SQL OVERVIEW

TYPES OF SQL COMMANDS

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **DEFINING DB STRUCTURES** | **MANIPULATING DATA** | **SELECTING DATA** | **DATA CONTROL** | **DATA ADMIN** | **TRANSACTIONAL CONTROL** |
| CREATE TABLE  ALTER TABLE  DROP TABLE  CREATE INDEX  ALTER INDEX  DROP INDEX  CREATE VIEW  DROP VIEW | INSERT  UPDATE  DELETE | SELECT | ALTER PASSWORD  GRANT  REVOKE  CREATE SYNONYM | START AUDIT  STOP AUDIT | COMMIT  ROLLBACK  SAVEPOINT  SET TRANSACTION |

OPERATORS

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **LOGICAL** | **CONJUNCTIVE** | **NEGATIVE** | **ARITHMETIC** | **COMPARISON** |
| IS NULL  BETWEEN  IN  LIKE  EXISTS  UNIQUE  ALL and ANY | AND  OR | NOT BETWEEN  NOT IN  NOT LIKE  IS NOT NULL  NOT EXISTS  NOT UNIQUE | +  -  /  \* | =  !=  <  >  <=  >= |

AGGREGATE FUNCTIONS

* COUNT()
* SUM()
* MAX()
* MIN()
* AVG()

SORTING & GROUPING

**GROUP BY**

The position of a GROUP BY must be as follows:

SELECT

FROM

WHERE

GROUP BY

ORDER BY

**HAVING**

The HAVING clause, when used in conjunction with the GROUP BY clause in a SELECT statement, tells GROUP BY which groups to include in the output

SELECT

WHERE

GROUP BY

HAVING

ORDER BY

SELECT column1, column2

FROM table1, table2

WHERE conditions

GROUP BY column1, column2

HAVING conditions

ORDER BY column1, column2

JOINS

**Outer join**

Returns all rows that exist in one table, even though corresponding rows do not exist in the joined table

1. FULL (OUTER) JOIN
2. LEFT (OUTER) JOIN
3. RIGHT (OUTER) JOIN

**Inner join**

Returns records that have matching values in both tables

1. (INNER) JOIN

SUB QUERY

A nested query within the WHERE clause of another query. Sub queries are used when you know how to search for a value using a SELECT statement, but do not know the exact value in the database.

Sub queries can also be used with UPDATE, INSERT and DELETE queries.

Rules:

* Must be enclosed within parenthesis
* Only one column in select clause, unless multiple columns are in the main query for the subquery to compare its selected columns
* An ORDER BY clause cannot be used in a sub query
* The BETWEEN operator cannot be used with a subquery; however, the BETWEEN operator can be used within the subquery

SELECT column\_name

FROM table

WHERE column\_name = (SELECT column\_name

FROM table

WHERE conditions);

UNION

Combines the result set of 2 or more SELECT statements. It removes duplicate rows between the various SELECT statements. Returns only distinct values.

SELECT city FROM customers

UNION

SELECT city FROM suppliers;

TEST

1. Look at the operators able and use each one in an example
2. What are the 5 aggregate functions?
3. Use each aggregate function in an example
4. Use GROUP BY in an example
5. Use HAVING in an example
6. What are the 2 types of joins and what are the differences?
7. Use each join in an example
8. Create a subquery in a:
   1. SELECT query
   2. INSERT query
   3. UPDATE query
   4. DELETE query
9. What is a union? Give example.