PROJECT PHASE -1

Team-31

OLYMPIC DATA MANAGEMENT

Requirements:

The database captures the essence of the Olympic games over the years.It stores the data of the host cities, countries participated, sports activities that took part and athletes who participated in various tournaments in all the years.There is no restriction for any country on participation of multiple times in the olympics during any occurance.A country can participate in any number of sports in the various tournaments organised.An athlete belongs to only one country and can represent that country in only one sport without any constraints on his age.

Introduction:

The Olympic Games represent an unparalleled convergence of athletic prowess, cultural exchange, and international camaraderie**.**Our mini-world is dedicated to meticulously capturing the essence of this global event, encapsulating the interactions between hosts, athletes, countries, sports, and various pivotal elements that define the Games.

Purpose:

The primary purpose of this database is to provide a structured and efficient platform for managing, organising, and analysing data related to the Olympic Games. By establishing robust relationships between various entities, it enables the seamless retrieval of information crucial for stakeholders, organisers, and enthusiasts alike

Users:

Olympic organisers, athletes, sports enthusiasts, and researchers.

Applications:

- Effective planning and scheduling of Olympic activities.
- Analysing an athlete's performance in order to make improvements.
- To engage fans, provide them with athlete profiles and real-time information.
- We can use these databases to send real-time event notifications and updates to athletes, coaches, and officials.
- can be used to forecast future match statistics based on data from previous matches

Database Requirements

Strong Entities:

1.Olympic occurrences : Each occurrence represents the olympics that took place in a season of a year.

- Key attribute: id(composite-year,season)
- Attributes:Winning country
- Multivalued Attribute: Host cities

2.Athlete: For athlete information who took part in olympics at least for once in the Olympics.

- Key attribute: Athlete id
- Attributes: Name, DOB, Gender, Weight, Height
- Derived Attribute: Age
- Multivalued Attribute: Medals received, Seasons_participted

3. Countries: The details of countries that took part in at least one olympic occurrence.

- Key attribute: Country Code
- Attributes: Name, Flag
- Multivalued Attribute: Seasons_participted
- Derived Attribute: No. of participants, Medals received

4.Tournaments: represent specific event or competition within the Olympic Games happening during an olympic occurrence.

- Key attribute: Tournament id
- Attributes: Duration, Result, Date,Venue(composite)

5.Sports: For describing the list of sports that are a part of the Olympics.

- Key attribute: Sport id, Name
- Attributes: category(group/single),
- Multivalued attribute: Decision Makers, Record

Weak Entities:

1.Coach:

- Key attributes: coach id
- Other attributes:Name, Gender, Expertise_in

2.Medals: The design of the medals used in each Olympic occurrence which is the responsibility of host cities and varies with each Olympic occurrence.

- Key attributes: Image,occurrence id
- Other attributes:Count

3.Torch: the modern torches of the Summer and Winter Olympics are built to resist the effects of wind and rain as they carry the Olympic flame, and bear unique designs that represent the host country and are unique for each Olympic occurrence.

- Attributes: Colour, Length, Composition(multivalued), Fuel, Manufacturer

Relationship types:

1. **Represents**
   Degree:2
   Participating entities: Athlete,Country
   Cardinality: N:1
   (min:max):(1,N)-(1,1)

2. **Rewards**
   Degree: 2
   Participating entities: Olympic occurrences, Medal
   Cardinality: 1:N
   (min:max):(1,1)-(3,N)(Gold,Silver,Bronze)
   This is an identifying relationship.

3. **Organised_under**
   Degree : 2
   Participating entities:Tournament, Olympic occurrences
   Cardinality:N:1
   (min,max):(1,N)-(1,1)
   This describes the various events that took place during each olympic occurrence.

4. **Eternal_Flame_of(Identifying relationship)**
   Degree : 2
   Participating entities: Olympic occurrences, Torch
   Cardinality: 1:1
   (min,max):(1,1)-(1,1)
   This is an identifying relationship and describes the torches that were used during that olympic edition.

5.**Trained_under:**
   Degree: 2
   Participating entities:Athlete, Coach
   Cardinality:N:1
   (min,max):(1,N),(1,1)
   This is an identifying relationship which tells about the coach under whom the athlete was trained.

6.**Ranked_at_during:**
   Degree: 2
   Participating entities:Countries, Olympic occurrences
   Cardinality:1:N
   (min,max):(1,1),(1,N)
   One country can be ranked in multiple Olympic occurrences, but in each occurrence, it can have only one specific rank.This gives the rankings of countries in various olympic occurrences.

Relationships with degree greater than two type:

1. **Matches**

   Degree: 3
   Participating entities:Olympic occurrences,Sports, Tournaments
   Cardinality: P:Q:R
   In an occurrence there are multiple sports and tournaments, each sport can have multiple Tournaments, a sport can belong to multiple occurrences and each tournament can belong only one occurrence.This gives the details of tournaments under a sport during various

occurrences.

2. **Olympic_Arena**

Degree: 3
Participating entities:Olympic occurrences, Countries, Sports
Cardinality:N:M:P
In an occurrence there are multiple countries participating and there are multiple sports, Sports and countries can be a part of multiple occurrences and in a sport there are multiple Countries and also a country can participate in multiple sports.This gives the details of list of sports in an occurance and the countries taking part in each sport.

3. **Athletic_face_off**

Degree: 4
Participating entities: Sports,Tournament, Countries, Athlete
Cardinality: P:Q:R:S
For every sport there can be multiple tournaments and in each tournament many countries take part with one or more athletes participating from each country depending upon the sport.This gives the description for each tournament, tournaments under each sport and the countries competing in it.

Functional Requirements:

Modifications:

- ★ **Insert :**check for violations of integrity constraints
  "Adding the details of new athletes taking part in the Olympics."
- ★ **Update:**
  "Modify athlete information like age, tournament attributes like change in venue"
- ★ **Delete:**
  "Remove tournament details if it is cancelled,athlete details on not participating"

Retrievals:

- ★ **Search:** Search for entries in an entity, matching for subparts of the entries.
  Example:Searching for 'Swim' to find all swimming events.
- ★ **Selection:** Retrieve data based on specific criteria.
  Example: Retrieve the list of all sports that come under the team sport category.
- ★ **Aggregate:** Perform data operations to generate statistics and summaries
  Example:Average age of the athletes.
  Determine the athlete with the highest number of medals.
  Number of players who got gold medals.
- ★ **Projection:** Allow users to view a customised subset of data by selecting specific attributes of entities, such as athlete names, event dates, or medal types.
  Example:Retrieve the names of all athletes who participated in the season of 2022 summer.

Analysis:

- ★ **Gender Distribution By Sport**
  By joining the Sports, and Athlete tables, it provides information on the number of male and female athletes in each sport category. This analysis can help sports

organisations and event planners assess gender diversity within different sports and promote inclusivity and balance in athlete participation.

★ **Participation of Countries in a Olympic occurrences**
By joining the Countries, Tournament tables, calculating the participation of countries in Olympic occurrences by counting the number of tournaments in which each country has participated.This analysis can help assess the level of engagement and representation of countries in the Olympic Games.

★ **Average age of athlete in a sport**
By joining the Athlete and Sport tables , calculating the average age of athletes participating in a particular sport.