**Develop a logical design from a Data Mart with the star schema, add the attributes in each table suggesting if the attributes are a primary or external key. Also, show the hierarchy levels that you consider for each dimension:**

The Spanish football team organization has decided to set up a Data Warehouse to analyze trends of teams and try to improve their results. To do this, management wants to analyze the information available on games played in the league.

Information analysts want to know relevant data about matches such as players in each match, the goals scored by the player, and the goals that she has avoided. They also want to know information regarding the yellow and red cards received by each player in a given match. Finally, they want to know the time spent by each player playing.

In addition to the information about the performance of players, analysts want to collect other data, such as the name of the player, his position, his age and his height. Likewise, they want to group the players in teams to analyze the performance of the different teams in the season. For each team, it is known their name and the value the team is worth in euros.

On the other hand, we want to know information about the stadium of the match, in order to analyze if the location influences the result. The stadium has a maximum capacity, a name, the quality of the playground, year of inauguration, city and the country where it is located.

In addition to these data, the coach has indicated that she is interested in knowing data regarding referee who supervise each match to be able to reclaim a fair arbitration. To do this, she wants to include the name of the referee, his age, his country of origin and the organization which she belongs to.

Finally, management has decided that it is also important to store the date of the match, including information about the day, month and year in which it is celebrated and the weather.

**Note: Remember that multiple roles can be assigned to the same dimension, especially if it participates several times in each instance of the event. If there is no degenerate dimension to convert the relation into a type 1-m, you will need to use bridge tables to solve m-m relationships between facts and dimensions.**

**1. Identificar el hecho principal**

* Hecho central: **Participaciones o Jugadas**
* El hecho central será "participaciones de jugadores en partidos" o simplemente "jugadas" (plays). Este hecho describe la contribución de cada jugador en un partido. Las métricas asociadas (o **medidas**) del hecho son:
  + Goles anotados.
  + Goles evitados.
  + Tarjetas amarillas y rojas.
  + Tiempo jugado por cada jugador.

**2. Identificar las dimensiones**

Las dimensiones son las perspectivas desde las cuales se desea analizar el hecho. Según el ejercicio:

1. **Jugador (Player):**
   * Atributos: Nombre, posición, edad, altura.
2. **Equipo (Team):**
   * Atributos: Nombre del equipo, valor en euros.
3. **Partido (Match):**
   * Atributos: ID del partido, nombre, liga.
4. **Estadio (Stadium):**
   * Atributos: Nombre, capacidad, calidad del césped, año de inauguración, ciudad, país.
   * Jerarquía: Ciudad → País.
5. **Árbitro (Referee):**
   * Atributos: Nombre, edad, país, organización.
6. **Fecha (Date):**
   * Atributos: Día, mes, año, clima.
   * Jerarquía: Día → Mes → Año.
7. Dimensión degenerada: Tenemos un **gameId** que es **un identificador único dentro del hecho:**
   * gameId no es una clave ajena (foreign key) hacia una tabla dimensional como lo son idPlayer, idStadium, etc.
   * **No tiene atributos propios:** A diferencia de match, que incluye atributos como name, league, etc., gameId no está asociado a información descriptiva adicional en la tabla plays.
   * **Solo sirve para identificar:** gameId únicamente identifica qué partido corresponde a la fila de la tabla de hechos, pero no ofrece más contexto. Toda la información sobre el partido está en la dimensión match.

**3. ¿Es aditivo el hecho?**

Sí, el hecho **es aditivo** en todas las dimensiones:

* Los goles y tarjetas pueden agregarse por jugador, equipo, estadio, árbitro o fecha.
* Esto permite realizar operaciones como SUM, AVG, MAX sobre las métricas.

