Database Design Document

GROUP NO - 8

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Olympics Games Database Management System

Scope/Business Rules of Database :

Olympics Games DMS involves keeping a record of Summer/Winter Olympics Games of multiple years which are held every 4 years.

The Olympic Games has many different countries participating every year. The identifier for a Country is Country ID. Each Olympics has only a single host country. We identify the following attributes for Olympics: Olympic ID, Season, Year, City. Another attribute for Country is Country Name. A single Olympic Game must be hosted by only one Country and Country may host many Olympics.

Country has many athletes representing them in the Olympic Games. An athlete can represent only one Country. The identifier for Athlete is Athlete ID. Another attribute for Athlete is Athlete Name, Gender, Height, Weight, Date of Birth. A Country without any Athlete will not be added to the Database.

An Olympic Game has many sports being played in a single year. An athlete can be part of more than one sport. The identifier for Sport is Sport ID. A Sport has many athletes participating in it. Another attribute for Sport is Sport Name.

There are sports in the Olympics which require teams to participate in it. Thus, a team consists of two or more athletes in it. An athlete may be part of many teams. The identifier for Team is Team ID.

All Sports have one or more Events associated with it. An Olympic Game has more than one Event being played in it. The identifier for Event is Event ID. An Event may be held in many Olympic Games. An athlete/team can participate in more than one event and each event has more than one athlete/team's participation. We identify the following additional attributes for Event: Event Name, Event Type, Gender, Discipline.

Each Olympics has more than one match being played under each event which we call an Event Match. Every Event Match has either two or more Athletes/Teams associated with it. The identifier for Event Match is Match ID. An athlete/team can be part of many Event Matches. Individual/Team Match records the association between the athlete/team associated with the Event Match. The attributes for Individual/Team Match are score and position.Other attributes for Event Match: Match Date, Event Phase, Olympic Day.

Each Olympic Event has many Venues associated, where the Event gets held. The identifier for Venue is Venue ID. A particular Event Match has only one Venue associated with it. We identify the following additional attributes for Venue: Venue Name, Capacity.

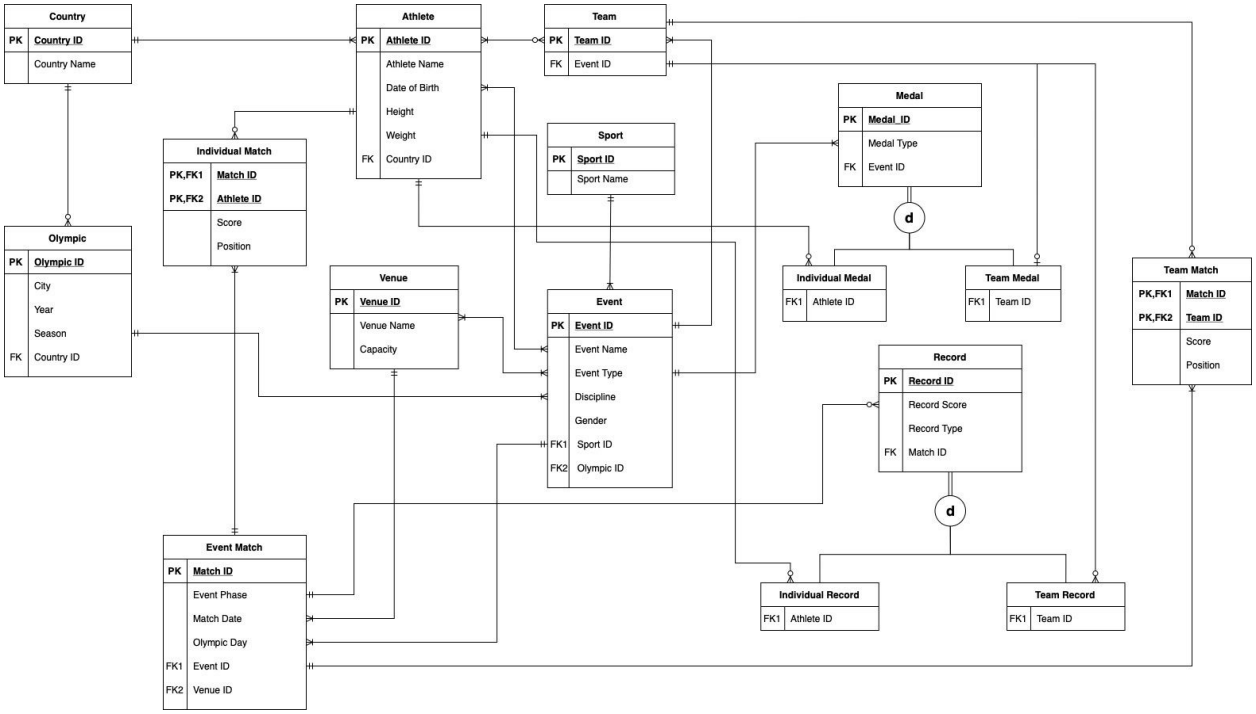
Each Event has many Medal Winners associated, typically three types of medals being given out - Gold, Silver, Bronze. An athlete may win many medals, but a team may win only one medal in a particular Olympics. A medal is associated with one athlete/team because in case of medal sharing we store both the records separately. The identifier for Medal is Medal ID. The only other attribute for Medal is Medal Type. There are two subtypes of Medal - Individual Medal and Team Medal.

To keep track of different types of New Records, we have two entities Team/Individual Record which have Record ID as identifier. A Team/Individual may have many records and a record is associated to one team/athlete. An event match may have many records. Other attributes for Team/Individual Record: Record Score, Record Type. There are two subtypes of Record - Individual Record and Team Record.

Following are the entities and their attributes which are discussed above. (Brief View)

Entity Name	Attributes
Country	**Country ID**, Country Name
Olympics	**Olympic ID,** Season, Year, City, *{Country ID}*
Athlete	**Athlete ID**, Athlete Name, Gender, Height, Weight, D.O.B, *{Country ID}*
Sport	**Sport ID**, Sport Name
Venue	**Venue ID**, Venue Name, Capacity
Event	**Event ID**, Event Name, Discipline, Gender, Event Type, *{Sport ID, Olympic ID}*
Event Match	**Match ID**, Match Date, Event Phase, Olympic Day, *{Event ID, Venue ID}*
Individual Match	Score, Position, ***{Match ID, Athlete ID}***
Individual Medal	**Medal ID**, Medal Type *{Event ID, Athlete ID}*
Individual Record	**Record ID,** Record Type, Record Score, *{Athlete ID, Match ID}*
Team	**Team ID** *{Player ID, Country ID}*
Team Medal	**Medal ID**, Medal Type *{Event ID, Team ID}*
Team Match	Score, Position, ***{Match ID, Team ID}***
Team Record	**Record ID**, Record Type, Record Score, *{Team ID, Match ID}*

***** The attributes entered in {*ITALIC*} are the *Foreign Keys (FK*) for that entity which would be a referring attribute of some other entity. The attributes in **BOLD** are the **Primary Key (PK)** of that entity.



Changes Implemented :

- Added attributes to Country entity - Continent, GDP, Population to extract extra information

- Added attribute Score Type to Record entity which stores the type of score that is being recorded

- Added Athlete_Olympic entity which keeps track of dynamic attributes related to the Athlete such as weight and height. These dynamic attributes are stored for every Olympic Game for each and every Athlete

- Converted Many-to-Many relationships to Associative Entity - Group_Athlete

- Removed Team Entity and added Group entity which keeps record of all the Groups related to a Country. A Group can be of 2 types Individual and Team. This resulted in removal of many extra entities such Individual_Medal, Team_Medal, and Individual_Match

- Renamed the Team_Match to Group_Match_Result which keeps track of score and position of group in a particular Event_Match

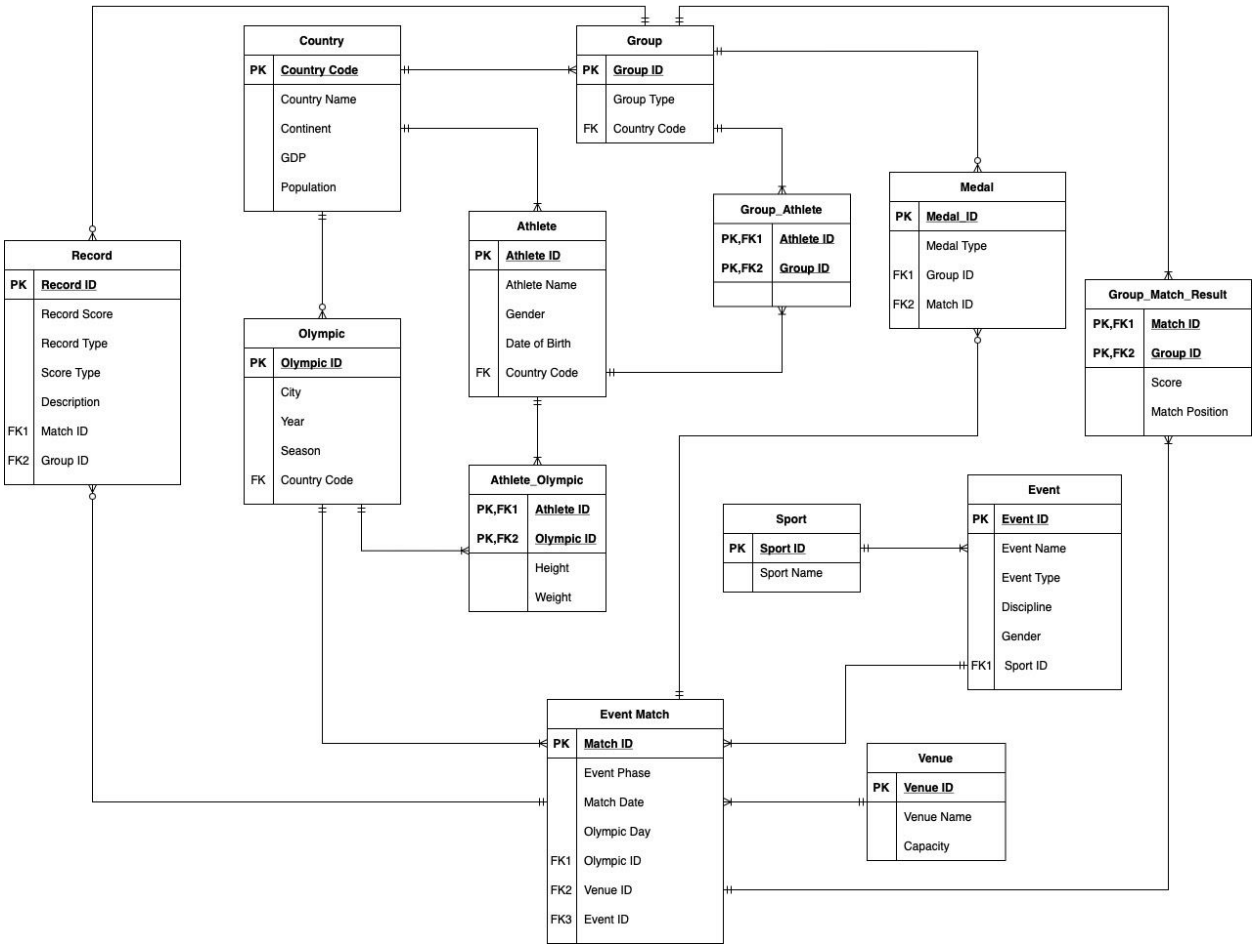
- To make the model better, associated Event Match directly with Olympic and Venue. So every Olympic has many Event_Match and Venue has many Event_Match held.

- Event_Match may have a Medal associated with it if the Event_Match has Event_Phase - Final, SemiFinal.

Following are the entities and their attributes which are discussed above. (Brief View)

Entity Name	Attributes
Country	**Country Code**, Country Name, Continent, GDP, Population
Olympics	**Olympic ID,** Season, Year, City, *{Country Code}*
Athlete	**Athlete ID**, Athlete Name, Gender, D.O.B, *{Country Code}*
Sport	**Sport ID**, Sport Name
Venue	**Venue ID**, Venue Name, Capacity
Event	**Event ID**, Event Name, Discipline, Gender, Event Type, *{Sport ID}*
Event Match	**Match ID**, Match Date, Event Phase, Olympic Day, *{Event ID, Venue ID, OlympicID}*
Group Match Result	Score, Position, ***{Match ID, Group ID}***
Medal	**Medal ID**, Medal Type *{Match ID, Group ID}*
Record	**Record ID,** Record Type, Record Score, ScoreType, Description *{Group ID, Match ID}*
Group	**Group ID**, GroupType, {*CountryCode*}
Group Athlete	***{Athlete ID, Group ID}***
Athlete Olympic	Height, Weight, ***{Athlete ID, Olympic ID}***

* The attributes entered in {*ITALIC*} are the *Foreign Keys (FK*) for that entity which would be a referring attribute of some other entity. The attributes in **BOLD** are the **Primary Key (PK)** of that entity.


Country
PK Country Code
Country Name
Continent
GDP
Population
Group
PK Group ID
Group Type
FK Country Code
Medal
PK Medal_ID
Medal Type
FK1 Group ID
FK2 Match ID
Group_Athlete
PK,FK1 Athlete ID
PK,FK2 Group ID
Athlete
PK Athlete ID
Athlete Name
Gender
Date of Birth
FK Country Code
Record
PK Record ID
Record Score
Record Type
Score Type
Description
FK1 Match ID
FK2 Group ID
Olympic
PK Olympic ID
City
Year
Season
FK Country Code
Group_Match_Result
PK,FK1 Match ID
PK,FK2 Group ID
Score
Match Position
Athlete_Olympic
PK,FK1 Athlete ID
PK,FK2 Olympic ID
Height
Weight
Sport
PK Sport ID
Sport Name
Event
PK Event ID
Event Name
Event Type
Discipline
Gender
FK1 Sport ID
Event Match
PK Match ID
Event Phase
Match Date
Olympic Day
FK1 Olympic ID
FK2 Venue ID
FK3 Event ID
Venue
PK Venue ID
Venue Name
Capacity