

Chapter 3 - Problems

- 1) What is the difference between a database and a table?
 - a) A database contains tables, and a table contains field (entities). The database is a collection of tables, and a table is a collection of records that contain data about whatever that table needs to hold. I.E.: A customer table you probably contain a customer ID, Customer first/middle/last name, and maybe address. So that customer table would probably have many customers in it.
- 2) What does it mean to say that a database displays both entity integrity and referential integrity?
 - a) A database displays entity integrity only when all the table have a unique primary key (which cannot be null) and that same database displays referential integrity when its tables have foreign keys that point to a primary key from another table, or the foreign key is null.
- 3) Why are entity integrity and referential integrity important in a database?
 - a) Entity and referential integrity is important in a database because without it the database could have horrible data redundancy which means that the design of the database is extremely poor.
- 4) What are the requirements that two relations must satisfy to be considered union-compatible?
 - a) The two tables must have the same number of columns in them and those columns must share the same or compatible domains.
- 5) Which relational algebra operators can be applied to a pair of tables that are not union-compatible?
 - a) Product, Join, Divide, Select.
- 6) Explain why the data dictionary is sometimes called “the database designer’s database.”
 - a) The data dictionary contains the information about all the attributes in the table, it is pretty much the skeleton of the database which shows how it is formed, what fields it has, and what type of data it contains.
- 7) A database user manually notes that “The file contains two hundred records, each record containing nine fields.” Use appropriate relational database terminology to “translate” that statement.
 - a) “The table contains two hundred records, each record contains nine fields.”