Basis Data Lanjut

Querying SQL Server Metadata

Dosen Pengampu: Irsyad Arif Mashudi, S.Kom., M.Kom.

Nama : Maulana Bintang Irfansyah

NIM : 2041720132

Kelas : TI-2H

POLITEKNIK NEGERI MALANG

JURUSAN TEKNOLOGI INFORMASI

PROGRAM STUDI D-IV TEKNIK INFORMATIKA

KOTA MALANG

2021

Praktikum 1: View-view yang berkaitan dengan System Catalog

1. Buatlah SQL yang menampilkan nama, id, dan tanggal pembuatan semua database yang ada di server SQL Server!

   Jawaban:

```sql
-- Maulana Bintang Irfansyah - 15 - TI 2H
SELECT * FROM sys.sysdatabases;

SELECT
    name, dbid AS database_id, crdate AS create_date
FROM sys.sysdatabases;
```

	name	database_id	create_date
1	master	1	2003-04-08 09:13:36.390
2	tempdb	2	2021-11-10 13:05:54.800
3	model	3	2003-04-08 09:13:36.390
4	msdb	4	2019-09-24 14:21:42.270
5	TSQL	5	2021-11-09 12:56:59.880
6	tokosepeda	6	2021-11-24 17:16:30.217

2. Buatlah SQL yang menampilkan data-data semua tabel yang dibuat oleh pengguna (users)!

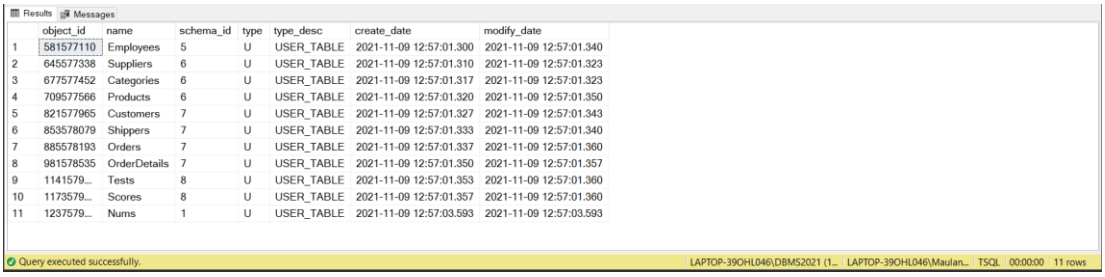
   Petunjuk: Perhatikan tabel berikut untuk memfilter tabel yang sesuai!

	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

   Jawaban:

```sql
-- Maulana Bintang Irfansyah - 15 - TI 2H
SELECT * FROM sys.objects;

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



	object_id	name	schema_id	type	type_desc	create_date	modify_date
1	581577110	Employees	5	U	USER_TABLE	2021-11-09 12:57:01.300	2021-11-09 12:57:01.340
2	645577338	Suppliers	6	U	USER_TABLE	2021-11-09 12:57:01.310	2021-11-09 12:57:01.323
3	677577452	Categories	6	U	USER_TABLE	2021-11-09 12:57:01.317	2021-11-09 12:57:01.323
4	709577566	Products	6	U	USER_TABLE	2021-11-09 12:57:01.320	2021-11-09 12:57:01.350
5	821577965	Customers	7	U	USER_TABLE	2021-11-09 12:57:01.327	2021-11-09 12:57:01.343
6	853578079	Shippers	7	U	USER_TABLE	2021-11-09 12:57:01.333	2021-11-09 12:57:01.340
7	885578193	Orders	7	U	USER_TABLE	2021-11-09 12:57:01.337	2021-11-09 12:57:01.360
8	981578535	OrderDetails	7	U	USER_TABLE	2021-11-09 12:57:01.350	2021-11-09 12:57:01.357
9	1141579...	Tests	8	U	USER_TABLE	2021-11-09 12:57:01.353	2021-11-09 12:57:01.360
10	1173579...	Scores	8	U	USER_TABLE	2021-11-09 12:57:01.357	2021-11-09 12:57:01.360
11	1237579...	Nums	1	U	USER_TABLE	2021-11-09 12:57:03.593	2021-11-09 12:57:03.593

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

Jawaban:

```
51 - Lab Exercise 1...aulana Bintang (55))*
-- Maulana Bintang Irfansyah - 15 - TI 2H
SELECT * FROM sys.tables;

SELECT
    object_id, name, SCHEMA_NAME(schema_id) AS schemaname, type, type_desc,
    create_date, modify_date
FROM sys.tables
WHERE type = N'U';
```

	object_id	name	schemaname	type	type_desc	create_date	modify_date
1	581577110	Employees	HR	U	USER_TABLE	2021-11-09 12:57:01.300	2021-11-09 12:57:01.340
2	645577338	Suppliers	Production	U	USER_TABLE	2021-11-09 12:57:01.310	2021-11-09 12:57:01.323
3	677577452	Categories	Production	U	USER_TABLE	2021-11-09 12:57:01.317	2021-11-09 12:57:01.323
4	709577566	Products	Production	U	USER_TABLE	2021-11-09 12:57:01.320	2021-11-09 12:57:01.350
5	821577965	Customers	Sales	U	USER_TABLE	2021-11-09 12:57:01.327	2021-11-09 12:57:01.343
6	853578079	Shippers	Sales	U	USER_TABLE	2021-11-09 12:57:01.333	2021-11-09 12:57:01.340
7	885578193	Orders	Sales	U	USER_TABLE	2021-11-09 12:57:01.337	2021-11-09 12:57:01.360
8	981578535	OrderDetails	Sales	U	USER_TABLE	2021-11-09 12:57:01.350	2021-11-09 12:57:01.357
9	1141579105	Tests	Stats	U	USER_TABLE	2021-11-09 12:57:01.353	2021-11-09 12:57:01.360
10	1173579219	Scores	Stats	U	USER_TABLE	2021-11-09 12:57:01.357	2021-11-09 12:57:01.360
11	1237579447	Nums	dbo	U	USER_TABLE	2021-11-09 12:57:03.593	2021-11-09 12:57:03.593

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

Jawaban:

```
51 - Lab Exercise 1...aulana Bintang (55))
-- Maulana Bintang Irfansyah - 15 - TI 2H
SELECT * FROM sys.columns;
SELECT * FROM Sales.Customers;

SELECT
    c.name AS column_name, c.column_id, c.system_type_id, c.max_length,
    c.precision, c.scale, c.collation_name
FROM sys.columns AS c
WHERE object_id = OBJECT_ID('Sales.Customers')
ORDER BY c.column_id;
```

Results Messages

	column_name	column_id	system_type_id	max_length	precision	scale	collation_name
1	custid	1	56	4	10	0	NULL
2	companyname	2	231	80	0	0	SQL_Latin1_General_CP1_CI_AS
3	contactname	3	231	60	0	0	SQL_Latin1_General_CP1_CI_AS
4	contacttitle	4	231	60	0	0	SQL_Latin1_General_CP1_CI_AS
5	address	5	231	120	0	0	SQL_Latin1_General_CP1_CI_AS
6	city	6	231	30	0	0	SQL_Latin1_General_CP1_CI_AS
7	region	7	231	30	0	0	SQL_Latin1_General_CP1_CI_AS
8	postalcode	8	231	20	0	0	SQL_Latin1_General_CP1_CI_AS
9	country	9	231	30	0	0	SQL_Latin1_General_CP1_CI_AS
10	phone	10	231	48	0	0	SQL_Latin1_General_CP1_CI_AS
11	fax	11	231	48	0	0	SQL_Latin1_General_CP1_CI_AS

Query executed successfully. LAPTOP-39OHL046\DBMS2021 (1... LAPTOP-39OHL046\Maulan... TSQL 00:00:00 11 rows

Praktikum 2: Melakukan Query terhadap System Functions

5. Buatlah SELECT query untuk menampilkan database yang dipakai, dan pengguna saat ini!

   Jawaban:

61 - Lab Exercise 2...aulana Bintang (55))*

```
-- Maulana Bintang Irfansyah - 15 - TI 2H
SELECT
    DB_ID() AS database_id,
    DB_NAME(DB_ID()) AS database_name,
    USER_ID() AS user_id,
    USER_NAME() AS user_name;
```

Results Messages

	database_id	database_name	user_id	user_name
1	5	TSQL	1	dbo

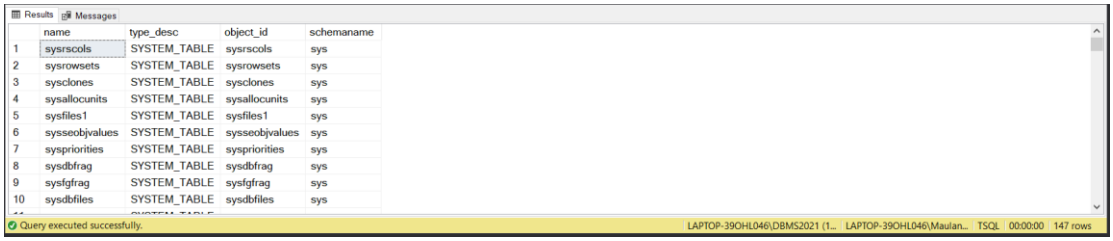
Query executed successfully. LAPTOP-39OHL046\DBMS2021 (1... LAPTOP-39OHL046\Maulan... TSQL 00:00:00 1 rows

6. Tulis SQL untuk menampilkan nama objek dan nama schema.

   Jawaban:

61 - Lab Exercise 2...aulana Bintang (55))

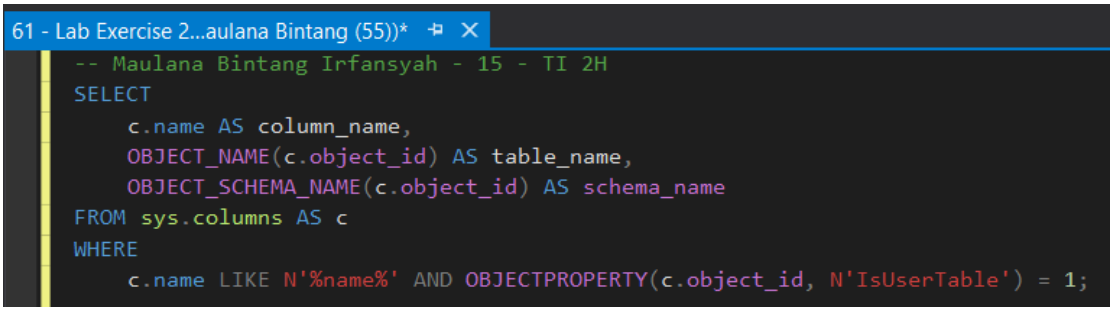
```
-- Maulana Bintang Irfansyah - 15 - TI 2H
SELECT
    name, type_desc,
    OBJECT_NAME(object_id) AS object_id,
    OBJECT_SCHEMA_NAME(object_id) AS schemaname
FROM sys.objects;
```



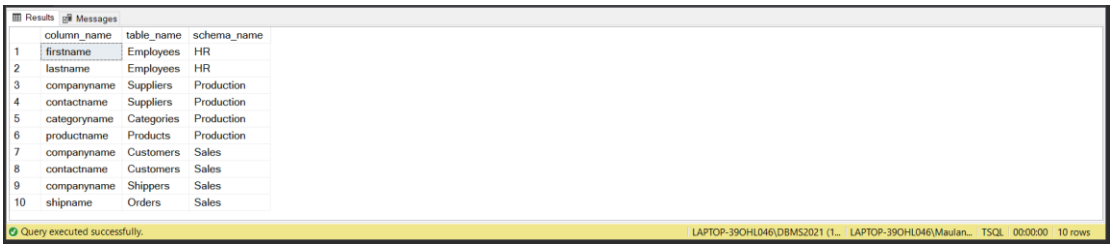
	name	type_desc	object_id	schemaname
1	sysrscols	SYSTEM_TABLE	sysrscols	sys
2	sysrowsets	SYSTEM_TABLE	sysrowsets	sys
3	sysclones	SYSTEM_TABLE	sysclones	sys
4	sysallocunits	SYSTEM_TABLE	sysallocunits	sys
5	sysfiles1	SYSTEM_TABLE	sysfiles1	sys
6	sysseobjvalues	SYSTEM_TABLE	sysseobjvalues	sys
7	syspriorities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

7. Buatlah SQL untuk menampilkan data semua kolom dari tabel yang dibuat oleh user, yang di nama kolomnya ada kata "name"!

Jawaban:



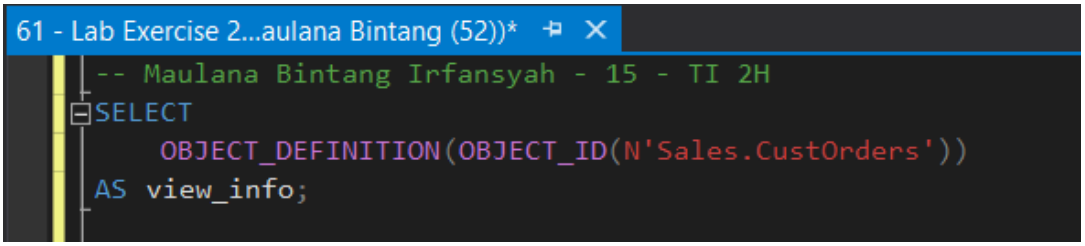
```sql
-- Maulana Bintang Irfansyah - 15 - TI 2H
SELECT
    c.name AS column_name,
    OBJECT_NAME(c.object_id) AS table_name,
    OBJECT_SCHEMA_NAME(c.object_id) AS schema_name
FROM sys.columns AS c
WHERE
    c.name LIKE N'%name%' AND OBJECTPROPERTY(c.object_id, N'IsUserTable') = 1;
```



	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

8. Tampilkan 'definisi' dari sebuah view yang bernama 'Sales.CustOrders'!

Jawaban:



```sql
-- Maulana Bintang Irfansyah - 15 - TI 2H
SELECT
    OBJECT_DEFINITION(OBJECT_ID(N'Sales.CustOrders'))
AS view_info;
```

```
view_info
--------------------------------------------------------------------------------

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.orde

(1 row affected)
```

Praktikum 3: System Dynamic Management View

9. Tampilkan semua session yang sedang aktif saat ini!

Jawaban:

```
71 - Lab Exercise 3...aulana Bintang (52))*
-- Maulana Bintang Irfansyah - 15 - TI 2H
SELECT
    session_id, login_time, host_name, language, date_format
FROM sys.dm_exec_sessions;
```

Results Messages

	session_id	login_time	host_name	language	date_format
1	1	2021-11-10 13:05:54.380	NULL	us_english	mdy
2	2	2021-11-10 13:05:54.380	NULL	us_english	mdy
3	3	2021-11-10 13:05:54.387	NULL	us_english	mdy
4	4	2021-11-10 13:05:54.407	NULL	us_english	mdy
5	5	2021-11-10 13:05:54.407	NULL	us_english	mdy
6	6	2021-11-10 13:05:54.407	NULL	us_english	mdy
7	7	2021-11-10 13:05:54.407	NULL	us_english	mdy
8	8	2021-11-10 13:05:54.427	NULL	us_english	mdy
9	9	2021-11-10 13:05:54.427	NULL	us_english	mdy
10	10	2021-11-10 13:05:54.427	NULL	us_english	mdy
11	11	2021-11-10 13:05:54.427	NULL	us_english	mdy
12	12	2021-11-10 13:05:54.427	NULL	us_english	mdy
13	13	2021-11-10 13:05:54.427	NULL	us_english	mdy

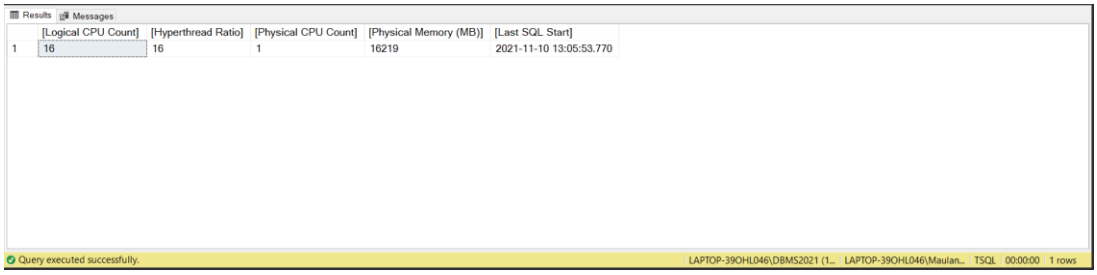
Query executed successfully. LAPTOP-39OHL046\DBMS2021 (1... LAPTOP-39OHL046\Maulan... TSQL 00:00:00 58 rows

10. Eksekusilah SQL berikut dan screenshot-lah hasilnya!

```
SELECT
    cpu_count AS [Logical CPU Count],
    hyperthread_ratio AS [Hyperthread Ratio],
    cpu_count / hyperthread_ratio AS [Physical CPU Count],
    physical_memory_kb / 1024 AS [RAM (MB)],
    sqlserver_start_time AS [Last SQL Server Start]
FROM
    sys.dm_os_sys_info;
```

Jawaban:

```
71 - Lab Exercise 3...aulana Bintang (52))*
-- Maulana Bintang Irfansyah - 15 - TI 2H
SELECT
    cpu_count AS '[Logical CPU Count]',
    hyperthread_ratio AS '[Hyperthread Ratio]',
    cpu_count/hyperthread_ratio As '[Physical CPU Count]',
    physical_memory_kb/1024 AS '[Physical Memory (MB)]',
    sqlserver_start_time AS '[Last SQL Start]'
FROM sys.dm_os_sys_info;
```

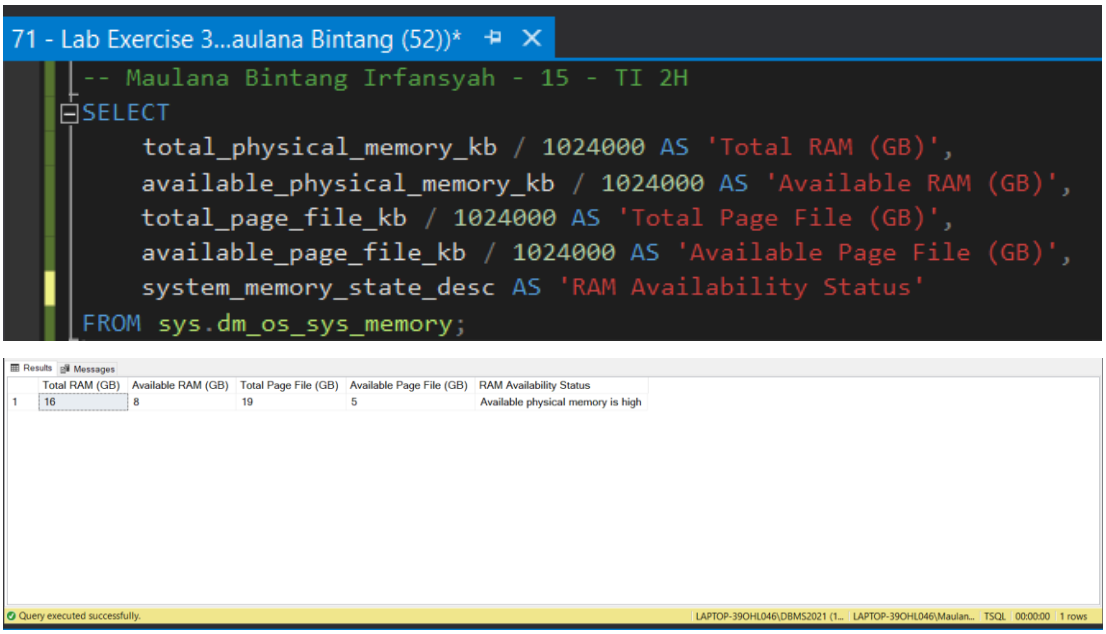


	[Logical CPU Count]	[Hyperthread Ratio]	[Physical CPU Count]	[Physical Memory (MB)]	[Last SQL Start]
1	16	16	1	16219	2021-11-10 13:05:53.770

Query executed successfully. LAPTOP-39OHL046\DBMS2021 (1... LAPTOP-39OHL046\Maulan... TSQL 00:00:00 1 rows

11. Tulislah SQL untuk menampilkan info memory (RAM) dari PC Anda!

Jawaban:



```sql
-- Maulana Bintang Irfansyah - 15 - TI 2H
SELECT
    total_physical_memory_kb / 1024000 AS 'Total RAM (GB)',
    available_physical_memory_kb / 1024000 AS 'Available RAM (GB)',
    total_page_file_kb / 1024000 AS 'Total Page File (GB)',
    available_page_file_kb / 1024000 AS 'Available Page File (GB)',
    system_memory_state_desc AS 'RAM Availability Status'
FROM sys.dm_os_sys_memory;
```


	Total RAM (GB)	Available RAM (GB)	Total Page File (GB)	Available Page File (GB)	RAM Availability Status
1	16	8	19	5	Available physical memory is high

Query executed successfully. LAPTOP-39OHL046\DBMS2021 (1... LAPTOP-39OHL046\Maulan... TSQL 00:00:00 1 rows