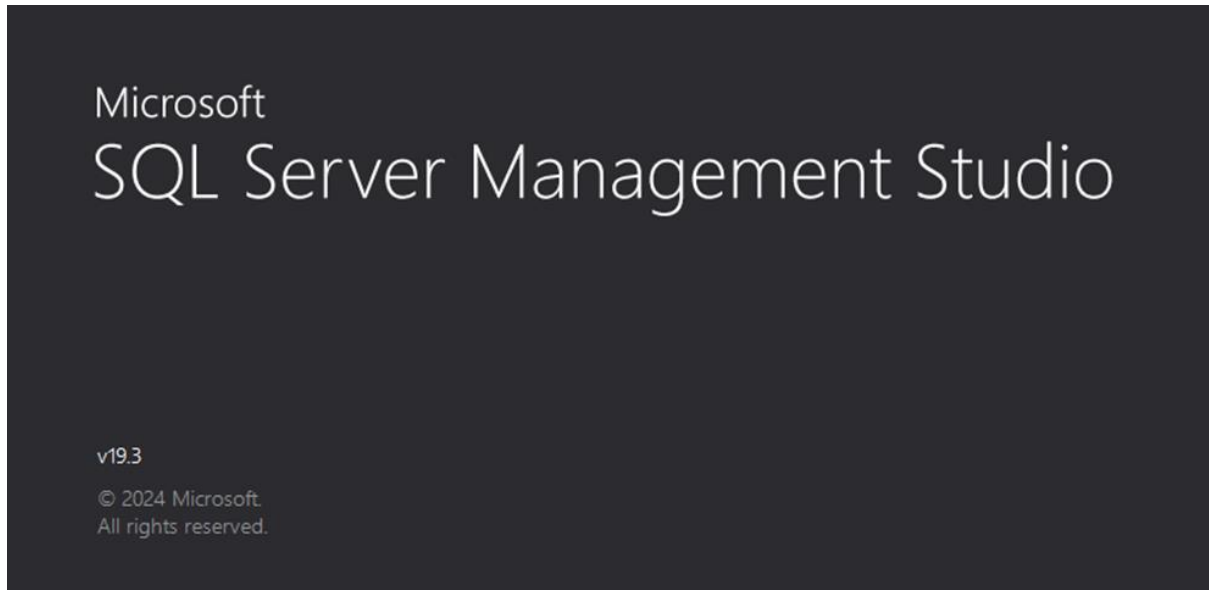
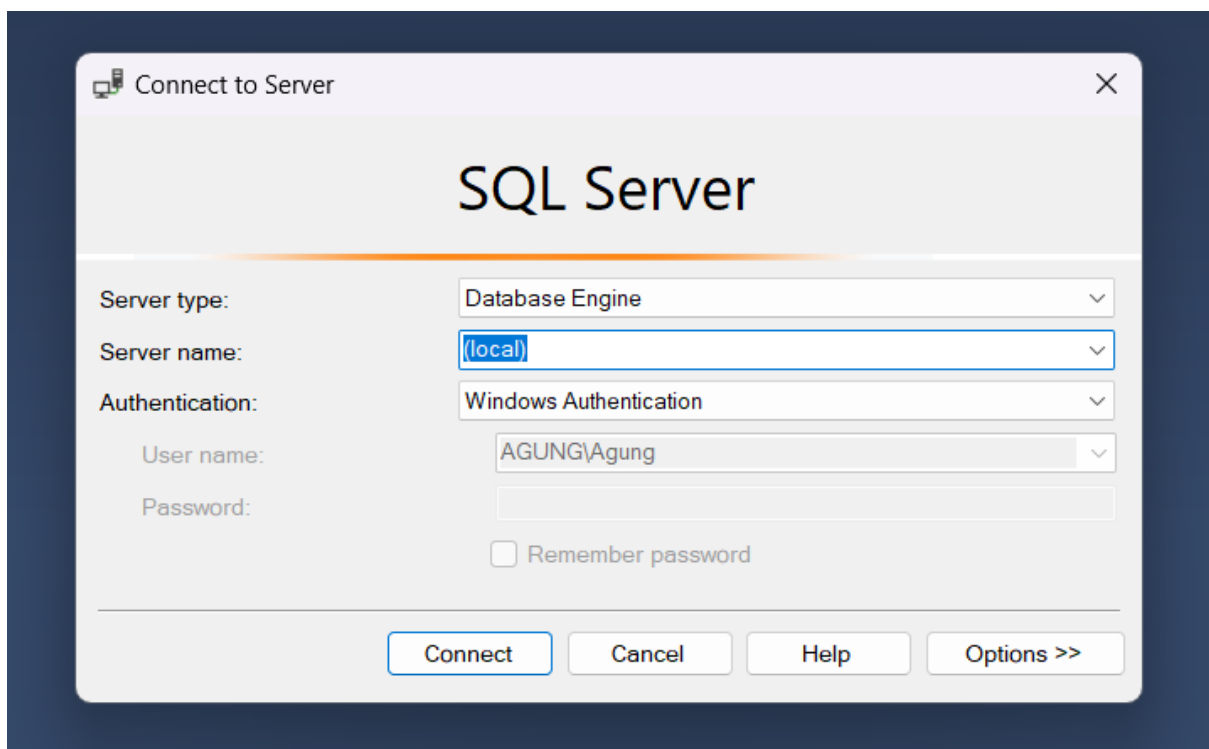


Dokumentasi Tugas Besar Pergudangan Data

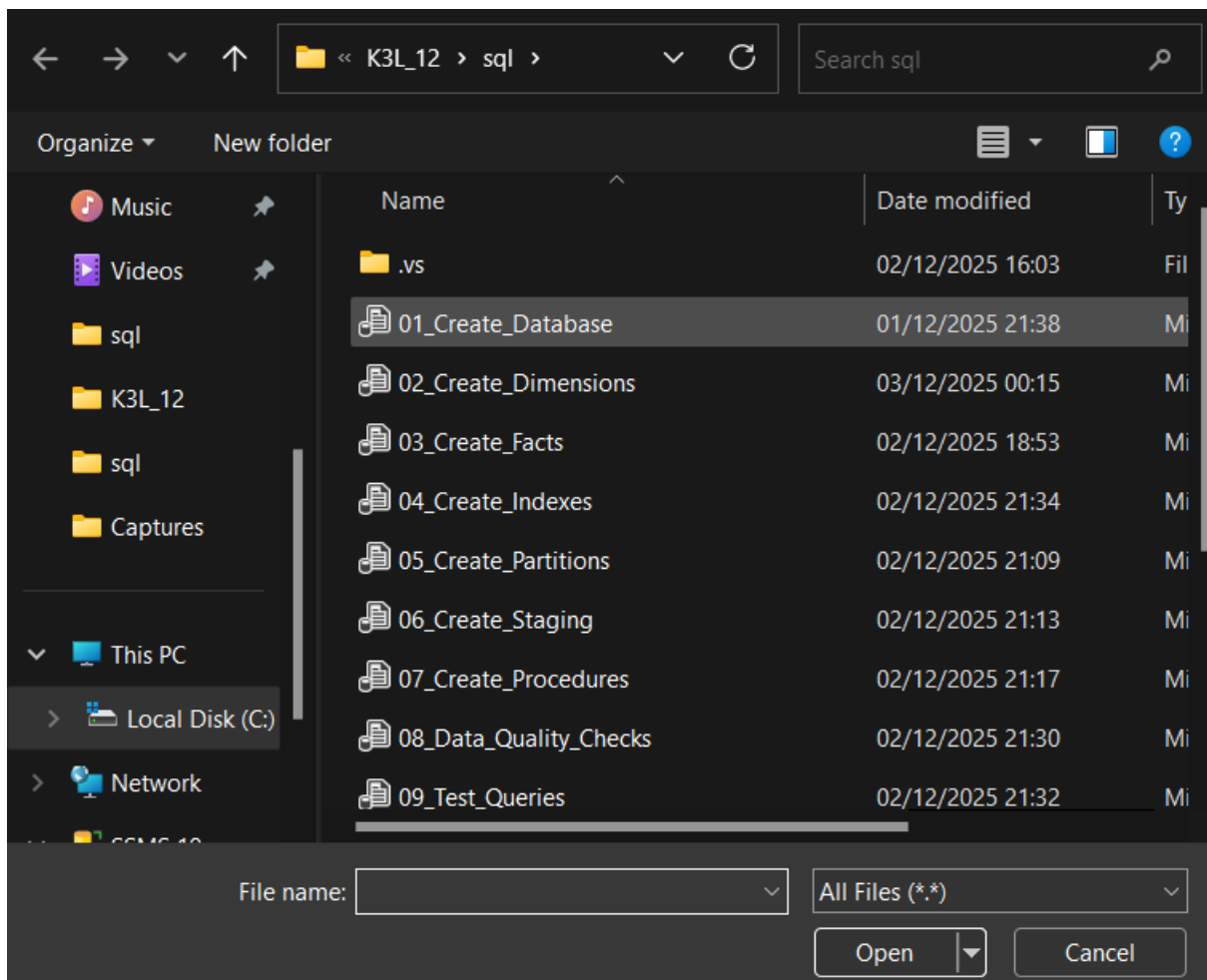
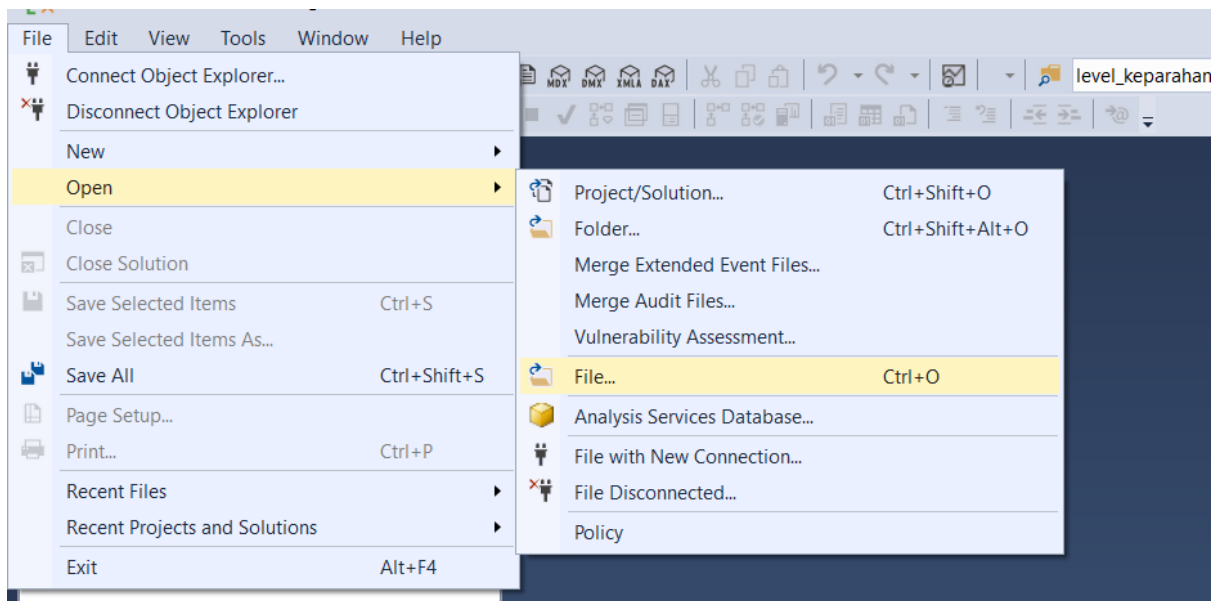
Menggunakan SSMS



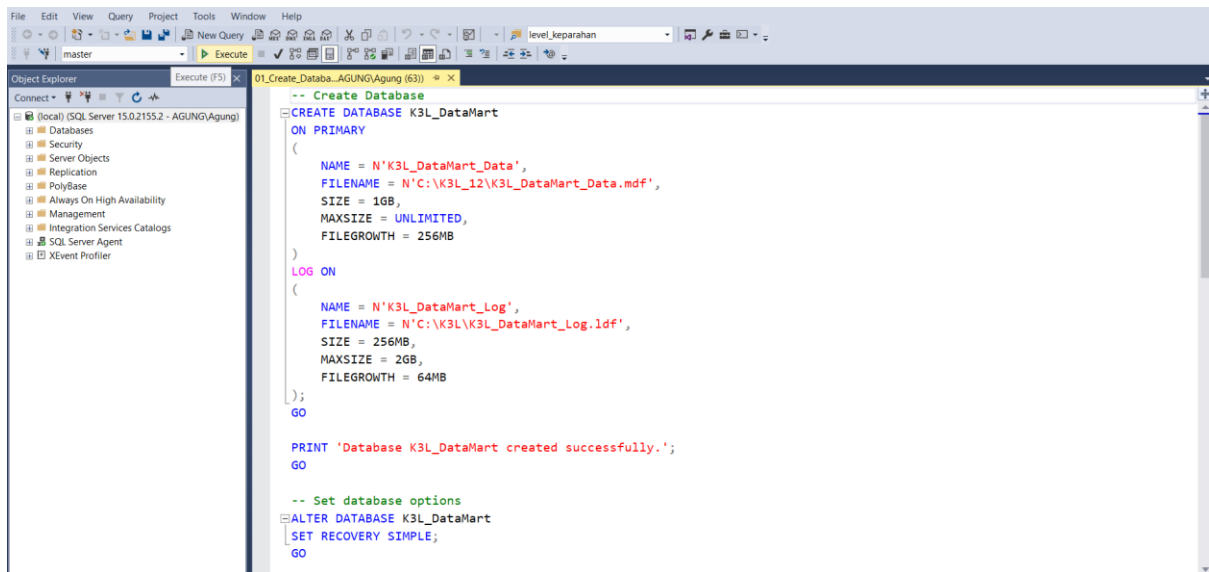
Connect to SQL server



01_Create_Database



Excute code

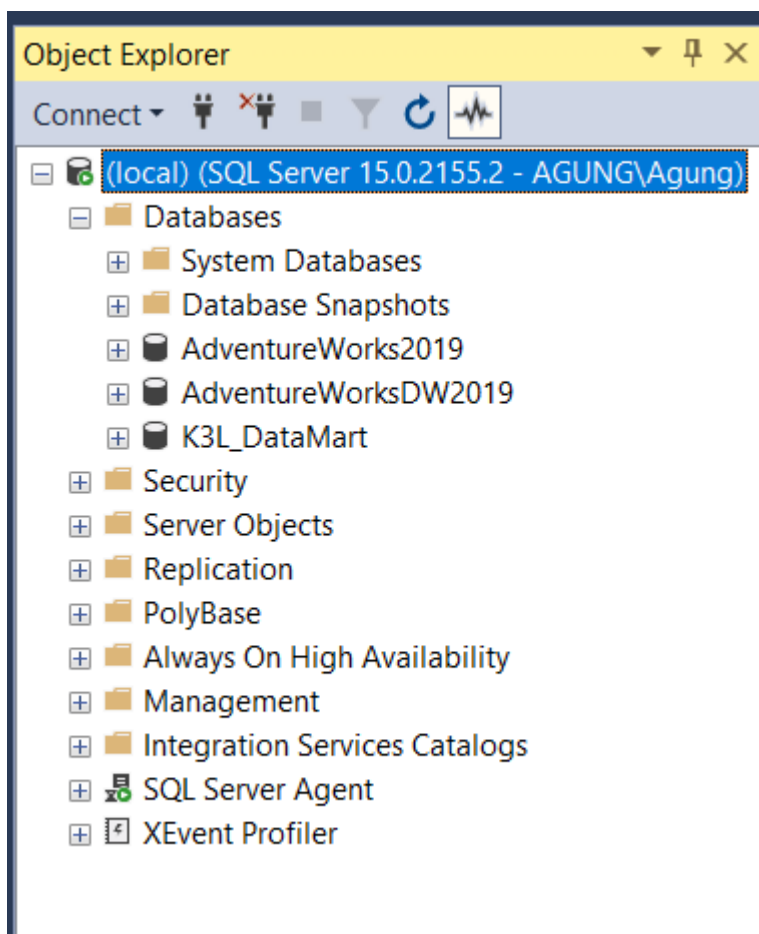


Output : Database K3L_DataMart berhasil dibuat

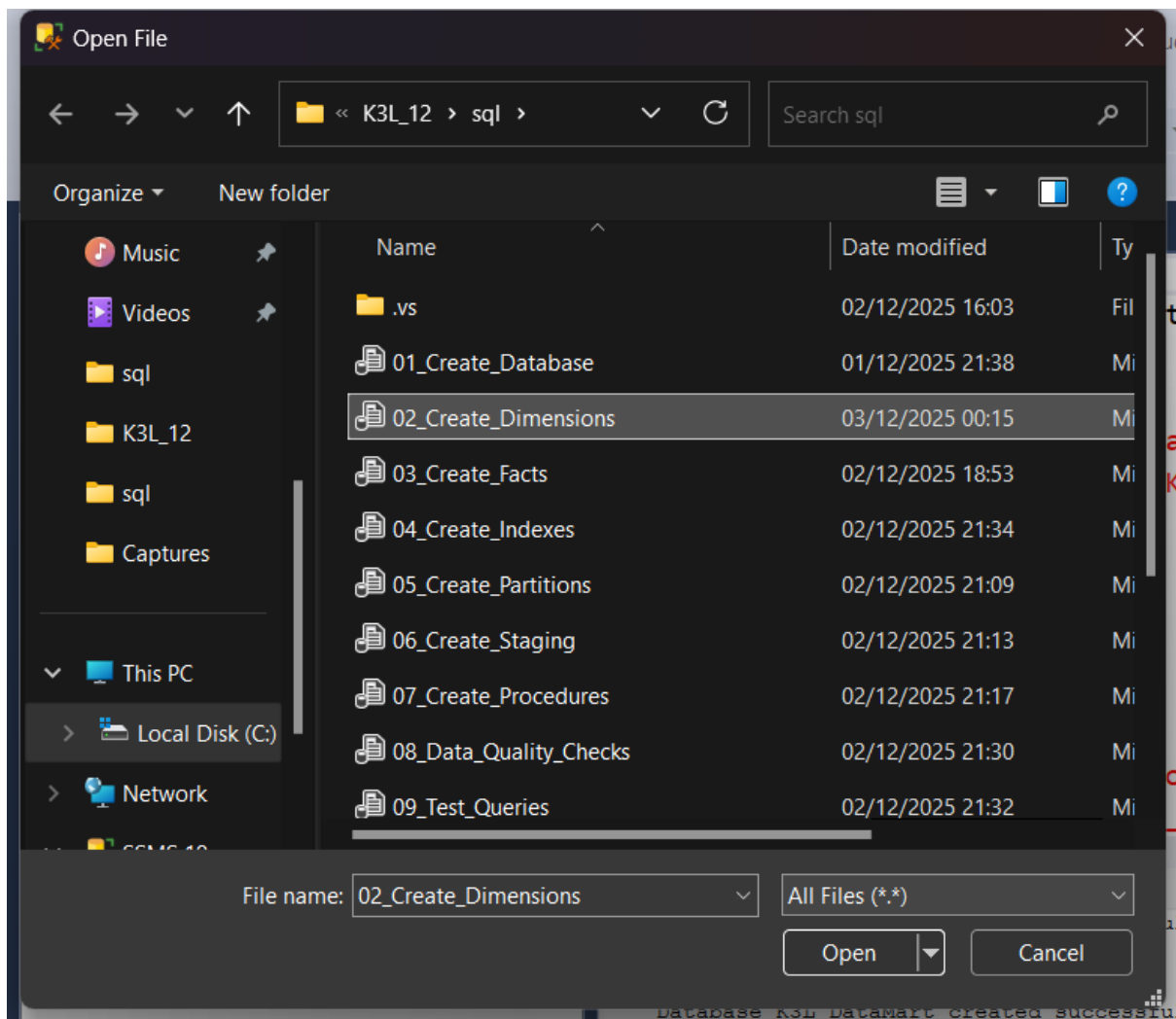
```
Database K3L_DataMart created successfully.
Database configuration completed.
```

```
Database K3L_DataMart created successfully!
```

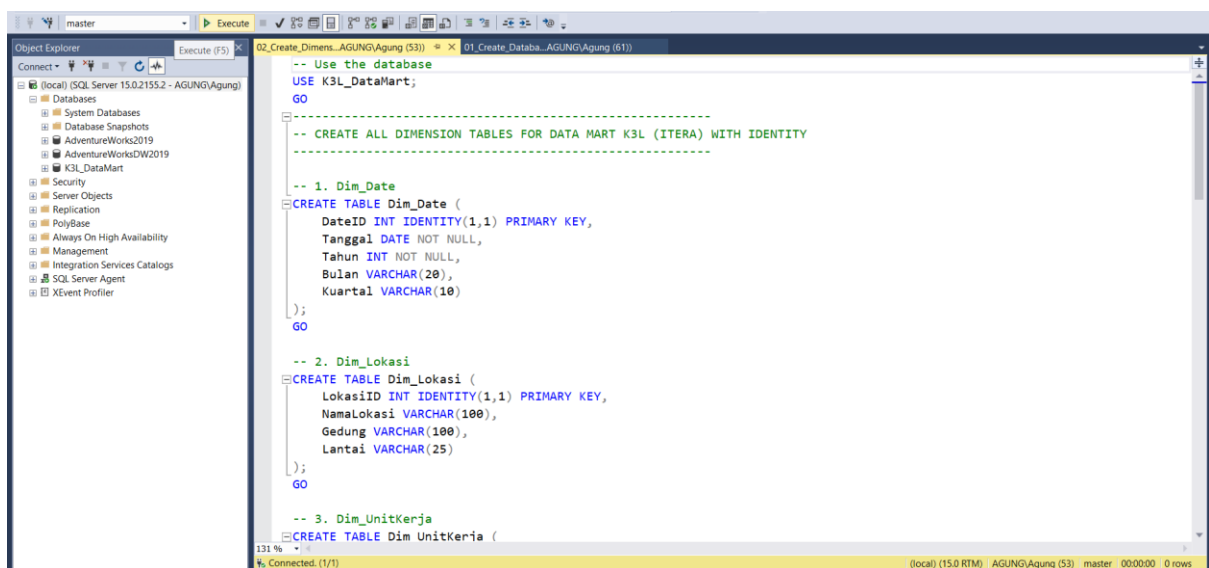
```
Completion time: 2025-12-08T15:53:42.7783443+07:00
```



02_Create_Dimension



Excute code


























Output

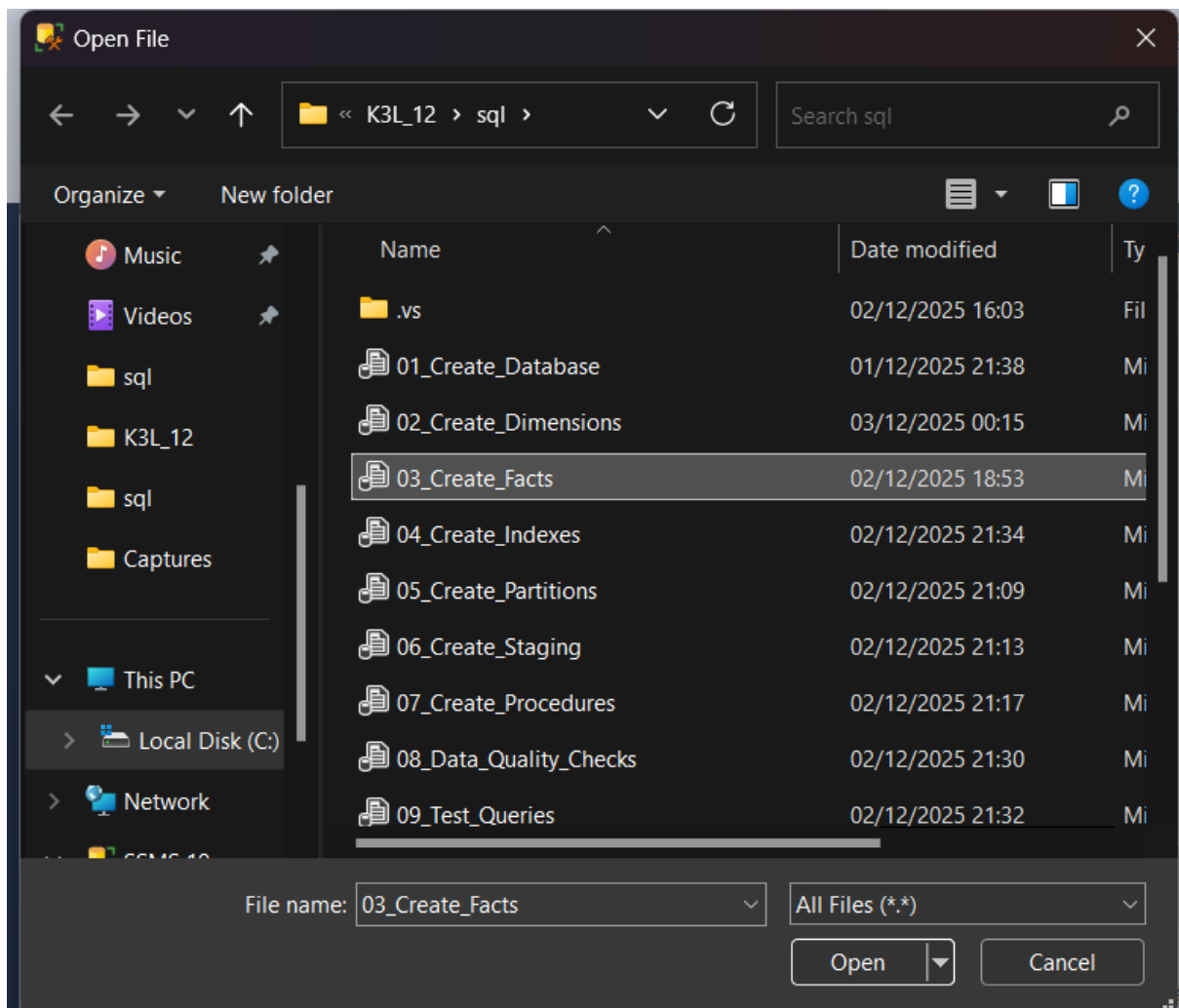
Messages

Commands completed successfully.

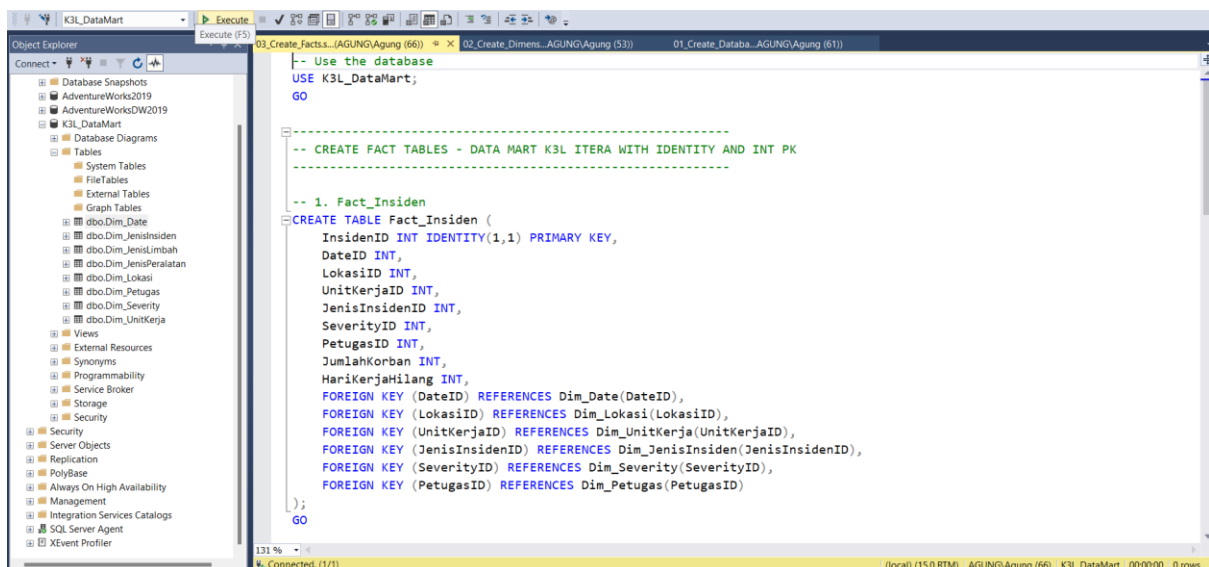
Completion time: 2025-12-08T15:57:32.7429602+07:00

-  K3L_DataMart
 -  Database Diagrams
 -  Tables
 -  System Tables
 -  FileTables
 -  External Tables
 -  Graph Tables
 -   dbo.Dim_Date
 -   dbo.Dim_JenisInsiden
 -   dbo.Dim_JenisLimbah
 -   dbo.Dim_JenisPeralatan
 -   dbo.Dim_Lokasi
 -   dbo.Dim_Petugas
 -   dbo.Dim_Severity
 -   dbo.Dim_UnitKerja

03_Create_Facts



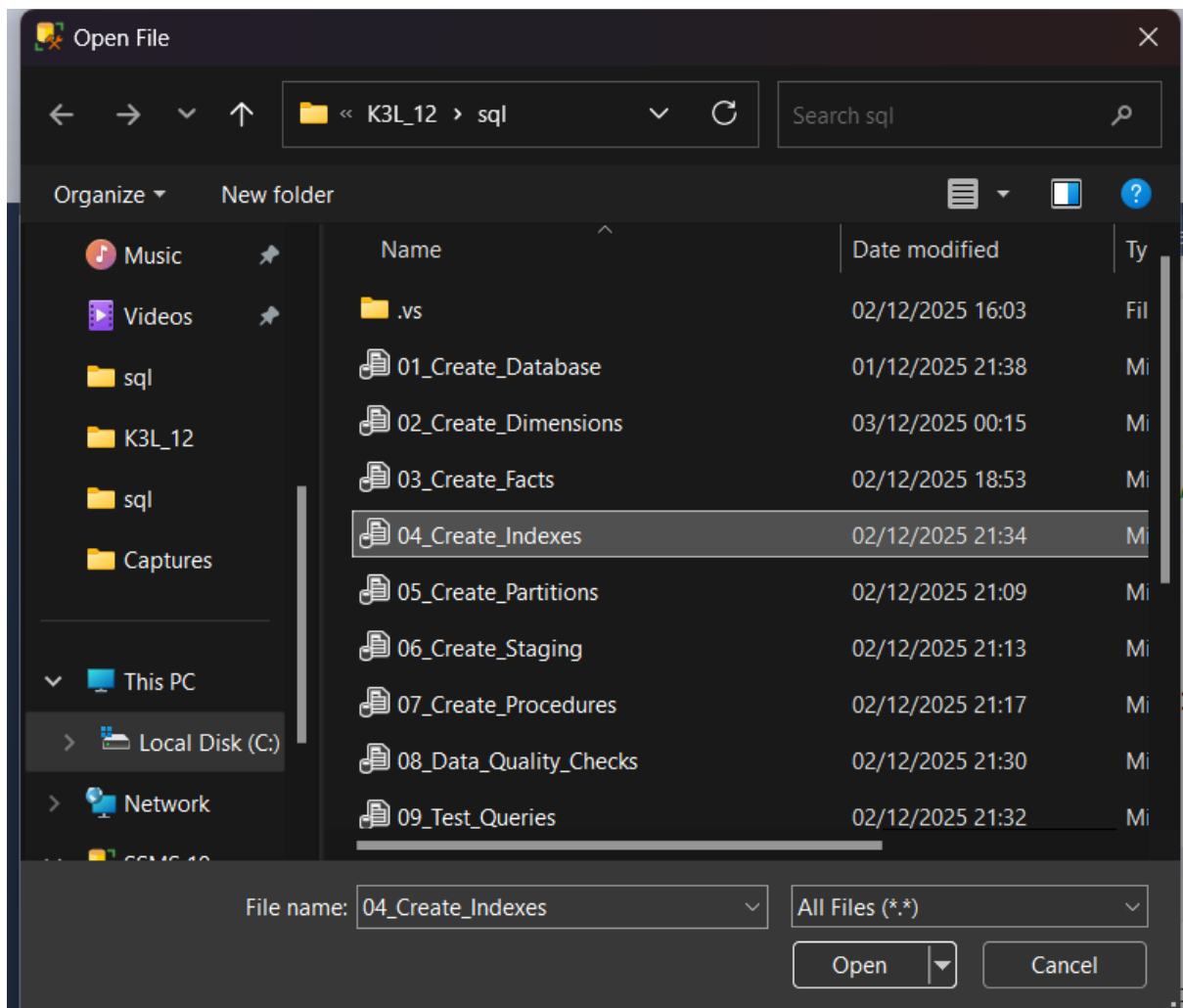
Excute code



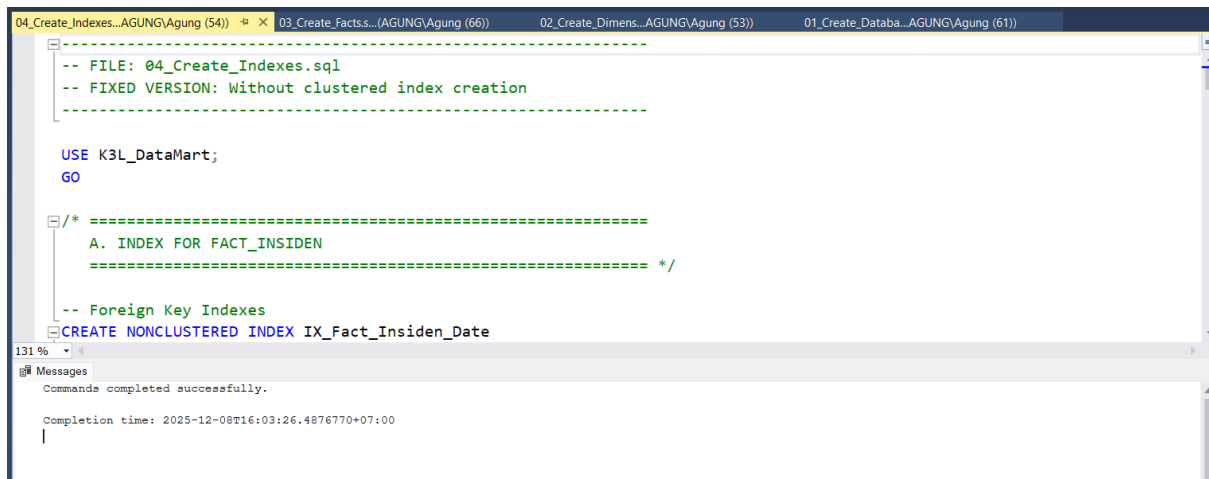
Output



04_Create_Indexes



Excute Code



The screenshot shows a SQL Server Enterprise Manager window with four tabs: '04_Create_Indexes...AGUNG\Agung (54)', '03_Create_Facts...AGUNG\Agung (66)', '02_Create_Dimens...AGUNG\Agung (53)', and '01_Create_Databa...AGUNG\Agung (61)'. The active tab '04_Create_Indexes...AGUNG\Agung (54)' displays a script with the following content:

```
-- FILE: 04_Create_Indexes.sql
-- FIXED VERSION: Without clustered index creation

USE K3L_DataMart;
GO

/* =====
A. INDEX FOR FACT_INSIDEN
===== */

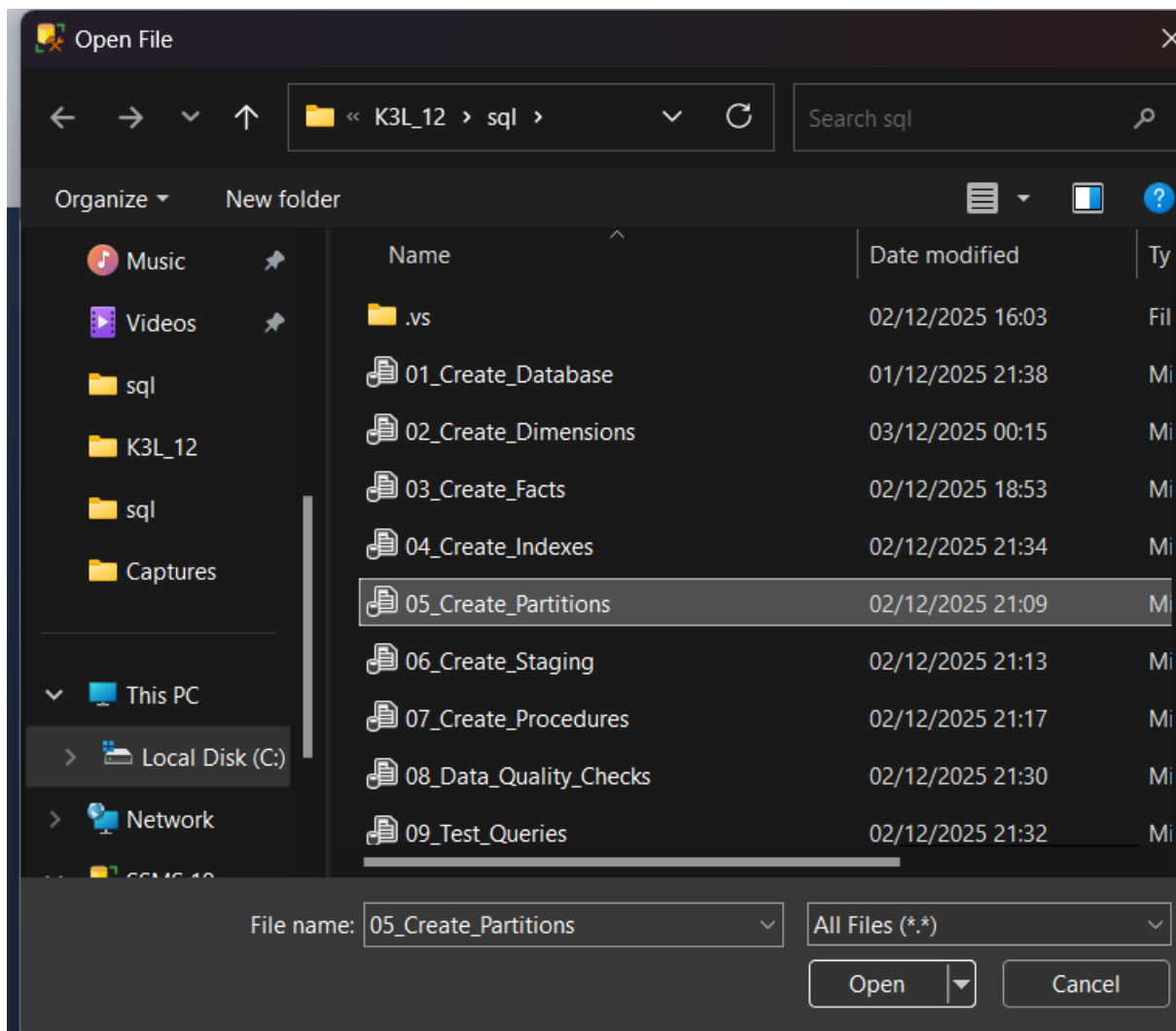
-- Foreign Key Indexes
CREATE NONCLUSTERED INDEX IX_Fact_Insiden_Date
```

Below the script, a 'Messages' pane shows the following output:

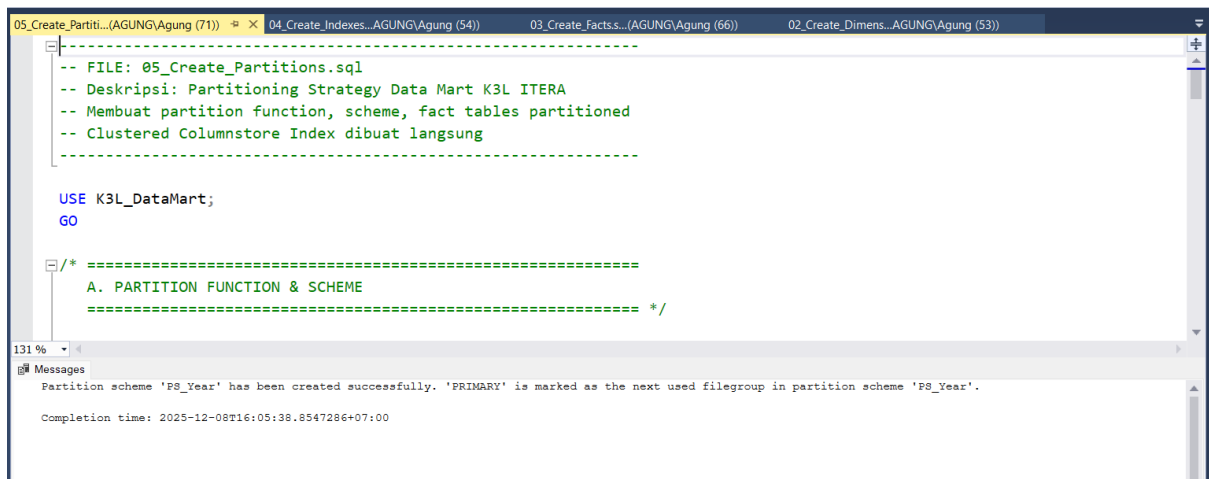
```
Commands completed successfully.

Completion time: 2025-12-08T16:03:26.4876770+07:00
```

05_Create_Partitions



Excute code & menampilkan output



The screenshot shows a SQL Server Enterprise Manager interface. The top pane displays a script window with the following content:

```
-- FILE: 05_Create_Partitions.sql
-- Deskripsi: Partitioning Strategy Data Mart K3L ITERA
-- Membuat partition function, scheme, fact tables partitioned
-- Clustered Columnstore Index dibuat langsung

USE K3L_DataMart;
GO

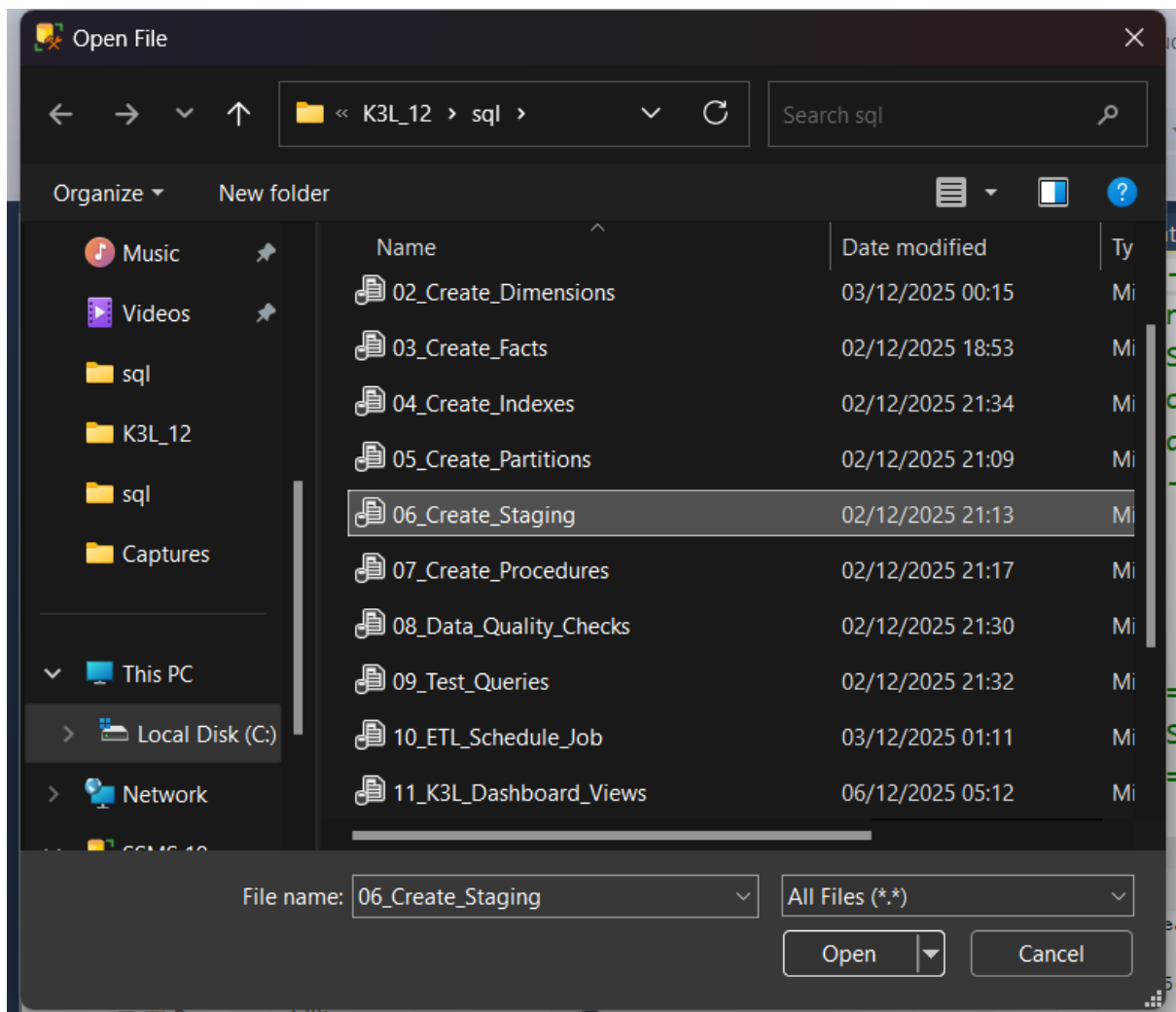
/* =====
A. PARTITION FUNCTION & SCHEME
===== */
```

The bottom pane shows the Messages window with the following output:

```
Partition scheme 'PS_Year' has been created successfully. 'PRIMARY' is marked as the next used filegroup in partition scheme 'PS_Year'.

Completion time: 2025-12-08T16:05:38.8547286+07:00
```

Open file 06_Create_Staging



Excute code & menampilkan output

```

-- FILE: 06_Create_Staging.sql
-- Deskripsi: Membuat Staging Schema dan Staging Tables untuk Data Mart K3L
-- ETL Step: Extract -> Staging

USE K3L_DataMart;
GO

/* =====
A. CREATE STAGING SCHEMA
===== */
CREATE SCHEMA stg;
GO

```

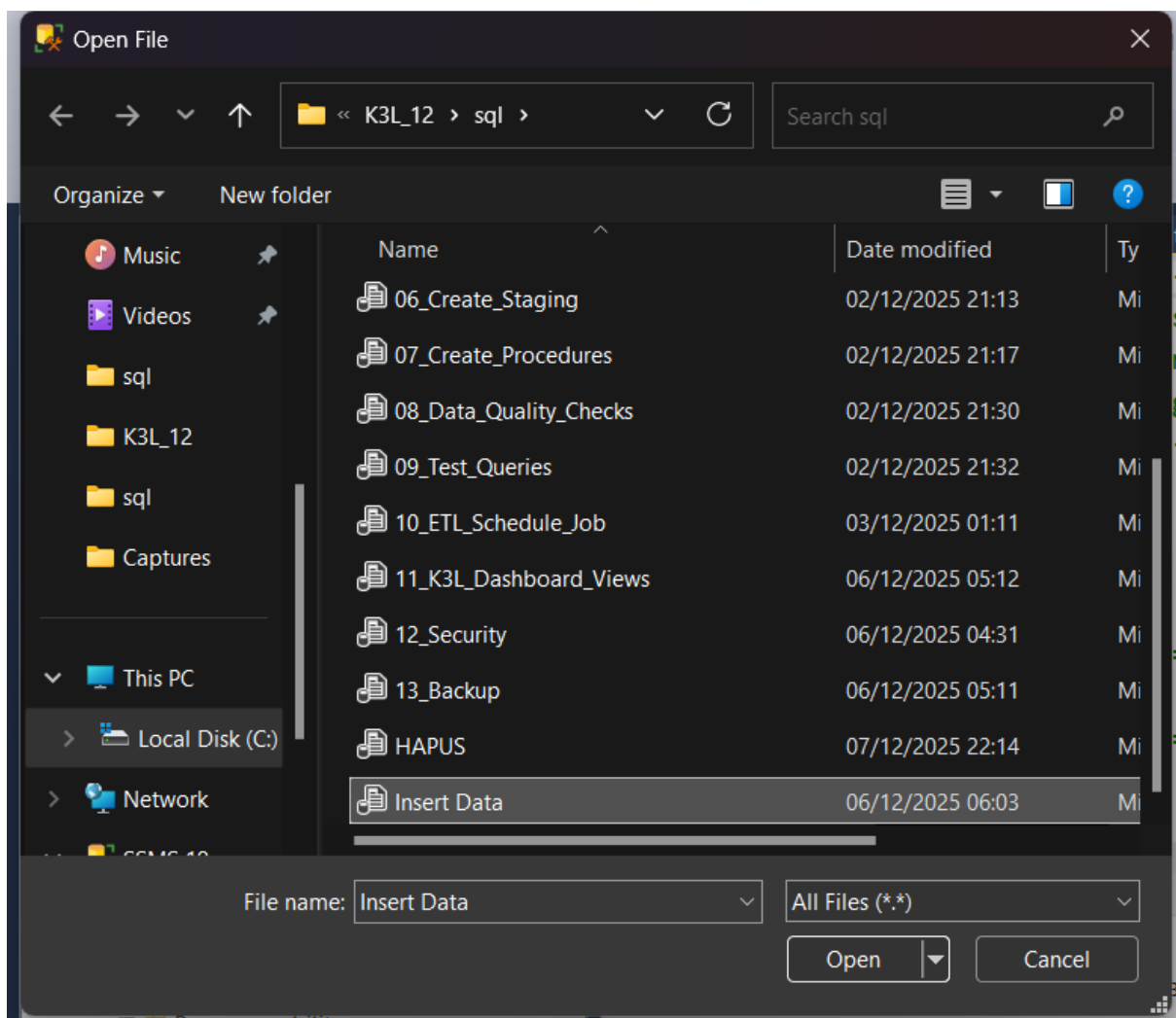
131 %

Messages

Commands completed successfully.

Completion time: 2025-12-08T16:06:37.4385406+07:00

Insert data



Excute dan menampilkan output

The screenshot shows a SQL Server Enterprise Manager window with a query execution window open. The query is as follows:

```
USE K3L_DataMart;  
GO  
  
-- =====  
-- 1. DIM_DATE (50 data: 2021-2025)  
-- =====  
  
SET IDENTITY_INSERT Dim_Date ON;  
INSERT INTO Dim_Date (DateID, Tanggal, Tahun, Bulan, Kuartal) VALUES  
(1, '2021-01-05', 2021, 'Januari', 'Q1'),  
(2, '2021-02-15', 2021, 'Februari', 'Q1'),  
(3, '2021-03-10', 2021, 'Maret', 'Q1'),  
(4, '2021-04-20', 2021, 'April', 'Q2'),  
(5, '2021-05-05', 2021, 'Mei', 'Q2'),  
(6, '2021-06-15', 2021, 'Juni', 'Q2');
```

The Results pane shows a table with 9 columns: Tabel, Dim_Date, Dim_Lokasi, Dim_UnitKerja, Dim_JenisInsiden, Dim_Severity, Dim_JenisPeralatan, Dim_JenisLimbah, Dim_Petugas, and Fact_Insiden. The Dim_Date column has 50 rows of data.

Tabel	Dim_Date	Dim_Lokasi	Dim_UnitKerja	Dim_JenisInsiden	Dim_Severity	Dim_JenisPeralatan	Dim_JenisLimbah	Dim_Petugas	Fact_Insiden
1	Dim_Date	50							
2	Dim_Lokasi	50							
3	Dim_UnitKerja	50							
4	Dim_JenisInsiden	50							
5	Dim_Severity	7							
6	Dim_JenisPeralatan	50							
7	Dim_JenisLimbah	50							
8	Dim_Petugas	50							
9	Fact_Insiden	50							

The Messages pane shows the following status messages:

- Status: 1 TIDAK ADA DATA KEMBAR
- Status: 1 DATA UNIK SEMUA

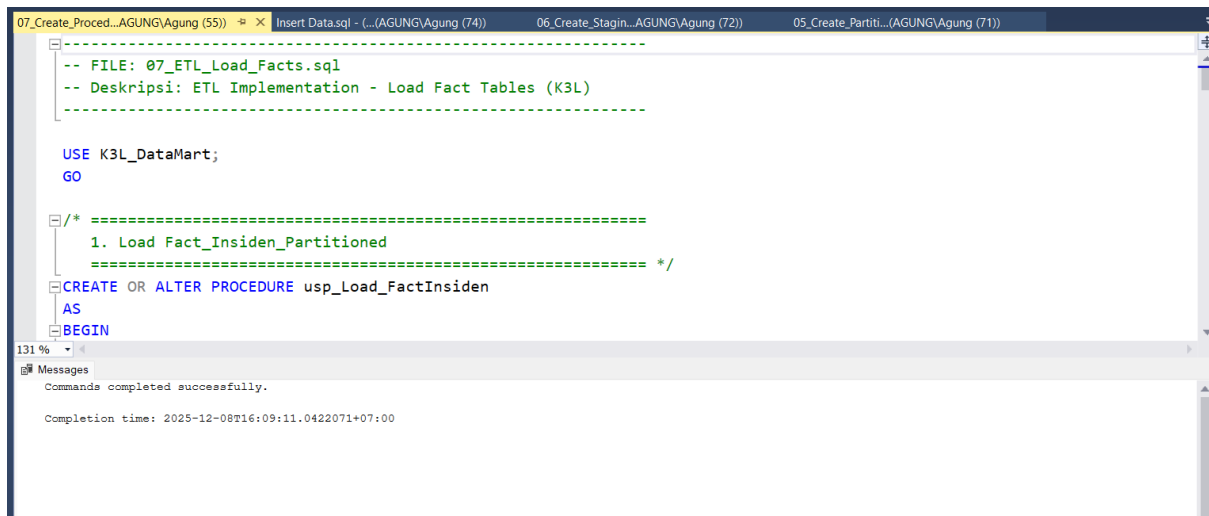
Create_Procedures

The screenshot shows a file explorer window titled "Open File". The address bar shows the path: << K3L_12 > sql >. The search bar contains "Search sql". The left pane shows the "Organize" tab with a "New folder" button. The right pane shows a list of files and folders:

Name	Date modified	Type
.vs	02/12/2025 16:03	Folder
01_Create_Database	01/12/2025 21:38	File
02_Create_Dimensions	03/12/2025 00:15	File
03_Create_Facts	02/12/2025 18:53	File
04_Create_Indexes	02/12/2025 21:34	File
05_Create_Partitions	02/12/2025 21:09	File
06_Create_Staging	02/12/2025 21:13	File
07_Create_Procedures	02/12/2025 21:17	File
08_Data_Quality_Checks	02/12/2025 21:30	File
09_Test_Queries	02/12/2025 21:32	File

The "File name" field contains "07_Create_Procedures" and the "File type" dropdown is set to "All Files (*.*)". The "Open" button is highlighted.

Excute dan menampilkan output



The screenshot shows a SQL Server Enterprise Manager window with the following tabs: 07_Create_Proced...AGUNG\Agung (55), Insert Data.sql - (...AGUNG\Agung (74)), 06_Create_Stagin...AGUNG\Agung (72), and 05_Create_Partiti...AGUNG\Agung (71). The active window displays the following SQL code:

```
-- FILE: 07_ETL_Load_Facts.sql
-- Deskripsi: ETL Implementation - Load Fact Tables (K3L)

USE K3L_DataMart;
GO

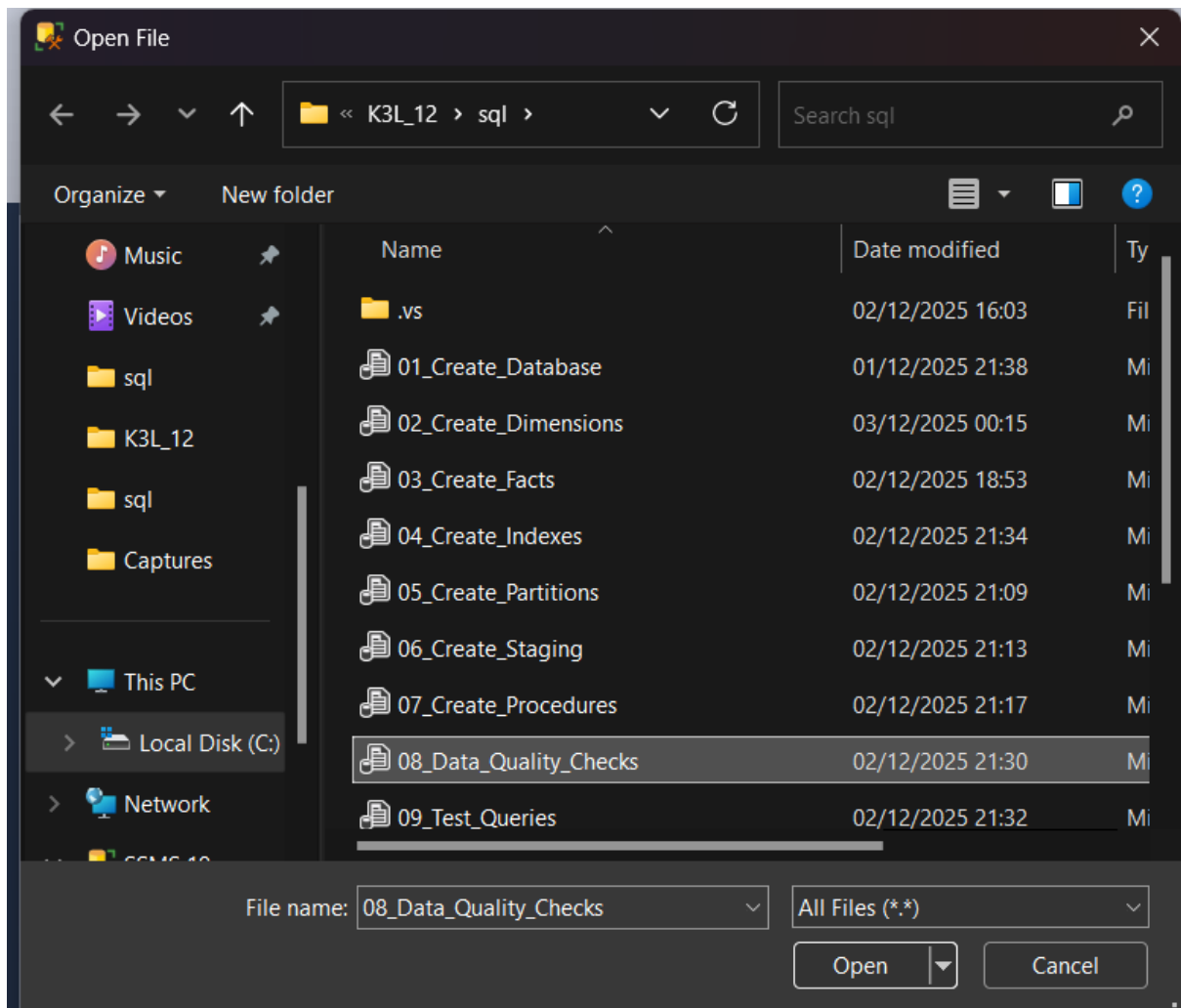
/* =====
1. Load Fact_Insiden_Partitioned
===== */
CREATE OR ALTER PROCEDURE usp_Load_FactInsiden
AS
BEGIN
```

Below the code, the Messages pane shows the following output:

```
Commands completed successfully.

Completion time: 2025-12-08T16:09:11.0422071+07:00
```

Data_Quality_Check



Excute dan menampilkan output

08_Data_Quality...AGUNG\Agung (73)

07_Create_Proced...AGUNG\Agung (55)

Insert Data.sql - (...AGUNG\Agung (74)

06_Create_Stagin... AGUNG\Agung (72)

-- FILE: 08_Data_Quality_Checks.sql

-- Deskripsi: Data Quality Assurance - K3L Data Mart

-- Summary report: total record, null check, referential check, duplicate check

USE K3L_DataMart;

GO

/* =====

1. Fact_Insiden Summary

===== */

SELECT

'Fact_Insiden' AS TableName,

131 %

Results Messages

TableName	TotalRecord	NullDateID	NullLokasiID	NullUnitKerjalID	NullJenisInsidenID	NullSeverityID	NullPetugasID
1 Fact_Insiden	50	0	0	0	0	0	0
CheckName	OrphanCount						
1 Fact_Insiden_DateID	0						
CheckName	OrphanCount						
1 Fact_Insiden_LokasiID	0						
CheckName	OrphanCount						
1 Fact_Insiden_UnitKerjalID	0						
CheckName	OrphanCount						
1 Fact_Insiden_JenisInsidenID	0						
CheckName	OrphanCount						
1 Fact_Insiden_SeverityID	0						
CheckName	OrphanCount						
1 Fact_Insiden_PetugasID	0						

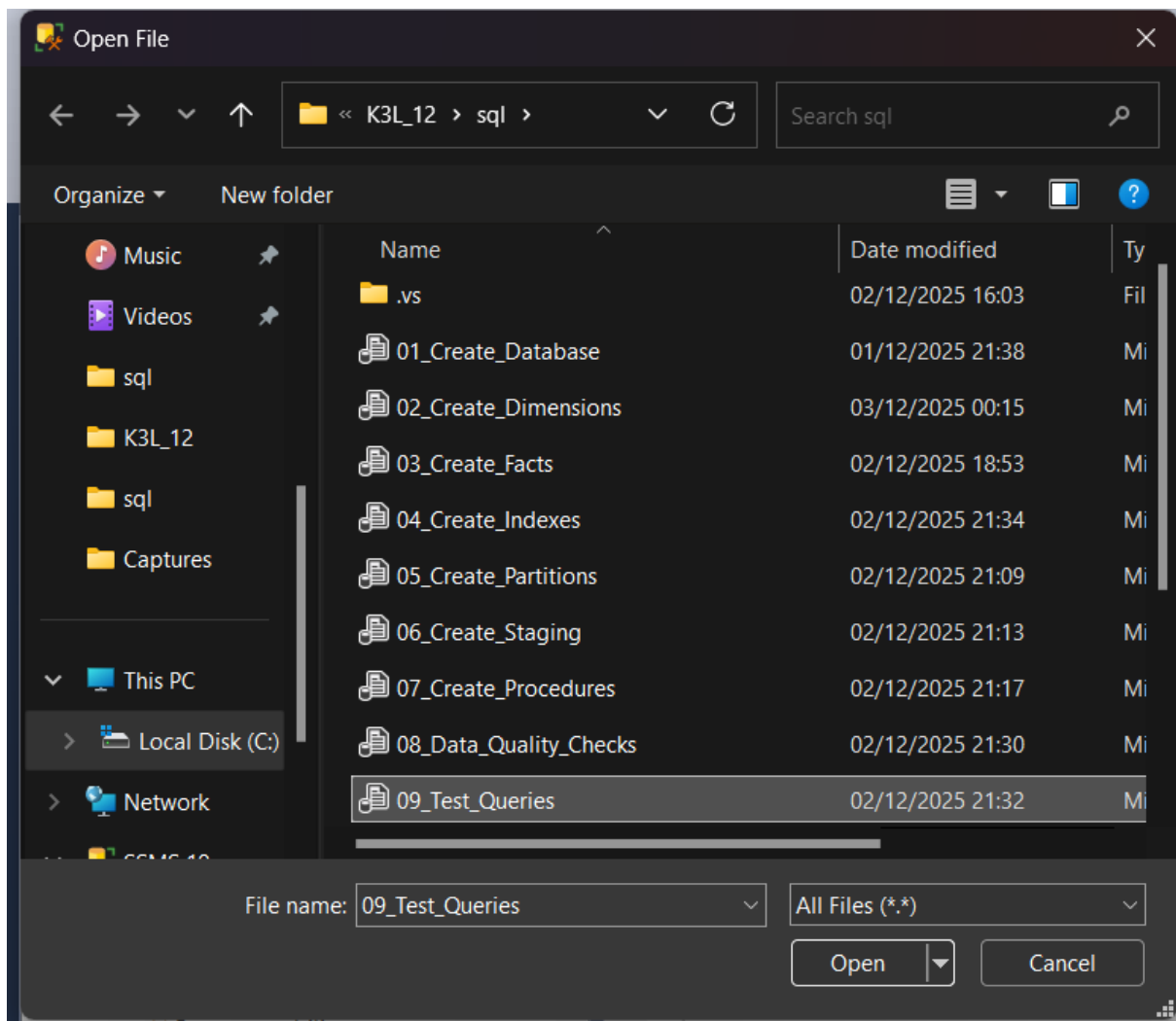
Results Messages

TableName	TotalRecord	NullDateID	NullLokasiID	NullUnitKerjalID	NullPeralatanID	NullPetugasID
1 Fact_Inspeksi	50	0	0	0	0	0
CheckName	OrphanCount					
1 Fact_Inspeksi_DateID	0					
CheckName	OrphanCount					
1 Fact_Inspeksi_LokasiID	0					
CheckName	OrphanCount					
1 Fact_Inspeksi_UnitKerjalID	0					
CheckName	OrphanCount					
1 Fact_Inspeksi_PeralatanID	0					
CheckName	OrphanCount					
1 Fact_Inspeksi_PetugasID	0					
TableName	DateID	LokasiID	UnitKerjalID	PeralatanID	PetugasID	DupCount
TableName	TotalRecord	NullDateID	NullLokasiID	NullUnitKerjalID	NullLimbahID	NullPetugasID

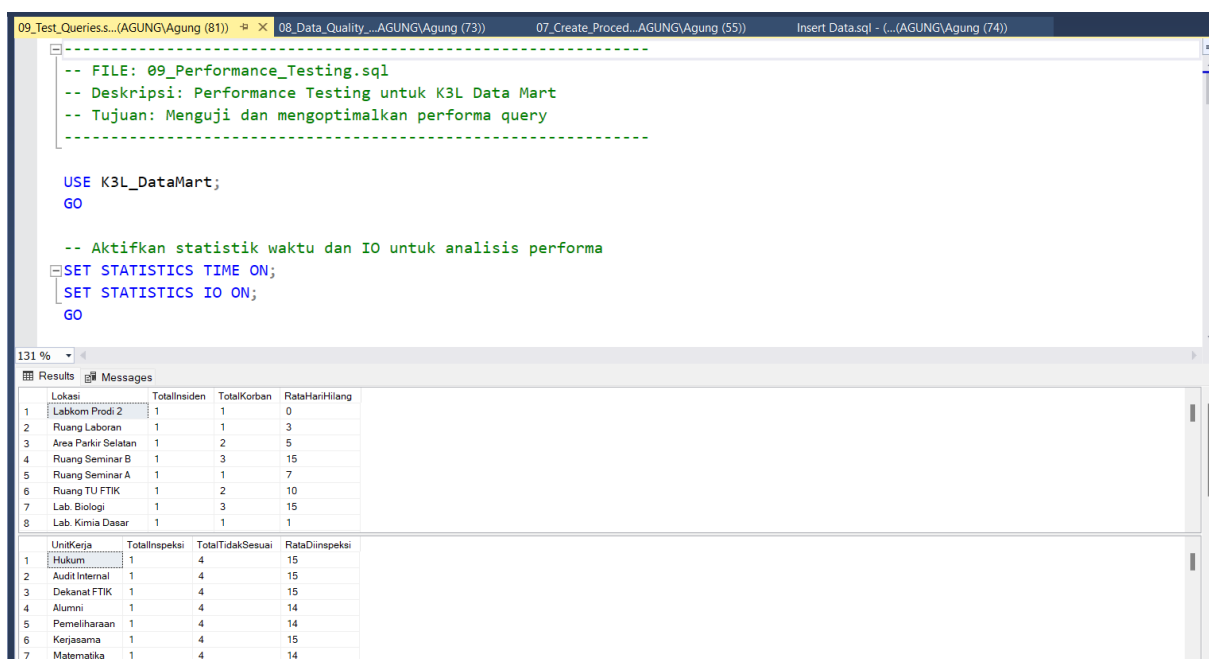
Results Messages

TableName	TotalRecord	NullDateID	NullLokasiID	NullUnitKerjalID	NullLimbahID	NullPetugasID
1 Fact_Limbah	50	0	0	0	0	0
CheckName	OrphanCount					
1 Fact_Limbah_DateID	0					
CheckName	OrphanCount					
1 Fact_Limbah_LokasiID	0					
CheckName	OrphanCount					
1 Fact_Limbah_UnitKerjalID	0					
CheckName	OrphanCount					
1 Fact_Limbah_LimbahID	0					
CheckName	OrphanCount					
1 Fact_Limbah_PetugasID	0					
TableName	DateID	LokasiID	UnitKerjalID	LimbahID	PetugasID	DupCount

Test_Queries



Excute dan menampilkan output

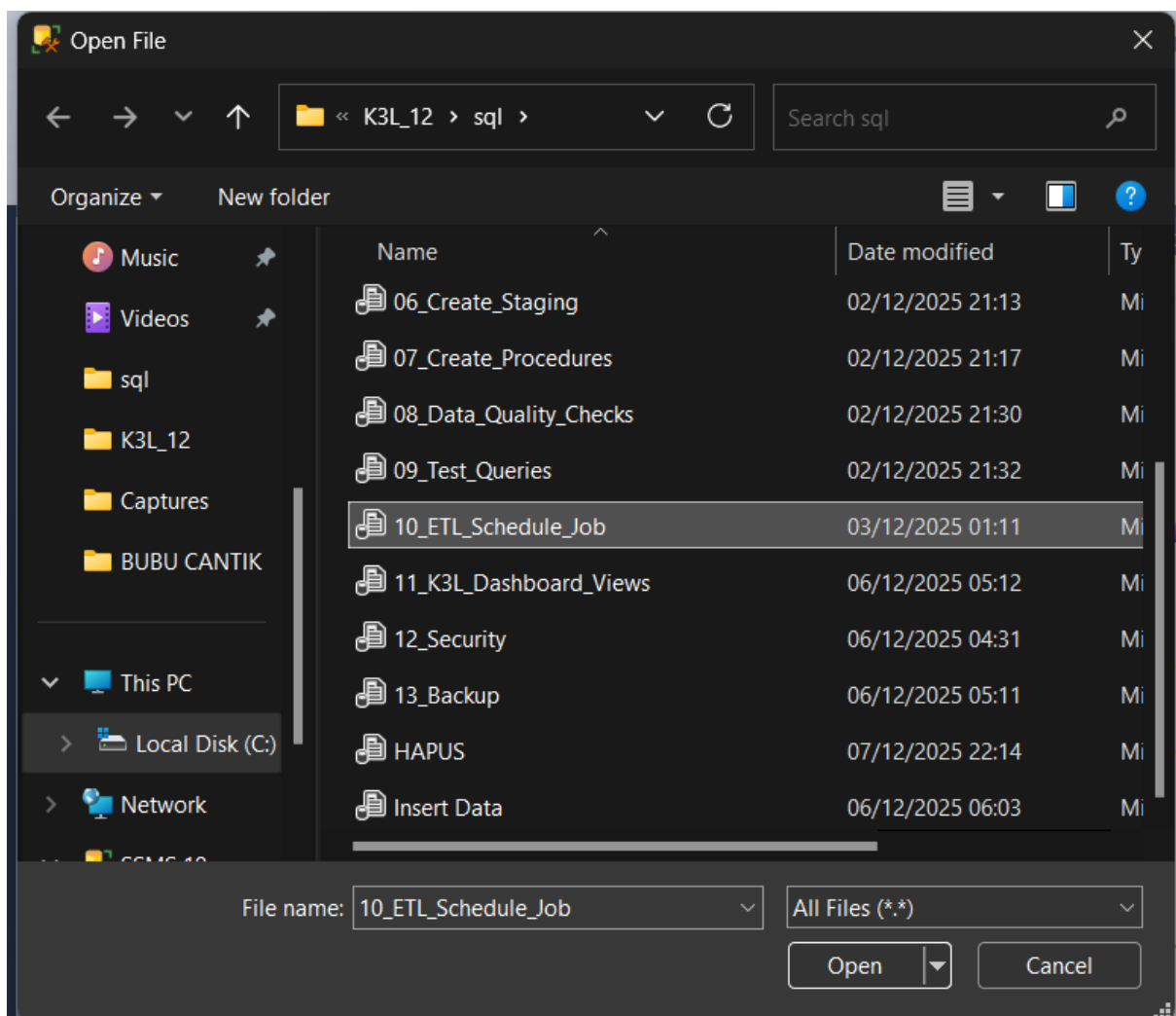


	Lokasi	JenisLimbah	TotalLimbah
1	Ruang TU FTSL	Limbah Radioaktif	30.00
2	Ruang UKM Olahraga	Baterai Bekas	30.00
3	Ruang Dosen Rektor...	Limbah Farmasi	25.00
4	Kantin Utara	Limbah Elektronik	25.00
5	Lab. Biologi	Jarum Suntik	20.00
6	Area Parkir Timur	Koran Bekas	20.00
7	Gudang Bahan Kimia	Besi Tua	20.00
8	Ruang Mushola	Debu Industri	20.00

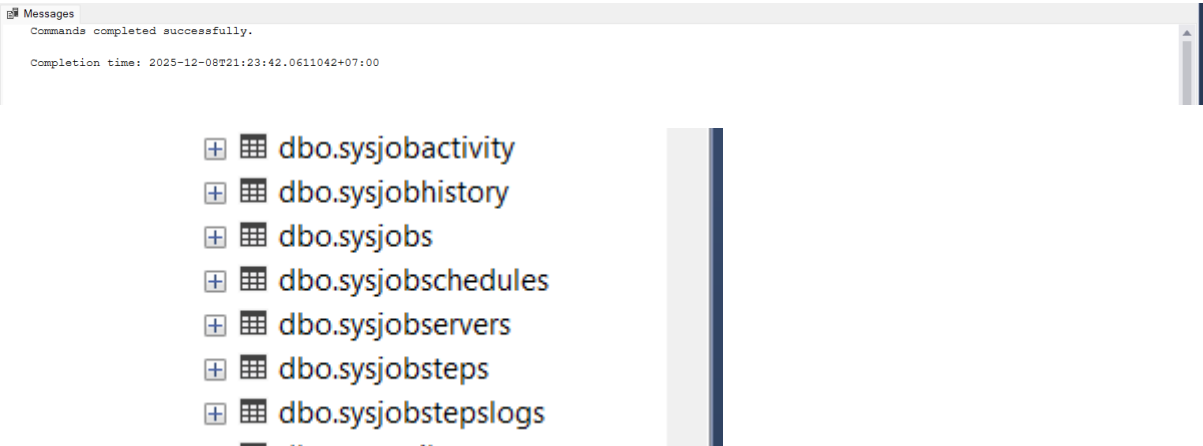
	Severity	Bulan	TotalInsiden
1	1 - Rendah	Agustus	2
2	1 - Rendah	Februari	1
3	1 - Rendah	Januari	2
4	1 - Rendah	Juli	1
5	1 - Rendah	Juni	2
6	1 - Rendah	Nove...	1
7	2 - Ringan	Dese...	1
8	2 - Ringan	Februari	2

	Petugas	TotalInsiden	TotalInspeksi	TotalLimbah
1	Zainal Abidin	1	1	1
2	Umar Said	1	1	1
3	Gory Sandi...	1	1	1
4	Johan Seti...	1	1	1
5	Mega Chan	1	1	1
6	Eka Chandra	1	1	1
7	Bima Sakti	1	1	1
8	Budi Santoso	1	1	1

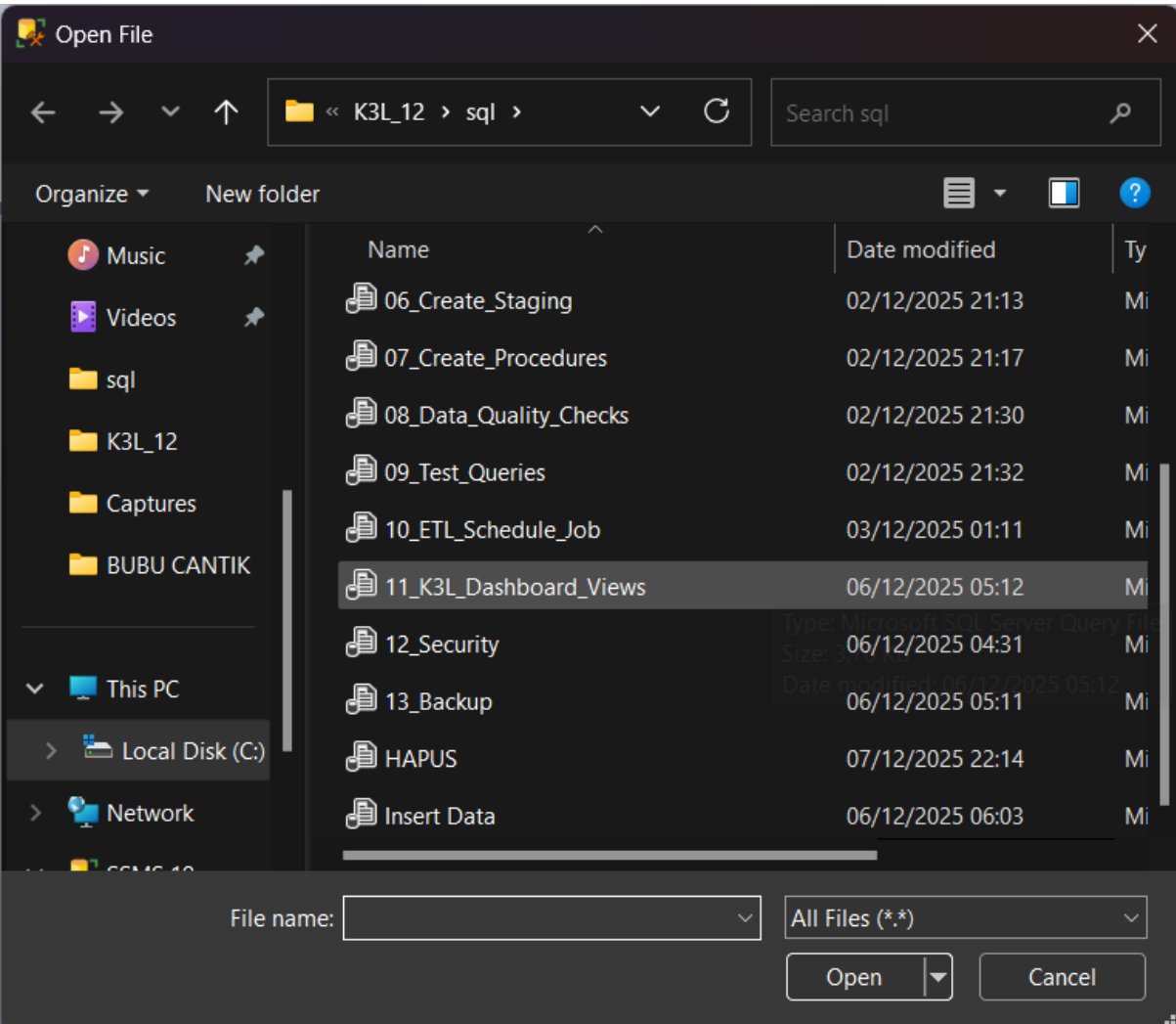
ETL_Schedule_Job



Excute dan menampilkan output

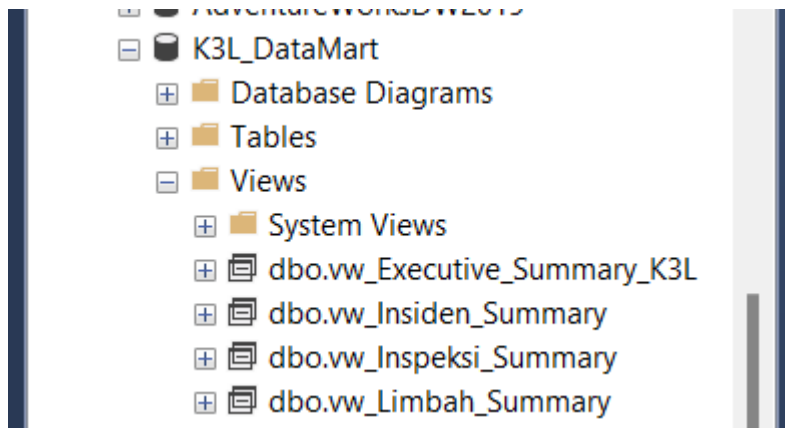


K3L_Dashboard_View

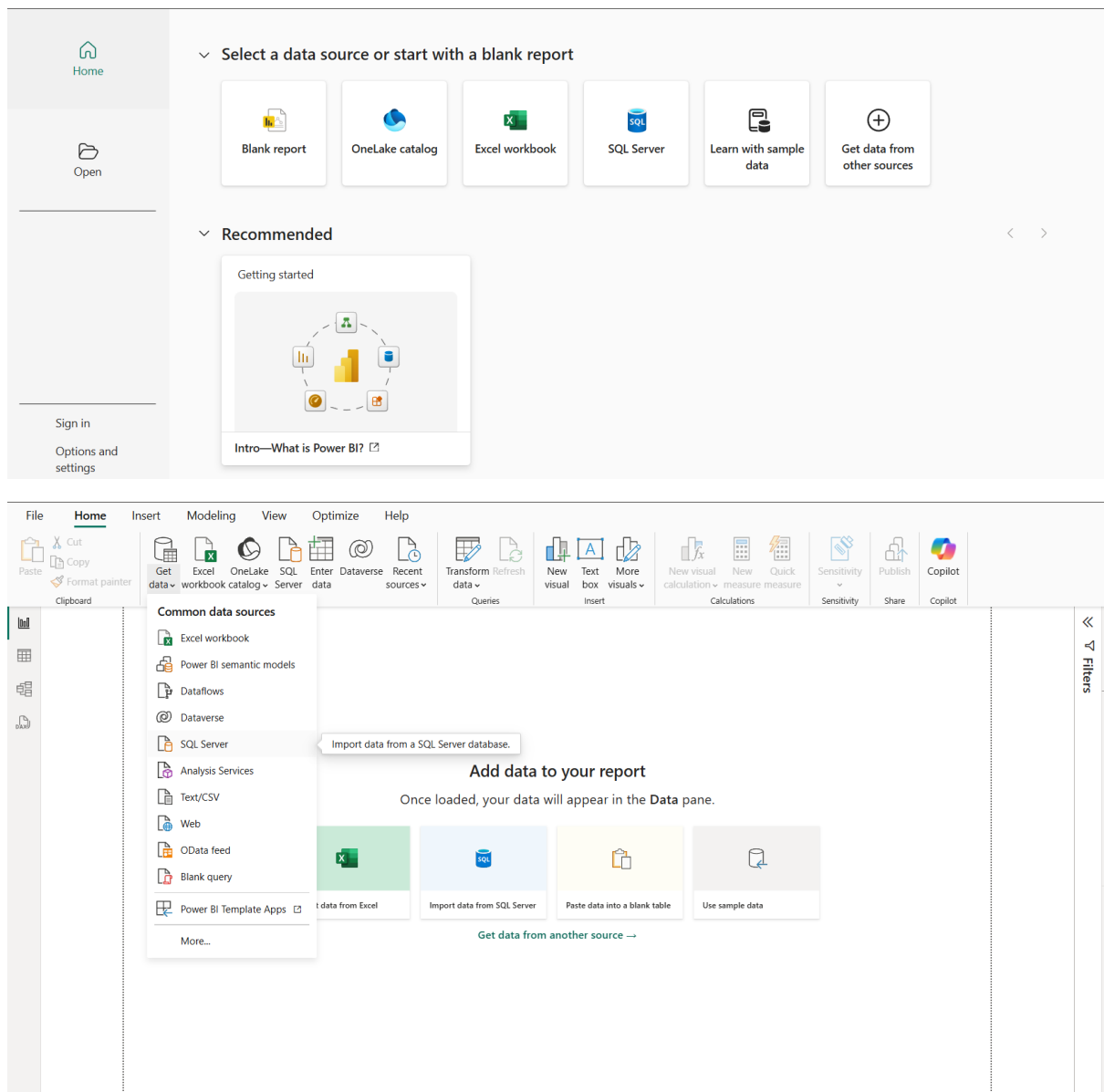


Commands completed successfully.

Completion time: 2025-12-08T21:28:00.8594667+07:00



Connect ke Power BI



SQL Server database

Server ⓘ
(local)

Database (optional)

Data Connectivity mode ⓘ
☐ Import
☒ DirectQuery

▶ Advanced options

OKCancel

Navigator

Display Options ▾

(local) [3]

▶ AdventureWorks2019

▶ AdventureWorksDW2019

▶ K3L_DataMart [21]

☒ vw_Executive_Summary_K3L

☒ vw_Insiden_Summary

☒ vw_Inspeksi_Summary

☒ vw_Limbah_Summary

☐ Dim_Date

☐ Dim_JenisInsiden

☐ Dim_JenisLimbah

☐ Dim_JenisPeralatan

☐ Dim_Lokasi

☐ Dim_Petugas

☐ Dim_Severity

☐ Dim_UnitKerja

☐ Fact_Insiden

☐ Fact_Insiden_Partitioned

☐ Fact_Inspeksi

☐ Fact_Inspeksi_Partitioned

vw_Limbah_Summary

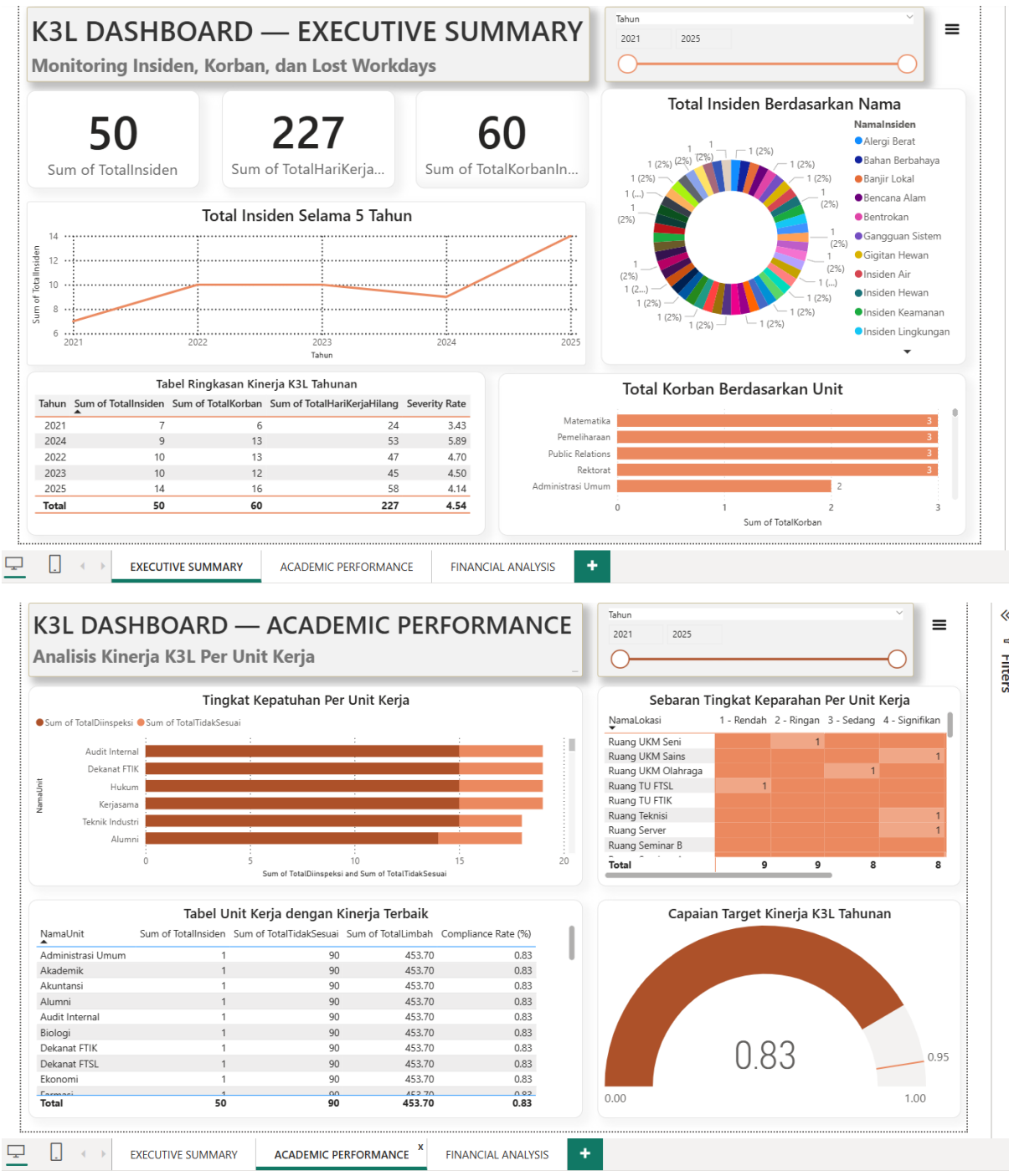
Preview downloaded on Wednesday

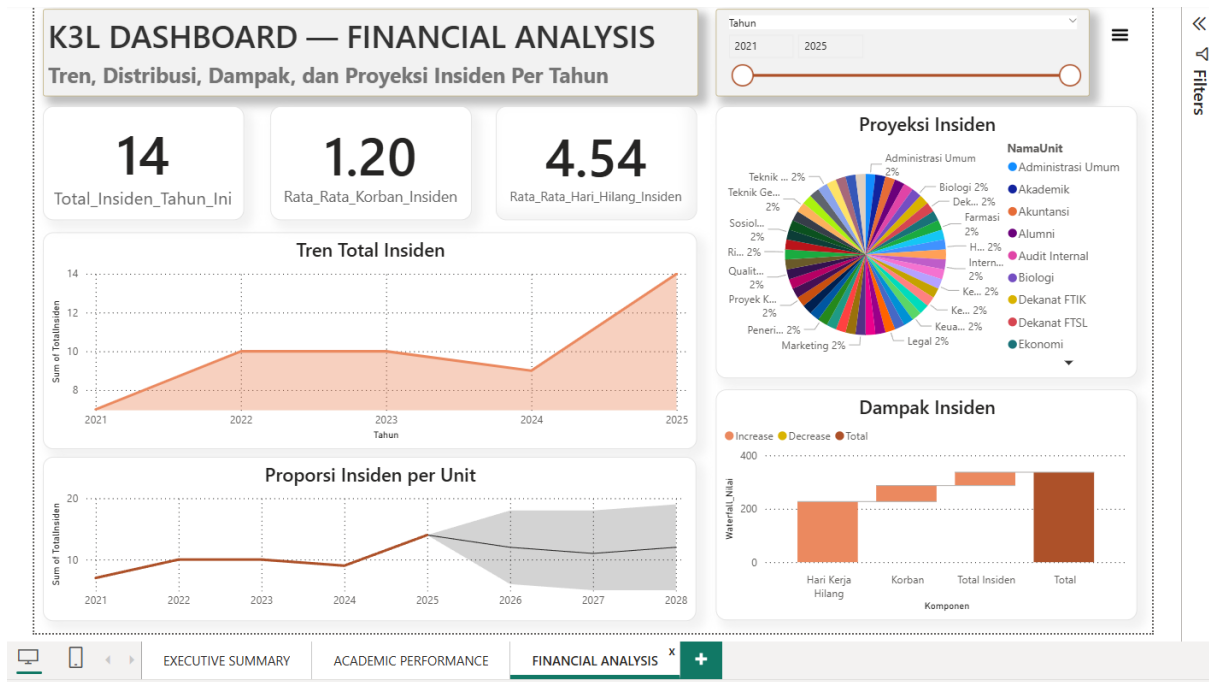
Tahun	NamaUnit	NamaLokasi	JenisLimbah
2021	Teknik Kimia	Ruang Kelas A202	Asam Kuat
2021	Teknik Informatika	Labkom Prodi 1	Limbah B3 Padat
2023	Ekonomi	Ruang TU FTSL	Limbah Radioaktif
2025	Alumni	Ruang Laboran	Kayu Bekas
2022	Farmasi	Ruang Dosen FTIK	Spesimen Biologi
2023	Perpustakaan	Ruang Rapat 2	Kantong Plastik
2024	SDM	Gudang Bahan Kimia	Besi Tua
2024	IT Support	Ruang Server	Botol Kaca
2021	Teknik Mesin	Labkom Prodi 3	Limbah B3 Gas
2025	Penerimaan	Ruang Teknisi	Limbah Tekstil
2025	Internasional	Ruang Konseling	Batu Bata Patah
2022	Teknik Geologi	Lab. Kimia Dasar	Sianida
2022	Kimia	Lab. Fisika Dasar	Arsen
2022	Matematika	Lab. Biologi	Jarum Suntik
2022	Statistika	Lab. Mikrobiologi	Perban Bekas
2024	Kerjasama	Area Parkir Barat	Sampah Logam
2025	Rektorat	Ruang Security	Serbuk Kayu
2025	Dekanat FTIK	Ruang Mushola	Debu Industri
2023	Akuntansi	Ruang TU FTIK	Vaksin Bekas
2023	Sosiologi	Perpustakaan FTIK	Sampah Organik
2024	Kemahasiswaan	Area Parkir Timur	Koran Bekas
2024	Logistik	Gudang Umum	Sampah Kaca

Select Related Tables

LoadTransform DataCancel

Tampilan Dashboard





Security

```

12_Security.sql - (...AGUNG\Agung (67)) 11_K3L_Dashboard...GUNG\Agung (62) SQLQuery2.sql - (...AGUNG\Agung (64))* HAPUS.sql - (loca...AGUNG\Agung (51))

/*****
SECURITY IMPLEMENTATION - K3L_DataMart
*****/
USE K3L_DataMart;
GO

/*=====
1.1. CREATE USER ROLES
=====*/

-- Create Roles
CREATE ROLE db_executive;
CREATE ROLE db_analyst;
CREATE ROLE db_viewer;

```

- [-] Roles
 - [-] Database Roles
 - db_accessadmin
 - db_analyst
 - db_backupoperator
 - db_datareader
 - db_datawriter
 - db_ddladmin
 - db_denydatareader
 - db_denydatawriter
 - db_etl_operator
 - db_executive
 - db_owner
 - db_securityadmin
 - db_viewer
 - public

- [-] Security
 - [+] Logins
 - [-] Server Roles
 - bulkadmin
 - dbcreator
 - diskadmin
 - processadmin
 - public
 - securityadmin
 - serveradmin
 - setupadmin
 - sysadmin
 - [+] Credentials

Backup

```
13_Backup.sql - (L...AGUNG\Agung (68)) X 12_Security.sql - (...AGUNG\Agung (67)) 11_K3L_Dashboard...GUNG\Agung (62)) SQLQuery2.sql - (...AGUNG\Agung (64))*
```

```
BACKUP DATABASE K3L_DataMart
TO DISK = N'C:\Backup\K3L_DataMart_Full.bak'
WITH
    COMPRESSION,
    INIT,
    NAME = N'Full Backup K3L_DataMart',
    STATS = 10;
GO
BACKUP DATABASE K3L_DataMart
TO DISK = N'C:\Backup\K3L_DataMart_Diff.bak'
WITH
    DIFFERENTIAL,
    COMPRESSION,
    INIT;
```

131 %

Messages

11 percent processed.
22 percent processed.
34 percent processed.
40 percent processed.
50 percent processed.
60 percent processed.
70 percent processed.
80 percent processed.
90 percent processed.
100 percent processed.
Processed 1128 pages for database 'K3L_DataMart', file 'K3L_DataMart_Data' on file 1.
Processed 2 pages for database 'K3L_DataMart', file 'K3L_DataMart_Log' on file 1.
BACKUP DATABASE successfully processed 1130 pages in 0.076 seconds (116.108 MB/sec).
32 percent processed.
43 percent processed.
54 percent processed.
64 percent processed.

Backup

This PC > Local Disk (C:) > Backup

Search Backup

New Sort View Details

	Name	Date modified	Type	Size
	K3L_DataMart_Diff.bak	08/12/2025 21:53	BAK File	128 KB
	K3L_DataMart_Full.bak	08/12/2025 21:53	BAK File	688 KB

Downloads Documents Pictures Music Videos sql K3L_12 Captures