Abstract
This document gives a brief discussion on Entity Relationship in Airline Reservation System, one of the representative application of Database Management System which is used for reservations and schedule information. Airlines were among the first to use databases in a geographically distributed manner—terminals situated around the world accessed the central database system through phone lines and other data networks.

Keyword: Entity Relationship diagram (E-R diagram), Database Management System, SQL (Structured Query Language), Airplane, Model.

I. INTRODUCTION
Over the course of last four decades of twentieth century, use of databases grew in all enterprises. The internet revolution of the late 1990s sharply increased direct user access to databases. Organisations converted many of their phone interfaces to databases into web interfaces, and made a variety of services online. Therefore, it is very easy to book tickets and find other information online related to airlines online.

II. IMPLEMENTATION
The overall logical structure (schema) of a database can be expressed graphically by an Entity-Relationship diagram (E-R diagram). An E-R diagram can express the overall logical structure of a database graphically. They are simple and clear—qualities that may well account in large part for the widespread use of the E-R model. Such a diagram consists of the following major components:
Rectangles, which represent entity sets, Ellipses which represent attributes. Diamonds which represent relationship sets. Lines which link attributes to entity sets and entity sets to relationship sets. Double ellipses which represent multi valued attributes. Dashed ellipses which denote derived attributes. Double lines which indicate total participation of an entity in a relationship set. Double rectangles which represent weak entity sets.

Fig. 1 Relationship of airport and airplane type

The relationship shown in Fig. 1 shows the relation between an airport and airplane type. This shows that an airplane of a particular type can land on a particular airport on the scheduled day. Here, ‘airport’ and ‘airplane type’ are entity sets and the diamond ‘can land’ represents the relationship between them. An alternative ER notation for specifying structural constraints involves associating a pair of integer numbers (min, max) with each participation of an entity type E in a relationship R, 0<=min<=max and max>=1. The numbers mean that, for each entity e in E, e must participate in at least min and at most max relationship instances in R at all times.

(1) The database represents each Airport, keeping its unique Airport Code, the Airport Name, and the City and State in which the Airport is located.
(2) Each airline flight has a unique number, the Airline for the flight, and the Weekdays on which the flight is scheduled (for example, every day of the week except Sunday can be coded as X7)
(3) A flight is composed of one or more flight legs for example, flight number CO1223 from New York to Los
Angeles may have two flight legs, leg 1 from New York to Houston and leg 2 from Houston to Los Angeles. Each flight leg has a leg number, Departure airport and Scheduled Departure Time, and an arrival airport and Scheduled Arrival Time.

(4) A leg instance is an instance of a flight leg on a specific date (for example, CO1223 leg 1 on July 30, 1989). The actual departure and arrival airports and Times are recorded for each flight leg after the flight leg has been concluded. The Number of available seats and the airplane used in the leg instance are also kept.

(5) The customer reservations on each leg instance include the customer name, phone, and seat number(s) for each reservation.

(6) Information on Airplanes and Airplane Types are also kept. For each Airplane type (for example, DC-10), the Type Name, manufacturing company, and maximum number of seats are kept. The Airports in which planes of this type can land are kept in the database. For each Airplane, the Airplane Id, Total number of seats, and Type are kept.

III. APPLICATION
This kind of database is widely used in Airline Reservation System where all the information related to Flights, reservations, customers can be kept without the fear of losing it as Database Management Systems provide the facility of Security and Recovery.

IV. CONCLUSION
With the help of Entity-Relationship diagram we can create the required database and perform queries. For example in case of Airline Reservation System we can make queries like to find the schedule time of a flight, number of booked seats in a flight, flight fares etc with the help of query language like SQL Relational Algebra, Relational Calculus etc. We can represent a database that conforms to an E-R database schema by a collection of tables. For each entity set and for each relationship set in database, there is a unique table to which we can assign the name of the corresponding entity set and relationship set. Each table has multiple columns, each of which has a unique name. Both the E-R model and the relational-database model are abstract, logical representations of real-world enterprises. Because the two models employ similar design principles, we can convert an E-R design into a relational design. Converting a database representation from an E-R diagram to a table format is the way we arrive at a relational-database design from an E-R diagram. Informally, a relation can be considered to be a table of values.

ACKNOWLEDGMENT
I would like to thank Mr. Somnath Roy Choudhury, Dept. of Computer Science and Engineering, B. P. Poddar Institute of Management and Technology and all those who provided their valuable guidance and constant support during this project.

REFERENCES