

# LAPORAN PRAKTIKUM BASIS DATA LANJUT

## JOB SHEET 12: METADATA



Disusun Oleh:

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KELAS SIB-2F/20

**PROGRAM STUDI D-IV SISTEM INFORMASI BISNIS**

**JURUSAN TEKNOLOGI INFORMASI**

**POLITEKNIK NEGERI MALANG**

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### Topik

1. Melakukan Query Terhadap Metadata Microsoft SQL Server

### Tujuan

1. Mahasiswa memahami maksud dari Metadata
2. Mahasiswa mampu menampilkan informasi tentang database yang sedang aktif
3. Mahasiswa mampu menampilkan informasi tentang tabel-tabel yang berada pada suatu database
4. Mahasiswa mampu menampilkan informasi kolom yang terdapat pada suatu tabel
5. Mahasiswa mampu menampilkan informasi session yang sedang aktif
6. Mahasiswa mampu menampilkan informasi tentang CPU dan RAM yang ada pada server
7. Mahasiswa mampu menampilkan definisi dari objek-objek buatan seperti View, Stored Procedure, dlsb.

### Petunjuk Umum

1. Ikuti langkah-langkah pada bagian-bagian praktikum sesuai dengan urutan yang diberikan.
2. Anda dapat menggunakan SQL Server 2012 Standard Edition maupun SQL Server 2016 Express Edition untuk mencoba praktikum pada jobsheet ini. Sesuaikan dengan kondisi komputer Anda.
3. Jawablah semua pertanyaan bertanda **[Soal-X]** yang terdapat pada langkah-langkah tertentu di setiap bagian praktikum.
4. Dalam setiap langkah pada praktikum terdapat penjelasan yang akan membantu Anda dalam menjawab pertanyaan-pertanyaan pada petunjuk nomor 3, maka baca dan kerjakanlah semua bagian praktikum dalam jobsheet ini.
5. Tulis jawaban dari soal-soal pada petunjuk nomor 3 pada sebuah laporan yang dikerjakan menggunakan aplikasi word processing (Word, OpenOffice, atau yang lain yang sejenis). Ekspor sebagai file **PDF** dengan format nama sebagai berikut:
  - **BDL\_12\_Kelas\_NamaLengkapAnda.pdf**
  - Contoh:
    - o **BDL\_12\_2E\_Fulan.pdf**
  - Perhatikan baik-baik format penamaanya.
  - Kumpulkan file PDF tersebut sebagai laporan praktikum kepada dosen pengampu.
  - Selain pada nama file, tulislah identitas Anda pada halaman pertama laporan tersebut.

### Praktikum – Bagian 1: View-view yang Berkaitan dengan System Catalog

Langkah	Keterangan
1	<b>[Soal-1]</b> Buatlah SQL yang menampilkan nama, id, dan tanggal pembuatan semua database yang ada di server SQL Server

	name	database_id	create_date
1	master	1	2003-04-08 09:13:36.390
2	tempdb	2	2017-12-01 13:31:10.330
3	model	3	2003-04-08 09:13:36.390
4	msdb	4	2016-04-30 00:46:38.773
5	ReportServer\$SQLEXPRESS	5	2017-05-17 08:32:30.007
6	ReportServer\$SQLEXPRESSTempDB	6	2017-05-17 08:32:30.810
7	akademik	7	2017-06-04 00:12:56.963
8	akademik_mi1e	8	2017-06-05 11:09:00.717
9	akademik_ti1f	9	2017-06-06 09:47:32.610
10	akademik_ti1g	10	2017-06-06 11:52:52.633
11	TSQL2012	11	2017-11-09 20:08:18.197
12	MarketDev	12	2017-11-28 00:38:09.040
13	DbBaru	13	2017-11-28 01:11:58.457
14	NewDb	14	2017-11-28 10:13:30.700
15	Branch	15	2017-11-28 10:22:03.573
16	TestIE	17	2017-11-29 14:33:19.213

- Query

```
SELECT name, database_id, create_date
FROM sys.databases;
```

- Hasil Query

	name	database_id	create_date
1	master	1	2003-04-08 09:13:36.390
2	tempdb	2	2024-11-14 20:52:13.410
3	model	3	2003-04-08 09:13:36.390
4	msdb	4	2022-10-08 06:31:57.550
5	TSQL	5	2024-10-15 21:22:10.923
6	tokosepeda	6	2024-11-14 21:15:29.040
7	TSQL2012	7	2024-11-14 21:30:23.567

✓ Query executed successfully. | DESKTOP-9LCN9IC (16.0 RTM) | DESKTOP-9LCN9IC\Uiil F... | TSQL2012 | 00:00:00 | 7 rows

2

**[Soal-2]** Buatlah SQL yang menampilkan data-data semua tabel yang dibuat oleh pengguna (users)!

**Petunjuk:** Perhatikan tabel berikut untuk memfilter tabel yang sesuai!

	type	type_desc
1	SQ	SERVICE_QUEUE
2	U	USER_TABLE
3	V	VIEW
4	S	SYSTEM_TABLE
5	IT	INTERNAL_TABLE
6	P	SQL_STORED_PROCEDURE

Pastikan hasil akhirnya seperti berikut:

	object_id	name	schema_id	type	type_desc	create_date	modify_date
1	117575457	spt_fallback_db	1	U	USER_TABLE	2003-04-08 09:18:01.557	2016-04-30 00:48:23.147
2	133575514	spt_fallback_dev	1	U	USER_TABLE	2003-04-08 09:18:02.870	2016-04-30 00:48:23.167
3	149575571	spt_fallback_usg	1	U	USER_TABLE	2003-04-08 09:18:04.180	2016-04-30 00:48:23.187
4	279672044	Employees	5	U	USER_TABLE	2017-11-29 14:41:27.130	2017-11-29 14:41:27.130
5	599673184	test	1	U	USER_TABLE	2017-12-01 14:23:34.293	2017-12-01 14:23:34.293
6	615673241	TabelNyobaSaja	5	U	USER_TABLE	2017-12-01 14:24:45.213	2017-12-01 14:24:45.213

#### • Query

```
SELECT
    object_id,
    name,
    schema_id,
    type,
    type_desc,
    create_date,
    modify_date
FROM
    sys.objects
WHERE
    type = 'U';
```

#### • Hasil Query

	object_id	name	schema_id	type	type_desc	create_date	modify_date
1	901578250	Employees	5	U	USER_TABLE	2024-11-14 21:30:24.450	2024-11-14 21:30:24.480
2	965578478	Suppliers	6	U	USER_TABLE	2024-11-14 21:30:24.453	2024-11-14 21:30:24.463
3	997578592	Categories	6	U	USER_TABLE	2024-11-14 21:30:24.460	2024-11-14 21:30:24.467
4	1029578706	Products	6	U	USER_TABLE	2024-11-14 21:30:24.460	2024-11-14 21:30:24.490
5	1141579105	Customers	7	U	USER_TABLE	2024-11-14 21:30:24.467	2024-11-14 21:30:24.483
6	1173579219	Shippers	7	U	USER_TABLE	2024-11-14 21:30:24.473	2024-11-14 21:30:24.480
7	1205579333	Orders	7	U	USER_TABLE	2024-11-14 21:30:24.477	2024-11-14 21:30:24.500
8	1301579675	OrderDetails	7	U	USER_TABLE	2024-11-14 21:30:24.487	2024-11-14 21:30:24.493
9	1461580245	Tests	8	U	USER_TABLE	2024-11-14 21:30:24.493	2024-11-14 21:30:24.497
10	1493580359	Scores	8	U	USER_TABLE	2024-11-14 21:30:24.493	2024-11-14 21:30:24.497
11	1557580587	Nums	1	U	USER_TABLE	2024-11-14 21:30:25.327	2024-11-14 21:30:25.327

Query executed successfully... | DESKTOP-9LCN9IC (16.0 RTM) | DESKTOP-9LCN9IC\Uiil F... | TSQL2012 | 00:00:00 | 11 rows

3

[Soal-3] Dengan maksud dan tujuan yang sama seperti task sebelumnya, buatlah SQL dengan memanfaatkan tabel sys.tables!

	object_id	name	schema_name	type	type_desc	create_date	modify_date
1	117575457	spt_fallback_db	dbo	U	USER_TABLE	2003-04-08 09:18:01.557	2016-04-30 00:48:23.147
2	133575514	spt_fallback_dev	dbo	U	USER_TABLE	2003-04-08 09:18:02.870	2016-04-30 00:48:23.167
3	149575571	spt_fallback_usg	dbo	U	USER_TABLE	2003-04-08 09:18:04.180	2016-04-30 00:48:23.187
4	279672044	Employees	HR	U	USER_TABLE	2017-11-29 14:41:27.130	2017-11-29 14:41:27.130
5	599673184	test	dbo	U	USER_TABLE	2017-12-01 14:23:34.293	2017-12-01 14:23:34.293
6	615673241	TabelNyobaSaja	HR	U	USER_TABLE	2017-12-01 14:24:45.213	2017-12-01 14:24:45.213
7	1483152329	spt_monitor	dbo	U	USER_TABLE	2016-04-30 00:46:37.557	2016-04-30 00:48:23.213
8	1787153412	MSreplication_options	dbo	U	USER_TABLE	2016-04-30 00:47:59.690	2017-05-17 08:33:05.127

- Query

```
SELECT
    object_id,
    name,
    SCHEMA_NAME(schema_id) AS schema_name,
    type,
    type_desc,
    create_date,
    modify_date
FROM
    sys.tables;
```

- Hasil Query

	object_id	name	schema_name	type	type_desc	create_date	modify_date
1	901578250	Employees	HR	U	USER_TABLE	2024-11-14 21:30:24.450	2024-11-14 21:30:24.480
2	965578478	Suppliers	Production	U	USER_TABLE	2024-11-14 21:30:24.453	2024-11-14 21:30:24.463
3	997578592	Categories	Production	U	USER_TABLE	2024-11-14 21:30:24.460	2024-11-14 21:30:24.467
4	1029578706	Products	Production	U	USER_TABLE	2024-11-14 21:30:24.460	2024-11-14 21:30:24.490
5	1141579105	Customers	Sales	U	USER_TABLE	2024-11-14 21:30:24.467	2024-11-14 21:30:24.483
6	1173579219	Shippers	Sales	U	USER_TABLE	2024-11-14 21:30:24.473	2024-11-14 21:30:24.480
7	1205579333	Orders	Sales	U	USER_TABLE	2024-11-14 21:30:24.477	2024-11-14 21:30:24.500
8	1301579675	OrderDetails	Sales	U	USER_TABLE	2024-11-14 21:30:24.487	2024-11-14 21:30:24.493
9	1461580245	Tests	Stats	U	USER_TABLE	2024-11-14 21:30:24.493	2024-11-14 21:30:24.497
10	1493580359	Scores	Stats	U	USER_TABLE	2024-11-14 21:30:24.493	2024-11-14 21:30:24.497
11	1557580587	Nums	dbo	U	USER_TABLE	2024-11-14 21:30:25.327	2024-11-14 21:30:25.327

✓ Query executed successfully... | DESKTOP-9LCN9IC (16.0 RTM) | DESKTOP-9LCN9IC\UII F... | TSQ2012 | 00:00:00 | 11 rows

4

[Soal-4] Tampilkan semua kolom yang dimiliki tabel Sales.Customers berikut tipe data yang digunakan pada masing-masing kolom.

	column_name	column_id	data_type	max_length	precision	scale	collation_name
1	custid	1	int	4	10	0	NULL
2	companyname	2	nvarchar	80	0	0	SQL_Latin1_General_CP1_CI_AS
3	contactname	3	nvarchar	60	0	0	SQL_Latin1_General_CP1_CI_AS
4	contacttitle	4	nvarchar	60	0	0	SQL_Latin1_General_CP1_CI_AS
5	address	5	nvarchar	120	0	0	SQL_Latin1_General_CP1_CI_AS
6	city	6	nvarchar	30	0	0	SQL_Latin1_General_CP1_CI_AS
7	region	7	nvarchar	30	0	0	SQL_Latin1_General_CP1_CI_AS
8	postalcode	8	nvarchar	20	0	0	SQL_Latin1_General_CP1_CI_AS
9	country	9	nvarchar	30	0	0	SQL_Latin1_General_CP1_CI_AS
10	phone	10	nvarchar	48	0	0	SQL_Latin1_General_CP1_CI_AS
11	fax	11	nvarchar	48	0	0	SQL_Latin1_General_CP1_CI_AS

- Query

```
SELECT
    column_id,
    name AS column_name,
    type_name(user_type_id) AS data_type,
    max_length,
    precision,
    scale,
    collation_name
FROM
    sys.columns
WHERE
    object_id = OBJECT_ID('Sales.Customers');
```

- Hasil Query

	column_id	column_name	data_type	max_length	precision	scale	collation_name
1	1	custid	int	4	10	0	NULL
2	2	companyname	nvarchar	80	0	0	SQL_Latin1_General_CP1_CI_AS
3	3	contactname	nvarchar	60	0	0	SQL_Latin1_General_CP1_CI_AS
4	4	contacttitle	nvarchar	60	0	0	SQL_Latin1_General_CP1_CI_AS
5	5	address	nvarchar	120	0	0	SQL_Latin1_General_CP1_CI_AS
6	6	city	nvarchar	30	0	0	SQL_Latin1_General_CP1_CI_AS
7	7	region	nvarchar	30	0	0	SQL_Latin1_General_CP1_CI_AS
8	8	postalcode	nvarchar	20	0	0	SQL_Latin1_General_CP1_CI_AS
9	9	country	nvarchar	30	0	0	SQL_Latin1_General_CP1_CI_AS
10	10	phone	nvarchar	48	0	0	SQL_Latin1_General_CP1_CI_AS
11	11	fax	nvarchar	48	0	0	SQL_Latin1_General_CP1_CI_AS

✓ Query executed successfully | DESKTOP-9LCN9IC (16.0 RTM) | DESKTOP-9LCN9IC\UII F... | TSQL2012 | 00:00:00 | 11 rows

## Praktikum – Bagian 2: Melakukan Kueri Terhadap System Functions

Langkah	Keterangan
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1

[Soal-5] Buatlah SELECT query untuk menampilkan database yang dipakai, dan pengguna saat ini!

	database_id	database_name	user_id	user_name
1	11	TSQL2012	1	dbo

- Query

```
SELECT
```

```
DB_ID() AS database_id,  
DB_NAME() AS database_name,  
USER_ID() AS user_id,  
USER_NAME() AS user_name;
```

- Hasil Query

	database_id	database_name	user_id	user_name
1	7	TSQL2012	1	dbo

Query executed successfully. DESKTOP-9LCN9IC (16.0 RTM) DESKTOP-9LCN9IC\Uil F... TSQL2012 00:00:00 1 rows

2

[Soal-6] Tulis SQL untuk menampilkan nama objek dan nama schema.

	name	type_desc	object_id	schema_name
1	sysrscols	SYSTEM_TABLE	sysrscols	sys
2	sysrowsets	SYSTEM_TABLE	sysrowsets	sys
3	sysclones	SYSTEM_TABLE	sysclones	sys
4	sysallocunits	SYSTEM_TABLE	sysallocunits	sys
5	sysfiles1	SYSTEM_TABLE	sysfiles1	sys
6	sysseobjvalues	SYSTEM_TABLE	sysseobjvalues	sys
7	syspriorities	SYSTEM_TABLE	syspriorities	sys
8	sysdbfrag	SYSTEM_TABLE	sysdbfrag	sys
9	sysfgfrag	SYSTEM_TABLE	sysfgfrag	sys
10	sysdbfiles	SYSTEM_TABLE	sysdbfiles	sys
11	sys...	SYSTEM_TABLE	sys...	sys

- Query

```
SELECT
```

```
o.name, type_desc,  
o.name AS object_id,  
s.name AS schema_name
```

```
FROM
```

```
sys.objects o
```



JOIN

```
sys.schemas s ON o.schema_id = s.schema_id;
```

- Hasil Query

Results		Messages		
	name	type_desc	object_id	schema_name
1	sysrscols	SYSTEM_TABLE	sysrscols	sys
2	sysrowsets	SYSTEM_TABLE	sysrowsets	sys
3	sysclones	SYSTEM_TABLE	sysclones	sys
4	sysallocunits	SYSTEM_TABLE	sysallocunits	sys
5	sysfiles1	SYSTEM_TABLE	sysfiles1	sys
6	sysseobjvalues	SYSTEM_TABLE	sysseobjvalues	sys
7	syspriorities	SYSTEM_TABLE	syspriorities	sys
8	sysdbfrag	SYSTEM_TABLE	sysdbfrag	sys
9	sysfgfrag	SYSTEM_TABLE	sysfgfrag	sys
10	sysdbfiles	SYSTEM_TABLE	sysdbfiles	sys
11	syspru	SYSTEM_TABLE	syspru	sys
12	sysbrickfiles	SYSTEM_TABLE	sysbrickfiles	sys
13	sysphfg	SYSTEM_TABLE	sysphfg	sys
14	sysprufiles	SYSTEM_TABLE	sysprufiles	sys
15	sysftinds	SYSTEM_TABLE	sysftinds	sys
16	sysowners	SYSTEM_TABLE	sysowners	sys
17	sysdatabases	SYSTEM_TABLE	sysdatabases	sys

Query executed successf... | DESKTOP-9LCN9IC (16.0 RTM) | DESKTOP-9LCN9IC\UII F... | TSQL2012 | 00:00:00 | 159 rows

3

[Soal-7] Buatlah SQL untuk menampilkan data semua kolom dari tabel yang dibuat oleh user, yang di nama kolomnya ada kata "name"

Results		Messages	
	column_name	table_name	schema_name
1	firstname	Employees	HR
2	lastname	Employees	HR
3	companyname	Suppliers	Production
4	contactname	Suppliers	Production
5	categoryname	Categories	Production
6	productname	Products	Production
7	companyname	Customers	Sales
8	contactname	Customers	Sales
9	companyname	Shippers	Sales
10	shipname	Orders	Sales

- Query

SELECT

```
c.name AS column_name,  
t.name AS table_name,  
s.name AS schema_name
```

FROM

```
sys.columns c
```

JOIN

```
sys.tables t ON c.object_id = t.object_id
```

JOIN

```
sys.schemas s ON t.schema_id = s.schema_id
```

WHERE

```
c.name LIKE '%name%';
```

- Hasil Query



Results Messages			
	column_name	table_name	schema_name
1	firstname	Employees	HR
2	lastname	Employees	HR
3	companyname	Suppliers	Production
4	contactname	Suppliers	Production
5	categoryname	Categories	Production
6	productname	Products	Production
7	companyname	Customers	Sales
8	contactname	Customers	Sales
9	companyname	Shippers	Sales
10	shipname	Orders	Sales

Query executed successfully... | DESKTOP-9LCN9IC (16.0 RTM) | DESKTOP-9LCN9IC\UIII F... | TSQL2012 | 00:00:00 | 10 rows

**4** [Soal-8] Tampilkan 'definisi' dari sebuah view yang bernama 'Sales.CustOrders'!

Messages

```

CREATE VIEW Sales.CustOrders
WITH SCHEMABINDING
AS

SELECT
    O.custid,
    DATEADD(month, DATEDIFF(month, 0, O.orderdate), 0) AS ordermonth,
    SUM(OD.qty) AS qty
FROM Sales.Orders AS O
JOIN Sales.OrderDetails AS OD
    ON OD.orderid = O.orderid
GROUP BY custid, DATEADD(month, DATEDIFF(month, 0, O.orderdate), 0);

```

150 %

- Query

```
PRINT OBJECT_DEFINITION(OBJECT_ID('Sales.CustOrders'));
```

- Hasil Query

Messages

```
CREATE VIEW Sales.CustOrders
WITH SCHEMABINDING
AS

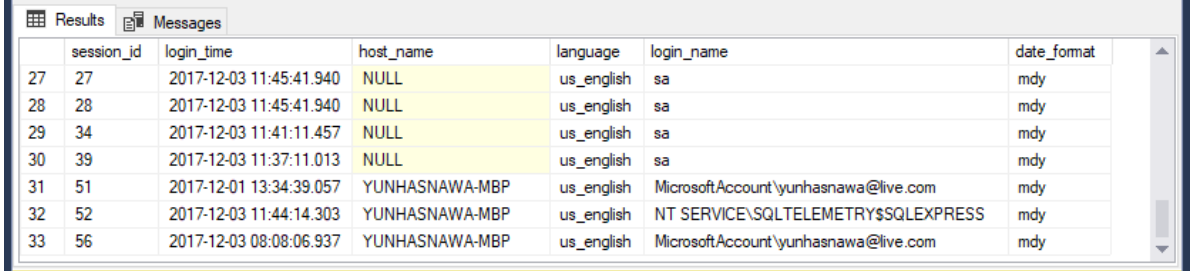
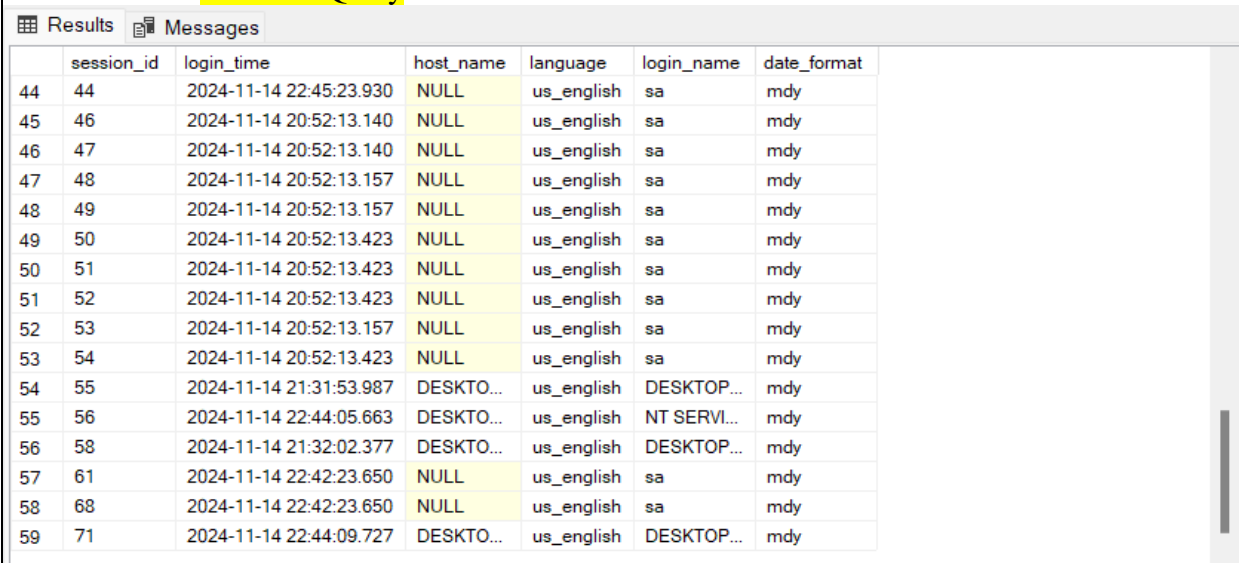
SELECT
    O.custid,
    DATEADD(month, DATEDIFF(month, 0, O.orderdate), 0) AS ordermonth,
    SUM(OD.qty) AS qty
FROM Sales.Orders AS O
    JOIN Sales.OrderDetails AS OD
        ON OD.orderid = O.orderid
GROUP BY custid, DATEADD(month, DATEDIFF(month, 0, O.orderdate), 0);

Completion time: 2024-11-14T22:37:19.7799611+07:00
```

110 %

✓ Query executed successfully. | DESKTOP-9LCN9IC (16.0 RTM) | DESKTOP-9LCN9IC\Uiil F... | TSQL2012 | 00:00:00 | 0 rows

## Praktikum – Bagian 3: System Dynamic Management View

Langkah	Keterangan
1	<p>[Soal-9] Tampilkan semua session yang sedang aktif saat ini!</p>  <ul style="list-style-type: none"> <li>Query</li> </ul> <pre> SELECT     session_id,     login_time,     host_name,     language,     login_name,     date_format FROM     sys.dm_exec_sessions; </pre> <ul style="list-style-type: none"> <li>Hasil Query</li> </ul>  <p>Query executed successf...   DESKTOP-9LCN9IC (16.0 RTM)   DESKTOP-9LCN9IC\Uiil F...   TSQL2012   00:00:00   59 rows</p>



