Review questions handwritten

Monday, February 5, 2024 9:47 PM

Question 1
The main construct of representing data in a Relational Model is a Relation
A relation consists of a Relation Schema and a relation instance
The relation instance is a table and the relation schema describes the column heads of the table
Degree or arity of a relation is the number of fields. The cardinality of a relation is the number of tuples in it

The domain constraints in the schema specify an important condition that we want each instance of the relation to satisfy
The values that appear in a column must be drawn from the domain associated with that column.

Question 2
Create Table enables definition of a Relation
update Table enables modification of relation instances

Question 3
An integrity constraint is a condition specified on database schema and restricts the data that can be stored in an instance of
primary key constraint: key is a minimal subset of fields of a relation which is a unique identifier of a tuple the database

A set of keys which uniquely identifies a tuple according to a key constraint
is called a candidate key of the relation
The foreign key in the referencing relation must match the primary key in the referenced section
PRIMARY KEY (<col name>)
FOREIGN KEY(<col name>) references TABLENAME(<col Name>)
we can even express table constraints and assertions in SQL

Question 4
ICs are specified when a relation is created and enforced when a relation is modified
every potential IC violation is generally checked at the end of each SQL statement execution,
although it can be deferred until the end of the transaction executing the statement

Referential Integrity enforcement steps: Constraints which bind a referencing table to a referenced table
options:
no action, cascade, null, default

Question 5
A constraint is checked at the end of every SQL statement that could lead to a violation, and if
there is a ~~one~~ violation, the statement is rejected
constraint in deferred or immediate mode
A constraint at deferred mode is checked at Commit time

Question 6
A relational database query is a question about the data and the answer consists of a new relation
containing the result.

Question 7
entity sets: each attribute becomes an attribute of the corresponding relation
Relationship sets without constraints
Relationship sets with constraints
key constraints, participation constraints, Role indicators, weak entity sets,
class hierarchies, aggregation

Question 8
A view is a table whose rows are not explicitly stored in the database
but are computed as needed from the view difinition
Physical schema for a relational ~~database~~ describes how the relations in the conceptual
schema are stored, in terms of file organizations and indexes used
Additional relations in the external schema can be defined using the views mechanism
The view mechanism provides a way for logical data independence in the relational model
It is used to define relations in the ~~conceptual~~ external schema of the database
that masks changes in the conceptual schema of the database from applications
We can define views that give a group of users access to just the information they are allowed to see
Queries on views are evaluated in the exact same way as they are evaluated on a base table

SQL-92 standard allows updates to happen only on views that are defined on a single base table using
just selection and projection, with no use of aggregate operations and even "distinct". Those views are called updatable views
If we attempt to insert rows through a view that don't contain the primary key of the
table, then the insertions will be rejected
SQL-1999: we can update a field of a view if it is obtained from exactly one of the underlying tables
and the primary key of that table is one of the fields of the view

Question 9
alter table, drop table
when we destroy a view, it works the same way as destroying/dropping any base tables but its
base tables will not be dropped when the view is dropped