Basic Queries

-- filter your columns
SELECT col1, col2, col3, ... FROM table1
-- filter the rows
WHERE col4 = 1 AND col5 = 2
-- aggregate the data
GROUP by ...
-- limit aggregated data
HAVING count(*) > 1
-- order of the results
ORDER BY col2

Useful keywords for SELECTS:
DISTINCT - return unique results
BETWEEN a AND b - limit the range, the values can be numbers, text, or dates
LIKE - pattern search within the column text
IN (a, b, c) - check if the value is contained among given.

Data Modification

-- update specific data with the WHERE clause
UPDATE table1 SET col1 = 1 WHERE col2 = 2
-- insert values manually
INSERT INTO table1 (ID, FIRST_NAME, LAST_NAME) VALUES (1, 'Rebel', 'Labs');
-- or by using the results of a query
INSERT INTO table1 (ID, FIRST_NAME, LAST_NAME)
SELECT id, last_name, first_name FROM table2

Views

A VIEW is a virtual table, which is a result of a query. They can be used to create virtual tables of complex queries.

CREATE VIEW view1 AS
SELECT col1, col2
FROM table1
WHERE ...

The Joy of JOINs

LEFT OUTER JOIN - all rows from table A, even if they do not exist in table B
INNER JOIN - fetch the results that exist in both tables
RIGHT OUTER JOIN - all rows from table B, even if they do not exist in table A

Updates on JOINed Queries

You can use JOINs in your UPDATEs
UPDATE t1 SET a = 1
FROM table1 t1 JOIN table2 t2 ON t1.id = t2.t1_id
WHERE t1.col1 = 0 AND t2.col2 IS NULL;

NB! Use database specific syntax, it might be faster!

Semi JOINs

You can use subqueries instead of JOINs:
SELECT col1, col2
FROM table1
WHERE id IN (SELECT t1_id FROM table2 WHERE date > CURRENT_TIMESTAMP)

Indexes

If you query by a column, index it!
CREATE INDEX index1 ON table1 (col1)

Don’t forget:
Avoid overlapping indexes
Avoid indexing on too many columns
Indexes can speed up DELETE and UPDATE operations

Useful Utility Functions

-- convert strings to dates:
TO_DATE (Oracle, PostgreSQL), STR_TO_DATE (MySQL)
-- return the first non-NULL argument:
COALESCE (col1, col2, “default value”)
-- return current time:
CURRENT_TIMESTAMP
-- compute set operations on two result sets
SELECT col1, col2 FROM table1
UNION / EXCEPT / INTERSECT
SELECT col3, col4 FROM table2;

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Reporting

Use aggregation functions
COUNT - return the number of rows
SUM - cumulate the values
AVG - return the average for the group
MIN / MAX - smallest / largest value

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