Ethan Tuning

9/28/2016

Relational Database Systems

Lab #1

1. Explain the following terms in the context of the relational data model.

a. Relation

b. Attribute

c. Domain

d. Tuple

e. Degree

f. Cardinality

Use Employee-Department database from Appendix 1 to provide examples.

2. Explain the following terms in the context of the relational data model.

a. Candidate Key

b. Primary Key

c. Foreign Key

Use the Employee-Department database from Appendix 1 to provide examples.

Answer #1:

1. A relation is a set a tuples sharing the same attributes. The EMP table in the Employee-Department database would be an example of a relation.
2. An attribute is an element of a tuple i.e. a column name. Job would be an example of an attribute from the Employee-Department database.
3. A domain are all the possible values for a given attribute. In the Employee-Department database “CLERK” would be of the domain String. Or any possible String that is the appropriate size.
4. A tuple is a data set representing a single item. Also could be called a row or record. In the Employee-Department database, the entire row for the employee name “SMITH” would be an example of a tuple.
5. A degree is the number of attributes within a relation. So in the Employee-Department database, the relation EMP is of degree 8.
6. Cardinality refers to the uniqueness of the data values for a given attribute. So the ENAME attribute within the table EMP within the Employee-Department database has high cardinality because there are no many repeat values with the column.

Answer #2:

1. A candidate key is a key that must, 1st, be a super key, 2nd be minimal (within the proper subset of the super key there must be no other super keys). EMPNO would be a candidate key for the employee-department database.
2. A primary key is a key that must, 1st, be a candidate key, and 2nd, be atomic (cannot be broken down into smaller pieces). EMPNO would also be a primary key.
3. A foreign key is a primary key that also refers to an attribute of another relation. There are no foreign keys within the Employee-Department database.