

REFERENSI CEPAT SQL

SELECT, JOIN, subquery, index, transaksi

SELECT

```
-- SELECT * FROM users;
SELECT name, email FROM users;
SELECT DISTINCT city FROM users;
SELECT name AS full_name FROM users;
```

WHERE

Operator Perbandingan

= <> (!=) Sama / tidak sama
< > <= >= Operator perbandingan
AND OR NOT Operator logika
IS NULL / IS NOT NULL Pengecekan null

Pencocokan Pola

```
SELECT * FROM users WHERE name LIKE 'A%';
-- % = any chars, = single char
SELECT * FROM users WHERE age IN (20, 25, 30);
SELECT * FROM users WHERE age BETWEEN 18 AND 30;
```

JOIN

Jenis Join

INNER JOIN Baris yang cocok di kedua tabel
LEFT JOIN Semua baris kiri + yang cocok dari kanan
RIGHT JOIN Semua baris kanan + yang cocok dari kiri
FULL OUTER JOIN Semua baris dari kedua tabel
CROSS JOIN Hasil kartesian dari kedua tabel

Sintaks Join

```
SELECT u.name, o.total
FROM users u
INNER JOIN orders o ON u.id = o.user_id;

SELECT u.name, o.total
FROM users u
LEFT JOIN orders o ON u.id = o.user_id;
```

INSERT / UPDATE / DELETE

Insert

```
INSERT INTO users (name, email)
VALUES ('Alice', 'alice@example.com');

INSERT INTO users (name, email) VALUES
('Bob', 'bob@ex.com'),
('Carol', 'carol@ex.com');
```

Update

```
UPDATE users SET email = 'new@ex.com'
WHERE id = 1;
```

Delete

```
DELETE FROM users WHERE id = 1;
DELETE FROM users; -- delete all rows
```

CREATE TABLE

Sintaks

```
CREATE TABLE users (
  id INTEGER PRIMARY KEY AUTOINCREMENT,
  name TEXT NOT NULL,
  email TEXT UNIQUE,
  age INTEGER DEFAULT 0,
  score REAL
);
```

Tipe Data Umum

INTEGER Bilangan bulat
REAL Bilangan titik mengambang
TEXT Data string / teks
BLOB Data biner
BOOLEAN TRUE / FALSE (disimpan sebagai 0/1)
DATE / DATETIME Nilai tanggal dan timestamp

Constraint

PRIMARY KEY Identifier baris yang unik
NOT NULL Nilai wajib diisi
UNIQUE Tidak ada nilai duplikat
DEFAULT val Nilai default jika tidak diisi
CHECK (expr) Aturan validasi kustom
FOREIGN KEY Referensi ke tabel lain

Fungsi Agregat

COUNT (*) Jumlah baris
COUNT (col) Nilai non-null di kolom
SUM (col) Jumlah kolom numerik
AVG (col) Rata-rata kolom numerik
MIN (col) Nilai minimum
MAX (col) Nilai maksimum

Contoh

```
SELECT COUNT(*) AS total,
AVG(age) AS avg_age,
MAX(score) AS top_score
FROM users;
```

GROUP BY / HAVING

```
SELECT city, COUNT(*) AS num_users
FROM users
GROUP BY city;
```

```
SELECT city, AVG(age) AS avg_age
FROM users
GROUP BY city
HAVING AVG(age) > 25;
```

WHERE memfilter baris sebelum pengelompokan; HAVING memfilter grup setelah agregasi

ORDER BY / LIMIT

```
SELECT * FROM users ORDER BY name ASC;
SELECT * FROM users ORDER BY age DESC;
SELECT * FROM users
ORDER BY city, name
LIMIT 10 OFFSET 20; -- skip 20, take 10
```

Subquery

Dalam Klausula WHERE

```
SELECT name FROM users
WHERE id IN (
  SELECT user_id FROM orders
  WHERE total > 100
);
```

Sebagai Derived Table

```
SELECT city, avg_age FROM (
  SELECT city, AVG(age) AS avg_age
  FROM users GROUP BY city
) WHERE avg_age > 30;
```

Index

```
CREATE INDEX idx_name ON users(name);
CREATE UNIQUE INDEX idx_email
ON users(email);
DROP INDEX idx_name;
```

Kapan Membuat Index

Kolom di WHERE Mempercepat filtering
Kolom di JOIN ON Mempercepat pencarian join
Kolom di ORDER BY Mempercepat pengurutan
Kolom high-cardinality Banyak nilai unik paling banyak untung