



QUERYING DATA FROM A TABLE

SELECT c1, c2 FROM t;

Query data in columns c1, c2 from a table

SELECT * FROM t;

Query all rows and columns from a table

**SELECT c1, c2 FROM t
WHERE condition;**

Query data and filter rows with a condition

**SELECT DISTINCT c1 FROM t
WHERE condition;**

Query distinct rows from a table

**SELECT c1, c2 FROM t
ORDER BY c1 ASC [DESC];**

Sort the result set in ascending or descending order

**SELECT c1, c2 FROM t
ORDER BY c1
LIMIT n OFFSET offset;**

Skip *offset* of rows and return the next n rows

**SELECT c1, aggregate(c2)
FROM t
GROUP BY c1;**

Group rows using an aggregate function

**SELECT c1, aggregate(c2)
FROM t
GROUP BY c1
HAVING condition;**

Filter groups using HAVING clause

QUERYING FROM MULTIPLE TABLES

**SELECT c1, c2
FROM t1
INNER JOIN t2 ON condition;**
Inner join t1 and t2

**SELECT c1, c2
FROM t1
LEFT JOIN t2 ON condition;**
Left join t1 and t2

**SELECT c1, c2
FROM t1
RIGHT JOIN t2 ON condition;**
Right join t1 and t2

**SELECT c1, c2
FROM t1
FULL OUTER JOIN t2 ON condition;**
Perform full outer join

**SELECT c1, c2
FROM t1
CROSS JOIN t2;**
Produce a Cartesian product of rows in tables

**SELECT c1, c2
FROM t1, t2;**
Another way to perform cross join

**SELECT c1, c2
FROM t1 A
INNER JOIN t2 B ON condition;**
Join t1 to itself using INNER JOIN clause

USING SQL OPERATORS

**SELECT c1, c2 FROM t1
UNION [ALL]
SELECT c1, c2 FROM t2;**
Combine rows from two queries

**SELECT c1, c2 FROM t1
INTERSECT
SELECT c1, c2 FROM t2;**
Return the intersection of two queries

**SELECT c1, c2 FROM t1
MINUS
SELECT c1, c2 FROM t2;**
Subtract a result set from another result set

**SELECT c1, c2 FROM t1
WHERE c1 [NOT] LIKE pattern;**
Query rows using pattern matching %, _

**SELECT c1, c2 FROM t
WHERE c1 [NOT] IN value_list;**
Query rows in a list

**SELECT c1, c2 FROM t
WHERE c1 BETWEEN low AND high;**
Query rows between two values

**SELECT c1, c2 FROM t
WHERE c1 IS [NOT] NULL;**
Check if values in a table is NULL or not



MANAGING TABLES

```
CREATE TABLE t (  
  id INT PRIMARY KEY,  
  name VARCHAR NOT NULL,  
  price INT DEFAULT 0  
);
```

Create a new table with three columns

```
DROP TABLE t;
```

Delete the table from the database

```
ALTER TABLE t ADD column;
```

Add a new column to the table

```
ALTER TABLE t DROP COLUMN c;
```

Drop column c from the table

```
ALTER TABLE t ADD constraint;
```

Add a constraint

```
ALTER TABLE t DROP constraint;
```

Drop a constraint

```
ALTER TABLE t1 RENAME TO t2;
```

Rename a table from t1 to t2

```
ALTER TABLE t1 RENAME c1 TO c2;
```

Rename column c1 to c2

```
TRUNCATE TABLE t;
```

Remove all data in a table

USING SQL CONSTRAINTS

```
CREATE TABLE t(  
  c1 INT, c2 INT, c3 VARCHAR,  
  PRIMARY KEY (c1,c2)  
);
```

Set c1 and c2 as a primary key

```
CREATE TABLE t1(  
  c1 INT PRIMARY KEY,  
  c2 INT,  
  FOREIGN KEY (c2) REFERENCES t2(c2)  
);
```

Set c2 column as a foreign key

```
CREATE TABLE t(  
  c1 INT, c1 INT,  
  UNIQUE(c2,c3)  
);
```

Make the values in c1 and c2 unique

```
CREATE TABLE t(  
  c1 INT, c2 INT,  
  CHECK(c1 > 0 AND c1 >= c2)  
);
```

Ensure c1 > 0 and values in c1 >= c2

```
CREATE TABLE t(  
  c1 INT PRIMARY KEY,  
  c2 VARCHAR NOT NULL  
);
```

Set values in c2 column not NULL

MODIFYING DATA

```
INSERT INTO t(column_list)  
VALUES(value_list);
```

Insert one row into a table

```
INSERT INTO t(column_list)  
VALUES (value_list),  
      (value_list), ....;
```

Insert multiple rows into a table

```
INSERT INTO t1(column_list)  
SELECT column_list  
FROM t2;
```

Insert rows from t2 into t1

```
UPDATE t  
SET c1 = new_value;
```

Update new value in the column c1 for all rows

```
UPDATE t  
SET c1 = new_value,  
    c2 = new_value  
WHERE condition;
```

Update values in the column c1, c2 that match the condition

```
DELETE FROM t;
```

Delete all data in a table

```
DELETE FROM t  
WHERE condition;
```

Delete subset of rows in a table



MANAGING VIEWS

```
CREATE VIEW v(c1,c2)
AS
SELECT c1, c2
FROM t;
```

Create a new view that consists of c1 and c2

```
CREATE VIEW v(c1,c2)
AS
SELECT c1, c2
FROM t;
WITH [CASCADED | LOCAL] CHECK OPTION;
Create a new view with check option
```

```
CREATE RECURSIVE VIEW v
AS
select-statement -- anchor part
UNION [ALL]
select-statement; -- recursive part
Create a recursive view
```

```
CREATE TEMPORARY VIEW v
AS
SELECT c1, c2
FROM t;
Create a temporary view
```

```
DROP VIEW view_name;
Delete a view
```

MANAGING INDEXES

```
CREATE INDEX idx_name
ON t(c1,c2);
Create an index on c1 and c2 of the table t
```

```
CREATE UNIQUE INDEX idx_name
ON t(c3,c4);
Create a unique index on c3, c4 of the table t
```

```
DROP INDEX idx_name;
Drop an index
```

SQL AGGREGATE FUNCTIONS

AVG returns the average of a list

COUNT returns the number of elements of a list

SUM returns the total of a list

MAX returns the maximum value in a list

MIN returns the minimum value in a list

MANAGING TRIGGERS

```
CREATE OR MODIFY TRIGGER trigger_name
WHEN EVENT
ON table_name TRIGGER_TYPE
EXECUTE stored_procedure;
Create or modify a trigger
```

WHEN

- **BEFORE** – invoke before the event occurs
- **AFTER** – invoke after the event occurs

EVENT

- **INSERT** – invoke for INSERT
- **UPDATE** – invoke for UPDATE
- **DELETE** – invoke for DELETE

TRIGGER_TYPE

- **FOR EACH ROW**
- **FOR EACH STATEMENT**

```
CREATE TRIGGER before_insert_person
BEFORE INSERT
ON person FOR EACH ROW
EXECUTE stored_procedure;
Create a trigger invoked before a new row is
inserted into the person table
```

```
DROP TRIGGER trigger_name;
Delete a specific trigger
```

VOUCHER REGISTERED

Accounting Storage System

NO	VOUCHER NO	PAYMENT TO	BANK NAME	CURRENCY	LOCATION
1	O04-2208-032	HARUM INDAH SARI TOURS AND TRAVEL, PT	BTMU	IDR	ZIP4-OFC-L01-R01-000-BT01
2	O04-2208-031	DAPUR DEDE	BTMU	IDR	ZIP4-OFC-L01-R01-000-BT01
3	O04-2208-027	SPKPBM : BC25	BTMU	IDR	ZIP4-OFC-L01-R01-000-BT01
4	O04-2208-024	SPKPBM	BTMU	IDR	ZIP4-OFC-L01-R01-000-BT01
5	O04-2208-026	SPKPBM	BTMU	IDR	ZIP1-STR-L01-R01-B01-BT01
6	O04-2208-025	SPKPBM	BTMU	IDR	ZIP1-STR-L01-R01-B01-BT01
7	O04-2208-008	SPKPBM : BC25	BTMU	IDR	ZIP1-STR-L01-R01-B01-BT01
8	O04-2208-030	BATAVIA ADVOCATORUM	BTMU	IDR	ZIP4-OFC-L01-R01-000-BT01
9	O04-2208-029	ASTRA INTERNATIONAL TBK,PT	BTMU	IDR	ZIP4-OFC-L01-R01-000-BT01
10	O04-2208-028	AON INDONESIA, PT	BTMU	IDR	ZIP4-OFC-L01-R01-000-BT01
11	I04-2208-003	MUFG USD A/C	BTMU	IDR	ZIP4-OFC-L01-R01-000-BT01
12	O04-2208-023	SPKPBM	BTMU	IDR	ZIP4-STR-L01-R01-000-BT01
13	I04-2208-002	MUFG USD A/C	BTMU	IDR	ZIP4-STR-L01-R01-000-BT01
14	O04-2208-019	SPKPBM : BC25	BTMU	IDR	ZIP4-STR-L01-R01-000-BT01
15	O04-2208-018	ANGKASA PURA PROPERTINDO, PT	BTMU	IDR	ZIP4-OFC-L01-R01-000-BT01
16	O04-2208-017	SAMUDRA ADIDAYA SENTOSA, PT	BTMU	IDR	ZIP4-OFC-L01-R01-000-BT01
17	O04-2208-016	SPKPBM : BC25	BTMU	IDR	ZIP4-OFC-L01-R01-000-BT01
18	O04-2208-015	SPKPBM : BC25	BTMU	IDR	ZIP4-OFC-L01-R01-000-BT01
19	O03-2208-003	HAI AN COUNTY ZHONGXIANG WIRE INDUSTRY CO., LTD	BTMU	USD	ZIP1-STR-L01-R01-B01-BT01
20	O04-2208-062	TOTAL DEVELOPMENT SOLUTION, PT	BTMU	IDR	ZIP1-STR-L01-R01-B01-BT01
21	O04-2208-055	SURYAMAS DUTAMAKMUR,PT/VIRTUAL HIDEKI SAITO	BTMU	IDR	ZIP1-STR-L01-R01-B01-BT01
22	O04-2208-054	SUCOFINDO LABORATORIUM ,PT	BTMU	IDR	ZIP1-STR-L01-R01-B01-BT01
23	O04-2208-020	BPJS KESEHATAN	BTMU	IDR	ZIP1-OFC-L01-R01-B01-BT01
24	I04-2208-001	MUFG EUR A/C	BTMU	IDR	ZIP1-STR-L01-R01-B01-BT01
25	O04-2208-002	SPKPBM	BTMU	IDR	ZIP1-STR-L01-R01-B01-BT01
26	O04-2208-001	SPKPBM	BTMU	IDR	ZIP1-STR-L01-R01-B01-BT01
27	O04-2208-014	VERENA MULTI FINANCE, PT	BTMU	IDR	ZIP1-OFC-L01-R01-B01-BT01
28	O04-2208-013	VERENA MULTI FINANCE, PT	BTMU	IDR	ZIP1-OFC-L01-R01-B01-BT01
29	O04-2208-006	BERJAYA MAHANUGRAH ABADI, PT	BTMU	IDR	ZIP1-STR-L01-R01-B01-BT01
30	O04-2208-012	SPKPBM : BC25	BTMU	IDR	ZIP1-OFC-L01-R01-B01-BT01
31	O04-2208-011	SPKPBM : BC25	BTMU	IDR	ZIP1-OFC-L01-R01-B01-BT01
32	O04-2208-010	SPKPBM : BC25	BTMU	IDR	ZIP1-OFC-L01-R01-B01-BT01
33	O04-2208-009	SPKPBM : BC25	BTMU	IDR	ZIP1-OFC-L01-R01-B01-BT01

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