

Week 03

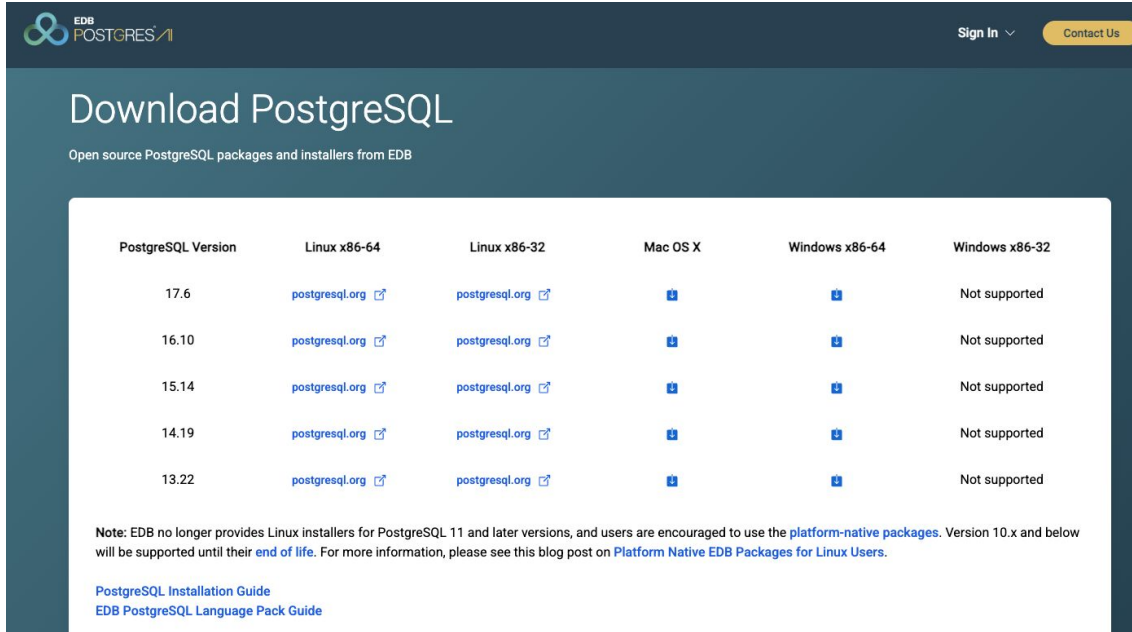
Eksplorasi Database

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Sistem Informasi, Institut Teknologi Kalimantan

25/08/2025

Instalasi



EDB PostgreSQL

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Open source PostgreSQL packages and installers from EDB

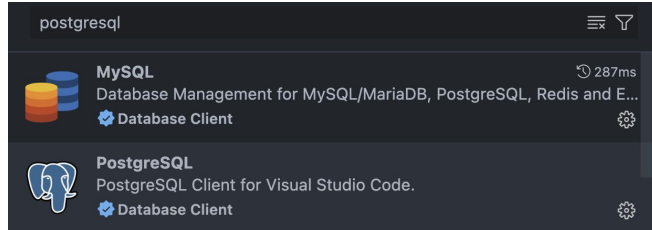
PostgreSQL Version	Linux x86-64	Linux x86-32	Mac OS X	Windows x86-64	Windows x86-32
17.6	postgresql.org	postgresql.org			Not supported
16.10	postgresql.org	postgresql.org			Not supported
15.14	postgresql.org	postgresql.org			Not supported
14.19	postgresql.org	postgresql.org			Not supported
13.22	postgresql.org	postgresql.org			Not supported

Note: EDB no longer provides Linux installers for PostgreSQL 11 and later versions, and users are encouraged to use the [platform-native packages](#). Version 10.x and below will be supported until their [end of life](#). For more information, please see this blog post on [Platform Native EDB Packages for Linux Users](#).

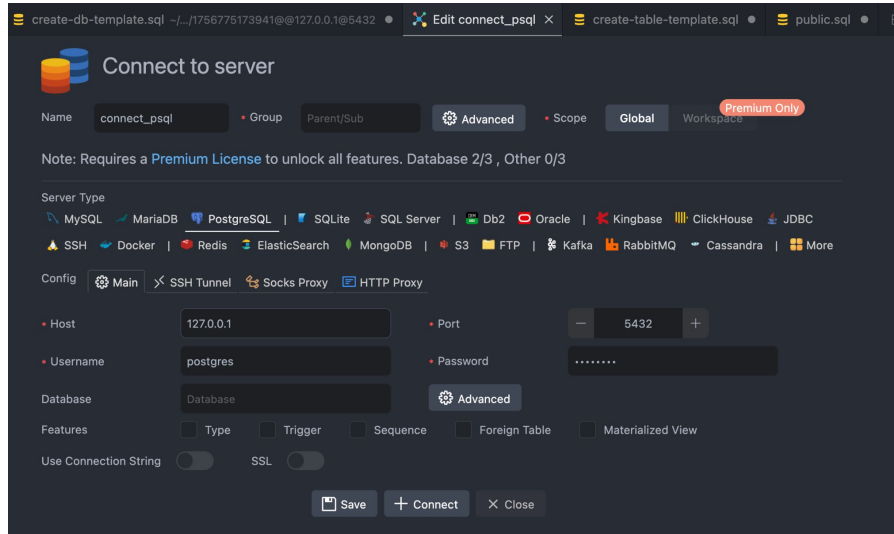
[PostgreSQL Installation Guide](#)
[EDB PostgreSQL Language Pack Guide](#)

<https://www.enterprisedb.com/downloads/postgres-postgresql-downloads>

Instalasi Database Client



Host : Localhost / 127.0.0.1
Username : postgres (default)
Port : 5432 (default)



Penggunaan Database Client

```

create-db-template.sql ~/.../1756775173941@127.0.0.1@5432 • Edit connect_psql create-table-template
Users > arifwicaksonoseptyanto > .dbclient > storage > 1756775173941@127.0.0.1@5432@penjualan_db@public > c
1 -- Buat tabel customers di PostgreSQL
  >Run | >Reset | >Select
2 CREATE TABLE IF NOT EXISTS customers (
3     customer_id SERIAL PRIMARY KEY,
4     name VARCHAR(100) NOT NULL,
5     email VARCHAR(100) UNIQUE NOT NULL,
6     phone VARCHAR(15),
7     address TEXT,
8     birthdate DATE -- Tanggal lahir pelanggan
9 );
10
11 >Run | >Reset | >Select
12 CREATE TABLE IF NOT EXISTS products (
13     product_id SERIAL PRIMARY KEY,
14     name VARCHAR(100) NOT NULL,
15     description TEXT,
16     price DECIMAL(10, 2) NOT NULL,
17     stock INT NOT NULL
18 );
19 >Run | >Reset | >Select
20 CREATE TABLE IF NOT EXISTS orders (
21     order_id SERIAL PRIMARY KEY,
22     customer_id INT NOT NULL,
23     order_date TIMESTAMP DEFAULT CURRENT_TIMESTAMP,
24     total_amount DECIMAL(10, 2) NOT NULL,
25     FOREIGN KEY (customer_id) REFERENCES customers(customer_id)
26     ON DELETE CASCADE
27 );
  
```

create-db-template.sql ~/.../1756775173941@127.0.0.1@5432 • Edit connect_psql create-table-template.sql customers x pul

Properties DATA Log ER Monitor

SELECT * FROM customers LIMIT 100

	customer_id integer	name varchar(100)	email varchar(100)	phone varchar(15)	address text	birthdate date
1		Andi Pratama	andi.pratama@email.com	081234567890	Jl. Merdeka No. 10, Jakarta	1990-05-15
2		Budi Santoso	budi.santoso@email.com	081234567891	Jl. Sudirman No. 25, Bandung	1985-08-22
3		Citra Dewi	citra.dewi@email.com	081234567892	Jl. Diponegoro No. 33, Suraba	1992-11-30
4		Dewi Lestari	dewi.lestari@email.com	081234567893	Jl. Gatot Subroto No. 45, Yogy	1988-03-10
5		Eko Wijaya	eko.wijaya@email.com	081234567894	Jl. Ahmad Yani No. 18, Medan	1995-07-25

Keunggulan penggunaan Database client :

1. Lebih ringan dibanding pgAdmin4
2. Lebih mudah memonitoring data.
3. Di Dalam environment VS Code

ERD Refresher

Notasi Arti



• ENTITY



• WEAK ENTITY



• RELATIONSHIP



• IDENTIFYING
RELATIONSHIP



• ATRIBUT
DERIVATIF

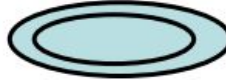
Notasi Arti



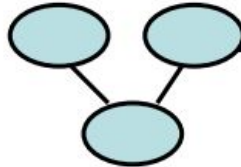
• ATRIBUT



• ATRIBUT
PRIMARY KEY

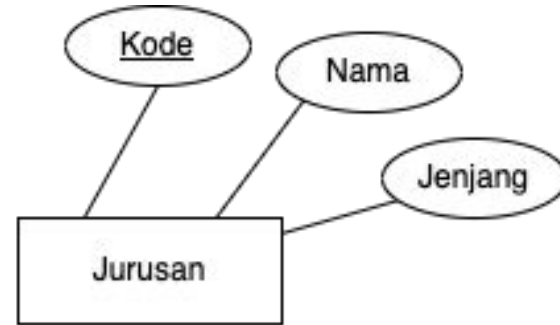
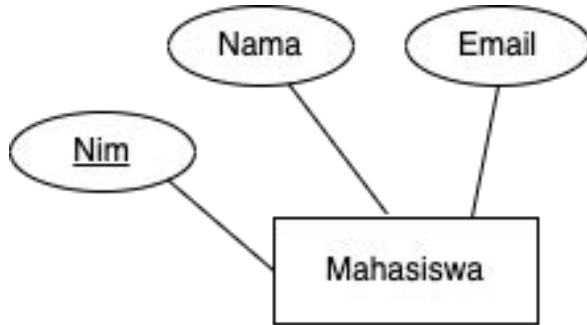


• ATRIBUT MULTI
VALUE

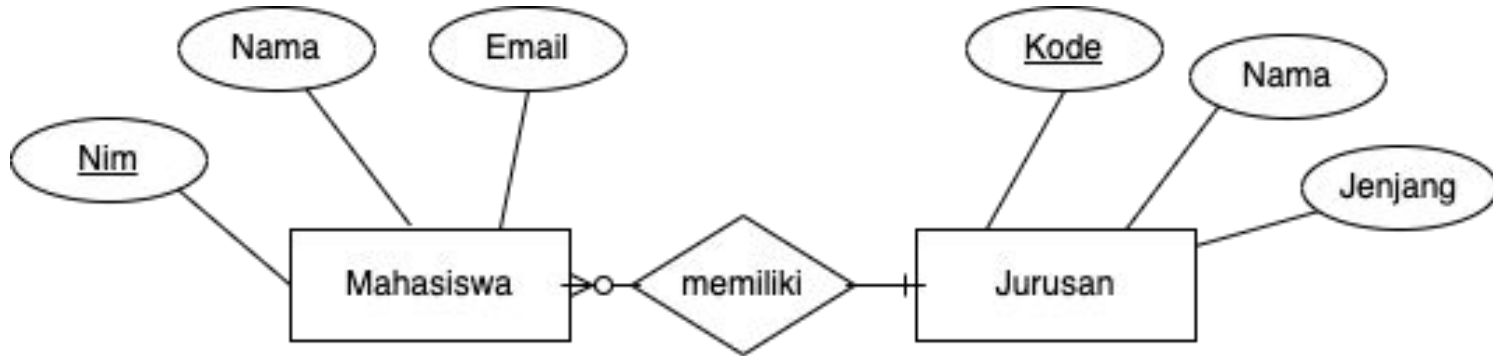


• ATRIBUT
COMPOSITE

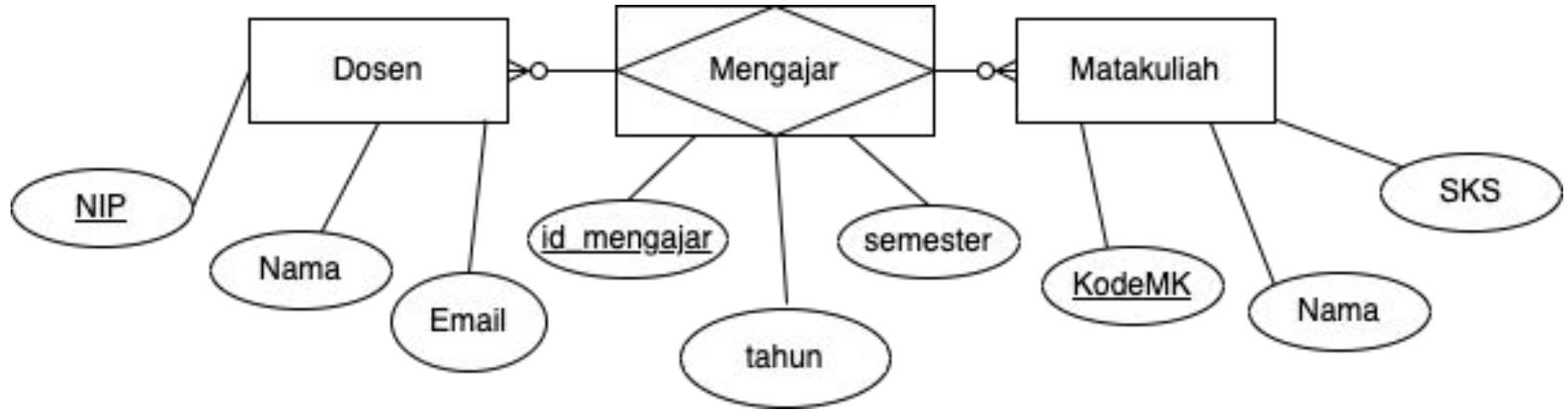
Simbol ERD (Entity Relationship Diagram)



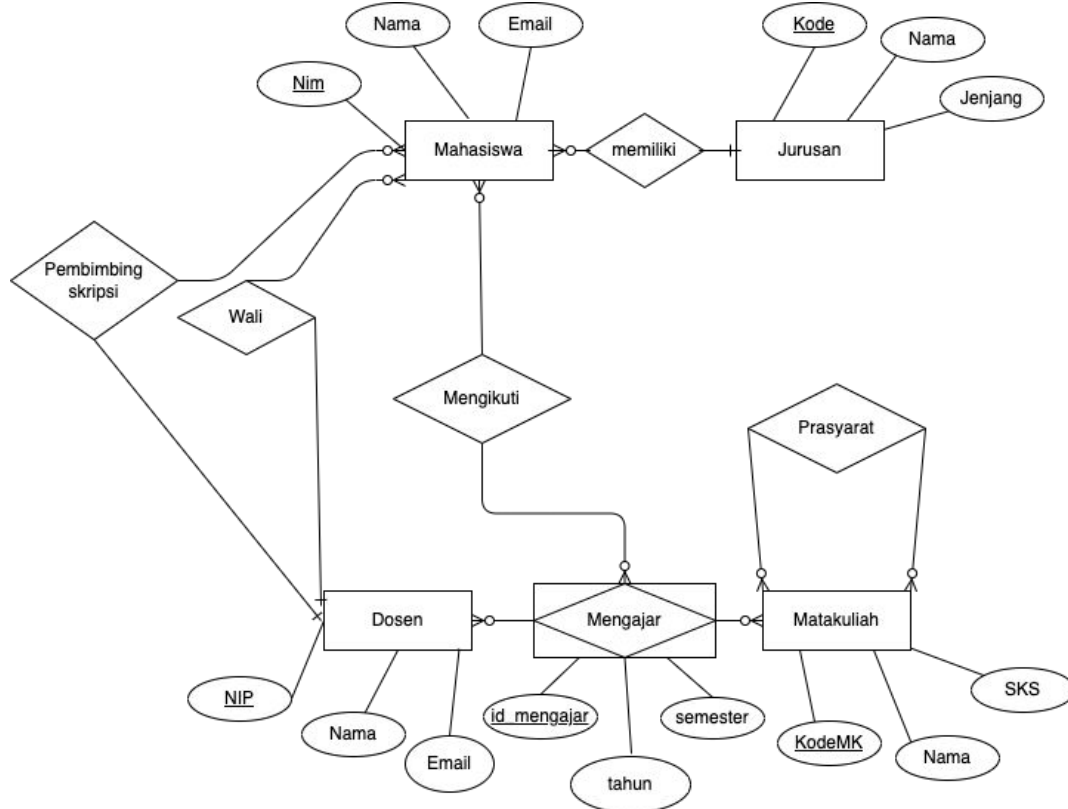
Simbol ERD (Entity Relationship Diagram)



Simbol ERD (Entity Relationship Diagram)



Simbol ERD (Entity Relationship Diagram)



PostgreSQL CLI VS GUI

```
> psql --host=localhost --port=5432 --dbname= --username=postgres --password
Password:
psql (17.6)
Type "help" for help.

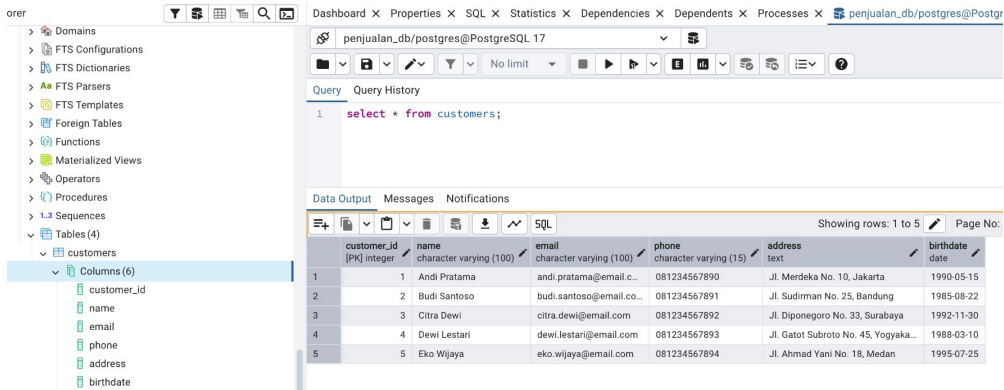
postgres=# exit;
> psql --host=localhost --port=5432 --dbname=penjualan_db --username=postgres --password
Password:
psql (17.6)
Type "help" for help.

penjualan_db=# select * from customers;
 customer_id |      name      |      email      |      phone      |      address      |      birthdate
-----+-----+-----+-----+-----+-----
1 | Andi Pratama | andi.pratama@email.com | 081234567890 | Jl. Merdeka No. 10, Jakarta | 1990-05-15
2 | Budi Santoso | budi.santoso@email.com | 081234567891 | Jl. Sudirman No. 25, Bandung | 1985-08-22
3 | Citra Dewi | citra.dewi@email.com | 081234567892 | Jl. Diponegoro No. 33, Surabaya | 1992-11-30
4 | Dewi Lestari | dewi.lestari@email.com | 081234567893 | Jl. Gatot Subroto No. 45, Yogyakarta | 1988-03-10
5 | Eko Wijaya | eko.wijaya@email.com | 081234567894 | Jl. Ahmad Yani No. 18, Medan | 1995-07-25
(5 rows)

penjualan_db=# SELECT version();
              version
-----
PostgreSQL 17.6 on x86_64-apple-darwin23.6.0, compiled by Apple clang version 16.0.0 (clang-1600.0.26.6), 64-bit
(1 row)
```

PostgreSQL CLI VS GUI

pgAdmin 4



penjualan_db/postgres@PostgreSQL 17

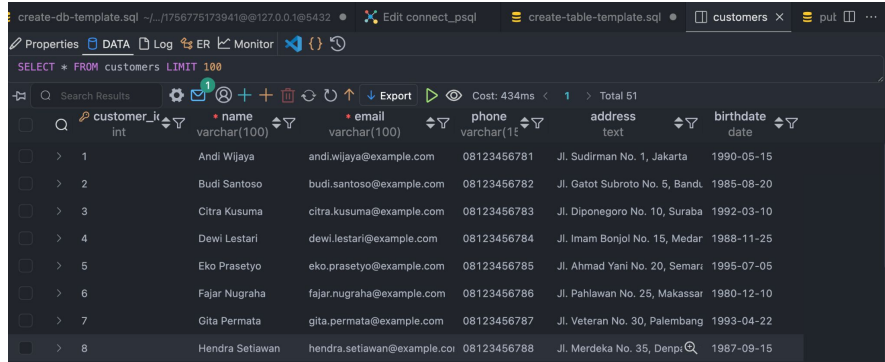
Query

```
1 select * from customers;
```

Data Output

customer_id	name	email	phone	address	birthdate
1	Andi Pratama	andi.pratama@email.co...	081234567890	Jl. Merdeka No. 10, Jakarta	1990-05-15
2	Budi Santoso	budi.santoso@email.co...	081234567891	Jl. Sudirman No. 25, Bandung	1985-08-22
3	Citra Dewi	citra.dewi@email.com	081234567892	Jl. Diponegoro No. 33, Surabaya	1992-11-30
4	Dewi Lestari	dewi.lestari@email.com	081234567893	Jl. Gatot Subroto No. 45, Yogyakarta...	1988-03-10
5	Eko Wijaya	eko.wijaya@email.com	081234567894	Jl. Ahmad Yani No. 18, Medan	1995-07-25

Database Client



SELECT * FROM customers LIMIT 100

customer_id	name	email	phone	address	birthdate
1	Andi Wijaya	andi.wijaya@example.com	08123456781	Jl. Sudirman No. 1, Jakarta	1990-05-15
2	Budi Santoso	budi.santoso@example.com	08123456782	Jl. Gatot Subroto No. 5, Band.	1985-08-20
3	Citra Kusuma	citra.kusuma@example.com	08123456783	Jl. Diponegoro No. 10, Surabaya	1992-03-10
4	Dewi Lestari	dewi.lestari@example.com	08123456784	Jl. Imam Bonjol No. 15, Medan	1988-11-25
5	Eko Prasetyo	eko.prasetyo@example.com	08123456785	Jl. Ahmad Yani No. 20, Semarang	1995-07-05
6	Fajar Nugraha	fajar.nugraha@example.com	08123456786	Jl. Pahlawan No. 25, Makassar	1980-12-10
7	Gita Permata	gita.permata@example.com	08123456787	Jl. Veteran No. 30, Palembang	1993-04-22
8	Hendra Setiawan	hendra.setiawan@example.com	08123456788	Jl. Merdeka No. 35, Denpasar	1987-09-15

Apa Itu Tipe Data dalam Database

Tipe data adalah jenis nilai yang bisa disimpan dalam sebuah kolom di tabel database.

Bayangkan kamu membuat formulir:

- Kolom "Nama" → harus berisi teks (misal: "Andi")
- Kolom "Usia" → harus berisi angka (misal: 25)
- Kolom "Tanggal Lahir" → harus berisi tanggal (misal: 1999-05-15)

THANKS!

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