Description:

Likes ->User, History -> User: One to Many

We think that for all users there will be one History table and one Likes table.

Coach -> Countries, Athlete -> Countries, Teams -> Countries: Many to One

We assume that each country has at least one coach and one athlete. We assume that the coach(es) of each discipline of every country is certain. We assume that there is only one discipline for each coach and athlete. We assume that for all countries the names of coaches/athletes are unique.

Coach-> Athlete: Many to Many

Each athlete may be coached by more than one coach and each coach may coach more than one athlete.

Normalization:

We choose to apply BCNF to our schema. By applying BCNF, we split the original redundant schemas into athlete, coach, medals, and teams and they all refer to a foreign key CountryName. We choose BCNF because we want to minimize the redundancy while preserving the information, and we don't care much about dependency loss. Our schema adheres to BCNF because the candidate keys of each table can ensure that row is unique. Team is identified by candidate key {countryName, Event, discipline}, and all other tables are uniquely identified by their primary key.

{Athlete: name -> discipline, countryName}

{Coach: name -> discipline, countryName, event}

{Country: name -> total, gold, silver, bronze}

{Team: teamId -> countryName, discipline, event}

{User: userName -> password}

{History: historyId -> historyWord, userName}

Our relational schema:

Country(Column1: Name VARCHAR (255) [PK], Column2: Gold INT, Column3: Silver INT, Column4: Bronze INT,Column5: Total INT)

Athlete(Column1:Name VARCHAR (255) [PK], Column2: CountryName VARCHAR (255) [FK to Country.Name], Column3: Discipline VARCHAR(255))

Coach(Column1: Name VARCHAR (255)[PK], Column2: CountryName VARCHAR (255) [FK to Country.Name], Column3: Discipline VARCHAR(255), Column4: Event VARCHAR (255))

Manage(Column1: CoachName[PK][FK to Coach.name] VARCHAR (255), Column2: AthleteName[PK] [FK to Athlete.name] VARCHAR (255))

Teams(Column1: TeamId INT [PK], Column2: CountryName VARCHAR (255) [FK to Country.Name], Column3: Event VARCHAR (255), Column4: Discipline VARCHAR (255))

User(Column1: UserName VARCHAR (255) [PK], Column2: Password VARCHAR (255))

Likes(Column1: UserName VARCHAR (255) [PK] [FK to User.UserName], Column2: AthleteName VARCHAR(255)[PK][[FK to Athlete.name])

History(Column1: UserName VARCHAR (255) [PK] [FK to User.UserName], Column2: historyId INT [PK], Column3: historyWord VARCHAR(255))