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. |

1. 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.

1. 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 |
| 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 |

**COUNTY**

|  |  |  |
| --- | --- | --- |
| County\_name | County\_number | City |

**RESIDENT\_REPORT**

|  |  |  |  |
| --- | --- | --- | --- |
| Name | Social Security Number | Zip Code | County\_number |

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.