. The purpose of this project is to create a prototype of a sport management system to handle basketball game related information so that coaches may have access to such information on real time to enhance the results that may be produced.

**Business Problem Addressed**  
  
 The coaches require timely and accurate information concerning the players, the organization, achievements, and conducts.Yet without a system for the effective tracking and evaluation of such data, decision making becomes less efficient and players’ welfare compromised. It readily identifies the lack of an efficient and orderly system for tracking, compiling, modifying, and analyzing player and team performance information for better decision making among the key objectives of this project.

**Entities Description**

1. PLAYER  
   Primary key: PlayerID  
   Attributes: PlayerID, First name, Last name, Date of birth, Height, Weight, Position, Jersey number, Draft year, NBA Rank, Nationality, Experience years
2. TEAM  
   Primary key: TeamID  
   Attributes: TeamID, Team name, City, Conference, Divison, Wins, Losses
3. PLAYER STATS  
   Primary key: StatsID  
   Attributes: StatsID, Points scored, Assists, Rebounds, Fouls, Minutes played, 3-pointers made, Free throws made
4. SPONSORSHIP  
   Primary key: SponsorshipID  
   Attributes: SponsorshipID, Sponsorship name, Amount, Sponsorship type
5. NBA GAME  
   Primary key: GameID  
   Atrributes: GameID, Date, Season, IsPlayoff? (Boolean)
6. REFEREE  
   Primary key: RefereeID  
   Attributes: RefereeID, First name, Last name, Experience years, Certification level
7. ARENA  
   Primary key: ArenaID  
   Attributes: ArenaID, Arena name, Location, Seating capacity
8. CONTRACT  
   Primary key: ContractID  
   Attributes: ContractID, Start date, End date, Salary, Bonus
9. COACH  
   Primary key: CoachID  
   Attributes: CoachID, First name, Last name, Experience years
10. SEASON  
    Primary key: SeasonID  
    Attributes: SeasonID, Year, Start date, End date
11. PLAYOFF  
    Primary key: PlayoffID  
    Attributes: PlayoffID, Round number

**Entity Relationships**

1. PLAYER to TEAM: Many-to-One: A player belongs to one team, but a team has 5 or more players
2. PLAYER to CONTRACT: One-to-Many: Each player may have multiple contracts.
3. PLAYER to PLAYER STATS: One-to-Many: A player can have multiple player stats (likely one per game)
4. TEAM to COACH: One-to-One: Each team has one coach
5. TEAM to NBA GAME: One-to-Many: A team plays in many games, and each game involves 2 teams
6. TEAM to ARENA: One-to-One: Each team is associated with one arena
7. NBA GAME to PLAYER STATS: One-to-Many: One game has multiple player stats
8. NBA GAME to REFEREE: Many-to-One: A game is officiated by one referee, and a referee officiates multiple games
9. NBA GAME to ARENA: Many-to-One: Many games are hosted in one arena
10. NBA GAME to SEASON: Many-to-One: Many games belong to one season
11. SEASON to PLAYOFF: One-to-One: Each season has one playoff
12. SPONSORSHIP to PLAYER : One-to-Many: A sponsor may sponsor multiple players.
13. SPONSORSHIP to TEAM: Many-to-Many: A sponsor may sponsor multiple teams. A team may have multiple sponsors.

**ER Diagram**  
