EPPS 6354 Information Management

Assignment 2

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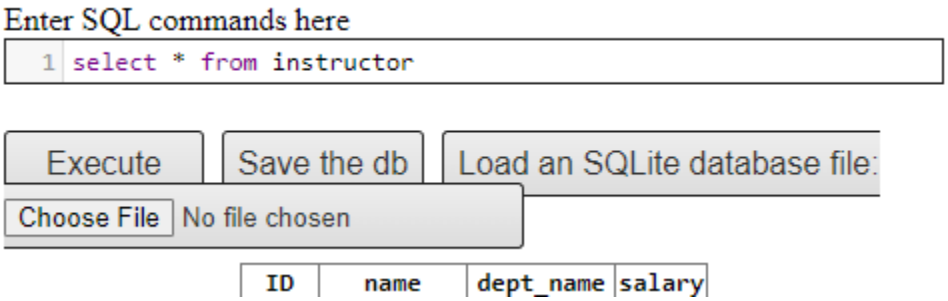
1. What are the differences between relation schema, relation, and instance? Give an example using the university database to illustrate.

Relational Schema: outlines the structure of a table (or relation) and its columns (or attributes) along with the different kinds of data each column has, without having any data itself.

For example, a relational schema in the university database for a table “instructor” has columns for ID, name, dept_name and salary (shown below).



Relation: describes the table as explained by the schema, in the university database the rows, containing data on the specific instructors, are based on the schema.

Example:

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

Instance: is the actual data in the database based on what you’re looking for in the database.

Example:

Using “select name from instructor where dept_name = 'Comp. Sci.' and salary>70000”

Enter SQL commands here

```
1 select name from instructor where dept_name = 'Comp. Sci.' an
```

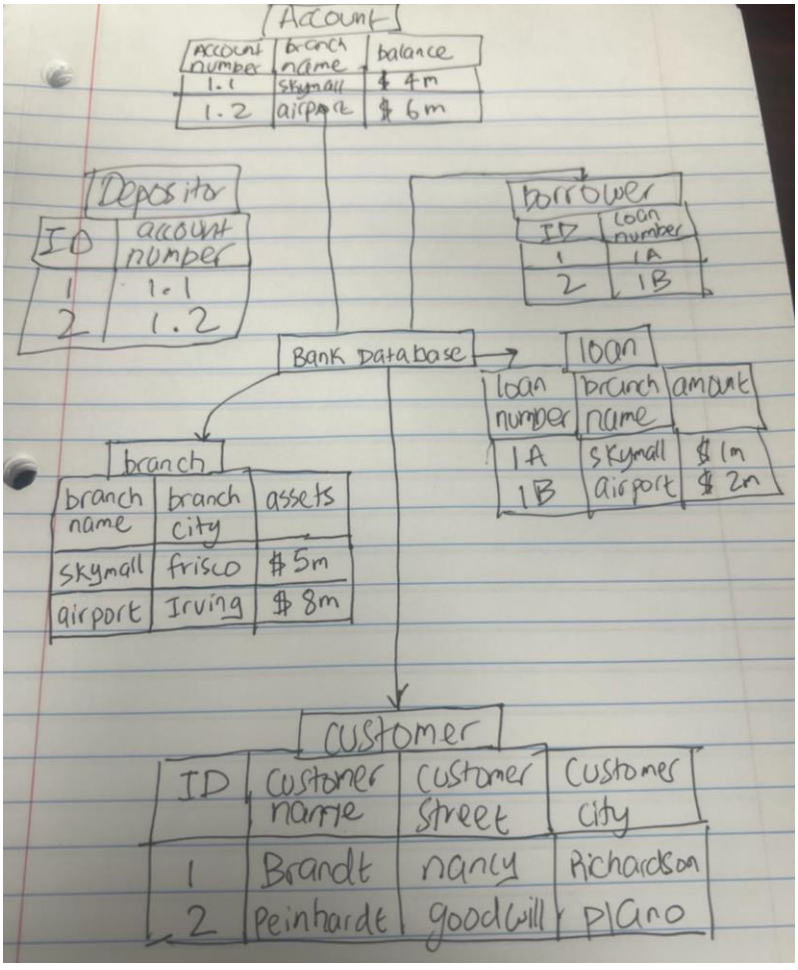
Execute | Save the db | Load an SQLite database file:

Choose File | No file chosen

name
Katz
Brandt

We are looking at a specific “instance”, all instructors who are in the computer science department with a salary of over $70,000.

2. Draw a schema diagram for the following bank database:



3. Primary Keys:

3.1. What are the appropriate primary keys?

- Branch name in branch table
- ID in the customer table
- Loan number in the loan table
- ID and loan number combined form a composite primary key in the borrower table because each lean by a customer is uniquely identified.

Foreign Keys:

3.2. Given your choice of primary keys, identify appropriate foreign keys.

- Branch name in the loan table is a foreign key referencing branch name in the branch table.
- Branch name in the account table is a foreign key referencing branch name in the branch table.
- ID in the borrower table is a foreign key referencing ID in the customer table.