

**Indian Institute of Technology, Madras
Chennai**



CS6852: Assignment 2 - Ontology Design

Group-3

Domain: -Inter IIT Basketball Tournament

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CONCEPTS AND DESCRIPTION

CONCEPT NAME	DESCRIPTION
Person	A primitive concept person referring to human being
Male	A concept stating person gender is male
Female	A concept stating person gender is female
Player	Person who plays for a team.
Centre	A primitive concept person referring to role in basketball
Forward	A primitive concept person referring to a role in basketball
PointGuard	A primitive concept person referring to role in basketball
Ongoing	Status depicting match is ongoing
Completed	Status depicting match is completed
Upcoming	Status depicting match is upcoming
Tournament	A primitive concept referring to collection of matches
TournamentName	A basketball tournament consisting of one or more basketball matches.
Match	A basketball match played between two basketball teams.
Team	A primitive concept referring basketball team consisting of at least 5 players
TeamName	A basketball team name
TeamSize	Total players in a basketball team
Player	A basketball player who plays for a basketball team and has a set of statistics.
Points	The number of points scored by a basketball player during a basketball match
ForwardPlayer	Player who is playing forward
CentrePlayer	Player who is playing centre
PointGuardPlayer	Player who is a point guard in team
TotalScore	The number of points scored by a basketball player during a basketball match
Rebounds	The number of rebounds obtained by a basketball player during a basketball match.
Assists	The number of assists made by a basketball player during a basketball match.
Venue	The location where a basketball match takes place.

Institute	The educational institution or organization that a basketball team is affiliated with
StartDate	A specific date associated with the start date of basketball tournament.
EndDate	A specific date associated with the end date of basketball tournament.
JerseyNumber	The unique number assigned to a basketball player's uniform.
Status	Status of match either upcoming or ongoing or completed
MatchId	Unique Identifier representing the basketball match
UnbeatableTeam	Team that has won all matches
Name	Concept depicting name of the player
GoodPlayer	A concept depicting good player if he has scored some points and made some rebounds and assists
EarlierLocation	Locations where the tournament has held atleast once

PROPERTIES

PROPERTY	DESCRIPTIONS
playsFor	(Name, Institute) Relates to the basketball team the person plays for
organised	(Institute, TournamentName) Relates to the institute organising the tournament
hasTournamentName	(Tournament, Name) Relates a basketball tournament to its individual basketball matches.
hasName	(Player, Name) Relates to name of player.
hasTeamSize	(TeamName, TeamSize) Relates a basketball team to the no. of basketball players that make up the team.
hasStartDate	(Tournament, StartDate) Relates to start date of the match
hasEndDate	(Tournament, EndDate) Relates to end date of the match
hasScored	(TeamName, TotalScore) Relates to the team score during the match.
hasPoints	(Name, Score) Relates to the points player has scored during the match
hasMatchId	(Match, MatchId) Relates a match id of match
isLocationOf	(Venue, Tournament) Relates to the venue of the basketball tournament
hasRole	(Name, Role) Relates to player that occupy specific role, such as point guard or centre.
teamName	(Team, TeamName) Relates to the team's name
fromInstitute	(Name, Institute) Relates to the institute player belongs to
hasJerseyNumber	(Name, JerseyNumber) Relates to player jersey number
hasStatus	(MatchId, Status) Relates to match status either upcoming or ongoing or completed
hasWonTournament	(Team, TournamentName) Relates the basketball tournament to the team's name that won the tournament
hasWonMatch	(Team, MatchId) Relates team that won a specific match
captainOf	(Name, TeamName) Relates a basketball player to the basketball team
hasCaptain	(TeamName, Name) Relates a basketball team to a basketball player
hasTeam	(MatchId, Team) Refer to team related to the match

hasAssists	(Name, Assists)
hasRebounds	(Name, Rebounds)
hasPlayer	(Match, Player)

TBox

- **Person** $\equiv (\text{Male} \sqcup \text{Female}) \sqcap \exists \text{hasName.Name}$
- **Player** $\equiv \text{Person} \sqcap \exists \text{playsFor.Institute}$
- **Match** $\equiv =2 \text{ hasTeam.Team}$

Every match has two team.

- **Team** $\equiv \geq 5 \text{ hasPlayer.Player}$

Every team has at least 5 players.

- **Tournament** $\equiv \exists (\text{hasMatch.Match})$

Every tournament has at least one match.

- **Status** $\equiv \exists (\text{hasStatus.Status})$

Every match has a status which is either upcoming, ongoing or completed.

- **GoodPlayer** $\equiv \text{Player} \sqcap \exists \text{hasPoints.Points} \sqcap \exists \text{hasRebounds.Rebounds} \sqcap \exists \text{hasAssists.Assists}$

Good Player is one who has secured some points and some rebounds and some made some assists.

- **Captain** $\equiv \text{Player} \sqcap \exists (\text{captainOf.TeamName})$

Captain is a player and captain of at least one team

- **CenterPlayer** $\equiv \text{Player} \sqcap \exists (\text{hasRole.Center})$

Center Player is a player and his position is center in team.

- **ForwardPlayer** $\equiv \text{Player} \sqcap \exists (\text{hasRole.Forward})$

Forward Player is a player and his position is forward in team.

- **Point Guard** $\equiv \text{Player} \sqcap \exists (\text{hasRole.PointGuard})$

Point Guard is a player and he passes the ball to the other player.

- **WinningTeam** $\equiv \text{Team} \sqcap \exists (\text{hasWonTournament.TournamentName})$

Team who won the Tournament

- **UnbeatableTeam** $\equiv \text{Team} \sqcap \forall (\text{hasWonMatch.MatchId}) \sqcap \exists (\text{hasPlayed.MatchId})$

Team who has won all the matches till now

- **Organisers** $\equiv \text{Institute} \sqcap \exists (\text{organises.TournamentName})$

All the Institutes who have organised a tournament atleast once

- **Venue** $\equiv \exists (\text{isLocationOf.TournamentName})$

Venue is one where tournament is held atleast once

- **PointGuard** \equiv **Player** $\sqcap \exists$ (**hasRole.PointGuard**)

Point Guard is a player and he passes the ball to the other player.

- **Center** \sqsubseteq **Role**
- **Forward** \sqsubseteq **Role**
- **WinningTeam** \equiv **Team** $\sqcap \exists$ (**hasWonTournament.TournamentName**)
Team who won the Tournament
- **UnbeatableTeam** \equiv **Team** $\sqcap \forall$ (**hasWonMatch.MatchId**) $\sqcap \exists$ (**hasPlayed.MatchId**)
Team who has won all the matches till now
- **Organisers** \equiv **Institute** $\sqcap \exists$ (**organises.TournamentName**)
All the Institutes who have organised a tournament atleast once
- **PointGuard** \sqsubseteq **Role**
- **EarlierLocation** $\equiv \exists$ (**isLocationOf.TournamentName**)
Location where tournament is held atleast once
- **OngoingMatches** $\equiv \exists$ (**hasMatchId.Match**) $\sqcap \exists$ (**hasStatus.Ongoing**)
- **CompletedMatches** $\equiv \exists$ (**hasMatchId.Match**) $\sqcap \exists$ (**hasStatus.Completed**)
- **UpcomingMatches** $\equiv \exists$ (**hasMatchId.Match**) $\sqcap \exists$ (**hasStatus.Upcoming**)

ABoxes

1. Amit Sharma: Player
2. Rajesh Patel: Player
3. Anil Kumar: CenterPlayer
4. Prakash Singh: Point Guard
5. IIT Mandi: Team
6. IIT Delhi: Team
7. Sunil Singha: GoodPlayer
8. IIT Madras: Organisers
9. IIT Madras vs IIT Bombay: Match
10. IIT Madras Basketball court: Venue
11. Raunak Singh: GoodPlayer
12. Ashutosh Dev: Captain
13. Anadeep Bandharu: Center
14. IIT Delhi Basketball court: Venue
15. IIT Guwahti vs IIT BHU: UpcomingMatches
16. Sushant Rajput: PointGuard
17. IIT Delhi vs IIT Kanpur: CompletedMatches
18. (Suraj Prasad, 8): has Assist
19. (Sandeep Lala, 11): hasPoints
20. (Sandeep Lala, 7): hasRebounds
21. (Sandeep Lala, PowerForward): hasRole
22. (Harish Singh, Center): hasRole
23. (Sumit Sharma, IIT Guwahti): playsFor
24. (IIT Delhi vs IIT Kanpur, Raunak Singh): hasPlayer
25. (IIT Delhi vs IIT Kanpur, Completed): hasStatus

26. (IIT Madras, Inter-IIT Basketball 22): hasWonTournament

27. (IIT Madras, IITMadras vs IIT Bombay) : hasWonMatch

Situation/Example

1. IIT Roorkee won the tournament.
2. Tournament was held at IIT Madras.
3. IIT Bombay scored 50 points in IIT Hyderabad vs IIT Bombay match.
4. Match Id of match IIT Hyderabad vs IIT Bombay is TN23002.
5. Sunita Sharma plays for IIT Guwahati.
6. Amit Kumar has rebounds 7.
7. Points scored by Ankit Sharma is 15.
8. Earlier Locations of tournaments were IIT Madras, IIT Hyderabad and IIT Mandi.

