

INTRODUCTION TO SQL FUNDAMENTAL

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Workshop Agenda

- Why use SQL?
- Intro to Database
- Intro to SQL
- Table creation and Data ingestion
- Basic Query
- Advance Query
- Export data from SQL Database

Kenapa perlu SQL Database ?

Kenapa tidak pakai Excel atau csv saja ?

01

EFISIEN DALAM
PENYIMPANAN

02

PERFORMANCE
SANGAT CEPAT

03

KONEKTIFITAS DENGAN
DASHBOARD DAN APPS

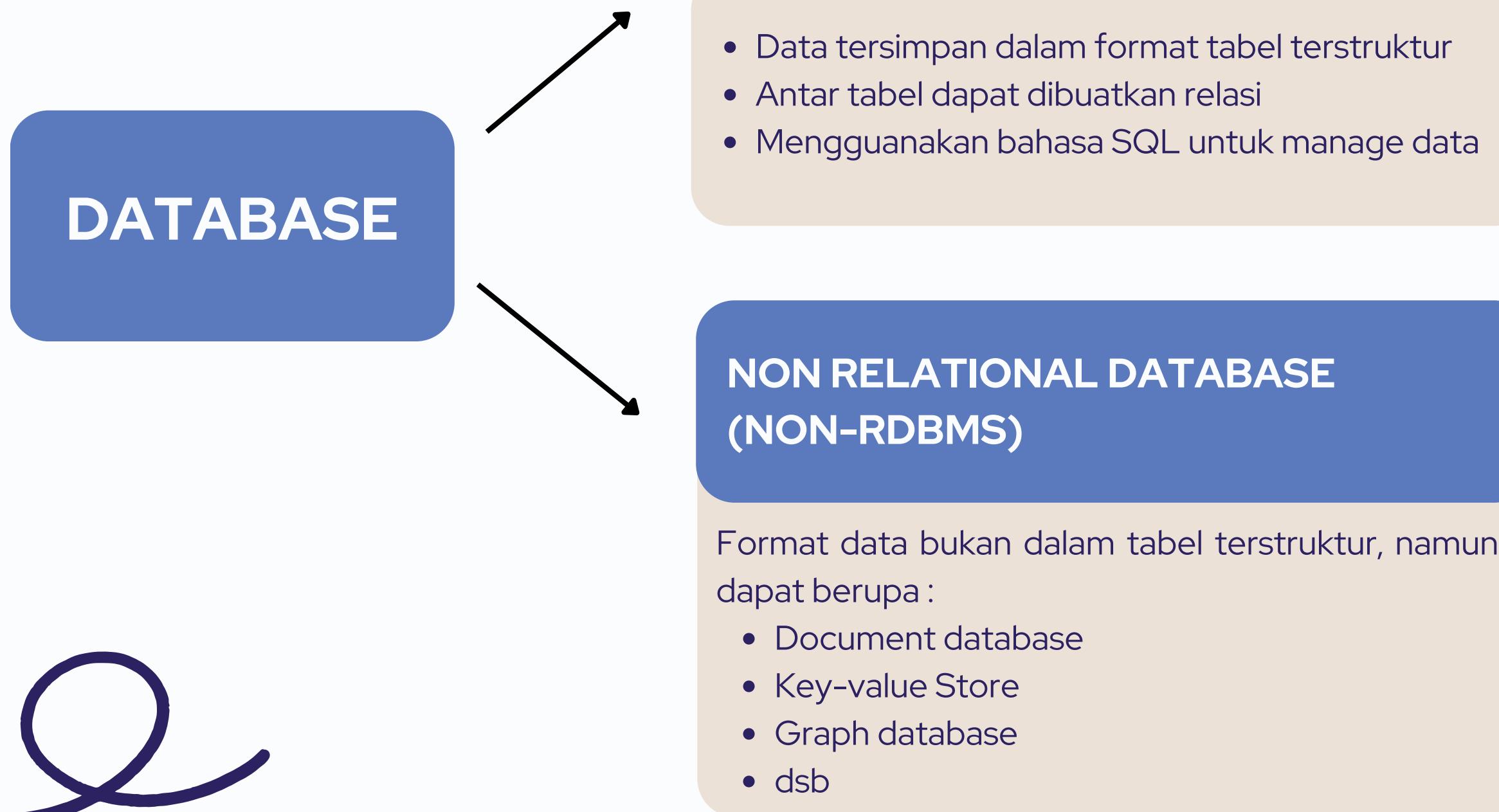
SUDAH MENJADI STANDAR
ISO UNTUK PENYIMPANAN
DATA SEJAK 1986



MENGAKSES BIG DATA
WAJIB MENGERTI SQL

INTRODUCTION TO DATABASE

Jenis - Jenis Database



ORACLE®



MySQL™ Microsoft® **SQL Server®**



neo4j



redis



HYPERTABLE INC



INTRODUCTION TO DATABASE

Tools yang perlu di-install



Sebagai database
(untuk menyimpan data nya)

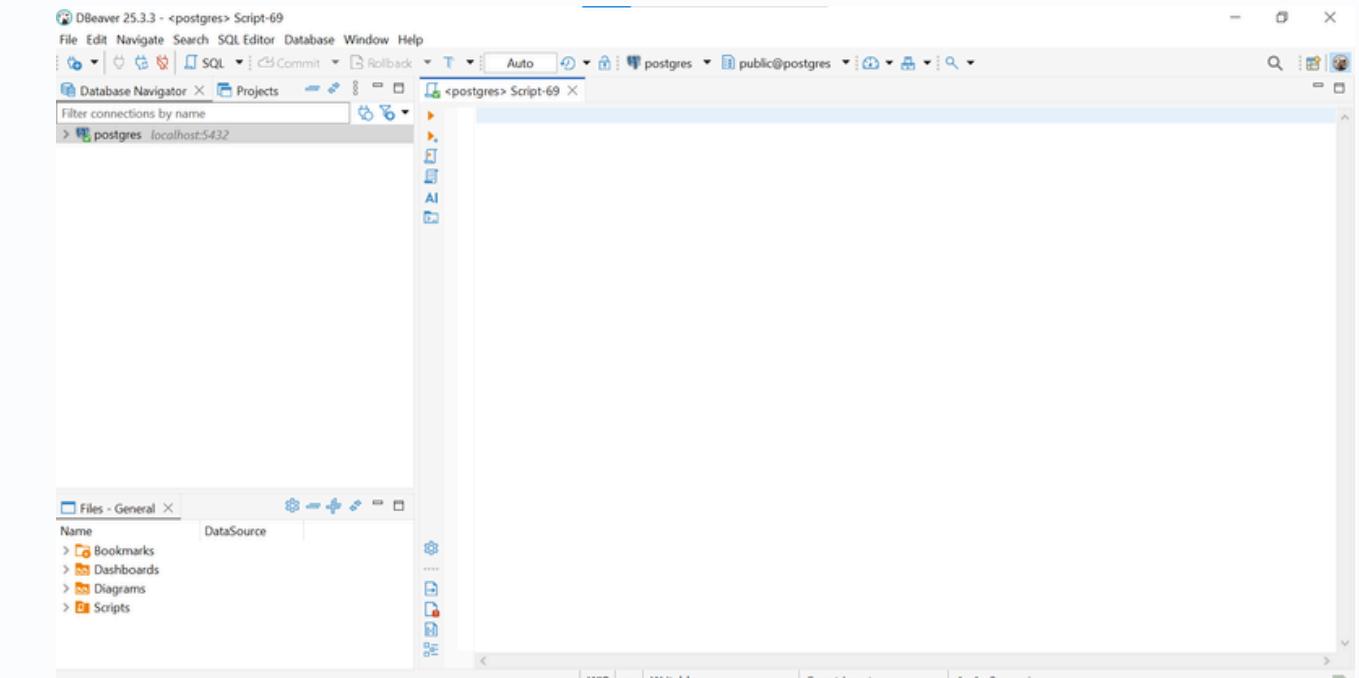


Sebagai database management tool
(untuk mempermudah manage data dengan
tampilan UI yang interaktif)

Ciri PostgreSQL database sudah ter-install di komputer

| Name | Status | 18% | 80% | 2% | 0% |
|---|--------|--------|--------|--------|---------|
| | | CPU | Memory | Disk | Network |
| > pg_ctl - starts/stops/restarts the... | 0% CPU | 0,0 MB | 0 MB/s | 0 Mbps | 0 Mbps |
| PostgreSQL Server | 0% CPU | 0,2 MB | 0 MB/s | 0 Mbps | 0 Mbps |
| PostgreSQL Server | 0% CPU | 0,1 MB | 0 MB/s | 0 Mbps | 0 Mbps |
| PostgreSQL Server | 0% CPU | 0,1 MB | 0 MB/s | 0 Mbps | 0 Mbps |
| PostgreSQL Server | 0% CPU | 0,1 MB | 0 MB/s | 0 Mbps | 0 Mbps |

Tampilan DBeaver sudah ter-install di komputer



INTRODUCTION TO DATABASE

Database Structure and Terminologies

TERMINOLOGI

TABEL: Sekumpulan data yang memiliki baris dan kolom

ROW / RECORD :

Satu baris dalam tabel yang merepresentasikan satu record data

COLUMN / FIELD :

Informasi spesifik yang dimiliki masing-masing record

SCHEMA

Wadah pada database untuk mengelompokkan tabel.
Satu schema dapat memiliki beberapa tabel

DATABASE

Software untuk penyimpanan data secara terstruktur
Satu database dapat memiliki beberapa schema

DATABASE SERVER :

Komputer atau machine tempat database beroperasi,
contoh : localhost, server internal, dsb

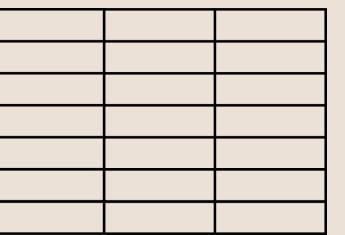
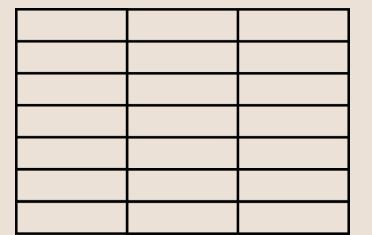
STRUKTUR DATABASE

SERVER

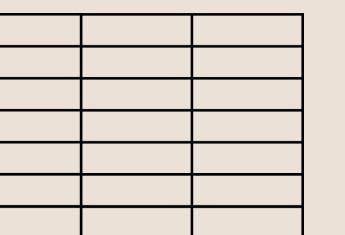
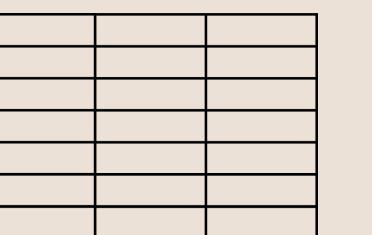


DATABASE

SCHEMA



SCHEMA



DATABASE

SCHEMA

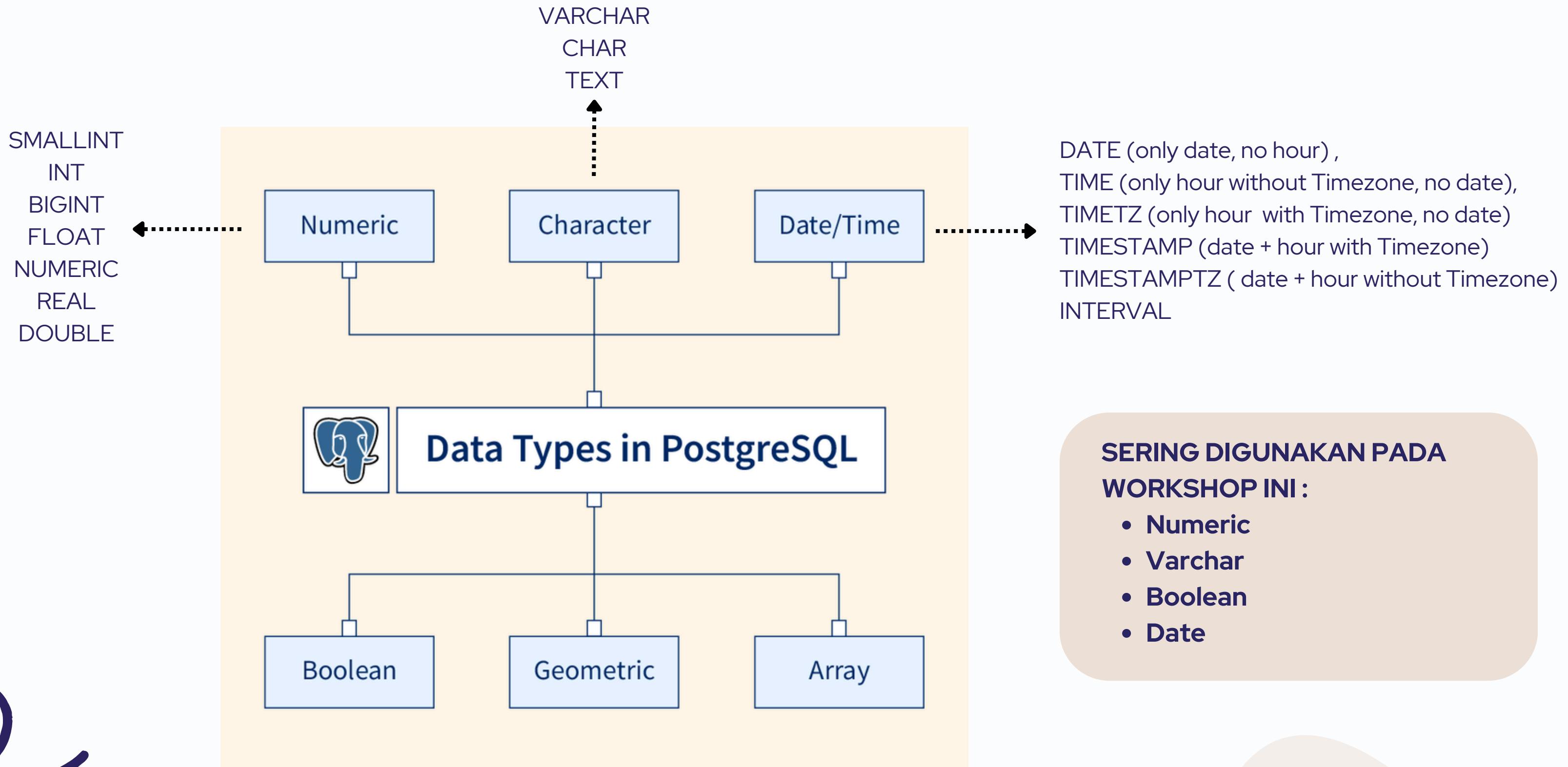
SCHEMA

SCHEMA



INTRODUCTION TO SQL

Tipe Data pada PostgreSQL



INTRODUCTION TO SQL

Tipe - tipe command SQL

**DATA DEFINITION
LANGUAGE (DDL)**

**CREATE
ALTER
DROP
TRUNCATE**

**DATA MANIPULATION
LANGUAGE (DML)**

**SELECT
INSERT
UPDATE
DELETE**

**DATA CONTROL
LANGUAGE (DCL)**

**GRANT
REVOKE**



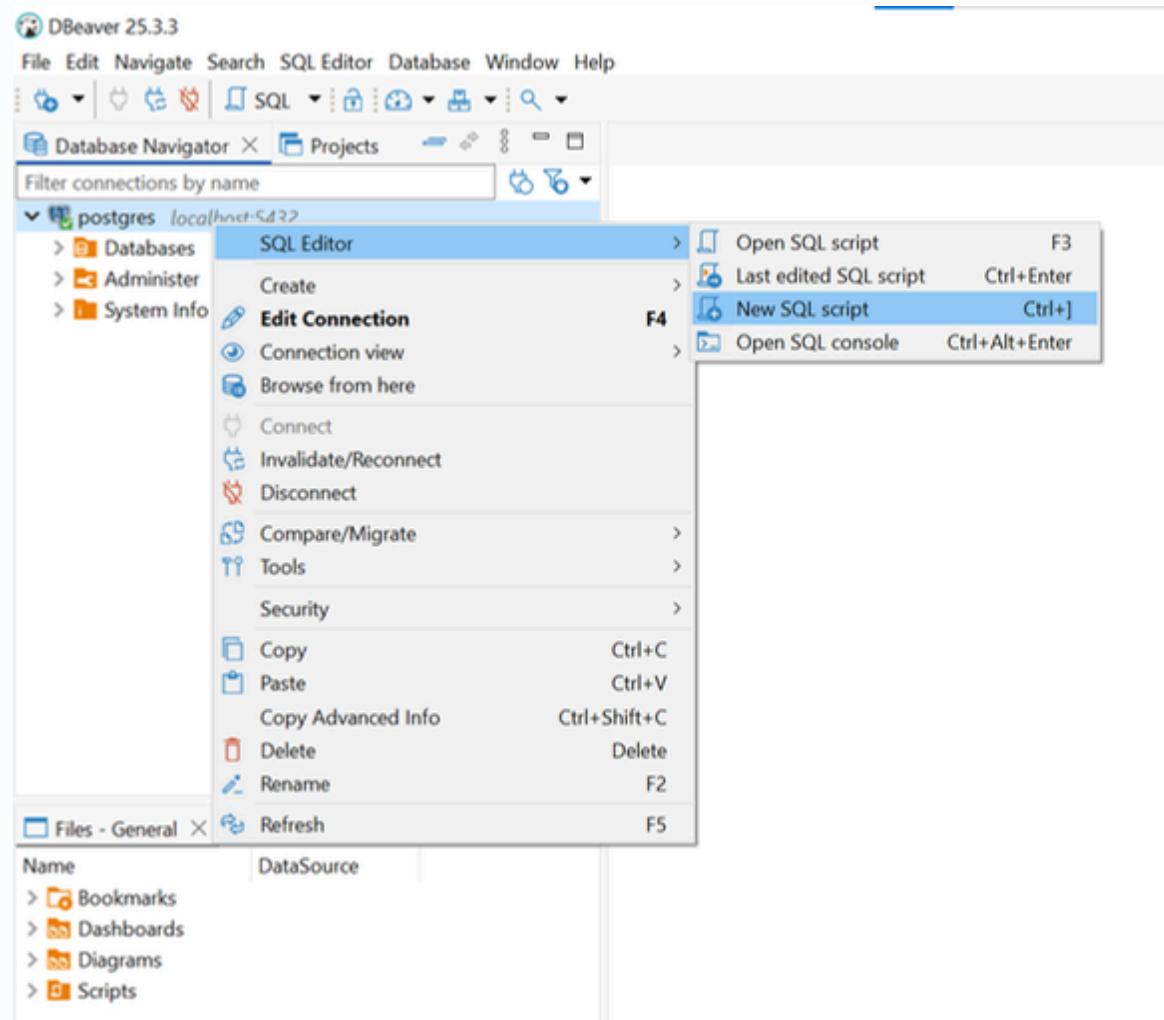
HANDS - ON

TABLE CREATION

HANDS-ON

TABLE CREATION

STEP 1



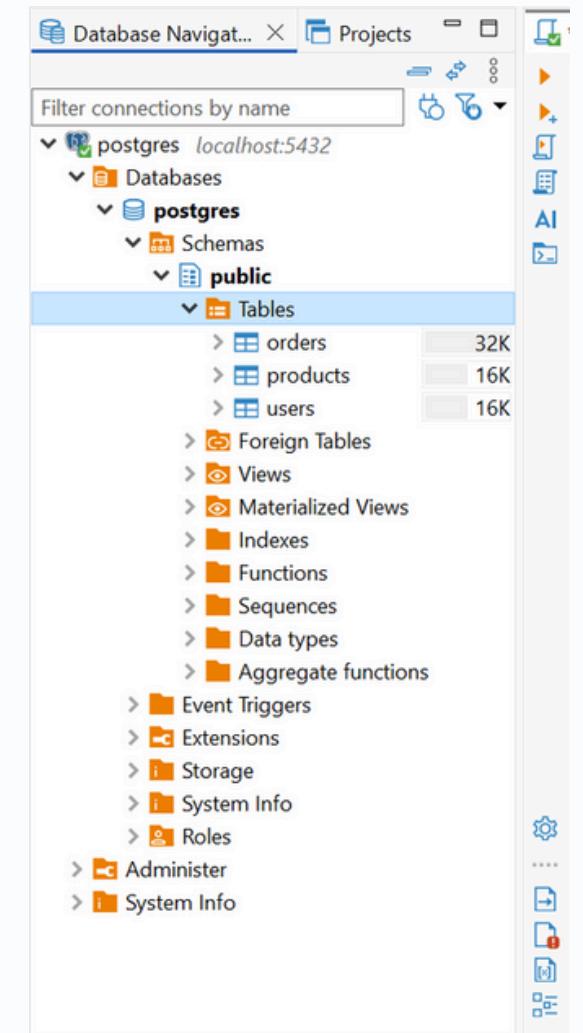
STEP 2

```
*<postgres> Script-69 >
CREATE table IF NOT EXISTS orders (
    order_id numeric primary KEY,
    user_id numeric,
    product_id numeric,
    order_amount numeric,
    payment_method varchar,
    status varchar,
    order_date DATE
);

CREATE table IF NOT EXISTS products (
    product_id numeric,
    product_name varchar,
    category varchar,
    price numeric
);

CREATE table IF NOT EXISTS users (
    user_id numeric,
    name varchar,
    email varchar,
    city varchar,
    signup_date DATE
);
```

RESULT



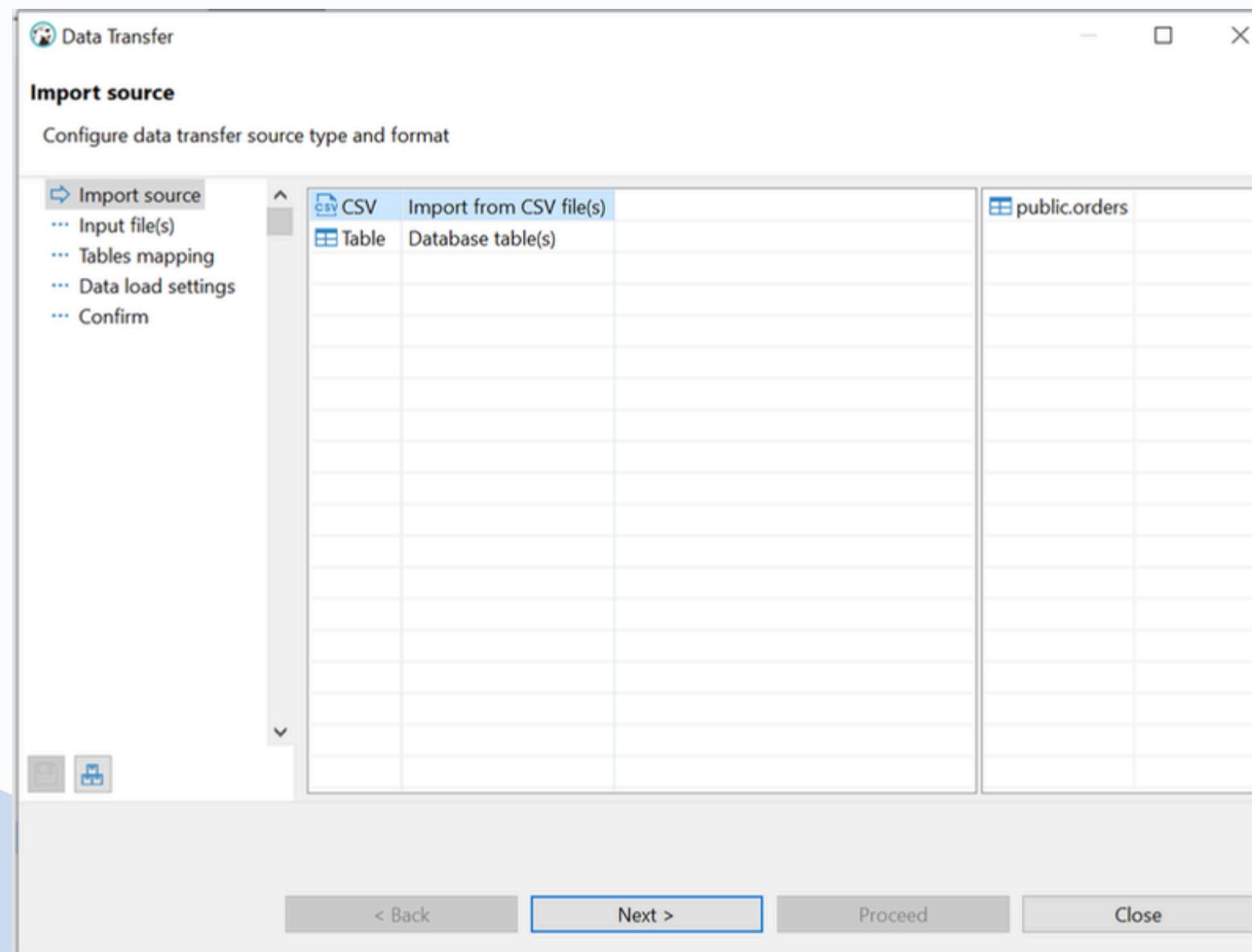
HANDS - ON

DATA INGESTION

HANDS-ON

DATA INGESTION

OPSI 1 - Dengan Tools Import Data



OPSI 2 - Dengan Insert Statement

The screenshot shows a PostgreSQL client interface with three tabs: 'orders', 'products', and 'users'. The 'products' tab is active, displaying an 'INSERT INTO public.products' query with 14 data points. The 'orders' tab shows a table with several rows of order data. The 'users' tab is also visible. The top bar shows the connection name ' Script-69' and the current table 'products'.

```
INSERT INTO public.products (product_id, product_name, category, price)
VALUES (0, 'Short Pants', 'Fashion', 56.44),
       (1, 'Sofa', 'Home', 479.23),
       (2, 'Lamp', 'Home', 170.79),
       (3, 'Sweater', 'Fashion', 380.92),
       (4, 'Headphone', 'Electronics', 268.84),
       (5, 'Television', 'Electronics', 454.37),
       (6, 'Jacket', 'Fashion', 490.42),
       (7, 'Handphone', 'Electronics', 144.61),
       (8, 'Wardrobe', 'Home', 483.99),
       (9, 'Dispenser', 'Home', 376.28),
       (10, 'Camera', 'Electronics', 386.91),
       (11, 'Shirt', 'Fashion', 178.63),
       (12, 'Laptop', 'Electronics', 381.82),
       (13, 'Air Conditioner', 'Electronics', 281.37),
       (14, 'Shoes', 'Fashion', 199.25);
```

HANDS - ON

BASIC QUERY

SELECT

FILTERING

AGGREGATION

BASIC QUERY

SELECT STATEMENT



- 01 **SELECT ALL COLUMN AND ALL ROWS**
`select * from users;`
- 02 **SELECT CERTAIN COLUMN**
`select user_id, name, city from users;`
- 03 **LIMITTING ROWS**
`select user_id, name, city from users
limit 5;`
- 04 **SELECT UNIQUE RECORD**
`select distinct(city)
from users;`

SQL BASIC

WHERE FILTERING



01

WHERE pada kolom string

- Dapat menggunakan Operator =, !=, dan <>
- Nilai yang dijadikan filter ditaruh dalam tanda petik, contoh :
`where category = 'Fashion';`

02

WHERE pada kolom numeric

- Dapat menggunakan Operator >, >=, <, <=, =, !=, dan <>
- Nilai yang dijadikan filter tidak perlu tanda petik, contoh :
`where price > 100;`

SQL BASIC

AGGREGATION



01

COUNT, SUM, AVG, MAX, MIN

02

GROUP BY : Mengelompokkan hasil agregasi ke beberapa kelompok kategori

03

HAVING : Filtering hasil group by

HANDS - ON

ADVANCE QUERY

JOIN

SUBQUERY

CTE

HANDS - ON

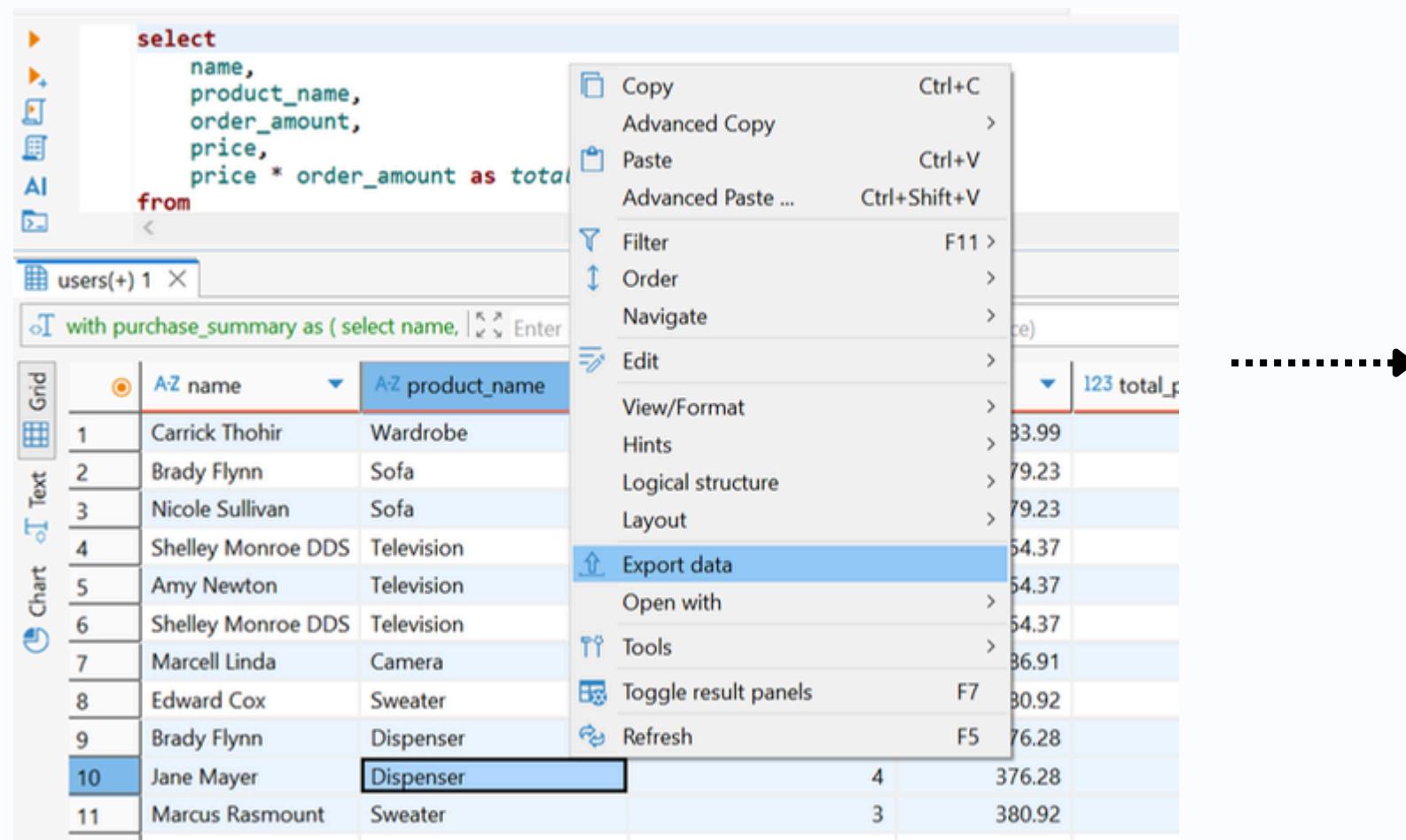
EXPORT DATA FROM SQL

HANDS-ON

EXPORT DATA FROM SQL

STEP 1

Klik kanan pada tabel hasil query, pilih Export Data



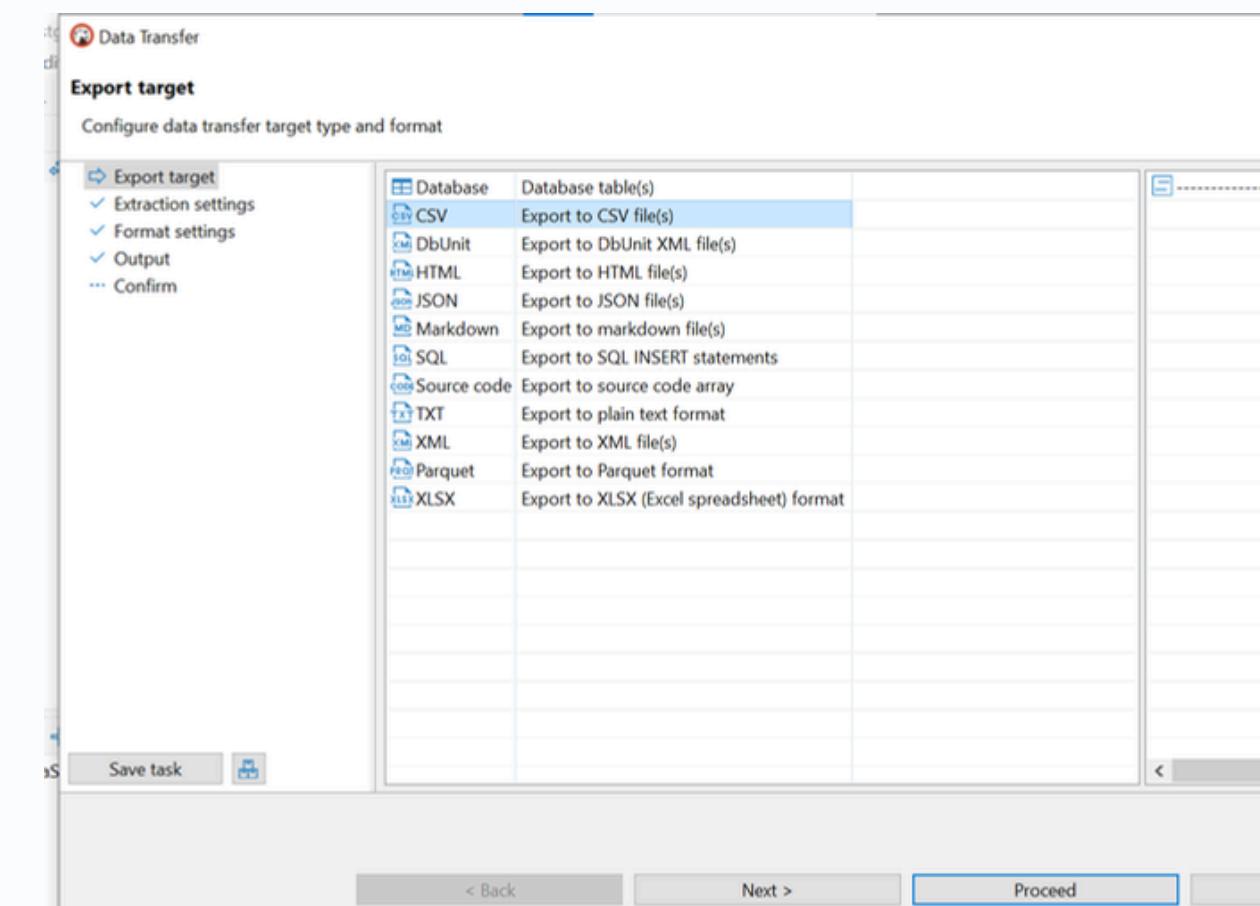
A screenshot of a SQL query results grid. The query is:

```
select
    name,
    product_name,
    order_amount,
    price,
    price * order_amount as total
from
    users(+)
with purchase_summary as ( select name, product_name, order_amount, price from users )
```

The results show a table with columns: name, product_name, and total. The total column has a formula: `price * order_amount`. A context menu is open over the last row, with the 'Export data' option highlighted.

STEP 2

Pilih format data yang diinginkan, klik Next sampai selesai



A screenshot of the 'Data Transfer' interface. The 'Export target' configuration screen is shown. Under the 'Export target' section, the 'CSV' option is selected. The right panel lists various export formats: Database, CSV, DbUnit, HTML, JSON, Markdown, SQL, Source code, TXT, XML, Parquet, and XLSX. A dashed arrow points from the 'Export data' option in the context menu of the first screenshot to this screen.



THANK YOU