Mid-term RRR

Outline

- Reading/Review/Recitation Questions

Administrivia

- We will have our first mid-term exam @ 4/2, 9:30~10:30
  - ✓ Please *bring your Student ID Card*
  - ✓ TAs will announce the details for the exam
- We will have our mid-term coding exam @ 4/11
  - ✓ 16:30 ~ 17:30 coding exam; 17:30 ~ 18:00 grading
- Academic (dis)honesty
  - ✓ Departmental/school policy will be strictly followed — no cheating !!!

RRR Questions (1)

1. What is a DBMS? Please also depict the typical structure for a DBMS.

2. What are the two basic sublanguages of SQL? Please briefly describe the purpose of these two.

3. Please describe the difference(s) between “WHERE” and “HAVING” in SQL.

4. Please provide the difference between “UNION” and “UNION ALL”.

5. What is a SQL view? Provide possible pros of using views.

RRR Questions (2)

1. Please define the concept of cross product mathematically. Write a self cross product query for the following relation and provide the result of this query.

Sailors

sid	sname	rating	age
1	Fred	7	22
2	Jim	2	39
3	Nancy	8	27

2. Describe the concept of NULL. How can you check if a field is NULL in SQL?

3. What are integrity constrains (ICs)? Please also provide at least three types of ICs.

RRR Questions (3)

1. Write a SQL query for the following using the provided schema.

sid	sname	rating	age
1	Fred	7	22
2	Jim	2	39
3	Nancy	8	27

bid	bname	color
101	Nina	red
102	Pinta	blue
103	Santa Maria	red

sid	bid	day
1	102	9/12
2	102	9/13

(1) Find sid's of sailors who've reserved a red or a green boat

(2) Find sid's of sailors who've reserved a red and a green boat

(3) Find sid's of sailors who have not reserved a boat

(4) The sailor with the highest rating

(5) Find sailors whose rating is greater than that of some sailor called "Fred"

(6) Names of sailors who've not reserved boat #103

RRR Questions (4)

1. Consider the following two relations. Provide the SQL queries and the query result for the following:

   (1) INNER JOIN of Sailors on Reserves.

   (2) NATURAL JOIN of Sailors on Reserves.

   (3) LEFT JOIN JOIN of Sailors on Reserves.

   (4) RIGHT JOIN of Sailors on Reserves.

   (5) FULL OUTER JOIN of Sailors on Reserves.

Sailors

sid	sname	rating	age
22	Dustin	7	45.0
31	Lubber	8	55.5
95	Bob	3	63.5

Reserves

sid	bid	day
22	101	10/10/96
95	103	11/12/96

RRR Questions (5)

1. Define the following: (1) Super Key (2) Key (3) Primary Key (4) Candidate Key (5) Search Key (6) Index (7) Foreign key

2. Please describe the concept of data model and data schema.

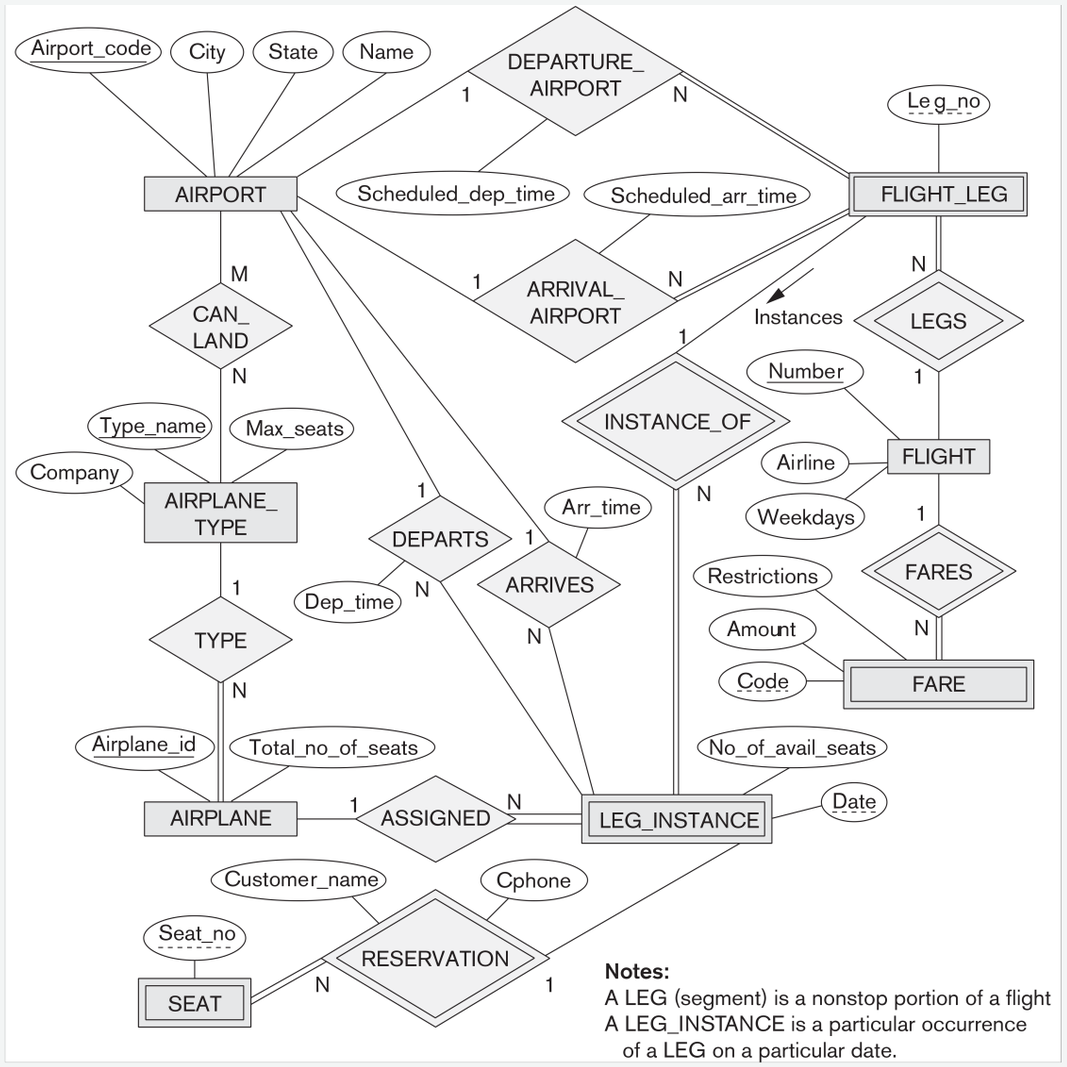
3. What are the difference(s) between physical schemas, conceptual schemas and view?

4. Please describe the traditional database design steps.

5. Define the concept of the following terms in ER models: (1) entity (2) entity set (3) relations (4) relationship set (5) weak entity.

RRR Questions (6)

- A simplified schema for an airline reservations system. Extract from the ER diagram the requirements and constraints that produced this schema.



RRR Questions (7)

- Given the following requirements of the COMPANY Database, please design a possible ER diagram for it. Then transform the ERD to Relational model (specify your reasoning).

✓ EMPLOYEE

- social security number, address, salary, sex, and birthdate
- direct supervisor
- works for one department but on several projects
- need to record the hours per week on each project

✓ DEPENDENTs owned by employees

- relationship to the employee
- name, sex, birthdate

✓ DEPARTMENT

- name, number and an employee who manages the department
- the start date of the department manager
- may have several locations

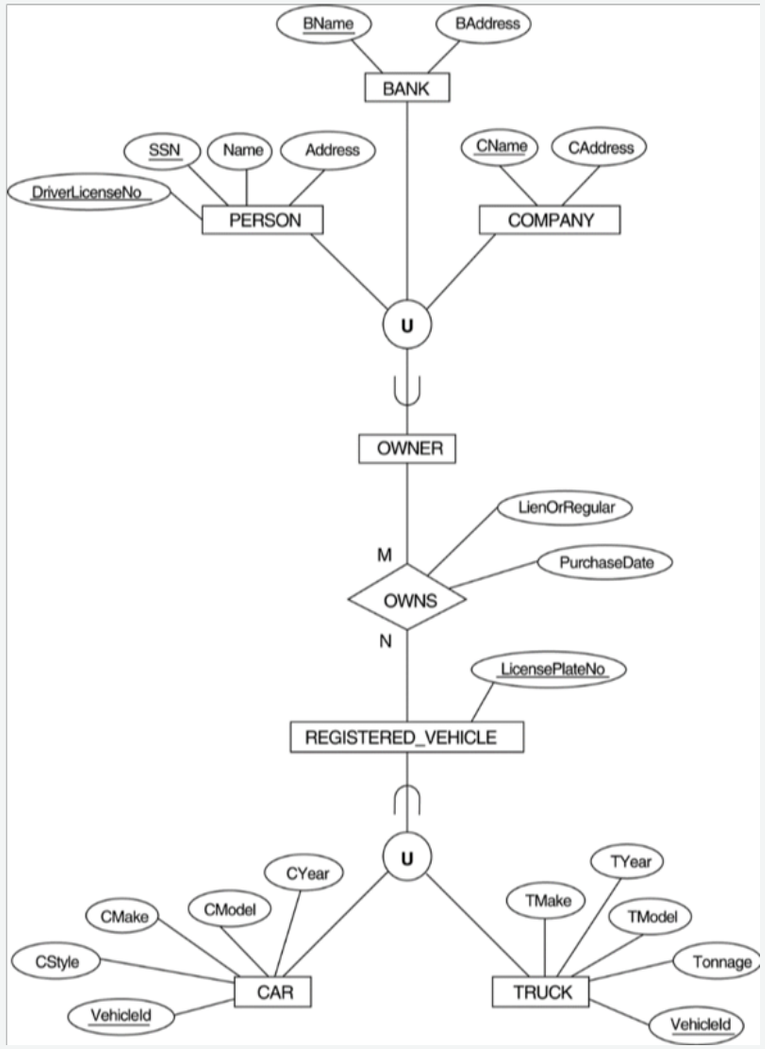
✓ PROJECT: controlled by departments

- unique name, unique number
- located at a single location

RRR Questions (8)

1. What are EER models?

2. Transform the following EER diagram to Relation models.



End of Lecture