UNIT 1

Lecture 8

E R Model

Question 2

- Construct an E-R diagram for a car-insurance company whose customers own one or more cars each. Each car has associated with it zero to any number of recorded accidents.

Step 1 : Identify the entity sets

- From the given question the entity sets identified are
  1. PERSON
  2. CAR
  3. ACCIDENT

Step 2 : Identify the relevant attributes

- The relevant attributes of PERSON entity set are
  - Person_Id
  - Person_Name
  - Address
- The relevant attributes of CAR entity set are
  - Engine_No
  - Model
  - Year
- The relevant attributes of ACCIDENT entity set are
  - Report_No
  - Location
  - Acc_Date

Step 3 : Identify the prime attributes

- The prime attribute of PERSON entity set is
  - Person_Id
- The prime attribute of CAR entity set is
  - Engine_No
- The prime attribute of ACCIDENT entity set is
  - Report_No

Step 4 : Identify the relationships

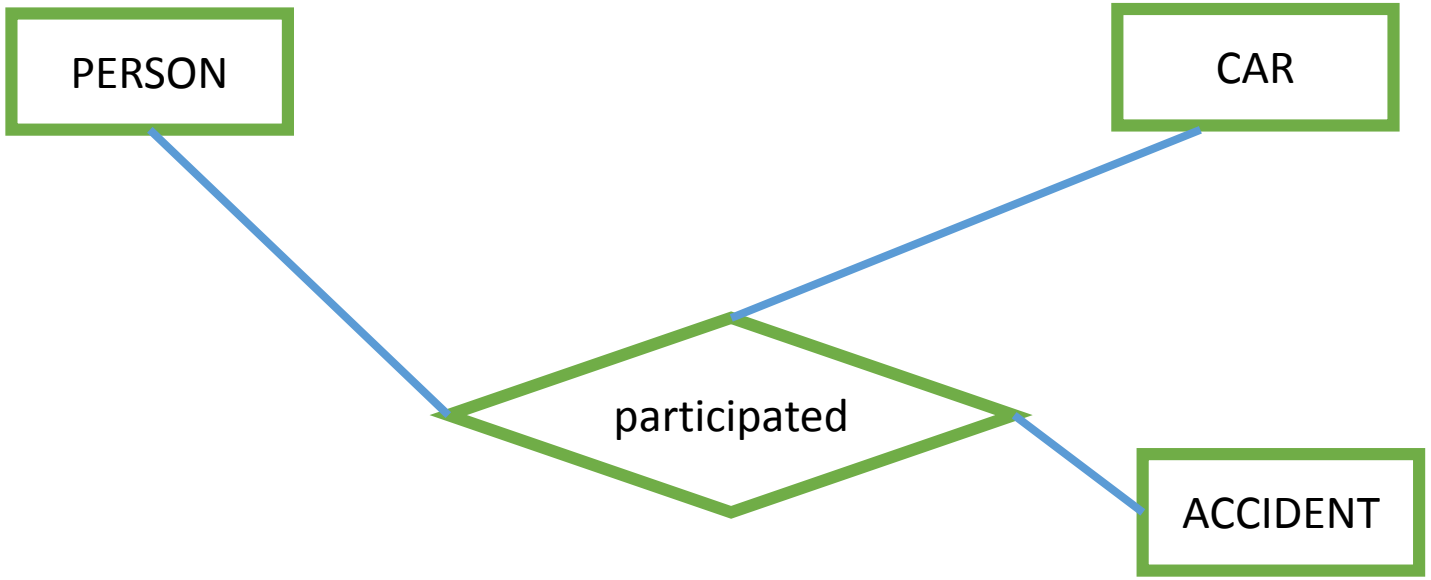
- Customers own one or more cars each.

Step 4 : Identify the relationships

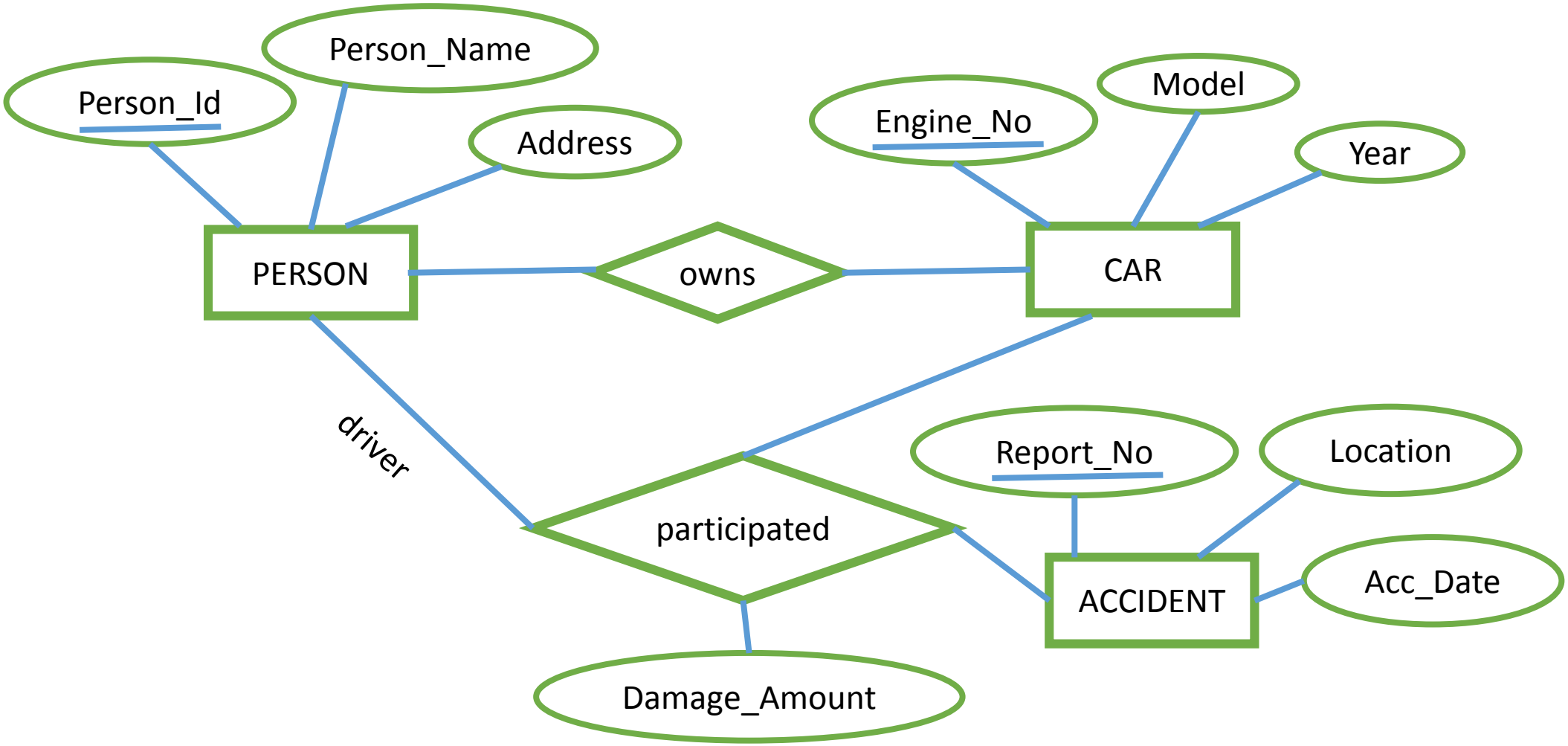
- Each car is associated with it zero to any number of recorded accidents.

Step 4 : Identify the relationships

- Each car is associated with it zero to any number of recorded accidents.



Step 5 : Complete E R Diagram



Question 3

- Design an E-R diagram for keeping track of the exploits of your favorite sports team. You should store the matches played, the scores in each match, the players in each match and individual player statistics for each match. Summary statistics should be modeled as derived attributes.

Step 1 : Identify the entity sets

- From the given question the entity sets identified are
  1. MATCH
  2. PLAYER

Step 2 : Identify the relevant attributes

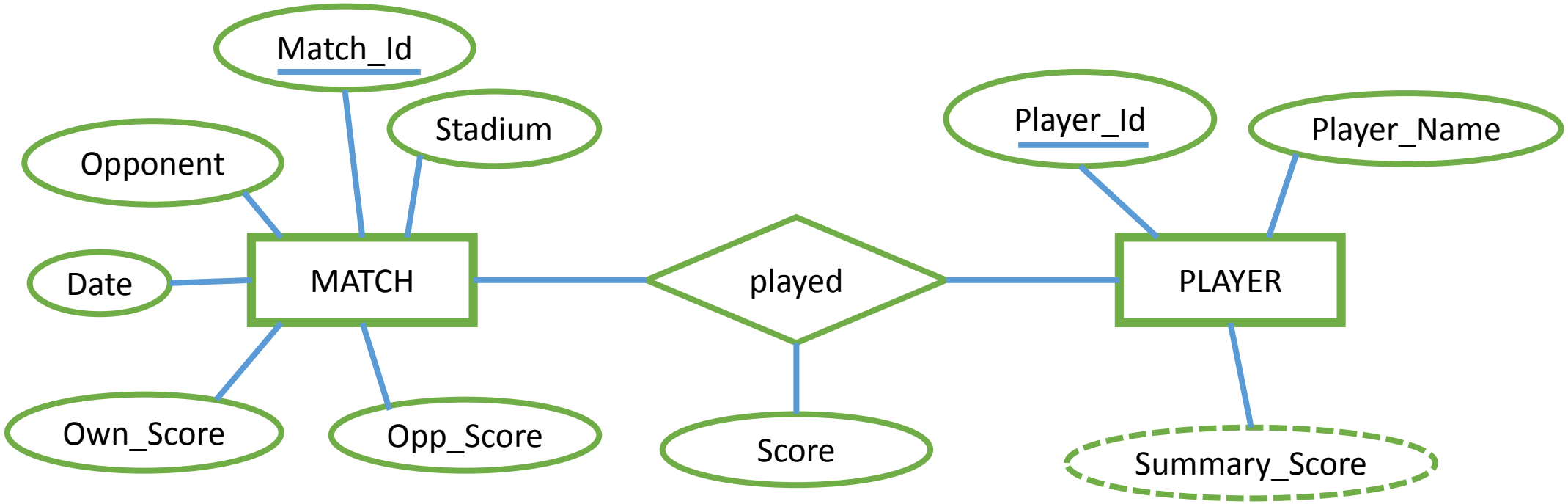
- The relevant attributes of MATCH entity set are
  - Match_Id
  - Stadium
  - Date
  - Opponent
  - Own_Score
  - Opp_Score
- The relevant attributes of PLAYER entity set are
  - Player_Id
  - Player_Name
  - Summary_Score

Step 3 : Identify the prime attributes

- The prime attribute of MATCH entity set is
  - Match_Id
- The prime attribute of PLAYER entity set is
  - Player_Id

Step 4 : Identify the relationships

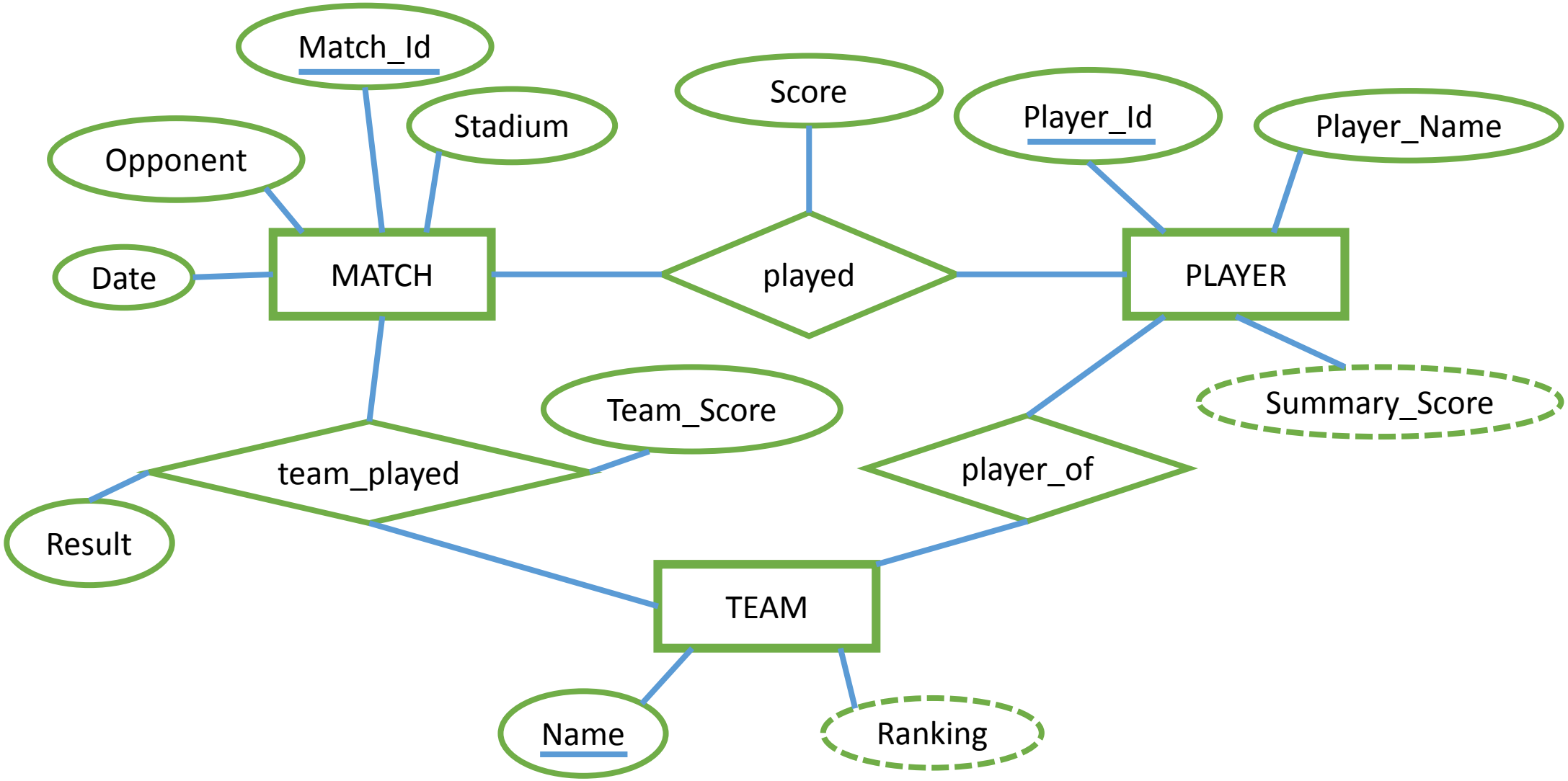
Step 5 : Complete E R Diagram



Question 4

- Design an E-R diagram for keeping track of the exploits of your favorite sports team. You should store the matches played, the scores in each match, the players in each match and individual player statistics for each match. Summary statistics should be modeled as derived attributes.
- Extend the E-R diagram of the previous question to track the same information for all teams in a league.

Complete E R Diagram



Question 4

A university registrar's office maintains data about the following entities: (a) courses, including number, title, credits, syllabus, and prerequisites; (b) course offerings, including course number, year, semester, section number, instructor(s), timings, and classroom; (c) students, including student-id, name, and program; and (d) instructors, including identification number, name, department, and title. Further, the enrollment of students in courses and grades awarded to students in each course they are enrolled for must be appropriately modeled.

Construct an E-R diagram for the registrar's office. Document all assumptions that you make about the mapping constraints.

Step 1 : Identify the entity sets

- From the given question the entity sets identified are
  1. COURSE
  2. COURSE-OFFERINGS
  3. STUDENT
  4. INSTRUCTOR

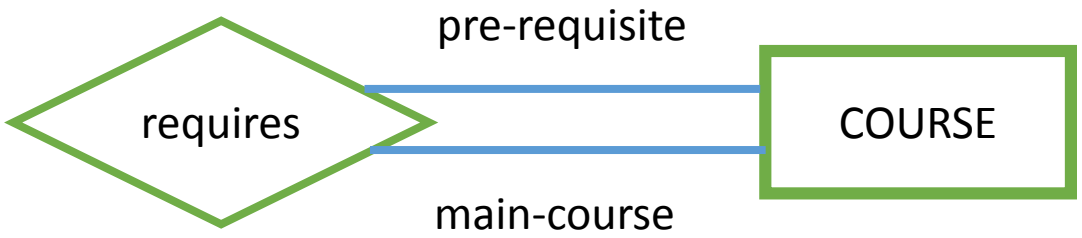
Step 2 : Identify the relevant attributes

- The relevant attributes of **COURSE** entity set are
  - Course_No
  - C_Tile
  - Credits
  - Syllabus
- The relevant attributes of **COURSE-OFFERINGS** entity set are
  - Year
  - Time
  - Secno
  - Room
  - Semester
- The relevant attributes of **STUDENT** entity set are
  - S_Id
  - S_Name
  - Program
- The relevant attributes of **INSTRUCTOR** entity set are
  - I_id
  - I_Name
  - I_Title
  - Dept

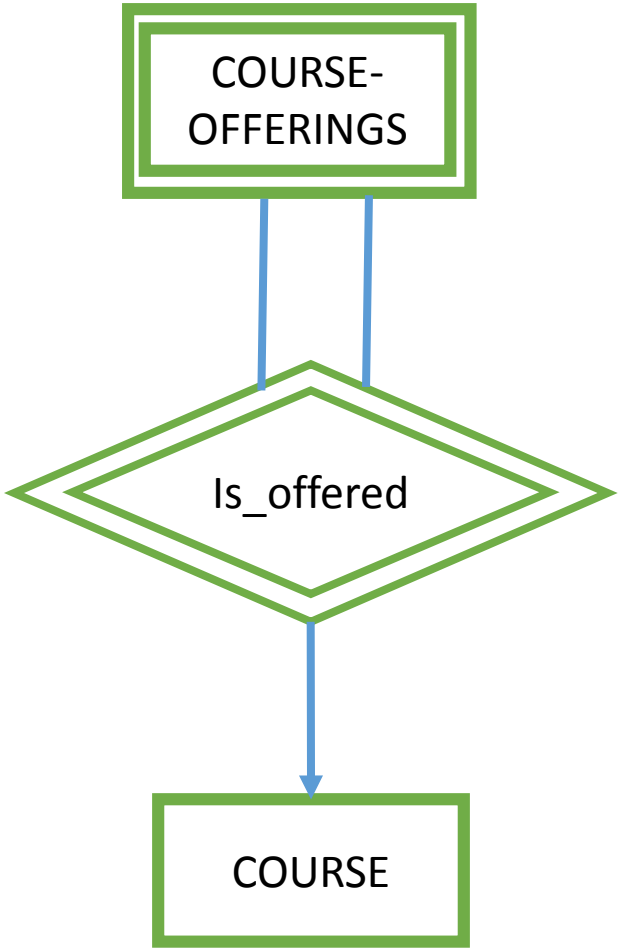
Step 3 : Identify the prime attributes

- The prime attribute of **COURSE** entity set are
  - Course_No
- There is no prime attribute in **COURSE-OFFERINGS** entity set, so it is an weak entity set, however the partial key (discriminator) is
  - Year
- The prime attribute of **STUDENT** entity set is
  - S_Id
- The prime attribute of **INSTRUCTOR** entity set is
  - I_id

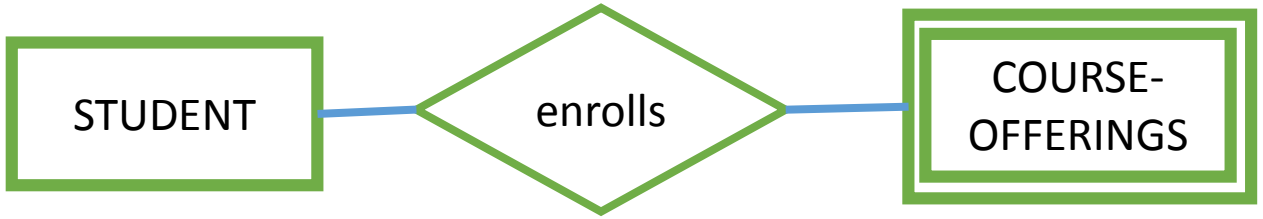
Step 4 : Identify the relationship



Step 4 : Identify the relationship

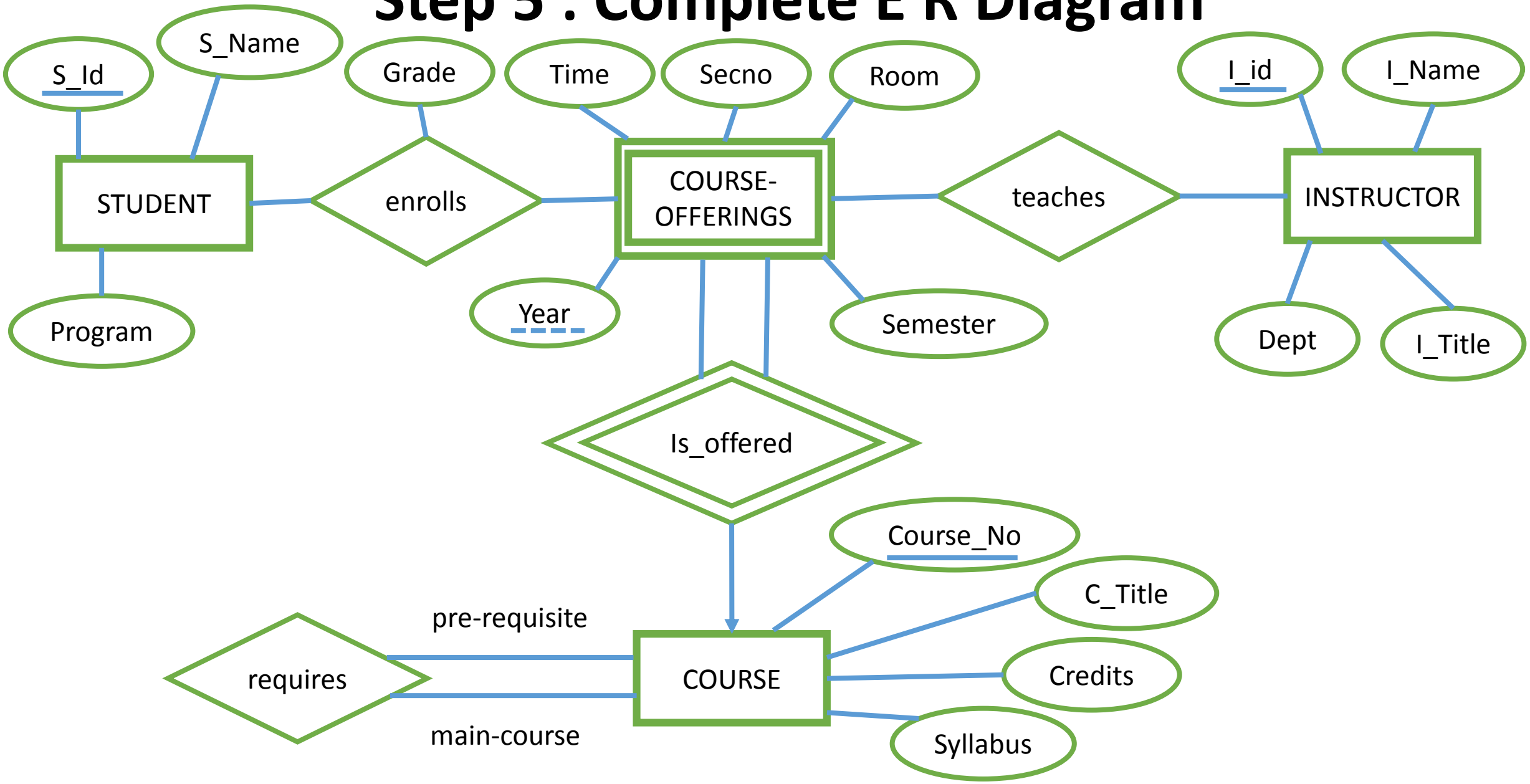


Step 4 : Identify the relationship



Step 4 : Identify the relationship

Step 5 : Complete E R Diagram



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