FIFA World Cup (1930-2014)

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1 DATABASE DESCRIPTION

The database application describes FIFA World Cup tournaments played between the years 1930 and 2014. We consider the data from all the matches played for the world cup during this period except for the qualifiers. We have formed five entities, namely World_Cup, Team, Player, Match and Goal. Each of these entities have been described below.

World_Cup: The World Cup entity represents the different FIFA World Cup tournaments played between the years 1930 and 2014. The "Year" attribute of the world cup has been considered a primary key as we can have at most one tournament only, in a year. The country hosting the tournament that year becomes an attribute "Host_Country", but is not considered a primary key as the same country can host the world cup again. The "Winner" and "Runner_Up" of the world cup are mentioned as attributes and they are represented using country codes.

Team: The Team entity consists of attributes "Country_Name" and "Country_Code", of which the "Country_Code" is the primary key. This "Country_Code" attribute is referenced by "Winner" and "Runner_Up" attributes in the "World_Cup" entity. It also contains "Points" and "Ranking" of a team as attributes. The last attribute is the "Association" that the team belongs to.

Player: The Player entity is determined by the "Player_Name" and the "Country_Code" of the team to which the player belongs as two players can have the same name in a worldwide scenario. This makes it a weak entity as we rely on "Country_Code" from Team entity to uniquely identify a player. Hence, "Player_Name" and "Country_Code" form the primary key. The "DOB" (Date of Birth) of the player is an attribute along with "Jersey_Number" and "Club" of the player. The "Player_Role" is an attribute that can take the values goal keeper, forward, mid-fielder and defender.

Match: The Match entity considers "Match_Number" in a year and the "Year" of the tournament as a primary key as match numbers can be repeated across years. It also contains attributes such as "Stadium_Name" and "Stadium_Address" of the stadium where the match was played and a composite attribute "Date" which represents the "Day", "Month" and "Year" of the match. It provides details on the teams that played the game (namely "Team_1" and "Team_2") represented by country codes and their scores ("Team_1_Score" and "Team_2_Score"). It also

has attributes “Decision” (that takes values win, loss or draw) and “Winner”. The “Winner” attribute holds a NULL value if the Decision is draw.

Goal: Goal is a weak entity as it can be uniquely identified only with a unique Match along with its “Time” attribute that describes the time the goal was hit. Hence, “Match_Number”, “Year” and “Time” form a primary key.

The relationships that exist between these entities are as follows.

World_Cup and Team have a relationship that a team participates in a world cup. This is a many-many relationship as many teams participate in a world cup and a team may participate in many world cups over different years. This relationship has an attribute “Group”. The “Group” attribute can exist only with this relationship and cannot be defined by either of the entities independently.

World_Cup and Player have a relationship that a player may play in many world cups and a world cup can have many players. This is a many-many relationship.

Player and Team have a relationship that a player must belong to exactly one team but a team can have many players. This makes it a many-one relationship from Player to Team. As a player is a weak entity with respect to a Team, it forms a weak relationship. We have a referential integrity.

Player and Match have a many-many relationship as a player may play in many matches and a match contains many players.

Player and Goal have a many-one relationship as a player may score many goals but a goal can be scored by exactly one player. We have a referential integrity.

Match and Goal have a relationship that a match may have many goals but a goal is scored in exactly one match. As a Goal is a weak entity with respect to Match, the relationship is weak. We have a referential integrity.