

Name: Gia Dao.

Student ID: 1001747062.

Chapter 2 Review:

1. What is the difference between a database schema and a database state?

Database Schema	Database State
Description of the structure of the database. Specified during database design. Not expected to change frequently.	The data in the database at a particular moment in time.

2. What is the difference between logical data independence and physical data independence? Which one is harder to achieve? Why?

Logical Data Independence	Physical Data Independence
The capacity to change the conceptual schema without affecting the external schema or application programs.	The capacity to change the internal schema without affecting the conceptual schema.

Logical Data Independence is harder to achieve because it allows structural and constraint changes without affecting application programs – a much stricter requirement.

3. Design database schema.

CITIZEN

Name	Social Security Number	Date of Birth	Address	City
Huy Nguyen	1001744707	3/8/2000	3700 Ranch Road 360S	Austin
Gia Dao	1001747062	7/29/2001	700 W Mitchell	Arlington
Hieu Pham	1001746069	10/15/1998	450 Synergy Park, Blvd Richardson	Dallas

COUNTY

County_name	County_number	City
Tarrant County	220	Arlington
Travis County	227	Austin
Dallas	57	Dallas

RESIDENT_REPORT

Name	Social Security Number	Zip Code	County_number
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Huy Nguyen	1001744707	78734	227
Gia Dao	1001747062	76013	220
Hieu Pham	1001746069	77418	57

CITIZEN

Name	Social Security Number	Date of Birth	Address	City
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COUNTY

County_name	County_number	City
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RESIDENT_REPORT

Name	Social Security Number	Zip Code	County_number
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Additional constraints that could be represented in the schema:

- + A citizen could only live in one county.
- + If two citizens live in the same county, they must have different zip code.