COMP- 8115-M50 Database systems

Quiz – 4

1. **[50 pts] For the following relational schema diagram, specify the primary and foreign keys for this schema. Connect the schemas through their referential integrity constraints (foreign keys). Note: Figure 3.21 below might be helpful to solve your question.**

Primary keys and foreign keys play a major role in any database. One should be clear on what the keys are and what role they play in the table.

1) For the Table Airport

The different columns are Airport_code, Name, City and State

Primary key - Airport_code

Foreign key- -

2) For the table Flight

The different columns are Flight_number, Airline, Weekdays
Primary Key- Flight_number
Foreign key- -

3) For the table Flight_Leg
The columns in the table are
Flight_number,Leg_number,Departure_airport_code,Scheduled_departure_time,Arrival_airport_code,Scheduled_arrival_time
Primary Key – Leg_number,Flight_number
Foreign Key – Flight_number

4) For the table Leg_Instance

The different columns are Flight_number, Leg_number,Departure_airport_code,Scheduled_departure_time,Arrival_airport_code,Scheduled_arrival_time
Primary Key- Flight_number,Leg_number,Date
Foreign key- Flight_number, Leg_number

5) For the table Fare
The different columns are Flight_number, Fare_code, Amount, Restrictions
Primary Key- Fare_code,Flight_number
Foreign Key- Flight_number

6) For the table Airplane_Type
The different columns are Airplane_type_name, Max_seats, Company
Primary Key- Airplane_type_name
Foreign Key - -

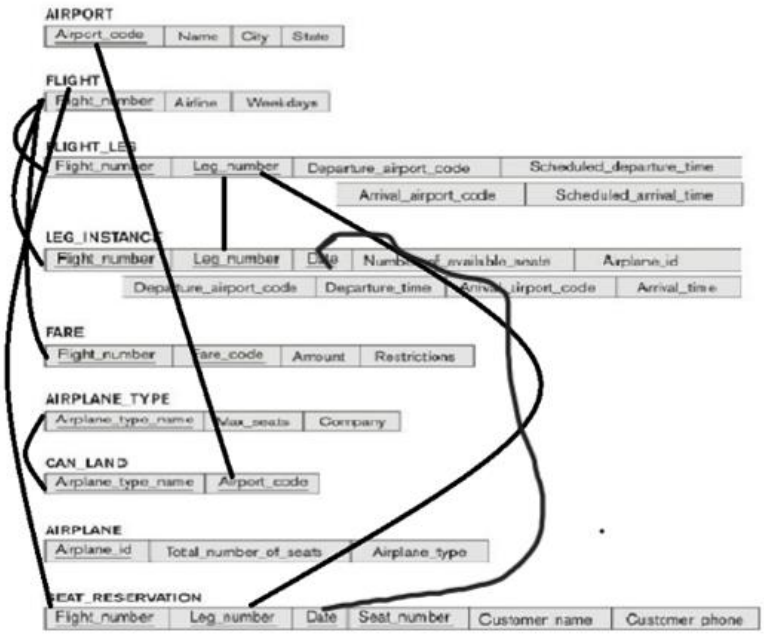
7) For the table Car_Land
The columns in the table are Airplane_type_name, Airport_code
Primary Key- Airport_code, Airplane_type_name

Foreign Key- Airplane_type_name

8) For the table Airplane
   The columns in the table are Airplane_id, Total_number_of_seats, Airplane_type
   Primary Key – Airplane_id
   Foreign Key - -

9) For the table Seat_reservation
   The columns in the table are
   Flight_number,Leg_number,Date,Seat_number,Customer_name,Customer_phone
   Primary Key – Seat_number, Flight_number, Leg_number
   Foreign Key- Flight_number, Leg_number,Date

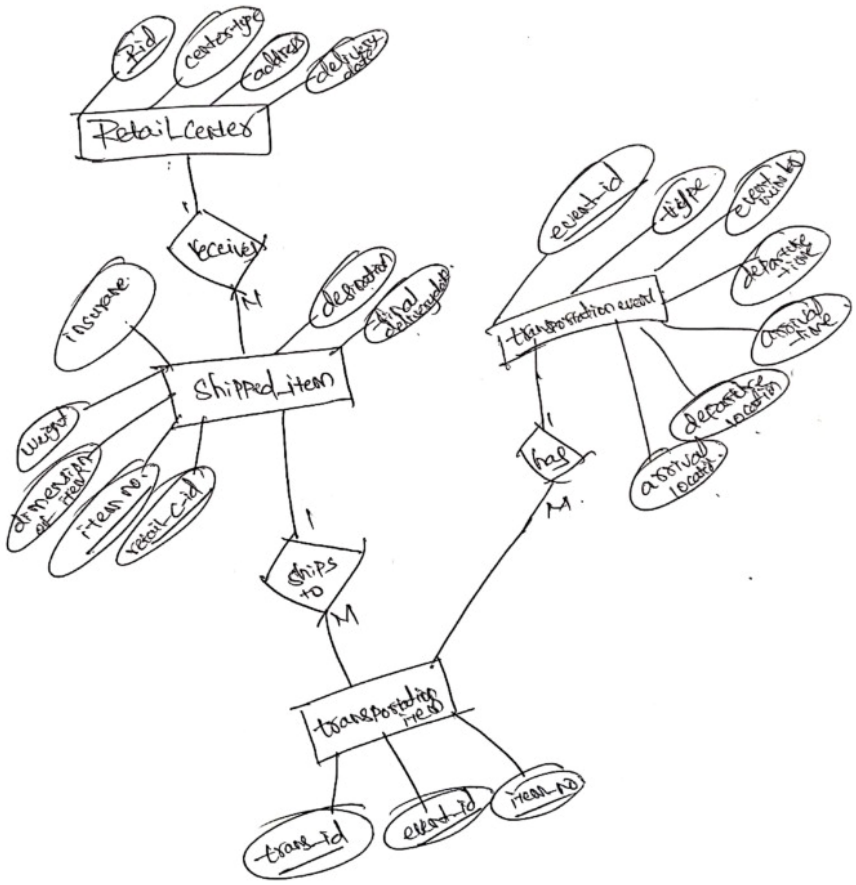
   They are connected through schemas in this way



2. **[50 pts] Fedex prides itself on having up-to-date information on the processing and current location of each shipped item. To do this, Fedex relies on a company-wide information system. Shipped items are the heart of the Fedex product tracking information system. Shipped items can be characterized by item number (unique), weight, dimensions, insurance amount, destination, and final delivery date. Shipped items are received into the Fedex system at a single retail center. Retail centers are characterized by their type, uniqueID, and address. Shipped items make their way to their destination via one or more standard Fedex transportation events (i.e., flights, truck deliveries). These transportation events are characterized by a unique scheduleNumber, a type (e.g, flight,truck), and a deliveryRoute.**
   Please generate an Entity Relationship diagram that captures this information about the Fedex system. Be certain to indicate attributes, identifiers, and cardinality constraints.

   It is given that the fedex has uptodate information on processing the current location of each of the shipped item of the fedex. It completely relies on information system.

Now let’s try to draw the ER diagram for the given information.



Schema for creating the system

```
CREATE DATABASE FEDEXDELIVERY;

USE FEDEXDELIVERY;
```

```
CREATE TABLE Retail_Center (
 id       integer  not null,
 center_type      varchar(50),
 address       varchar(150) not null,
 delivery_date date,
 primary key (id)
);



CREATE TABLE Shipped_Item (
 item_no    integer   not   null,
 dimension     integer,
 weight       varchar(45) not null,
 insurance_amount int,
 destination varchar(255),
 final_delivery_date date,
 retail_centerid integer,
 primary key (item_no),
 foreign key (retail_centerid) references Retail_Center(id)
);


CREATE TABLE Transportation_Event (
 event_id     integer  not null,
 type      varchar(150),
 event_number varchar(250),
 departure_time       datetime,
 arival_time datetime,
 departure_loc varchar(150),
 arrival_loc varchar(150),
```

```
  primary key (event_id)
);

CREATE TABLE
  Transportation_Item (
  transporattion_id
  integer not null,
  event_id integer,
  item_no integer,
  primary key (transporattion_id),
 foreign key (event_id) references
  Transportation_Event(event_id), foreign key (item_no)
  references Shipped_Item(item_no)
);
```

The ER diagram for the following data