COMPLETE

SQL

Guide

Topic Wise Functions

@talhakhan

Basic SQL Syntax

- SQL keywords

- Data types

- Operators

- SQL statements
  - SELECT
  - INSERT
  - UPDATE
  - DELETE

2:

Data Definition Language (DDL)

- CREATE TABLE
- ALTER TABLE
- DROP TABLE
- TRUNCATE TABLE

Data Manipulation Language (DML)

- SELECT statement (SELECT, FROM, WHERE, ORDER BY, GROUP BY, HAVING, JOINs)

- INSERT statement

- UPDATE statement

- DELETE statement

Aggregate Functions

- SUM, AVG, COUNT, MIN, MAX
- GROUP BY clause
- HAVING clause

Data Constraints

- Primary Key

- Foreign Key

- Unique

- NOT NULL

- CHECK

Joins

- INNER JOIN

- LEFT JOIN

- RIGHT JOIN

- FULL OUTER JOIN

- SELF JOIN

- CROSS JOIN

Subqueries

- Types of subqueries (scalar, column, row, table)

- Nested subqueries

- Correlated subqueries

Advanced SQL Functions

- ▪ String functions
  - ▪ CONCAT, LENGTH, SUBSTRING, REPLACE, UPPER, LOWER

- ▪ Date and time functions
  - ▪ DATE, TIME, TIMESTAMP, DATEPART, DATEADD

- ▪ Numeric functions:
  - ▪ ROUND, CEILING, FLOOR, ABS, MOD

- ▪ Conditional functions:
  - ▪ CASE, COALESCE, NULLIF

Views

- Creating views
- Modifying views
- Dropping views

Indexes

- Creating indexes
  - CREATE INDEX

- Using indexes for query optimization

Transactions

- ACID properties

- Transaction management:
    - BEGIN, COMMIT, ROLLBACK, SAVEPOINT

- Transaction isolation levels

Data Integrity and Security

- Data integrity constraint
  - Referential integrity, entity integrity
- GRANT and REVOKE statements (granting and revoking permissions)
- Database security best practices

Stored Procedures and Functions

- Creating stored procedures
    - CREATE PROCEDURE
- Executing stored procedures
    - EXEC
- Creating functions
- Using functions in queries

Performance Optimization

- Query optimization techniques
    - Using indexes, optimizing joins, reducing subqueries
- Performance tuning best practices

15:

Advanced SQL Concepts

- Recursive queries

- Pivot and unpivot operations

- Window functions:
    - Row_number, rank, dense_rank, lead & lag

- CTEs (Common Table Expressions)

- Dynamic SQL

Schema Management

- Creating schemas
  - CREATE SCHEMA

- Altering schemas
  - ALTER SCHEMA

- Dropping schemas
  - DROP SCHEMA

Sequences and Identity Columns

- Creating sequences/identity columns

- Using sequences/identity columns

Triggers

- Creating triggers
  - CREATE TRIGGER
- Using triggers

Error Handling

- TRY-CATCH blocks
- Raising custom exceptions

20:

Advanced SQL Data Types

- BLOB

- CLOB

- ENUM

- SET, etc.

Partitioning

- Creating partitions
  - PARTITION
- Using partitions

Regular Expressions

- Using REGEXP for pattern matching in queries
  - . (Dot): Matches any single character, except newline characters
  - * (Asterisk): Matches zero or more of the preceding character or group
  - + (Plus): Matches one or more of the preceding character or group
  - ? (Question mark): Matches zero or one of the preceding character or group
  - ^ (Caret): Matches the start of a string without consuming any characters
  - $ (Dollar): Matches the end of a string without consuming any characters

Temporal Tables

- Creating temporal tables
  - E.g. GENERATED ALWAYS
- Using temporal tables

Cursors

- Understanding and using cursors
    - DECLARE
    - OPEN
    - CLOSE
    - DEALLOCATE

THANK YOU

If this helps, click on the 🔔 icon on my profile to receive updates on similar posts

@talhakhan