University of Glasgow
School of Computing Science

DB(H) Database Systems

Lab 1 Tasks

Task 2: Relational Constraints

Description: Consider the following relational schema:

Emp(eid, ename, age, salary)
Works(eid, did, pcttime)
Dept(did, dname, budget, managerid)

Task 2.1: Give an example of a referential constraint that involves the Dept relation.

managerid 是Dept的FK, referencing Emp.

Task 2.2: What are the options for enforcing this constraint when a user attempts to delete a Dept tuple?

如果Works中did引用了与Dept did 字段值相同的数据, 则删除操作会阻止. (强制也删除works中 tuple).

Description: Consider the relational schema below.
Task 2.3: What are the best possible primary keys in each relation?

- **employee**(person_name, street, city)

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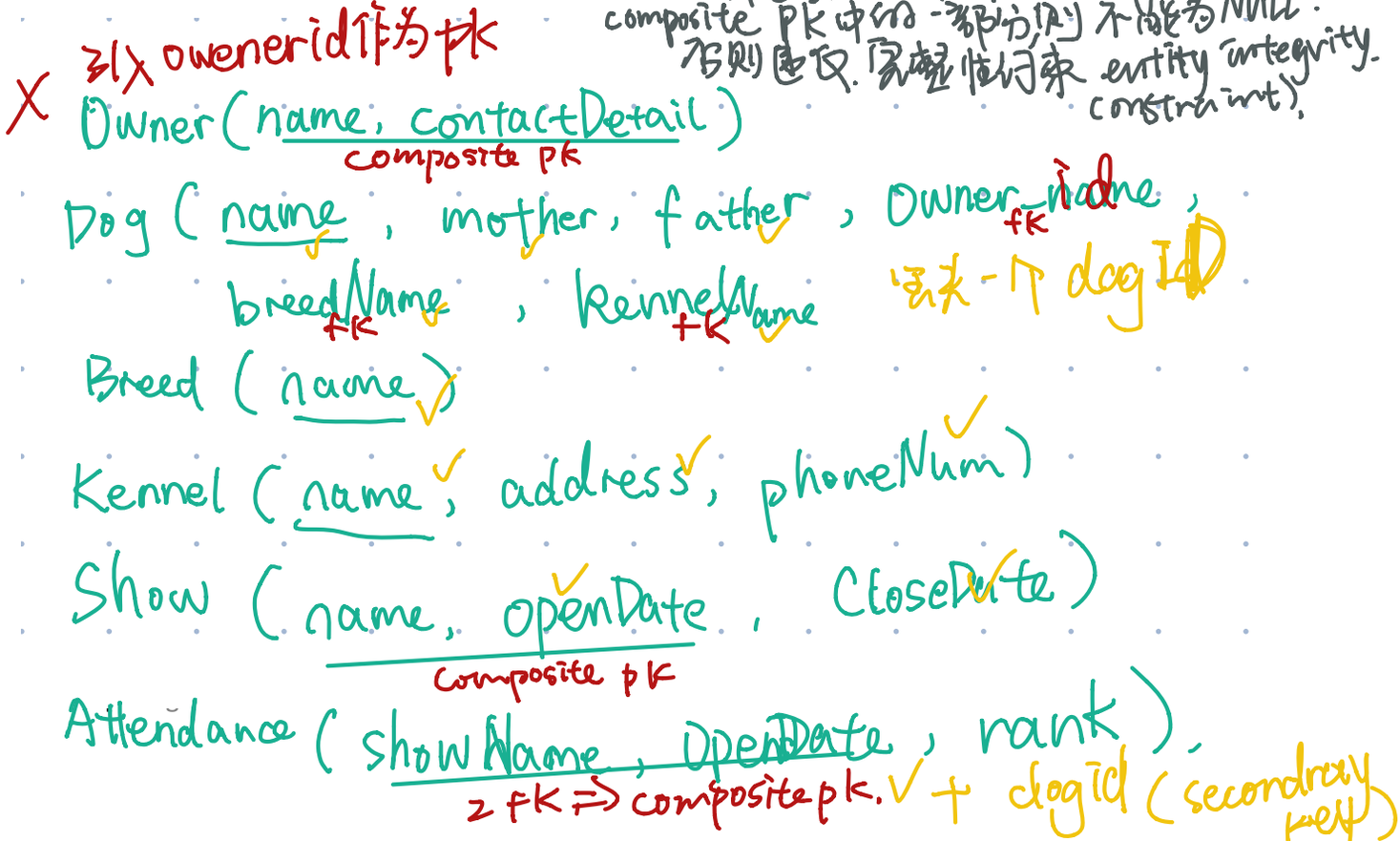
Task 1: Relational Schema

You are given a 'Dog' database description: We would like to store information in a database about dogs their owners and the shows that their dogs have attended over the years. Dogs are meant to compete in these annually organised shows.

- **Owner** of a dog has a name and contact details, e.g., phone number.
- **Dog** has a unique name, a mother, a father, an owner, a breed name and an associated kennel.
- **Breed** is a specific group of domestic animals having common characteristics; a unique name.
- **Kennel** breeds a dog and has a unique name, an address, and a contact phone number.
- **Show** has a name, an opening and closing date. The show is identified by a combination of its name and its opening date.
- The relationship between Dog and Show, **Attendance**, stating whether a dog has attended a specific show, show name with the opening date of attendance, and the rank (or place) the dog has achieved during the show.

Task: Your task is to **map** the entities, attributes, and relationships to Relations and Attributes in a Relational Schema. Specifically:

1. Identify the relations along with their attributes.
2. Assign certain attributes to (possibly multiple) primary/candidate keys.
3. Define the foreign keys.
4. Identify whether the foreign keys can be NULL or not. Explain your answers.



- **works**(person_name, company_name, salary)

- **company**(company_name, city)

Description: In the instance of the **instructor** relation shown below, no two instructors have the same name

Task 2.4: From this, can we conclude that the attribute name can be used as a Superkey (or Primary Key) of the relation instructor?

Instructor

ID	*name*	*dept_name*	*salary*
10101	Srinivasan	Comp. Sci.	65000
12121	Wu	Finance	90000
15151	Mozart	Music	40000
22222	Einstein	Physics	95000
32343	El Said	History	60000
33456	Gold	Physics	87000
45565	Katz	Comp. Sci.	75000
58583	Califieri	History	62000
76543	Singh	Finance	80000
76766	Crick	Biology	72000
83821	Brandt	Comp. Sci.	92000
98345	Kim	Elec. Eng.	80000