

Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science and Technology (Deemed to be University Estd. u/s 3 of UGC Act, 1956)

School of Computing

B.Tech. – Information Technology



VTR UGE2021- (CBCS)



Academic Year: 2025–2026 SUMMER

SEMESTER - SS2526

Course Code : 10211IT201

Course Name : Database System concepts

Slot No : S1 2 L 5

DBMS TASK - 1 REPORT

TASK:Conceptual Design through FTR

Submitted by:

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TASK 1: Conceptual Design through FTR

Aim:

To design a Conceptual Entity Relationship (ER) Model using fundamental database design methodology by identifying entities, attributes, relationships, cardinalities, keys, and constraints, and to represent them using an ER diagram tool. (drawio, lucidchart)

Algorithm:

Design ER Diagram using Creately:

- o Go to <https://creately.com/diagram>.
- o Use ER template, add entities, attributes, keys, and relationships with proper cardinality.

Question:

Using basic database design methodology and ER modeler, design Entity Relationship Diagram by satisfying the following sub tasks:

1. a Identifying the entities.
1. b Identifying the attributes.
1. c Identification of relationships, cardinality, type of relationship.
1. d Reframing the relations with keys and constraint.
1. e Using creatively, develop ER/EER diagram

1.a Identifying the Entities

The major entities are:

1. CricketBoard
2. Team
3. Player
4. Match
5. Ground
6. Umpire

1.b Identifying the Attributes

Sample Output (EntityName(Attribute1, Attribute2,...)):

1. CricketBoard(BoardID, Name, Address, Contact_No)
2. Team(TeamID, Name, Coach, Captain)
3. Player(PlayerID, FName, LName, Age, DateofBirth, PlayingRole)
4. Match(MatchID, Date, Time, Result)
5. Ground(GroundID, Name, Location, Capacity)
6. Umpire(UmpireID, FName, LName, Age, DateofBirth, Country)

1.c Identification of Relationships, Cardinality, Type of Relationship-(ER Diagram)

Relationship Entities Involved		Cardinality	Type
Organizes	CricketBoard – Match	1:M	One-to-Many
Plays	Team – Match	M:N	Many-to-Many
Belongs To	Player – Team	M:1	Many-to-One
Occurs At	Match – Ground	M:1	Many-to-One
Officiates	Umpire – Match	M:N	Many-to-Many

1.d Reframing the Relations with Keys and Constraints

Below are the relations with Primary Keys (PK) and Foreign Keys (FK) defined:

1. CricketBoard (BoardID, Name, Address, Contact_No)
2. Team(TeamID, Name, Coach, Captain)
3. Player(PlayerID, FName, LName, Age, DateofBirth, PlayingRole, TeamID) o FK: TeamID → Team.TeamID
4. Match(MatchID, Date, Time, Result, GroundID, BoardID) o FK: GroundID → Ground.GroundID o FK: BoardID → CricketBoard.BoardID
5. Ground(GroundID, Name, Location, Capacity)

6. Umpire(UmpireID, FName, LName, Age, DateofBirth, Country)
7. MatchTeam(MatchID, TeamID) o Composite
PK: MatchID + TeamID o FK: MatchID →
Match.MatchID o FK: TeamID →
Team.TeamID

8. MatchUmpire (MatchID, UmpireID) o

Composite PK: MatchID + UmpireID o FK:

MatchID → Match. MatchID o FK:

UmpireID → Umpire.UmpireID

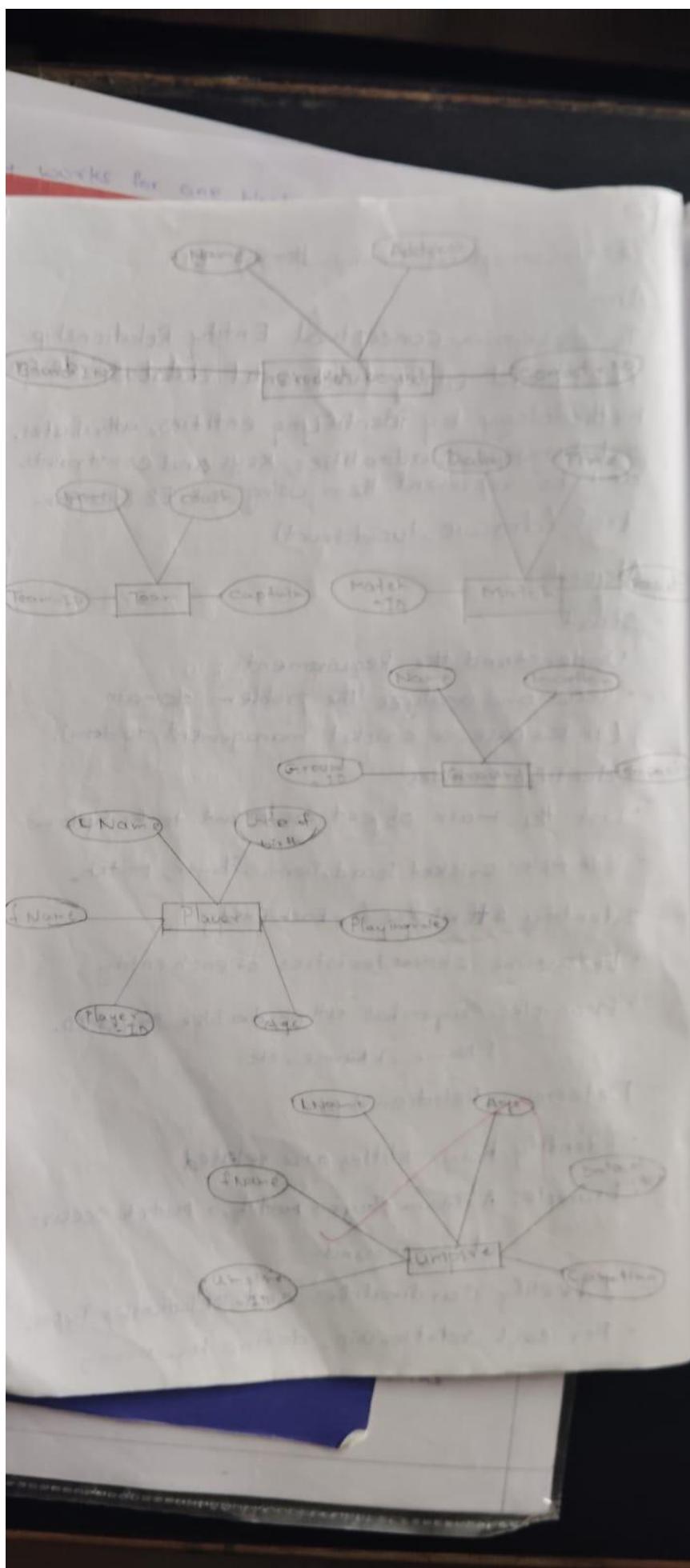
1.e Using Creately – Develop ER/EER Diagram

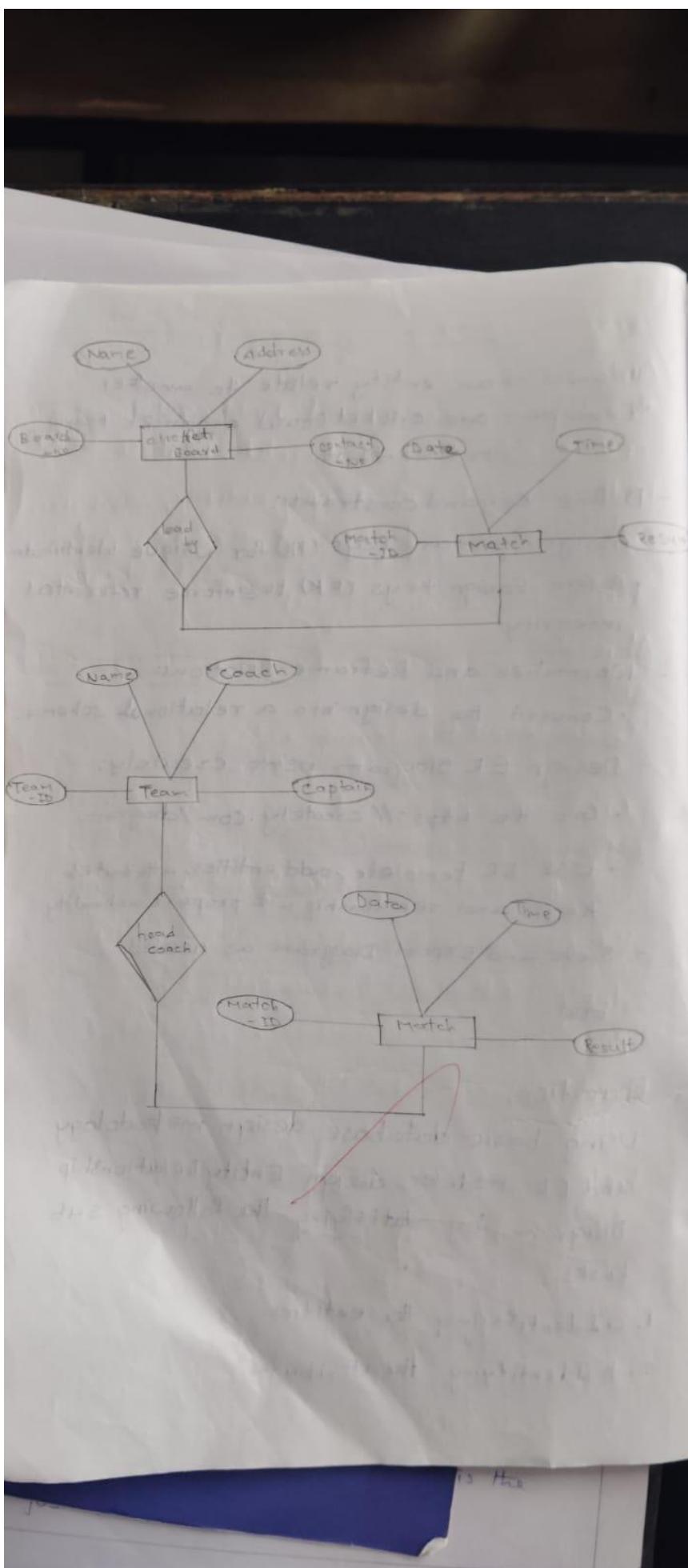
► Steps to create ER Diagram on Creately:

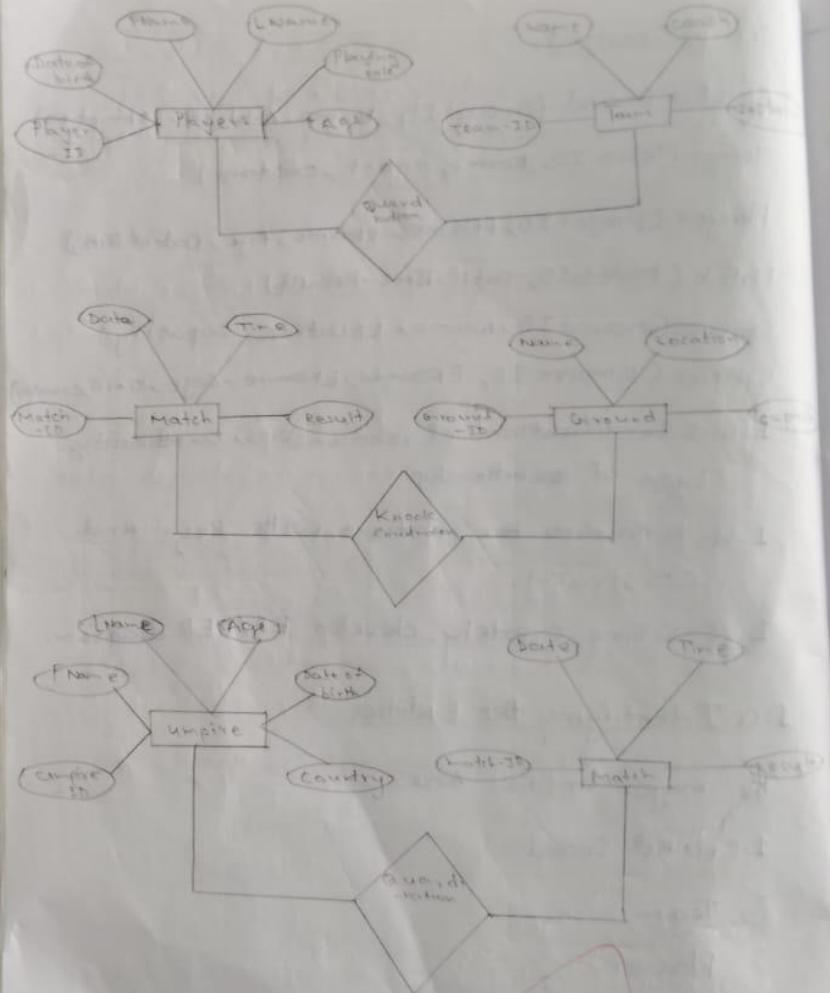
1. Go to [https://creately.com/diagram \(Lucidchart\)](https://creately.com/diagram)
2. Select ER Diagram Template
3. Add entities (CricketBoard, Team, Player, Match, Ground, Umpire)
4. Add attributes under each entity (underline primary keys)
5. Draw relationships and indicate cardinality (1:1, 1:N, M:N)
6. Use connectors and label relationships (e.g., "Organizes", "Plays", "Belongs To")
7. Save or export as PDF/Image

Summary Table of All Entities

Entity	Primary Key	Foreign Key(s)
CricketBoard	BoardID	—
Team	TeamID	—
Player	PlayerID	TeamID → Team.TeamID
Match	MatchID	GroundID, BoardID
Ground	GroundID	—
Umpire	UmpireID	—
MatchTeam	MatchID + TeamID	MatchID, TeamID
MatchUmpire	MatchID + UmpireID	MatchID, UmpireID







Result:

Thus, ER diagram was draw successfully using Lucid chart.