COSC 640-641
Fall 2016-Spring 2017
FSU

Database Project
(Final Project)

Part two (250 points)

We are designing a DBMS for a new peer-to-peer car rental company. The concept is similar to AIRBNB, SPINLISTER, LIFT, and UBER. This company is called RYNC.COM (Rent Your Neighbors' Car). An individual (client) list their car(s) for a period of time (hours, days, or months) when they do not need the car. Customer may check the list of the cars in a nearby location and request to rent the car. This company is in process of being created. **They are very interested in what you have to say about the database and the business organization.**

They identified the key elements as essential information. However, you need to correct (add/delete/modify) the attributes/tables, etc. to store the data correctly.
This company planning to expand in near future to include bicycles, helicopters, and airplanes. Please consider the future expansion.

A. OFFICE

1	Office ID
2	Name
3	Address
4	Phone Number
5	Fax Number
6	Email
7	Regular Open Hours
8	Days Of Week Business is open
9	Number of Employees in that office
10	Direction to the Branch
11	Manager Name

B. EMPLOYEE

1	First Name
2	Last Name
3	Middle Name
5	Address
5	SSN
7	Salary
8	Tax Deduction
10	Birth Date
11	Marital Status
12	Name of Spouse
13	Office the Employee Works at
14	Number of Years an Employee Work at this office
15	Number of Years an Employee Work for this Company
16	Last Degree & Date
17	List of Certificates & Dates
18	Name of the Employee Manager
19	Number of dependents
20	Home phone number and cell phone number

C. CAR OWNER (Client)

1	SSN
2	First Name
3	Last Name
4	M.I.
5	Birth date
6	Home Phone
7	Cell Phone
8	Street Address
9	City
10	State
11	Zip Code
12	Email
13	Credit Card Number and Expiration Date
14	Credit score number

D. CUSTOMER (Car Renter)

1	ID
2	First Name
3	Last Name
4	M.I.
5	Birth date
6	Cell Phone
7	Address
8	Email
9	State the Driver's License is Issued
10	Driver's License Number
11	Credit Card Number and Expiration Date

E. VEHICLE (car)

1	Car ID (VIN)
2	Car Info (Plate No, State registered, year)
3	Current Mileage
4	Class (Compact, Economy, Luxury, Pickup, Van, …)
5	Features (2 doors, 4 doors, ….)
6	Make (Chevy, Pontiac, Ford, Toyota, ……)
7	Color
8	Year
9	Picture(s)
10	Daily price
11	Miles included
12	Additional cost per mile
13	Weekly discount
14	Monthly discount
15	Car description

FSU

F. Entity name: ACCIDENTS

1	Customer Info
2	Car Info
3	Date & Time
4	Location
5	Extent of Damage
6	Cost Of Damage
7	Police Report (y/n)
8	Summary of Police Report

Detailed description and limitations:

1. A client list his/her car(s) with the information.
2. Initially, an employee check the client background and assign a credit score number from 1 to 100 (100 is the perfect score). Later on this score will be modified by an algorithm based on the client review.
3. We need to know the name of employee who checked the client.
4. Customer is given an ID from 1000 to 99999.
5. Customer check the local area and send the request to the client to rent his/her car.
6. Client may accept or reject the request in a given window of time determine by client. (For example replay time is within 6 hours)
7. If client accept the offer, s/he will send the location of the car.
8. Customer unlock the car from his/her cell phone.
9. When the car is returned, both client and customer **may** evaluate (rate/feedback) each other.
10. A client may un-list the car at any time.
11. Office is the location an employee is working.
12. We keep the hiring date of an employee.
13. Each employee works only at one office at a time.
14. Each office has one general manager who is also an employee
15. Each employee has one manager.
16. An employee may divorce his/her spouse
17. An employee may get married
18. An employee may change his/her name
19. An employee may have more than one degree and more than one certificate. We only keep the last degree but we record list of all certificates.
20. An employee has only one phone number and one cell phone number.
21. Each manager, manages a set of employees.
22. Customer may have an accident with a rented car
23. If an employee list his/her car, s/he cannot assign a credit score to himself/herself.
24. All pictures are stored as one field.
25. Make sure to add transaction information to your DB.

Create the following independent chapters: Please organize your project chapter by chapter. Your project will be graded one chapter at a time.

1. Description of your project and list of your assumptions. (5 points)
2. Design an ERM. Identify the functionality among the entity sets (1-1, 1-n, n-n) (50 points)

COSC 640-641
Fall 2016-Spring 2017
FSU

3. Convert your ERM to a Relational Database. Identify the primary and foreign keys. (20 points)
4. List the simple functional dependencies for each table? And list the multiple value functional dependencies for each table? Please list your table first followed by the FD and MVFD for that table (10 points)
5. Normalize your tables. (show your work one table at a time and make sure to state your assumptions in chapter one (if any)) (20 points)
6. Create your Oracle Tables with a complete set of constraints. (20 points)
7. Insert **matching** test data records into your tables with at least: (10 points)
    a. 3 employees
    b. 2 offices
    c. 12 cars
    d. 10 customers
    e. 5 clients
    f. 2 accidents

    You do not need to show your insert query.
8. List of your tables. (5 points)
9. List of the table constraints (table by table). (5 points)
10. List of values (data) on each table. (5 points)

11. Run the following queries. Based on your data in your database, your query may/may not return any value: (each 5 points)
    a. Create mailing labels for the employees (name & address).
    b. Display the name of employees that are ~~office~~ managers.
    c. Display the first & last name of client with their credit score.
    d. Display name of client, name of employee, and the office name the employee work at.
    e. Display name of customers who had an accident, car Id, and cost of the damage.
    f. Display the total number of cars rented by each customer.
    g. Display the number of employees for each office.
    h. Display name, phone number of clients over 30 years old.
    i. Display SSN, address of female employees with more than one certificates.
    j. Display the total number of cars listed at any given day. User will input the date and time.
    k. List the employees' name, clients name with score higher than 50 in 2017.
    l. List of feedback (client name, customer name, the rating number, who did the rating)
    m. The total number of times cars are rented, and the total cost of renting.
    n. List employees' name who is the manager of an office.
    o. Search the database for a client. User input the data. Display client useful info.
    p. Total salary of employee.
    q. List employee names who also rented a car.
    r. Input the office name, display the operating day and hours.
    s. Display the total millage used in a given period. User input the start and end date
    t. Write your own useful query for the customers.