Assignment-1

Assignment 1: Analyze a given business scenario and create an ER diagram that includes entities, relationships, attributes, and cardinality. Ensure that the diagram reflects proper normalization up to the third normal form.

BUSINESS SCENARIO:

ONLINE MOVIE TICKET BOOKING SYSTEM

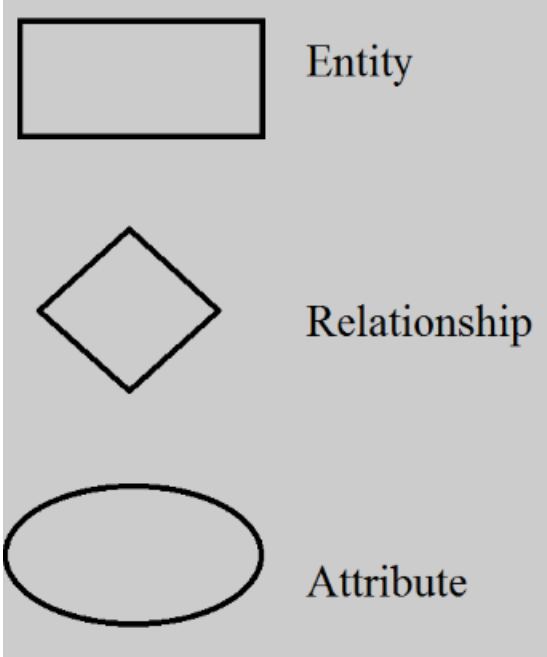
The system allows users to book tickets for movies shown in various theaters. Users can make payments for their bookings, and each booking is associated with specific showtimes for movies.

Entity: An entity is an object or component of data. An entity is represented as rectangle in an ER diagram.

Cardinality: Defines the numerical attributes of the relationship between two entities or entity sets.

Relationship: A relationship is represented by diamond shape in ER diagram, it shows the relationship among entities.
There are four types of cardinal relationships:
1. One to One
2. One to Many
3. Many to One
4. Many to Many

Attribute: An attribute describes the property of an entity. An attribute is represented as Oval in an ER diagram.



Entities :

This are entities
1.Movie
2.Theater
3.Customer
4.Booking
5.show
6.Tickets

Entities with Attributes:

1. **Movie**
    - M_id (Primary Key)
    - M_name
    - genre
    - cbfc_rating
    - rating
2. **Theater**
    - T_ID (Primary Key)
    - T_name
    - Location
3. **Customer:**
    - C_id(Primary Key)
    - C_Name
    - C_Email
    - C_PhoneNumber
4. **Booking**
    - C_id
    - BookingDate
    - NumberOfTickets
5. **Show**
    - ShowID (Primary Key)
    - St_time
    - end_time
    - Language
6. **Ticket**

- TicketID (Primary Key)
- BookingID (Foreign Key)
- SeatNumber
- Price
- ShowNumber
- ShowDate
- HallNumber

Relationships and Cardinality

1. **User-Booking**: A user can make multiple bookings.
2. **Booking-Payment**: A booking can have one or more payments, but each payment is associated with one booking.
3. **Booking-Ticket**: A booking can have multiple tickets, but each ticket belongs to one booking.
4. **Booking-Show**: Each booking is for a specific show, and a show can have multiple bookings.
5. **Show-Movie**: A show is for one movie, and a movie can have multiple shows.
6. **Show-Theater**: A show is in one theater, and a theater can have multiple shows

Normalize to 3NF

- **1NF**: Each table has a primary key and each column contains atomic values.
- **2NF**: All non-key attributes are fully dependent on the primary key.
- **3NF**: No transitive dependencies; non-key attributes depend only on the primary key.