

QUERIES

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Sustainable Transportation within the Framework of Green Deal - SPHERE

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SELECT Queries

- The query command, i.e., the SELECT statement, is the most important and most commonly used SQL statement for data manipulation.

Simple query on a single table:

For each query, the following is specified:

- what data we are requesting as a result,
- from which tables we are requesting it,
- what condition the data must satisfy to be included in the result, and
- in what order we want the results to be displayed.

- A simple query on a single table has the following syntax :

- SELECT R-Lista
- FROM Tabela
- [WHERE R-Predikat]
- [ORDER BY { R-Izraz [ASC | DESC] } ,...] ;
- gde je
- $R\text{-Lista} ::= * \mid \{ [\text{ALL} \mid \text{DISTINCT}] \text{R-Izraz} ,.. \}$

Značenje:

*	Specijalni slučaj kada želimo da uključimo sve kolone tabele, i to onim redosledom kojim su navedene u naredbi kreiranja tabele
ALL	Tražimo da se u rezultatu prikažu svi redovi uključujući i one koji su istovetni, podrazumijeva se ako se ništa ne navede
DISTINCT	Tražimo da se iz rezultata eliminišu suvišna pojavljivanja (osim jednog) istovetnih redova
R-Izraz	Izraz izračunljiv nad svakim pojedinim redom tabele koji pored naziva kolona može da sadrži i operatore i konstante. Naješće je u formi navođenja jedne kolone
R-Predikat	Logički izraz koji je izračunljiv nad svakim pojedinim redom tabele. U formiranje rezultata upita ulaze samo oni redovi za koje taj izraz daje istinit rezultat. U najjednostavnijim slučajevima, R-Predikat je u formi relacionog izraza u kome se sa jedne strane relacionog operatora (>, <, =, itd.) javlja ime kolone, a sa druge strane ime kolone ili konstanta

- **Example 1.**

The simplest possible SQL query is in the form :

```
SELECT * FROM ImeTabele;
```

This statement displays all rows of the table whose name is specified after the FROM clause.

In each row, the values of all columns are displayed in the order in which they are stored in the file (i.e., as created with CREATE TABLE). In queries, it is usually required to display only certain columns, or to display all columns in a different order.

Simple query on a single table with an aggregate result :

- Syntax for SELECT (simple query on a single table with a derived result)

SELECT G-Lista

FROM ImeTabele

[WHERE R-Predikat];

G-Expressions: these most often consist of special SQL functions (aggregate functions)

- They can be:
 - **SUM (ColumnName)** – calculates the sum of all non-NULL values in the specified column
 - **AVG (ColumnName)** – calculates the average value of all non-NULL values in the specified column
 - **MIN (ColumnName)** – finds the minimum value of all non-NULL values in the specified column

- **MAX (ColumnName)** – finds the maximum value of all non-NULL values in the specified column
 - **COUNT(*)** – returns the total number of rows in the table
 - **COUNT([ALL | DISTINCT] ColumnList)**
 - Without DISTINCT, it returns the total number of non-NULL values of the specified combination of columns
- With DISTINCT, it returns the total number of different non-NULL values of the specified combination of columns.

- **Example:**

Assuming that the table Student contains all students of a faculty, the total number of students at that faculty can be obtained with:

```
SELECT COUNT(*) FROM Student;
```

WHERE clause

- The WHERE clause is used to select records based on criteria (filtering).

When defining conditions, logical operators (AND, OR, NOT) and comparison operators (<, >, <=, >=, <>) can be used.

The WHERE clause is optional and can be used with SELECT, UPDATE, and DELETE statements.