1 Relational Algebra

SQL is a standard. MySQL doesn't implement all the standards, but includes extensions.

Relational algebra is a family of algebras used for modelling the data stored in relational databases, and defining queries on it.

We can have a command like SELECT * FROM

WHERE (filter out rows)

GROUP BY

HAVING (filter out groups)

ORDER BY

Aggregate functions: count, sum, min, max, avg

Relational algebra symbols:

select: σ

project: π

rename: ρ

order by: τ

group by: γ

natural join: $\bowtie$

Cartesian product: $\times$

Example: π fname, lname (σ fname = 'john', lname = 'smith' EMPLOYEE)

Set operations

$\cup$ union, $\cap$ intersection, $-$ difference, $\times$ cross product