SQL Statements

Most of the actions you need to perform on a database are done with SQL statements.

The following SQL statement will select all the records in the "Persons" table:

*SELECT * FROM Persons*

The Data Manipulation Language (DML) :

SELECT - extracts data from a database
UPDATE - updates data in a database
DELETE - deletes data from a database
INSERT INTO - inserts new data into a database

Data Definition Language (DDL):

CREATE DATABASE - creates a new database
ALTER DATABASE - modifies a database
CREATE TABLE - creates a new table
ALTER TABLE - modifies a table
DROP TABLE - deletes a table
CREATE INDEX - creates an index (search key)
DROP INDEX - deletes an index

Select Statement:

SELECT column_name(s) FROM table_name

SELECT LastName,FirstName FROM Persons

Selecting all columns:

SELECT * FROM Persons

The DISTINCT keyword can be used to return only distinct (different) values.

SELECT DISTINCT column_name(s) FROM table_name

The WHERE Clause

The WHERE clause is used to extract only those records that fulfill a specified criterion.

SELECT column_name(s) FROM table_name WHERE column_name operator value

SELECT * FROM Persons WHERE City='Sandnes'

Operators Allowed in the WHERE Clause

Operator	Description
=	Equal
<>	Not equal
>	Greater than
<	Less than
>=	Greater than or equal
<=	Less than or equal
BETWEEN	Between an inclusive range
LIKE	Search for a pattern
IN	To specify multiple possible values for a column

The AND & OR Operators

The AND operator displays a record if both the first condition and the second condition are true.

The OR operator displays a record if either the first condition or the second condition is true.

SELECT * FROM Persons
WHERE FirstName='Tove'
AND LastName='Svendson'

SELECT * FROM Persons
WHERE FirstName='Tove'
OR FirstName='Ola'

The ORDER BY Keyword

The ORDER BY keyword is used to sort the result-set by a specified column.

The ORDER BY keyword sorts the records in ascending order by default.

If you want to sort the records in a descending order, you can use the DESC keyword.
SQL ORDER BY Syntax

```
SELECT column_name(s)
FROM table_name
ORDER BY column_name(s) ASC|DESC
```

```
SELECT * FROM Persons
ORDER BY LastName DESC
```

The INSERT INTO Statement

The INSERT INTO statement is used to insert a new row in a table.

It is possible to write the INSERT INTO statement in two forms.

The first form doesn't specify the column names where the data will be inserted, only their values:

```
INSERT INTO table_name
VALUES (value1, value2, value3,...)
```

The second form specifies both the column names and the values to be inserted:

```
INSERT INTO table_name (column1, column2, column3,...)
VALUES (value1, value2, value3,...)
```

```
INSERT INTO Persons
VALUES (4,'Nilsen', 'Johan', 'Bakken 2', 'Stavanger')
```

The UPDATE Statement

The UPDATE statement is used to update existing records in a table.
SQL UPDATE Syntax

```
UPDATE table_name
SET column1=value, column2=value2,...
WHERE some_column=some_value
```

Note: Notice the WHERE clause in the UPDATE syntax. The WHERE clause specifies which record or records that should be updated. If you omit the WHERE clause, all records will be updated!

```
UPDATE Persons
SET Address='Nissestien 67', City='Sandnes'
WHERE LastName='Tjessem' AND FirstName='Jakob'
```

The DELETE Statement

The DELETE statement is used to delete rows in a table.

SQL DELETE Syntax

DELETE FROM table_name
WHERE some_column=some_value

Note: Notice the WHERE clause in the DELETE syntax. The WHERE clause specifies which record or records that should be deleted. If you omit the WHERE clause, all records will be deleted!

DELETE FROM Persons
WHERE LastName='Tjessem' AND FirstName='Jakob'

Delete All Rows:
DELETE FROM table_name

Or

DELETE * FROM table_name
Note: Be very careful when deleting records. You cannot undo this statement!