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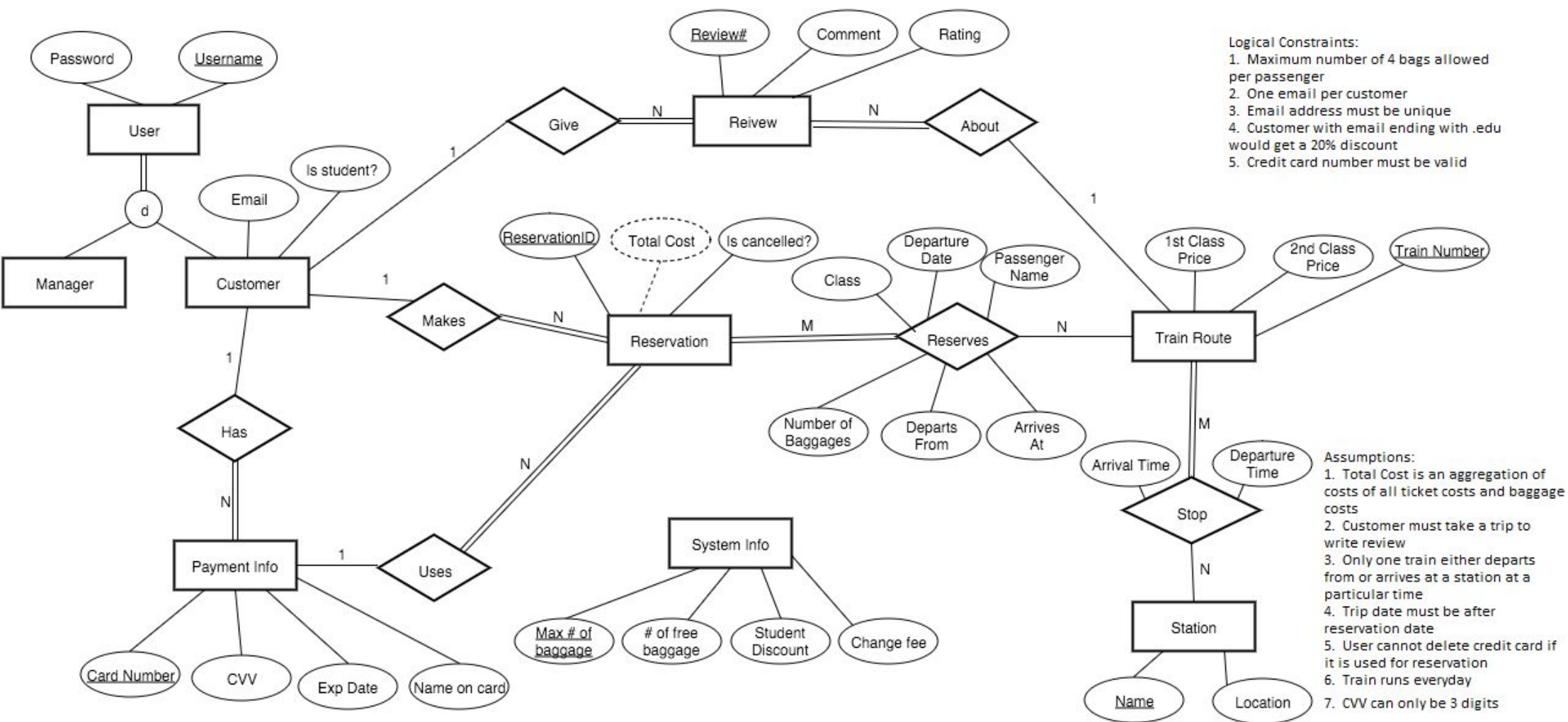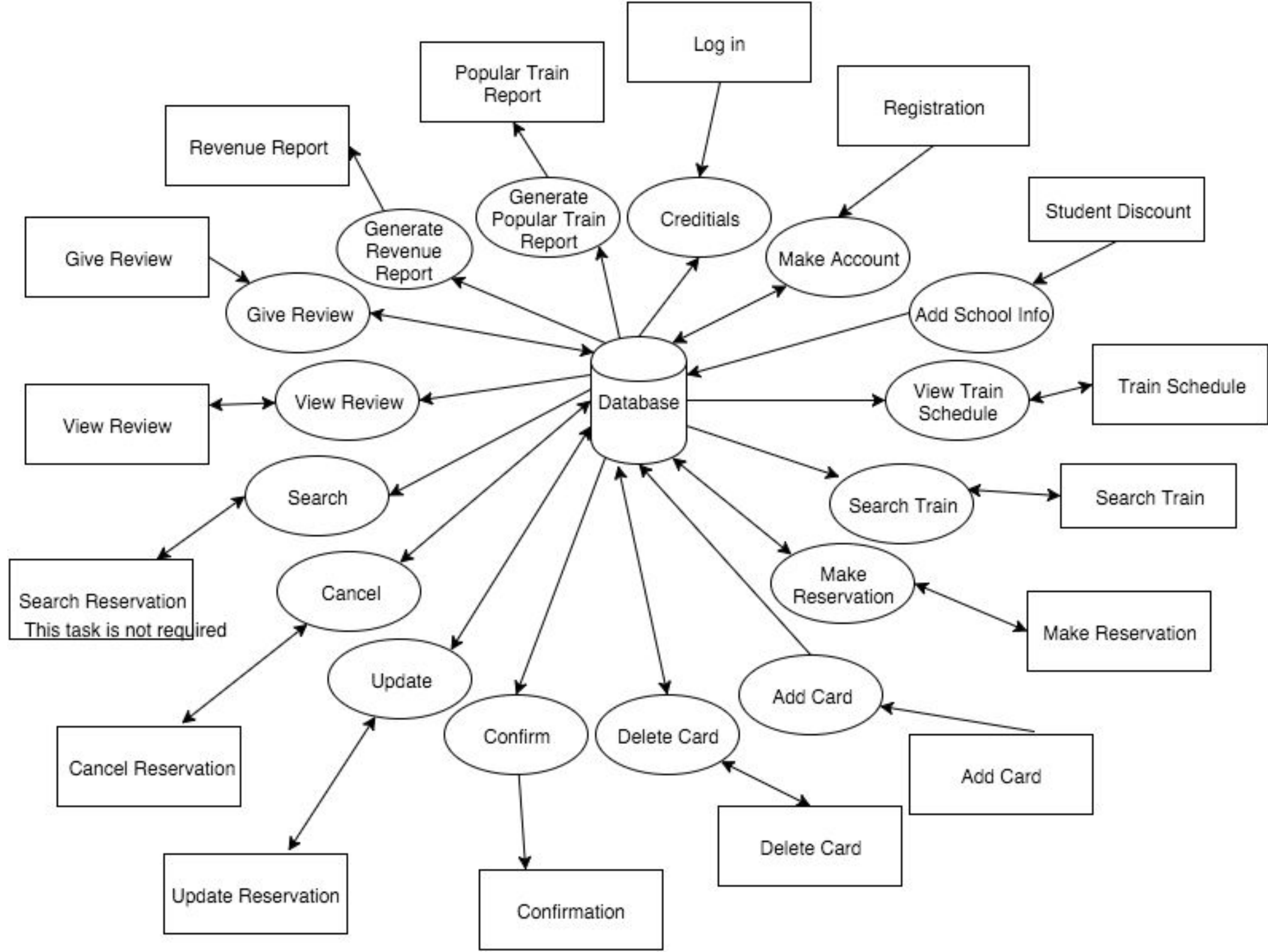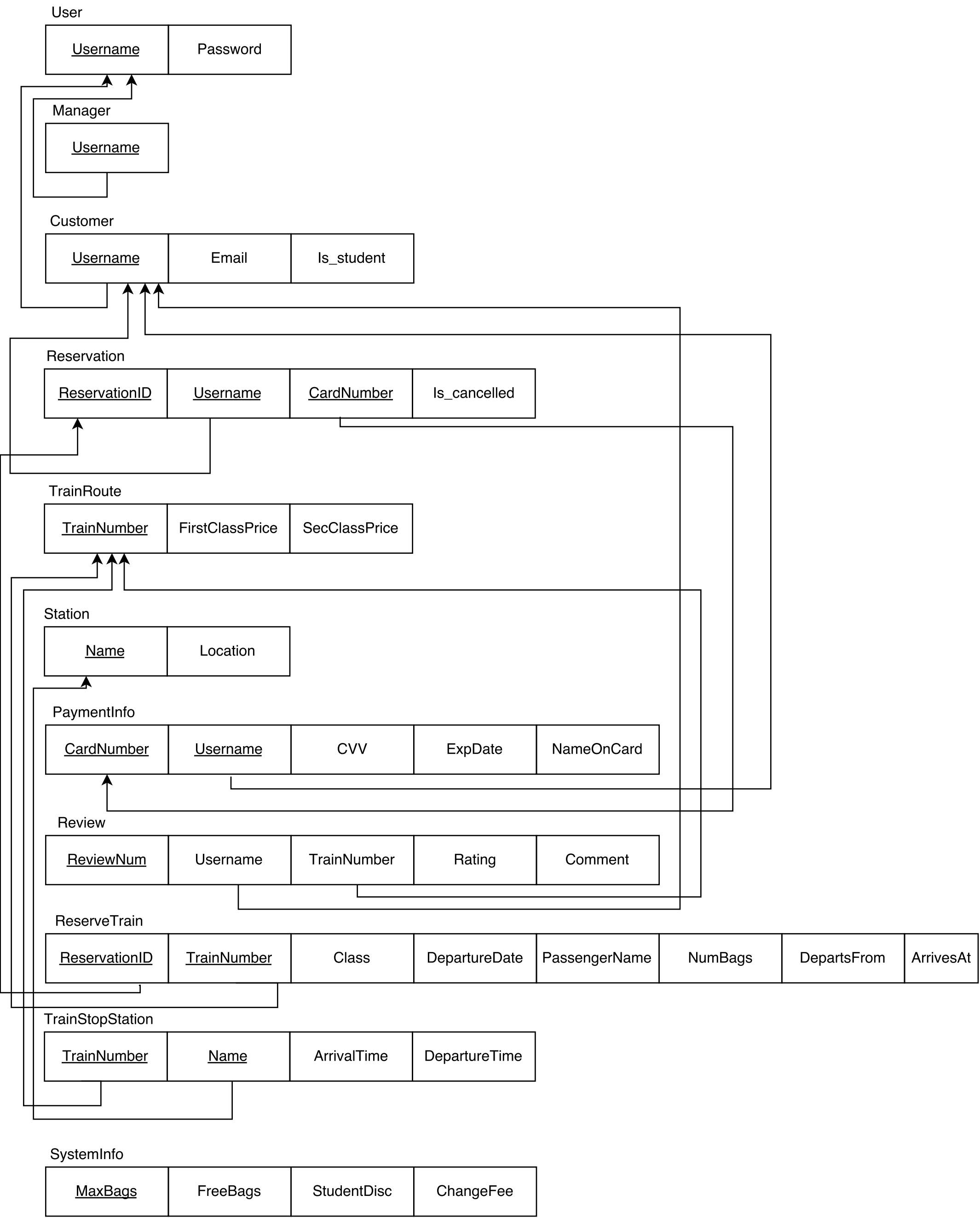mparvez3@gatech.edu

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Wenlu Fu

Section A

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Group Number # 23

Entities and attributes:

User: Password, Username

Review: Review#, Comment, Rating

Customer: Email, Is student?

Reservation: ReservationID, Total Cost, Is cancelled?

Reserves: Class, Departure Date, Passenger Name, Number of Baggages, Departs From, Arrives At

Train Route: 1st Class Price, 2nd Class Price, Train Number

Stop: Arrival Time, Departure Time

Station: Name, Location

Payment Info: Card Number, CVV, Exp Date, Name on card

System Info: Max # of baggage, # of free baggage, Student Discount, Change fee

Relationships: Give, About, Makes, Reserves, Has, Uses, Stop

Manager

Logical Constraints:
1. Maximum number of 4 bags allowed per passenger
2. One email per customer
3. Email address must be unique
4. Customer with email ending with .edu would get a 20% discount
5. Credit card number must be valid

Assumptions:
1. Total Cost is an aggregation of costs of all ticket costs and baggage costs
2. Customer must take a trip to write review
3. Only one train either departs from or arrives at a station at a particular time
4. Trip date must be after reservation date
5. User cannot delete credit card if it is used for reservation
6. Train runs everyday
7. CVV can only be 3 digits

Popular Train Report

Log in

Registration

Revenue Report

Generate Popular Train Report

Creditials

Student Discount

Give Review

Generate Revenue Report

Make Account

Add School Info

Give Review

Database

View Train Schedule

Train Schedule

View Review

View Review

Search Train

Search Train

Search

Make Reservation

Search Reservation
This task is not required

Cancel

Make Reservation

Cancel Reservation

Update

Confirm

Delete Card

Add Card

Add Card

Update Reservation

Confirmation

Delete Card

User

Username	Password

Manager

Username

Customer

Username	Email	Is_student

Reservation

ReservationID	Username	CardNumber	Is_cancelled

TrainRoute

TrainNumber	FirstClassPrice	SecClassPrice

Station

Name	Location

PaymentInfo

CardNumber	Username	CVV	ExpDate	NameOnCard

Review

ReviewNum	Username	TrainNumber	Rating	Comment

ReserveTrain

ReservationID	TrainNumber	Class	DepartureDate	PassengerName	NumBags	DepartsFrom	ArrivesAt

TrainStopStation

TrainNumber	Name	ArrivalTime	DepartureTime

SystemInfo

MaxBags	FreeBags	StudentDisc	ChangeFee

Create Table Statements

CREATE TABLE Manager
 (M_Username VARCHAR(15) **PRIMARY KEY**,
          M_Password VARCHAR(15) **NOT NULL**);

CREATE TABLE Customer
(C_Username VARCHAR(15) **PRIMARY KEY**,
      C_Password VARCHAR(15) **NOT NULL**,
      Email VARCHAR(30) **NOT NULL**,
      Is_student BOOLEAN **NOT NULL**,
      UNIQUE (Email));

CREATE TABLE PaymentInfo
(CardNumber CHAR(16) **PRIMARY KEY**,
      CVV CHAR(3) **NOT NULL**,
      ExpDate DATE **NOT NULL**,
      NameOnCard VARCHAR(50) **NOT NULL**,
      C_Username VARCHAR(15) **NOT NULL**,
      FOREIGN KEY (C_Username) **REFERENCES** Customer(C_Username));

CREATE TABLE Reservation
(ReservationID INT **PRIMARY KEY** AUTO_INCREMENT,
      CardNumber CHAR(16) **NOT NULL**,
      C_Username VARCHAR(15) **NOT NULL**,
      Is_cancelled BOOLEAN **NOT NULL**,
      FOREIGN KEY (C_Username) **REFERENCES** Customer(C_Username),
      FOREIGN KEY (CardNumber) **REFERENCES** PaymentInfo(CardNumber)
          ON DELETE RESTRICT);

CREATE TABLE TrainRoute
(TrainNumber INT **PRIMARY KEY**,
      FirstClassPrice DECIMAL(4,2) **NOT NULL**,
      SecClassPrice DECIMAL(4,2) **NOT NULL**);

```sql
CREATE TABLE Station
(Name VARCHAR(255) PRIMARY KEY,
        Location VARCHAR(255));


CREATE TABLE ReserveTrain
(ReservationID INT NOT NULL,
        TrainNumber INT NOT NULL,
        Class ENUM('FirstClass', 'SecClass') NOT NULL,
        DepartureDate DATE NOT NULL,
        PassengerName VARCHAR(50) NOT NULL,
        NumBags ENUM('0', '1', '2', '3', '4') NOT NULL,
        DepartsFrom VARCHAR(255) NOT NULL,
        ArrivesAt VARCHAR(255) NOT NULL,
        PRIMARY KEY (ReservationID, TrainNumber),
        FOREIGN KEY (ReservationID) REFERENCES Reservation(ReservationID),
        FOREIGN KEY (DepartsFrom) REFERENCES Station(Name),
        FOREIGN KEY (ArrivesAt) REFERENCES Station(Name),
        FOREIGN KEY (TrainNumber) REFERENCES TrainRoute(TrainNumber));

CREATE TABLE Review
(ReviewNum INT PRIMARY KEY AUTO_INCREMENT,
        C_Username VARCHAR(15) NOT NULL,
        TrainNumber INT NOT NULL,
        Rating ENUM('very good', 'good', 'neutral', 'bad', 'very bad') NOT NULL,
        Comment VARCHAR(255),
        FOREIGN KEY (C_Username) REFERENCES Customer(C_Username),
        FOREIGN KEY (TrainNumber) REFERENCES TrainRoute(TrainNumber));

CREATE TABLE TrainStopStation
(TrainNumber INT NOT NULL,
        Name VARCHAR(255) NOT NULL,
        ArrivalTime TIME NOT NULL,
        DepartureTime TIME NOT NULL,
        PRIMARY KEY (TrainNumber, Name),
        FOREIGN KEY (TrainNumber) REFERENCES TrainRoute(TrainNumber),
        FOREIGN KEY (Name) REFERENCES Station(Name));
```

```sql
CREATE TABLE SystemInfo
(MaxBags INT PRIMARY KEY,
        FreeBags INT NOT NULL,
        StudentDisc DECIMAL(5,2) NOT NULL,
        ChangeFee DECIMAL(5,2) NOT NULL);
```