

**Scenario one:**

Suppose you are given to design a simple database for the online ordering item system with the following requirements:

- A customer who places an order, characterized by CustomerID, Name, Email, Address, and Phone
- Item that represents an item available for ordering, characterized by ItemID, Name, Description, Price.
- Order that represents an order placed by a customer, characterized by OrderID, OrderDate, TotalAmount
- OrderItem that represents a specific item within an order, characterized by OrderItemID, Quantity, UnitPrice.
- A customer can place multiple orders, and an order is placed by only one customer.
- An order can contain multiple order items, and an order item belongs to only one order.
- An item can be present in multiple order items, and an order item is associated with only one item.

**Question: Based on the requirements given above:**

1. Identifying entities and their attributes
2. Identifying the types of relationships
3. Draw ERD for this database
4. Draw Logical data model for this database

**Scenario two:**

Suppose you are given to design a simple database for an online learning system, with the following requirements:

- User that represents a user of the online learning system, characterized by UserID , Name, Email, Password, and Role.
- Course that represents a course available on the platform. It is characterized by CourseID, Title, Description, and Instructor.
- Lesson that represents a lesson within a course. It is characterized by LessonID, and Title, Content,
- A user can enroll in multiple courses, and a course can have multiple users enrolled.
- A course can have multiple lessons, and a lesson belongs to only one course.

**Question: Based on the requirements given above:**

1. Identifying entities and their attributes
2. Identifying the types of relationships
3. Draw ERD for this database
4. Draw Logical data model for this database

**Scenario Three:**

Suppose you are given to design an online hotel booking system, with the following requirements:

- Hotel that represents a hotel available for booking. It is characterized by HotelID, Name, Address, Phone and Email.
- Room that represents a room within a hotel. It is characterized by RoomID ,RoomNumber, Type, Price, and Availability.
- Guest that represents a guest who books a room. It is characterized by GuestID,Name, Address, Phone, and Email.
- Booking that represents a booking made by a guest. It is characterized by BookingID, CheckInDate, CheckOutDate, and TotalAmount.
- A hotel can have multiple rooms, and a room belongs to only one hotel.
- A guest can make multiple bookings, and a booking is made by only one guest.
- A room can be booked multiple times, and a booking is for only one room.

**Question: Based on the requirements given above:**

1. Identifying entities and their attributes
2. Identifying the types of relationships
3. Draw ERD for this database
4. Draw Logical data model for this database

**Scenario Four:**

Suppose you are given to design a leave management system, with the following requirements:

- Employee that represents an employee in the leave management system. It has the characteristics like EmployeeID ,Name, Department, Email, and Phone
- Leave that represents a leave request submitted by an employee. It has the characteristics like LeaveID, LeaveType, StartDate, EndDate, Reason, and Status.
- Manager that represents a manager who approves or rejects leave requests. It has the characteristics like ManagerID Name, Email, and Phone.
- In this scenario, an employee can have multiple leave requests. An employee is associated with a specific manager.

**Question: Based on the requirements given above:**

1. Identifying entities and their attributes
2. Identifying the types of relationships
3. Draw ERD for this database
4. Draw Logical data model for this database

**Scenario Five:**

You are given to design a library management system, with the following requirements:

- Library that represents a library. It is characterized by LibraryID, Name, Address, and Phone.
- Book that represents a book available in the library. It is characterized by BookID, Title, Author, ISBN, and PublicationDate.
- Category that represents categories or genres to classify books. It is characterized by CategoryID, Name, Description.
- Member that represents a library member or borrower. It is characterized by MemberID, Name, Address, Phone, and Email.
- Borrowing that represents the borrowing of a book by a member. It is characterized by BorrowingID, BorrowDate, and ReturnDate.
- A library can have multiple books, but a book belongs to only one library.
- A book can be assigned to multiple categories, and a category can have multiple books.
- A member can borrow multiple books, and a book can be borrowed by multiple members.

**Question: Based on the requirements given above:**

1. Identifying entities and their attributes
2. Identifying the types of relationships
3. Draw ERD for this database
4. Draw Logical data model for this database

**Scenario Six:**

You are given to design a store management system; with the following requirements:

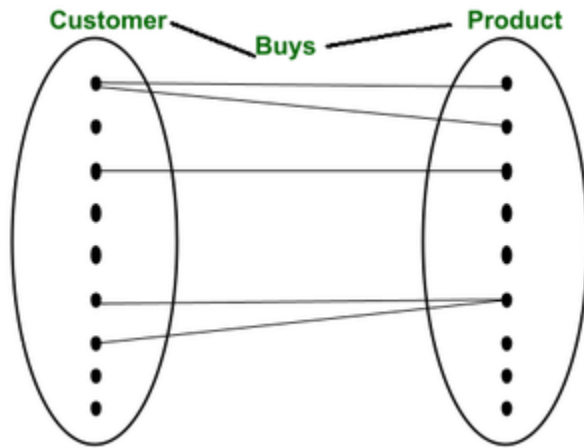
- Store that represents a physical store location. It is characterized by StoreID, Name, Address, and Phone.
- Product that represents a product available in the store. It is characterized by ProductID, Name, Description, Price, and Quantity.
- Category that represents categories or types to classify products. It is characterized by CategoryID, Name, and Description.
- Supplier that represents a supplier or vendor of products. It is characterized by SupplierID, Name, Address, Phone, and Email.
- Order that represents an order placed with a supplier. It is characterized by OrderID, OrderDate, and TotalAmount.
- OrderItem that represents a specific item within an order. It is characterized by OrderItemID, Quantity, UnitPrice.
- A store can have multiple products, and a product belongs to only one store.
- A product can belong to multiple categories, and a category can have multiple products.
- A supplier can supply multiple products, and a product can be supplied by multiple suppliers.
- An order can have multiple order items, and an order item belongs to only one order.

**Question: Based on the requirements given above:**

1. Identifying entities and their attributes
2. Identifying the types of relationships
3. Draw ERD for this database
4. Draw Logical data model for this database

### Scenario Seven:

Study the following presentation and interpret the type of relationships.



### Scenario eight:

Suppose you are given the following requirements for a simple database for the National Premier League (NPL): the NPL has many teams:

- each team has a name, a city, a coach, a captain, and a set of players,
- each player belongs to only one team,
- each player has a name, a position (such as left wing or goalie), age and nationality.
- a team captain is also a player,
- a team has only one coach.
- each coach has a name, license (such as A, B, or C), age and nationality,
- a game is played between two teams (referred to as host\_team and guest\_team) and has a date (such as May 11th, 2017) and a score (such as 4 to 2).

Construct an LDM diagram for the NPL database by indicating the cardinality mappings.