

All Keyed Up Keys and Constraints in SQL

Keys

What is a Key?

- An identifier
- Helps track and relate your data

Natural vs. Surrogate Keys

Natural

- Use an existing column
- Can only do this if it follows the constraints
 - Unique
 - Never empty
- Ex. Driver's license, serial numbers

Surrogate

- You create it
- Often make it auto-increment
- Can take up less storage space
- Ex. Patient 1, 2, 3...

PRIMARY KEY

- Column(s) that uniquely identify each row in a table
- Constraints:
 - Must be unique in the table
 - Can't have missing values

Composite Primary Key

- Use more than one column's values together to make a unique key

Generating Surrogate Keys

- auto_increment
- serial / bigserial

Foreign Key

- Connects values in tables so that related tables are properly pieced together
- Values in another table's primary key
- Constraints:
 - Must be a value that already exists in the primary key
- Can be empty
- Can be duplicated (not unique)

Dealing with NULL data

NULL values

- Denotes no data present
- User did not enter it or it is unknown
- Queries don't come back empty; they return NULL

IS NULL vs. IS NOT NULL

IS NULL

- Use as a criteria in a WHERE clause
- To find columns without data

IS NOT NULL

- Use as a criteria in a WHERE clause
- To find columns with data

Constraints

What is a Constraint?

- Rules placed upon data entry for a table

NOT NULL

- Does not allow NULL values in a column

UNIQUE

- Values in a column have no overlap
- But does allow multiple NULL values
- Isn't used for reference like a primary key

CHECK

- Will determine whether data falls in the values you want
- Useful if only certain ranges are valid
- Uses Boolean operators
- For instance, weight – can eliminate typos if you put minimum / maximum caps on values and this saves time in data cleaning

ON DELETE CASCADE

- When you delete a row in one table, it will automatically delete rows in other tables that were based on the information

Indexing

CREATE INDEX

- Improve query speeds when used sparingly
- What to index
 - Foreign keys
 - Columns you use frequently in where statements