Entities and Attributes

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1. Student • Attributes :-
   - StudentID (Primary key)
   - Name
   - Email
   - Phone
   - Department
   - Year
   - Gender
2. Course
   - attributes
     - Course ID (PRIMARY KEY)
     - Course Name
     - Credit Hours
     - Department
3. Faculty
   - Attributes
     - FacultyID (Primary key)
     - Name
     - Email
     - Department
     - Designation
4. Attendance
   - Attributes
     - AttendanceID (Primary key)
     - StudentID (Foreign key)
     - CourseID (Foreign key)
     - AttendanceDate
     - Status (e.g., Present, Absent)
5. ClassSchedule
   - Attributes
     - ScheduleID (Primary key)
     - CourseID (Foreign key)
     - FacultyID (Foreign key)
     - Date
     - Timeslot

Example:-

In the faculty entity, Name can be a Compositive attribute consisting of:

- First Name
- Middle Name
- last Name

In the class schedule entity, Timeslot could be broken into

- Starttime
- Endtime

Relationship Names:-

1. Student ↔ Attendance
   - "Marks"
   - "Records"
   - "Maintains"
2. Course ↔ Attendance
   - "Tracked By"
   - "Mapped to"
   - "Includes"
3. Faculty ↔ classSchedule
   - "conducts"
   - "Assigned To"
   - "Leads"

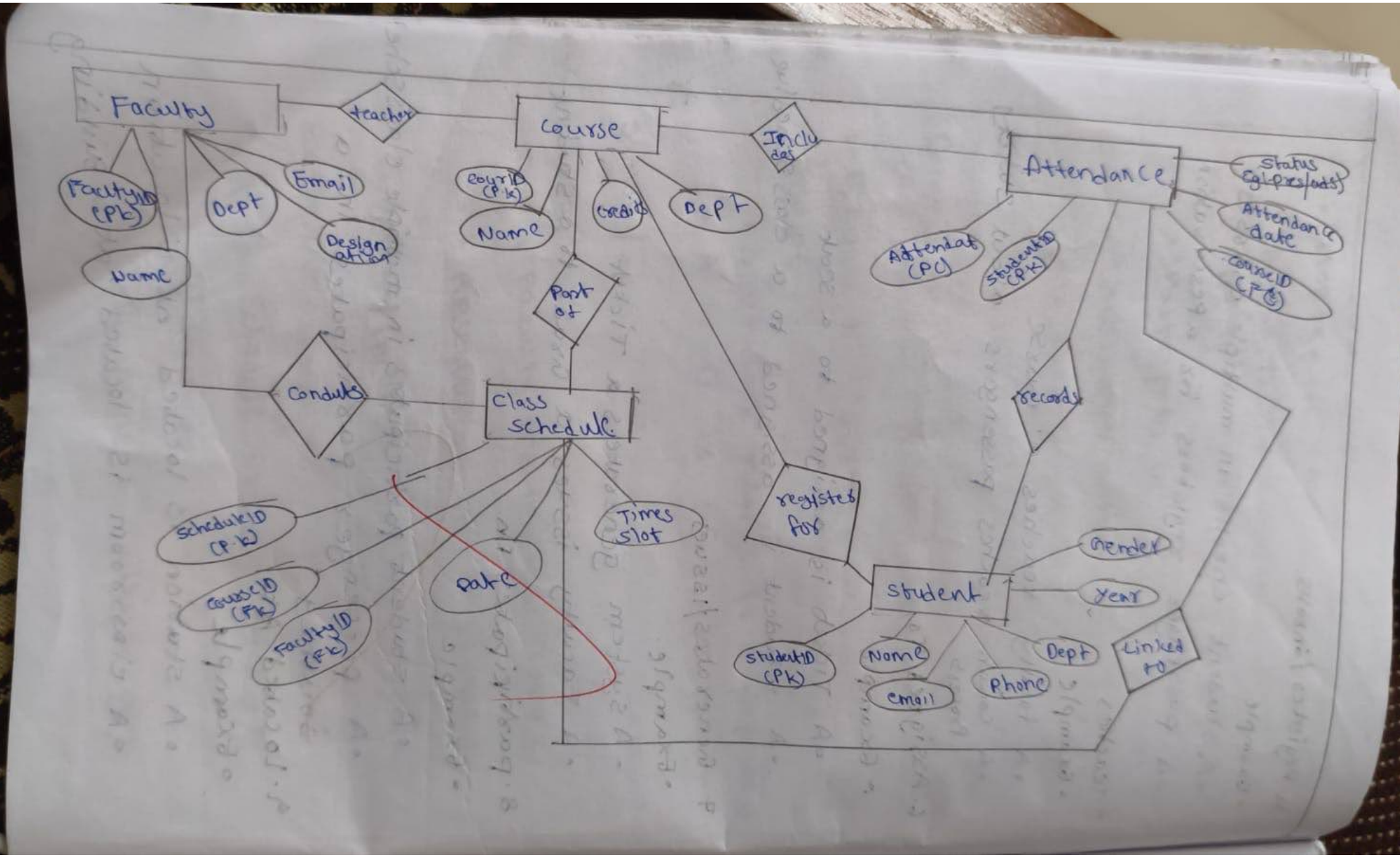
Weak Entity

- Attendance
- The attendance entity depends on the student (via studentID) and classSchedule (via scheduleID)
- It does not have a unique primary key of its own that can exist independently, but rather relies on these foreign keys to uniquely identify its rows

This aligns with the concept where a weak Entity depends on the existence of a strong Entity for its definition and identification

You said

Key attribute :- The attribute which uniquely identifies each entity in the set is called the key attribute for example, Roll_NO o Composite Attribute : An attribute composed of many other attribute is type consists of street, city, state and country ; o Derived Attribute : An attribute that can be derived from other Attributes of the entity type is known as a derived attribute e.g. Age (can be derived from DOB). o Multivalued attribute : An attribute consisting of more than one value for a given entity For example Phone_NO. --- for all this also give me example


Faculty
teaches
Course
Includes
Attendance
FacultyID (PK)
Name
Dept
Email
Designation
CourseID (PK)
Name
Credits
Dept
Part of
Conducts
Class Schedule
ScheduleID (PK)
CourseID (FK)
FacultyID (FK)
Date
Time Slot
AttendanceID (PK)
StudentID (FK)
CourseID (FK)
Status (e.g. Pres/Abs)
Attendance date
Records
registered for
Student
StudentID (PK)
Name
Email
Phone
Dept
Year
Gender
Linked to

1. Key Attribute

- Definition:- An attribute that uniquely each entity in the set
- Example:-
  - In the student entity, Student ID is the key attribute as it uniquely identifies each student

2. Composite Attribute

- Definition:- An attribute composed of multiple other attributes
- Example:-
  - Address in the student entity can be a composite attribute consisting of
    - street
    - city
    - state
    - country

3. Derived Attribute

Definition:- An attribute that is calculated or derived from other attributes

Example:-

- In the student entity, Age is a derived attribute that can be calculated using
- Date of Birth and the current date

4. Multivalued Attribute

- Definition:- An attribute that can have multiple values for a single entity instance
- Example:-
  - in the student entity, phone is a multivalued attribute because a student can have multiple phone numbers, such as a personal phone and a parent's Phone

1. key Attribute

- Definition:- An attribute that uniquely identifies each entity in the set
- Example:-
  - CourseID in the Course entity uniquely identifies each course in the system
  - ScheduleID in the class Schedule entity uniquely identifies each schedule class

2. Composite Attribute

- Definition:- An attribute composed of multiple sub-attribute

4. Registers / Enrolls
- Example
  - A student enrolls in multiple courses
  - A passenger registers for a Reservation

5. Teaches
- Example
  - A faculty teaches a course
  - A coach teaches passengers about Safety Process

6. Assigned To
- Example
  - A Ticket is assigned to a seat
  - A student is assigned to a class schedule

7. Generates/Issues
- Example
  - A system generates a Ticket
  - A Faculty issues a Grade to a student

8. participates in
- Example
  - A student participates in multiple classsche
  - A passenger participates in a journey

9. Located At
- Example
  - A station is located at a location
  - A classroom is located at a Building

- "Manage"
- "Belongs To"
- "Has"
- "Participates In"
- "Associated with"
- "Connected To"
- "Relate 'To"

Common words/phrases for Relationships

1. Belongs to / Part of

Example:-

- A Student belongs to a Department
- A Coach is part of a train

2. Has / owns

Example:-

- A Faculty has multiple courses
- A Reservation has a payment

3. Contains / Includes

Example:-

- A class Schedule contains multiple Attendance Records
- A Coach includes multiple seats

10. Managed By
- Example
  - A Department is managed by a Faculty
  - A Train is managed by a station Master

11. Relates To
- Example
  - A Student relates to a classSchedule Via their Attendance
  - A course relates to a Department

12. offers
- Example
  - A University offers multiple courses
  - A system offers different services

13. Requires
- Example
  - A Reservation requires a payment
  - A class Schedule requires a faculty

14. Assigned By
- Example
  - A Schedule is assigned by a system
  - A Grade is assigned by a faculty

Result

The Program has successfully completed

in SQL Portal

Relationships and Cardinalities

1. Student - Attendance;-
   - Relationship: A student can have multiple attendance records for different classes
   - Cardinality: 1:M (one to Many)
2. Course - Attendance;
   - A course can have multiple attendance records for students different
   - Cardinality: 1:M (one to Many)
3. Faculty - Attendance;-
   - A faculty member can teach mutiple classes
   - Cardinality: 1:M (one to Many)
4. Course - class Schedule;-
   - Relationship;- A course can have multiple Scheduled classes
   - cardinality;- 1:M (one to Many)
5. class Schedule - Attendance
   - Relationship;- Each schedule class can have multiple attedance records
   - cardinality;- 1:M (one to Many)
6. Student - Course
   - Relationship;- A student can enroll in multiple course and each course can have multiple students
   - cardinality;- M:M (Many to Many)

In the Attendance Management system ER Diagram, an example of strong Entity and weak Entity would be

Strong Entity

- Student
  - The student entity can exist independently in the database and has a well-defined Primary key (student ID)

4. Course ↔ ClassSchedule
   - "Scheduled For"
   - "Organized As"
   - "Part of"

5. ClassSchedule ↔ Attendance
   - "Logs"
   - "Linked To"
   - "Holds Attendance For"

6. Student ↔ Course
   - "Enrolled In"
   - "Registers For"
   - "Assigned To"

7. Faculty ↔ Course
   - "Teaches"
   - "Assigned To"
   - "Responsible For"

General words for Relationships

if you're looking for generic terms that can be reused here are a few