Week 08 Research Assignment

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Primary and Foreign Keys

2. In a relational database management system (RDBMS), two kinds of keys are used to define the relationships between tables: primary keys and foreign keys. Primary keys is a column in a table that gives a unique value to each row and can be used to enforce the integrity of the table. Because each table can only have one primary key, they are used as indexes, which can greatly speed up queries.

Foreign keys, on the other hand, are references to primary keys in other tables. While a table can only have one primary key, it can have as many foreign keys as it needs, though the more there are the messier it gets. If two tables contain data that is related, they can be connected by the use of primary and foreign keys. Upon creation of the tables, the primary key is specified, but the primary keys of other tables can be referenced as foreign keys, so the schema knows that these tables contain information that may be used together.

Let's say a car dealership has a database containing a table for cars, a table for purchases, and a table for customers. While the customer table may not contain any useful information about what a certain individual likes to drive, it can be connected to the purchases table to show that the customer has made purchases in the past, and that table can be connected to the cars table to show that this person really likes Ford trucks. This information can be used to share Ford-related deals with the customer to let them know that their 2022 F150 is looking pretty dusty and wouldn't it be a good time to drop another $50K on a newer model. [1]

DDL and DML

3. DDL and DCL are subsets of SQL commands that perform different functions within the language. DDL, or data definition language, that sets the structure or schema of the database, while DML, or data manipulation language, deals with the management and manipulation of the data in the database.

Some common DDL commands in SQL include:

a. CREATE – the CREATE command in SQL is used to create tables, as we've seen, but also can create objects and triggers.
b. ALTER – the ALTER command can alter an already existing table, by adding or deleting columns or keys, or by modifying data types or column sizes.
c. DROP – the DROP command deletes the defined table with all data, associated indexes, constraints, etc.
d. TRUNCATE – the TRUNCATE command works similarly to DROP, except it leaves the table intact. All data and records are deleted from the table, but the table is left behind.

e. RENAME – the RENAME command can be used to give a table a different name, if a high enough permission exists.

Some common DML commands in SQL include:

a. SELECT – the SELECT command retrieves data or records from one or more tables in a database, depending on the parameters included in the query.
b. INSERT – the INSERT command adds records to an exiting table in a SQL database.
c. UPDATE – the UPDATE command can update or change existing records (if a person changes their last name, for example), overwriting the original value.
d. DELETE – the DELETE command can delete all data and records from an SQL table. We can use a WHERE clause with AND or OR operators to target specific rows from within the table.
e. CALL – the CALL command can be used to all or invoke a stored procedure, which is kind of like a java class.

There is a third category, called DCL, or data control language, which is used to grant or revoke permissions to/from users in a database.

1. https://learn.microsoft.com/en-us/sql/relational-databases/tables/primary-and-foreign-key-constraints?view=sql-server-ver16
2. http://scaler.com/topics/ddl-dml-dcl/