DBMS Lab

Objective:

This lab enables the students to practice the concepts learnt in the subject DBMS by developing a database for an exam**ple company named ―Roadway Travels‖ whose description** is as follows: The student is expected to practice the designing, developing and querying a **database in the context of example database ―Roadway Travel‖. Students are expected to use ―Mysql‖ database.**

Roadways Travels:

―**Roadway travels‖** is in business since 1997 with several buses connecting different places in India .Its main office is located in Hyderabad.

The company wants to computerize its operations in the following areas.
1) Reservation
2) Ticketing
3) Cancellation

Reservations:

Reservations are directly handled by booking office. Reservation can be made 60 days in advance in either cash or credit .In Case the ticket is not available, a wait listed ticket is issued to the customer. This ticket is confirmed against the cancellation.

Cancellation and Modifications:

Cancellations are also directly handed at the booking office. Cancellation charges will be charged. Wait listed tickets that do not get confirmed are fully refunded.

E-R MODEL:

Analyze the problem carefully and come up with the entities in it. Identify what data has to be persisted in the database. This contains the entities, attributes etc. Identify the primary keys for all the entities. Identify the other keys like candidate keys, partial keys, if any.

Example: **Entities**:
1. Bus
2. Ticket
3. Passenger

Primary key Attributes:
1. Ticket Id (Ticket Entity)
2. Passport Id (Passenger Entity)

A part from the above mentioned entities you can identify more. The above mentioned are few.

E-R Model:

Definition: An entity-relationship (ER) diagram is a specialized graphic that illustrates the interrelationships between entities in a database. (or)

The E-R model is a top-down approach to database design that is based on uniquely identifiable object. It begins by identifying that are uniquely distinguishable called entities and relationship among these entities.

Entity: It is a 'thing' in the real world with an independent existence.   (or)
A real word object that can be distinguished from other objects is called an entity.

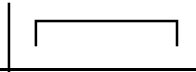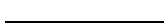There are two types of entities:
1) Strong Entity
2) Weak Entity

Entity type: It is a collection (set) of entities that have same attributes.

Entity set: It is a collection of all entities of particular entity type in the database.

Extension of entity type: The collections of entities of a particular entity type are grouped together into an entity set.

Attribute: It is a particular property, which describes the entity.(or) Each entity & relationship has a property called Attributes.

The difference symbols which are used to draw E-R models:

1. Rectangle   (Strong entity set)

2. Ellipse   (Attributes)

3. Rhombus   (Relationship set)

4. Double Rectangle (Weak Entity set)

5. Undirected Line   (Flow of Relationship)

6. Directed Line   (Flow of Relationship)

Super Key:

A Super Key of an entity set is a set of one (or) more attributes whose values uniquely determine each entity.

Candidate Key:

A Candidate Key of an entity set is a minimal super key.
For **example**: 1) Customer_Id is Candidate Key of
Customer
   2)Account_ Number is Candidate Key of Account

Primary Key:

Although several Candidate keys may exist, one of the Candidate keys is selected to be the Primary Key.

Partial Key:

It is a set of attributes that can uniquely identify weak entities and that are related to same owner entity. It is sometime called as Discriminator.

Example: **Entities**:
1. Bus
2. Ticket
3. Passenger

Primary key Attributes:
1. Ticket Id (Ticket Entity)
2. Passport Id (Passenger Entity)

Bus Attributes:
BusNo,

Dept_time,

Source,

Destination,

WeekDay

Ticket Attributes:

Ticket No,
Journey Date,
Source,
Destination,
Age,
Arrival Time,
Departure Time,
SEX

Passenger Attributes:

Name, PNO_NO,
Ticket No,
PPNO,
SEX,
Age

Reservation Attributes:

No_of_Seats,
PNR_NO,
Status,
Journey Date,
Address,
Contact No

Cancellation Attributes:

No_of_Seats,
PNR_NO,
Waiting List,
Status,
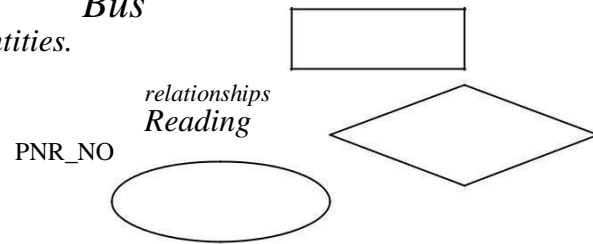Journey Date,
Address,
Contact No

ER *diagrams often use symbols to represent three different types of information.*

Bus

1) Boxes are commonly used to represent entities.

2) Diamonds are normally used to represent   *relationships*

Reading

PNR_NO

3) Ovals are used to represent attributes.

Week -2

Concept design with ER model:

   Relate the entities appropriately. Apply cardinalities for each relationship. Identify Strong entities and Weak entities (if any). Indicate the type of relationships (total/Partial). Try to incorporate generalization, Aggregation, Specialization etc. wherever required.
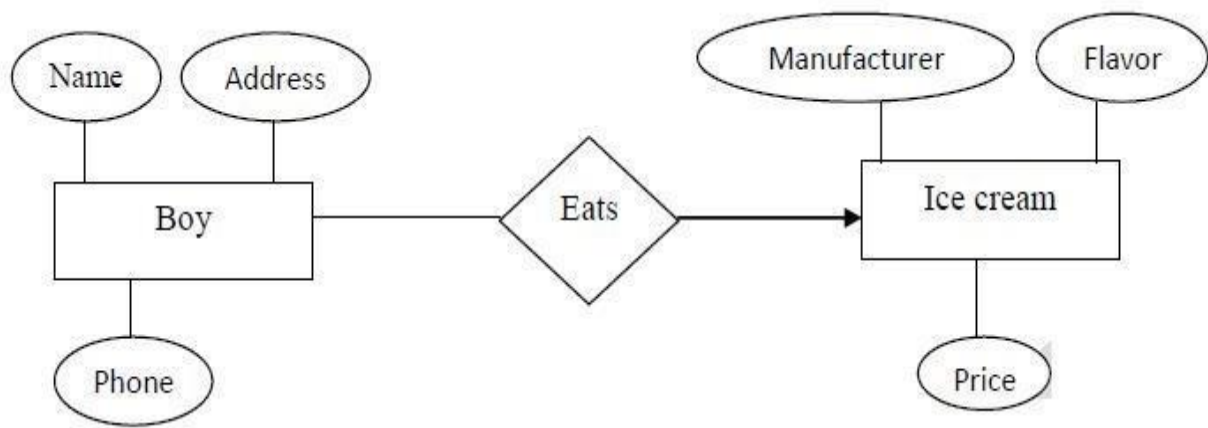
Relationship:-
   It is defined as an association among several entities. A relationship can be one-to-one, one-to-many (or) many-to-many.
A Collection of similar relationships is called a relationship set and is denoted by a Rhombus.

Strong Entity: It is the one that does not depend on other entities.

 Weak Entity: It is the one that depends on other entities for existence.

Specialization: All the entities within an entity set do not share all the attributes.

Generalization: Generalization is a special case of specialization.
   The high level entity is called Super Class & low-level entity is called a Sub Class.

Aggregation: The drawback of ER diagrams is that can not show the relationship among relationship