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**Final Assessment: Database Systems**

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**Detailed Description**

Entity Set

|  |  |  |
| --- | --- | --- |
| Entity Set | Key | Other Attributes |
| Game | gameID, participantID | date, time |
| Venue | venueCode | name, gameType |
| Participant | ID | firstname, lastname, country, game, age, gender |
| Winner |  | gold, silver, bronze, gameID |
| Loser |  | gameID, loserID, position |
| Country | name | noParticipants, noBronze, noSilver, noGold |
| Match | matchID | gameID |

Relationship Set

|  |  |  |
| --- | --- | --- |
| Relationship Set | Between Entity Sets | Attributes |
| Register | Participant, Game |  |
| Present | Participant, Venue | date, time |
| Represents | Participant, Country |  |
| isA | Participant, Winner |  |
| isA | Paricipant, Loser |  |
| Held | Venue, Match | date, time |

Constraints

|  |  |
| --- | --- |
| Relationship sets | Constraints |
| Register | one to one |
| Present | one to one |
| Represents | one to one |
| isA | one to one |
| isA | one to one |
| Held | one to many |

Relational Mapping

Country(countryName, noParticipants, noGold, noSilver, noBronze)

Game(gameID, gamedesc, date\_time)

Participant(ID, gameID, firstname, lastname, countryName, age, gender)

FOREIGN KEY (gameID) REFERENCES Game(gameID) ON DELETE CASCADE

Venue(venueCode, gameID, venueName)

FOREIGN KEY (gameID) REFERENCES Game(gameID) ON DELETE CASCADE

Matches(matchID, gameID, matchdesc)

FOREIGN KEY(gameID) REFERENCES Game(gameID) ON DELETE CASCADE

Winner(gold, silver, bronze, gameID)

FOREIGN KEY (gold) REFERENCES Participant(ID) ON DELETE CASCADE

FOREIGN KEY(silver) REFERENCES Participant(ID) ON DELETE CASCADE

FOREIGN KEY(bronze) REFERENCES Participant(ID) ON DELETE CASCADE

FOREIGN KEY (gameID) REFERENCES Game(gameID)

Loser(gameID, loserID, place)

FOREIGN KEY (gameID) REFERENCES Game(gameID) ON DELETE CASCADE

FOREIGN KEY (loserID) REFERENCES Participant(ID) ON DELETE CASCADE

Questions for querying

1. Display the participants ID, fullname (combination of firstname and lastname) who registered in Badminton.

DESC Participant;

SELECT ID, CONCAT(firstname, " ", lastname) AS fullname FROM Participant

WHERE gameID = 'B01';

-- B01 is the game code for badminton

1. Display all the game(s) which will be played on 1st August 2021.

DESC Game;

SELECT gameID, gamedesc FROM Game

WHERE DATE(date\_time) = '2021-08-01';

1. Display the number of participants from Malaysia.

SELECT noParticipants FROM Country

WHERE countryName = 'Malaysia';

1. Display all the winners in Swimming game.

DESC Winner;

SELECT gold, silver, bronze FROM Winner

WHERE gameID = 'S05';

-- S05 is the gameID that represents Swimming

1. Display all the information for matches that are in Semi-Final.

DESC Matches;

SELECT \* FROM Matches

WHERE matchdesc = 'Semi-Final';

1. Display the participants ID, firstname, lastname who is from Malaysia and registered in Badminton.

DESC Participant;

SELECT ID, firstname, lastname FROM Participant

WHERE gameID = 'B01' AND countryName = 'Malaysia';

1. Display number of venue used by each game.

DESC Venue;

DESC Game;

SELECT DISTINCT venueName, COUNT(venueCode) FROM Venue v INNER JOIN Game g

GROUP BY v.gameID, g.gameID;

1. Display the fullname of all the loser(s) in Badminton order by their places from the worst to the best.

DESC Loser;

SELECT CONCAT(firstname, " ", lastname) AS fullname, place FROM Participant p INNER JOIN Loser l

ON p.ID = l.loserID

WHERE l.gameID = 'B01'

ORDER BY l.place DESC;

1. Display all the upcoming matche(s).

SELECT gameID, gamedesc FROM Game

WHERE date\_time > CURDATE();

1. Display the venueCode and date\_time for Taekwondo.

DESC Venue;

DESC Game;

SELECT venueCode, date\_time FROM Venue v INNER JOIN Game g

ON v.gameID = g.gameID

WHERE g.gamedesc = 'Taekwondo';

Database functionality with advanced concepts

1. Trigger to automatically add Participant ID from the largest ID.
2. Trigger to add total number of participants in Country after inserting new Participant from that particular Country.