



PROFESSIONAL LINUX CONSULTING & TRAINING

LENGUAJE DE CONSULTAS SQL

OBJETIVO

Que el estudiante entienda y aplique completamente el lenguaje de consultas de bases de datos relacionales SQL.

TEMARIO

- **Data and tables**

- Defining your data
- Look at your data in categories
- Databases contain connected data
- Take command!
- Setting the table: the CREATE TABLE statement
- Take a meeting with some data types
- Your table, DESCRIBED
- You can't recreate an existing table or database!
- Out with the old table, in with the new
- To add data to your table, you'll use the INSERT statement
- Create the INSERT statement
- Variations on an INSERT statement
- Columns without values
- Peek at your table with the SELECT statement
- Controlling your inner NULL
- NOT NULL appears in DESC
- Fill in the blanks with DEFAULT
- Your SQL Toolbox

- **The SELECT statement"**

- Date or no date?
- A better SELECT
- What the * is that?
- How to query your data types
- More punctuation problems
- Unmatched single quotes
- Single quotes are special characters
- INSERT data with single quotes in it
- SELECT specific columns to limit results
- SELECT specific columns for faster results
- Combining your queries
- Finding numeric values
- Smooth Comparison Operators
- Finding numeric data with Comparison Operators
- Text data roping with Comparison Operators
- To be OR not to be
- The difference between AND and OR
- Use IS NULL to find NULLs
- Saving time with a single keyword: LIKE
- The call of the Wild(card)



- Selecting ranges using AND and comparison operators
- Just BETWEEN us... there's a better way
- After the dates, you are either IN...
- ...or you are NOT IN
- More NOT
- Your SQL Toolbox

- **DELETE and UPDATE"**

- Clowns are scary
- Clown tracking
- How our clown data gets entered
- Bonzo, we've got a problem
- Getting rid of a record with DELETE
- Using our new DELETE statement
- DELETE rules
- The INSERT-DELETE two step.
- Be careful with your DELETE
- The trouble with imprecise DELETE
- Change your data with UPDATE
- UPDATE rules
- UPDATE is the new INSERT-DELETE
- UPDATE in action
- UPDATE your prices
- All we need is one UPDATE
- our SQL Toolbox

- **Why be normal?**

- Two fishy tables
- A table is all about relationships
- Atomic data
- Atomic data and your tables
- Reasons to be normal
- The benefits of normal tables
- Clowns aren't normal
- Halfway to 1NF
- PRIMARY KEY rules
- Getting to NORMAL
- Fixing Greg's table
- The CREATE TABLE we wrote

- Show me the table
- Time-saving command
- The CREATE TABLE with a PRIMARY KEY
- ... auto incrementally
- Adding a PRIMARY KEY to an existing table
- ALTER TABLE and add a PRIMARY KEY
- Your SQL Toolbox

- **ALTER**

- We need to make some changes
- Table altering
- Extreme table makeover
- Renaming the table
- We need to make some plans
- Retooling our columns
- Structural changes
- ALTER and CHANGE
- Change two columns with one SQL statement
- Quick! DROP that column
- A closer look at the non-atomic location column
- Look for patterns
- A few handy string functions
- Use a current column to fill a new column
- How our UPDATE and SET combo works
- Your SQL Toolbox

- **Advanced SELECT**

- Dataville Video is reorganizing
- Problems with our current table
- Matching up existing data
- Populating the new column
- S UPDATE with a CASE expression
- Looks like we have a problem
- Tables can get messy



- We need a way to organize the data we SELECT
- Try a little ORDER BY
- ORDER a single column
- ORDER with two columns
- ORDER with multiple columns
- An orderly movie_table
- Reverse the ORDER with DESC
- The Girl Sprout® cookie sales leader problem
- SUM can add them for us
- SUM all of them at once with GROUP BY
- AVG with GROUP BY
- MIN and MAX
- COUNT the days
- SELECT DISTINCT values
- LIMIT the number of results
- LIMIT to just second place
- Your SQL Toolbox

● Multi-table database design

- Finding Nigel a date
- All is lost...
- But wait
- Think outside of the single table
- The multi-table clown tracking database
- The clown_tracking database schema
- How to go from one table to two
- Connecting your tables
- Constraining your foreign key
- Why bother with foreign keys?
- CREATE a table with a FOREIGN KEY
- Relationships between tables
- Patterns of data: one-to-one
- Patterns of data: when to use one-to-one tables
- Patterns of data: one-to-many
- Patterns of data: getting to many-to-

many

- Patterns of data: we need a junction table
- Patterns of data: many-to-many
- Finally in 1NF
- Composite keys use multiple columns
- Shorthand notations
- Partial functional dependency
- Transitive functional dependency
- Second normal form
- Third normal form (at last)
- And so, Regis (and gregs_list) lived happily ever after
- Your SQL Toolbox
- Joins and multi-table operations"Chapter 8. joins and multi-table operations
- Still repeating ourselves, still repeating...
- Prepopulate your tables
- We got the "table ain't easy to normalize" blues
- The special interests (column)
- Keeping interested
- UPDATE all your interests
- Getting all the interests
- Many paths to one place
- CREATE, SELECT and INSERT at (nearly) the same time
- CREATE, SELECT and INSERT at the same time
- What's up with that AS?
- Column aliases
- Table aliases, who needs em?
- Everything you wanted to know about inner joins
- Cartesian join
- Releasing your inner join
- The inner join in action: the equijoin
- The inner join in action: the non-equijoin
- The last inner join: the natural join



- Joined-up queries?
Table and Column Aliases Exposed
- Your SQL Toolbox

- **Subqueries**

- Greg gets into the job recruiting business
- Greg's list gets more tables
- Greg uses an inner join
- But he wants to try some other queries
- Subqueries
- We combine the two into a query with a subquery
- A subquery construction walkthrough
- A subquery as a SELECT column
- Another example: Subquery with a natural join
- A noncorrelated subquery
- A noncorrelated subquery with multiple values: IN, NOT IN
- Correlated subqueries
- A (useful) correlated subquery with NOT EXISTS
- EXISTS and NOT EXISTS
- Greg's Recruiting Service is open for business
- On the way to the party
- Your SQL Toolbox

- **Outer joins, self-joins, and unions**

- Cleaning up old data
- It's about left and right
- Here's a left outer join
- Outer joins and multiple matches
- The right outer join
- While you were outer joining...
- We could create a new table
- How the new table fits in
- A self-referencing foreign key

- Join the same table to itself
- We need a self-join
- Another way to get multi-table information
- You can use a UNION
- UNION is limited
- UNION rules in action
- UNION ALL
- Create a table from your union
- INTERSECT and EXCEPT
- We're done with joins, time to move on to...
- Turning a subquery into a join
- A self-join as a subquery
- Greg's company is growing
- Your SQL Toolbox
- Constraints, views, and transactions"Chapter 11. constraints, views, and transactions
- Greg's hired some help
- Jim's first day: Inserting a new client
- Jim avoids a NULL
- Flash forward three months
- CHECK, please: Adding a CHECK CONSTRAINT
- CHECKing the gender
- Frank's job gets tedious
- Creating a view
- Viewing your views
- What your view is actually doing
- What a view is
- Inserting, updating, and deleting with views
- The secret is to pretend a view is a real table
- View with CHECK OPTION
- Your view may be updatable if...
- When you're finished with your view
- When bad things happen to good databases
- What happened inside the ATM
- More trouble at the ATM



- It's not a dream, it's a transaction
- The classic ACID test
- SQL helps you manage your transactions
- What should have happened inside the ATM
- How to make transactions work with MySQL
- Now try it yourself
- Your SQL Toolbox

- **Security**

- User problems
- Avoiding errors in the clown tracking database
- Protect the root user account
- Add a new user
- Decide exactly what the user needs

- A simple GRANT statement
- GRANT variations
- REVOKE privileges
- REVOKING a used GRANT OPTION
- REVOKING with precision
- The problem with shared accounts
- Using your role
- Role dropping
- Using your role WITH ADMIN OPTION
- Combining CREATE USER and GRANT
- Greg's List has gone global!
- Your SQL Toolbox
- How about a Greg's List in your city?
- Use SQL on your own projects, and you too could be like Greg!

