

Technologies for Information Systems

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Duration: 1h30min

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FootPoli is a company that manages football tournaments. Its CEO has asked you to design both its database and datawarehouse.

1. Use the following requirements to produce the conceptual schema of **FootPoli**'s database:

- Each tournament is characterized by a name and the period of time in which it takes place (expressed in terms of the date of start and date of end). Moreover, each tournament is divided into days.
- Each day is characterized by its date and by the progressive number of the day in the tournament. During each day one or more matches take place.
- Each match is characterized by an identifier, by the two teams, the city, the address, the result of the match, the number of viewers and the price of the ticket.
- Each team is characterized by its name, its city, the year in which the team has been established and the players that play for the team.
- Each player is characterized by a name, surname, SSN, birthday and nationality.
- Each sponsor is characterized by its name and its contact information. Each sponsor can sponsor both tournaments and teams.

Finally, for each tournament, the system should be able to keep track of the chart which associates to each team in each tournament the number of acquired points.

2. With respect to the produced conceptual schema:

- (a) Discover the fact(s) that could be usefull to monitor **FootPoli**'s business and, for each of them:
 - i. Identify measures (with their glossary) and dimensions (with their hierarchies) and produce the attribute tree (with pruning and grafting).
 - ii. Produce the conceptual schema (fact schema).
- (b) Produce a star schema or snowflake schema (with related discussion/motivation) consistent with the conceptual schema and such that it allows the following queries:

- i. total number of sponsors for each team
 - ii. average number of matches in the tournaments
 - iii. average number of viewers w.r.t. each team
 - iv. total number of teams which played in at least 3 matches
 - v. total number of teams which have at least 4 sponsors which sponsor at least 3 tournaments
- (c) Write the above queries in SQL.