

# BDM 1034 - Application Design for Big Data Lab3

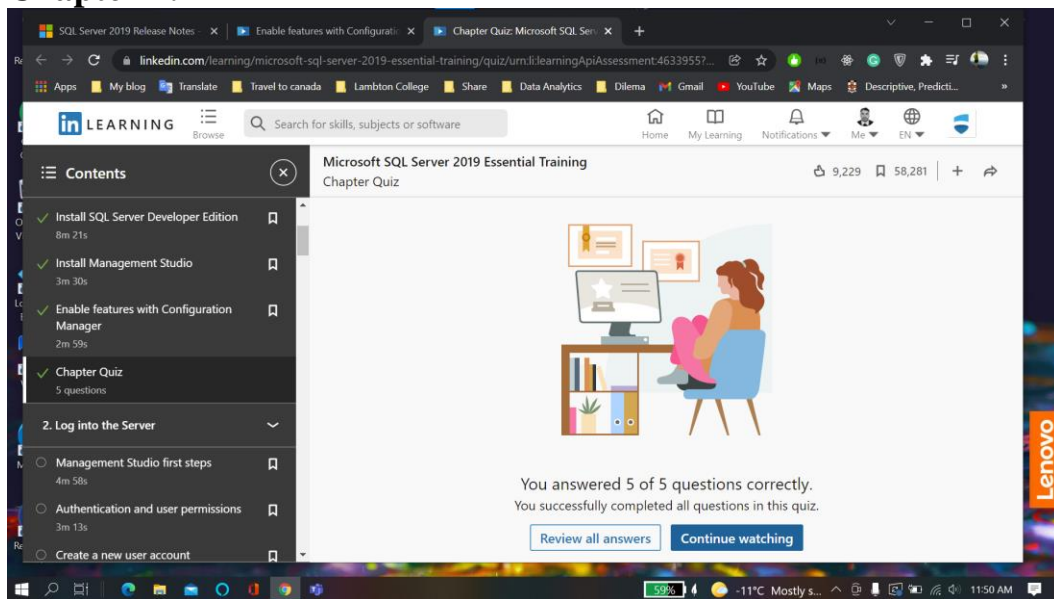
Submitted by: Aadarsha Chapagain

Student ID:C0825975

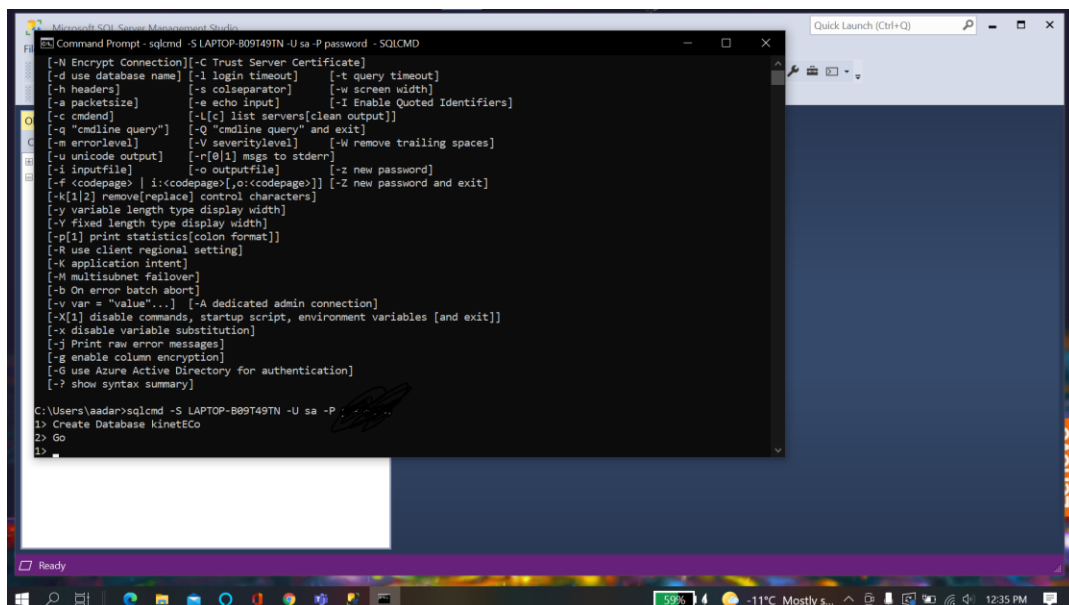
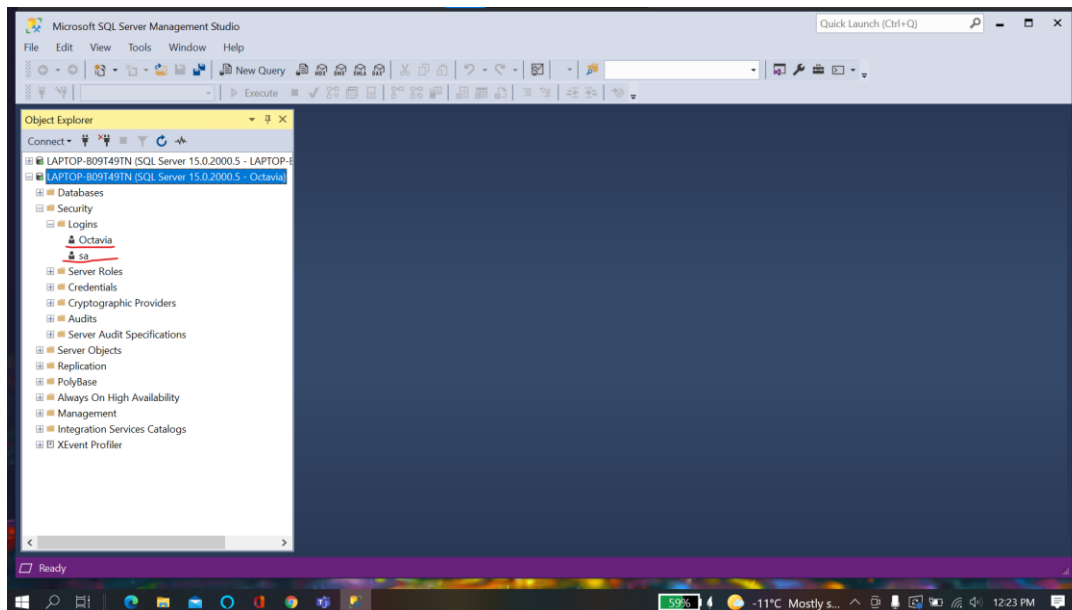
Submitted to: Prof. Teresa Zhu

Here I have attached the certificate I achieved from LinkedIn learning for Course “**Microsoft SQL Server 2019 Essential Training**” along with the Screenshot of score I achieved

## Chapter 1:



## Chapter 2: Login with different user



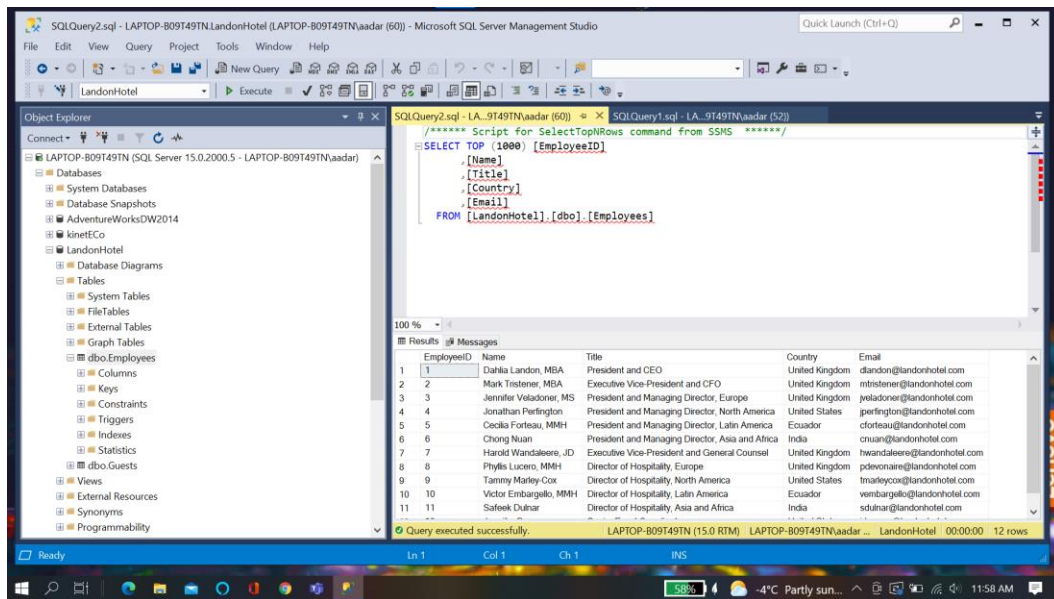
## Chapter Quiz:

The screenshot shows a web browser window displaying a LinkedIn Learning page. The page title is 'Microsoft SQL Server 2019 Essential Training Chapter Quiz'. On the left, a 'Contents' sidebar lists various topics, with 'Chapter Quiz' highlighted. The main content area features an illustration of a person at a desk and a message stating: 'You answered 3 of 3 questions correctly. You successfully completed all questions in this quiz.' Below this message are two buttons: 'Review all answers' and 'Continue watching'. The bottom of the screen shows a Windows taskbar with the time 12:21 PM and a battery level of 59%.

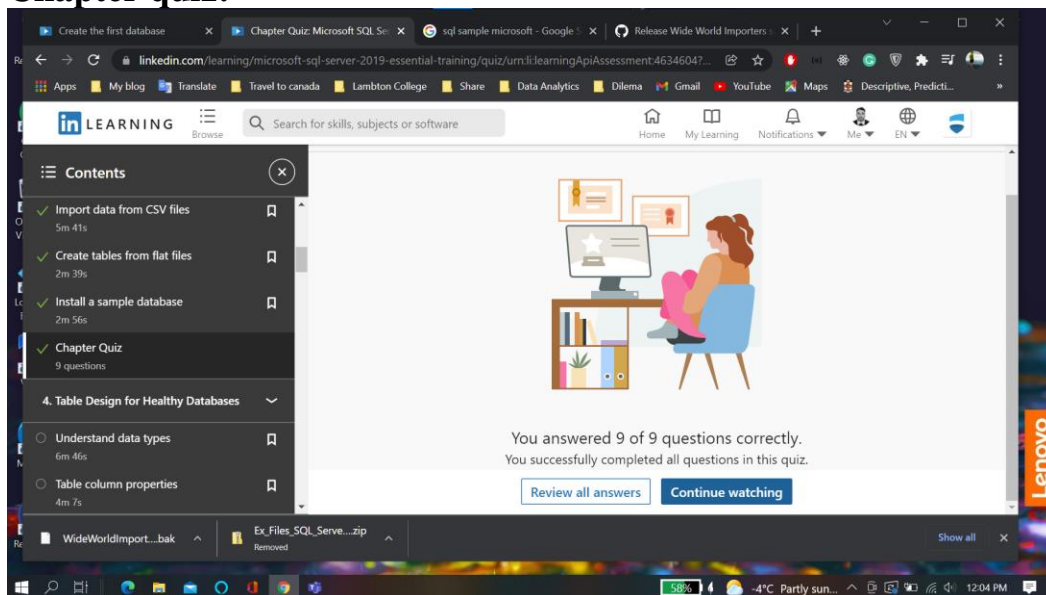
## Chapter 3: Create Databases

The screenshot displays the Microsoft SQL Server Enterprise Manager interface. The 'Object Explorer' on the left shows the 'LandonHotel' database structure, including tables, views, and statistics. The 'Query Editor' window shows a SQL query that selects the top 1000 rows from the 'dbo.Guests' table, displaying columns: FirstName, LastName, Address, City, State, PostalCode, and Country. The 'Results' pane at the bottom shows the output of the query, which is a table with 7 rows of guest data.

FirstName	LastName	Address	City	State	PostalCode	Country
Katherine	Reed	8 Maple Parkway	Redding	CA	96003	United States
Eric	Bryant	NULL	NULL	NULL	NULL	NULL
Kimberly	Freeman	NULL	Lansing	MI	48823	United States
Linda	Moreno	NULL	Albany	NY	12203	United States
Michelle	Nguyen	NULL	Santa Barbara	CA	93108	United States
Thomas	Fisher	NULL	Charlotte	NC	28078	United States
Frances	Sanders	NULL	Eugene	OR	97401	United States



## Chapter quiz:



## Chapter 4:

### Primary Key and default value

The screenshot shows the Microsoft SQL Server Enterprise Manager interface. The left pane displays the Object Explorer with the database structure expanded to show the 'dbo.Guests' table. The right pane shows the table's data. The table has columns: GuestID (PK, int, not null), FirstName (nvarchar(50), not null), LastName (nvarchar(50), not null), Address (nvarchar(100), null), City (nvarchar(50), null), State (nvarchar(25), null), PostalCode (nvarchar(20), null), Country (nvarchar(50), null), and TimeStamp (datetime2(7), null). The data includes 10 rows, with the last row being a new entry with NULL values for all fields except TimeStamp, which is 2022-02-10.

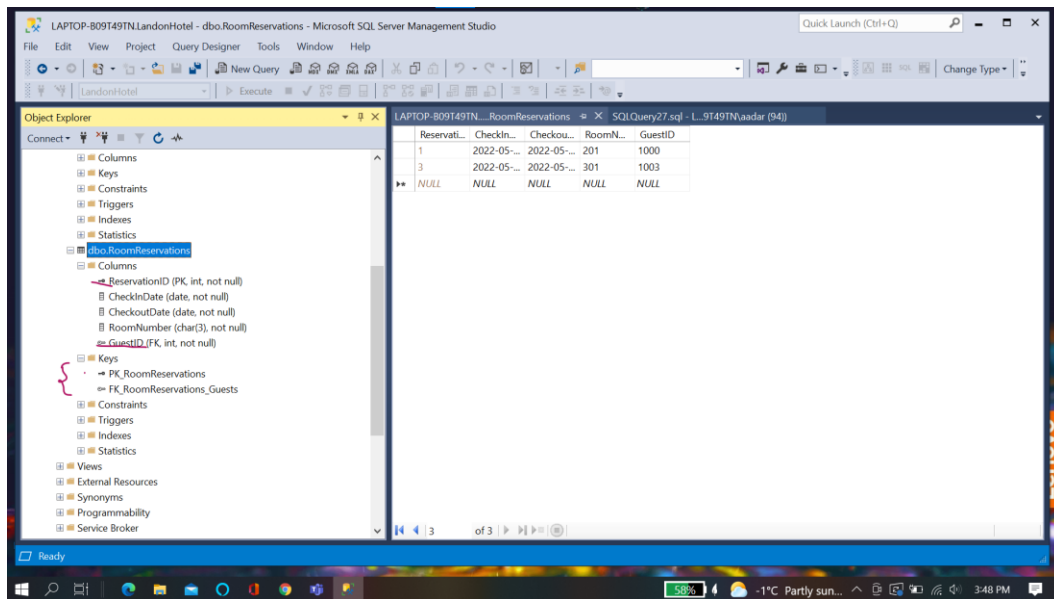
GuestID	FirstName	LastName	Address	City	State	PostalCo...	Country	TimeSta...
1000	Katherine...	Reid	8 Maple ...	Redding	CA	96003	United St...	NULL
1001	Eric	Bryant	NULL	NULL	NULL	NULL	NULL	NULL
1002	Kimberly	Freeman	37717 R...	Lansing	MI	48823	United St...	NULL
1003	Linda	Moreno	3593 At...	Albany	NY	12203	United St...	NULL
1004	Michelle	Nguyen	7396 Can...	Santa Bar...	CA	93108	United St...	NULL
1005	Thomas	Fisher	27 Fulton...	Charlotte...	NC	28078	United St...	NULL
1006	Frances	Sanders	98830 Sc...	Eugene	OR	97401	United St...	NULL
1007	Ernest	Hamilton...	123 Main...	Seattle	WA	98101	United St...	NULL
1008	Roy	Tucker	NULL	NULL	NULL	NULL	United St...	2022-02-...
NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

### Unique Constraints through index

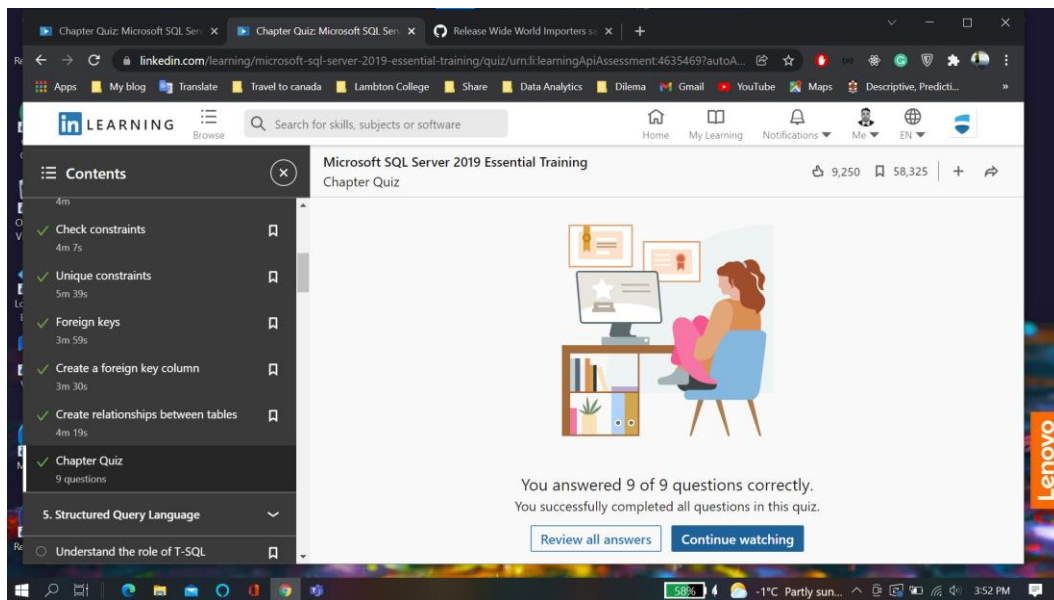
The screenshot shows the Microsoft SQL Server Enterprise Manager interface. The left pane displays the Object Explorer with the database structure expanded to show the 'dbo.Employees' table. The right pane shows the table's data. The table has columns: EmployeeID (PK, int, not null), Name (nvarchar(50), not null), Title (nvarchar(50), not null), Country (nvarchar(50), not null), and Email (nvarchar(100), not null). The data includes 13 rows, with the last row being a new entry with NULL values for all fields except Email, which is 'jlawson.dawson@landonhotel.com'.

Employee...	Name	Title	Country	Email
1	Dahlia La...	President...	United Ki...	dlandon@landonhotel.com
2	Mark Tris...	Executive...	United Ki...	mtristener@landonhotel.com
3	Jennifer	President...	United Ki...	jveladoner@landonhotel.com
4	Jonathan...	President...	United St...	jperlington@landonhotel.com
5	Cecilia Fo...	President...	Ecuador	cforteau@landonhotel.com
6	Chong N...	President...	India	cuuan@landonhotel.com
7	Harold	Executive...	United Ki...	hwandaleere@landonhotel.com
8	Phyllis Lu...	Director	United Ki...	pdevonaire@landonhotel.com
9	Tammy	Director	United St...	tmarleycox@landonhotel.com
10	Victor E...	Director	Ecuador	vembargello@landonhotel.com
11	Safeek D...	Director	India	sdulnar@landonhotel.com
12	Jennifer	Senior Ev...	United St...	jlawson@landonhotel.com
13	Jason Da...	Junior Ex...	United St...	jlawson.dawson@landonhotel.com
NULL	NULL	NULL	NULL	NULL

## Relationship between Tables:



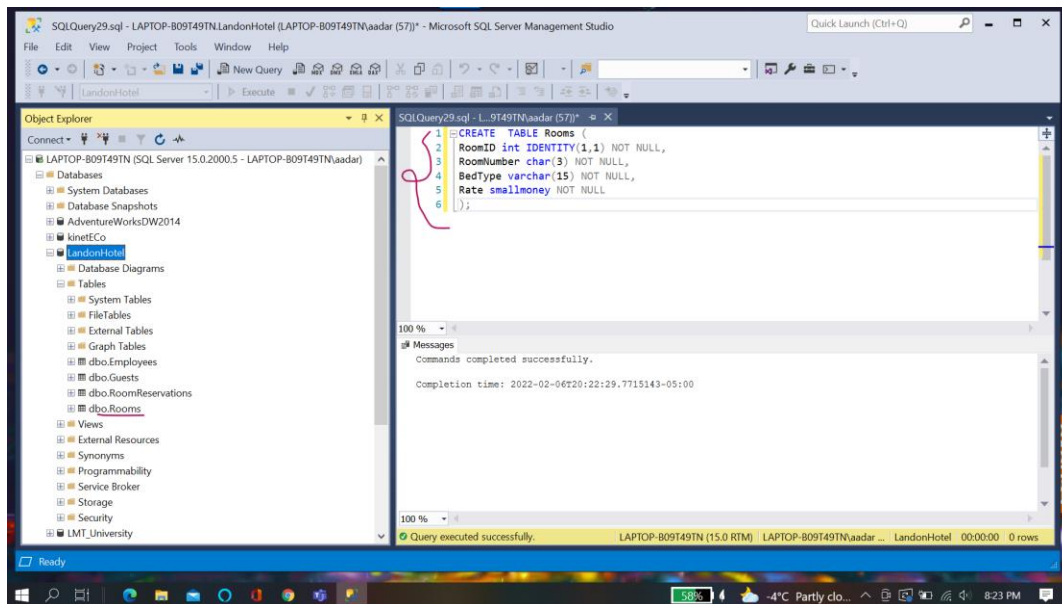
## Chapter Quiz:



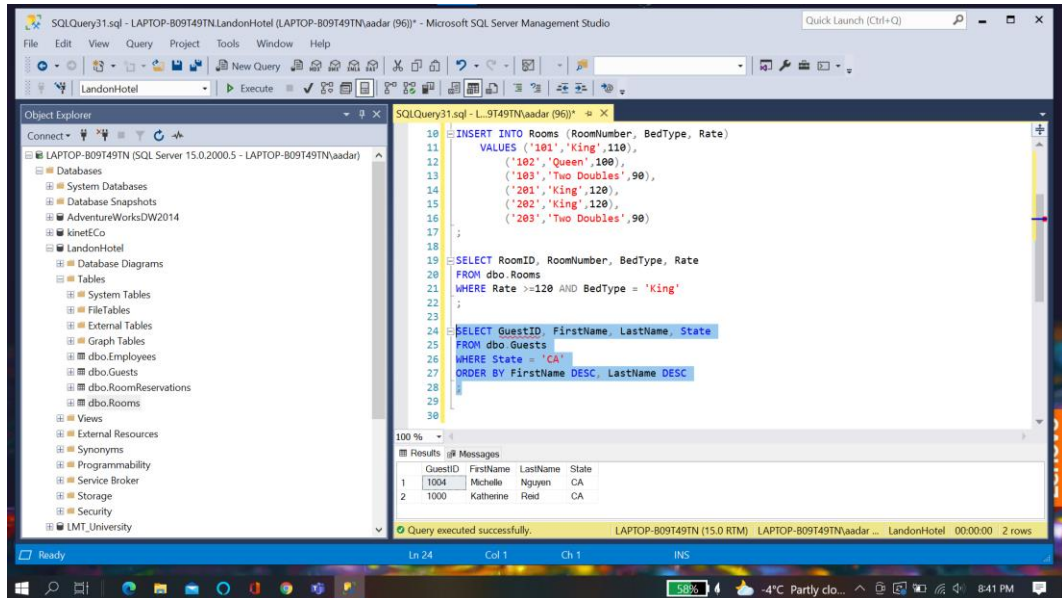


## Chapter 5:

### Create Table



### Sort Data



## Join

The screenshot shows the Microsoft SQL Server Management Studio interface. The Object Explorer on the left displays the database structure for 'LandonHotel'. The main window shows a SQL query with two INNER JOINs. The results pane at the bottom displays a single row of data.

```
1 SELECT * FROM Guests;  
2 SELECT * FROM RoomReservations;  
3 SELECT * FROM Rooms;  
4  
5  
6 SELECT Guests.FirstName,  
7        Guests.LastName,  
8        RoomReservations.CheckInDate,  
9        RoomReservations.CheckOutDate,  
10       RoomReservations.RoomNumber,  
11       Rooms.BedType,  
12       Rooms.Rate  
13 FROM Guests INNER JOIN RoomReservations ON Guests.GuestID = RoomReservations.GuestID  
14        INNER JOIN Rooms ON RoomReservations.RoomNumber = Rooms.RoomNumber  
15
```

FirstName	LastName	CheckInDate	CheckOutDate	RoomNumber	BedType	Rate
Katherine	Reid	2019-05-13	2019-05-14	201	King	120.00

Query executed successfully. LAPTOP-809T49TN (15.0 RTM) LAPTOP-809T49TN\aadar ... LandonHotel 00:00:00 1 rows

## Chapter Quiz:

The screenshot shows a LinkedIn Learning page for a chapter quiz. The quiz is titled 'Microsoft SQL Server 2019 Essential Training Chapter Quiz'. The user has completed the quiz with a score of 12 out of 12 questions correct.

**Contents**

- Join related tables (3m 4s)
- LEFT JOIN and RIGHT JOIN (5m 1s)
- Remove a table from the database (2m 16s)
- Chapter Quiz (4m 6s)
- 6. Query Performance (12 questions)
- Create a view of the data (7m 37s)
- Data table indexes (2m 50s)
- Create additional indexes on a table

You answered 12 of 12 questions correctly.  
You successfully completed all questions in this quiz.

[Review all answers](#) [Continue watching](#)



## Chapter 6:

### Views:

The screenshot shows the Microsoft SQL Server Management Studio interface. The Object Explorer on the left displays the database structure for 'LAPTOP-B09T49TN'. The main window shows the 'SQL Query32.sql' file with the following T-SQL code:

```
SELECT TOP (100) PERCENT dbo.Guests.FirstName, dbo.Guests.LastName, dbo.Guests.City, dbo.Guests.State, dbo.RoomReservations.CheckInDate, db
FROM
  dbo.Guests INNER JOIN
    dbo.RoomReservations ON dbo.Guests.GuestID = dbo.RoomReservations.GuestID INNER JOIN
      dbo.Rooms ON dbo.RoomReservations.RoomNumber = dbo.Rooms.RoomNumber
ORDER BY dbo.Guests.LastName, dbo.Guests.FirstName
```

The 'Columns' pane on the right shows the columns selected for the query:

Column	Alias	Table	Output	Sort Type	Sort Order	Filter	Or...	Or...
FirstName		Guests	<input checked="" type="checkbox"/>	Ascending	2			
LastName		Guests	<input checked="" type="checkbox"/>	Ascending	1			
City		Guests	<input checked="" type="checkbox"/>					
State		Guests	<input checked="" type="checkbox"/>					
CheckInDate		RoomRese...	<input checked="" type="checkbox"/>					
CheckOutDate		RoomRese...	<input checked="" type="checkbox"/>					
RoomNumber		Rooms	<input checked="" type="checkbox"/>					
BedType		Rooms	<input checked="" type="checkbox"/>					
Rate		Rooms	<input checked="" type="checkbox"/>					

### Execution Plan:

The screenshot shows the Microsoft SQL Server Management Studio interface with the query executed. The 'Execution plan' tab is selected, displaying the following plan:

```
Query 1: Query cost (relative to the batch): 100%
Select * from ReservationDetails
```

The execution plan shows the following operators and their costs:

- SELECT** (Cost: 0 %)
- Nested Loops (Inner Join)** (Cost: 0 %)
- Nested Loops (Inner Join)** (Cost: 1 %)
- Table Scan ([Rooms])** (Cost: 32 %)
- Clustered Index Seek (C\_([Guests].[PK\_Guests])** (Cost: 32 %)
- Clustered Index Scan (C\_([RoomReservations].[PK\_...])** (Cost: 36 %)

The status bar at the bottom indicates: 'Query executed successfully. LAPTOP-B09T49TN (15.0 RTM) LAPTOP-B09T49TN\aadar ... LandonHotel 00:00:00 1 rows'.

## Chapter quiz:

The screenshot shows a web browser window displaying a LinkedIn Learning page. The page title is 'Microsoft SQL Server 2019 Essential Training Chapter Quiz'. On the left, a 'Contents' sidebar lists various topics, with 'Chapter Quiz' highlighted. The main content area features an illustration of a person at a desk and a message stating: 'You answered 7 of 7 questions correctly. You successfully completed all questions in this quiz.' Below this message are two buttons: 'Review all answers' and 'Continue watching'. The browser's address bar shows a URL from linkedin.com. The Windows taskbar at the bottom indicates the system time is 11:52 PM and the temperature is -4°C.

## Chapter 7:

### Aggregates:

The screenshot displays the Microsoft SQL Server Management Studio interface. The 'Object Explorer' on the left shows the database structure, including 'AdventureWorksDW2014'. The 'Query Editor' window shows a SQL query that uses aggregate functions to find the state with the highest and lowest recorded populations. The 'Results' pane at the bottom shows the output of the query, which is a table with two columns: 'StateProvinceName' and 'LatestRecordedPopulation'.

```
44 -- Subquery
45 SELECT StateProvinceName, LatestRecordedPopulation
46 FROM Application.StateProvinces
47 WHERE LatestRecordedPopulation =
48     (SELECT MAX(LatestRecordedPopulation) FROM Application.StateProvinces)
49
50
51 SELECT StateProvinceName, LatestRecordedPopulation
52 FROM Application.StateProvinces
53 WHERE LatestRecordedPopulation =
54     (SELECT AVG(LatestRecordedPopulation) FROM Application.StateProvinces)
55
```

StateProvinceName	LatestRecordedPopulation
1 Arizona	6891688
2 California	41480453
3 Florida	21148372
4 Georgia	9992167
5 Illinois	13397420
6 Indiana	6570902
7 Massachusetts[E]	6990536
8 Michigan	9895622
9 New Jersey	8890339
10 New York	20437172
11 North Carolina	10241062

## Function

The screenshot shows the Microsoft SQL Server Management Studio interface. The Object Explorer on the left displays the database structure for 'WideWorldImporters'. The main query window contains the following SQL code:

```
4 CREATE FUNCTION Warehouse.ToFahrenheit (@Celsius decimal(10,2))
5 RETURNS decimal(10,2)
6 AS
7 BEGIN
8 DECLARE @Fahrenheit decimal(10,2);
9 SET @Fahrenheit = (@Celsius * 1.8 + 32);
10 RETURN @Fahrenheit
11 END;
12
13 -- use the custom function in a select statement
14 SELECT TOP 100 VehicleTemperatureID
15 Temperature AS Celsius,
16 Warehouse.ToFahrenheit(Temperature) AS Fahrenheit
17 FROM Warehouse.VehicleTemperatures;
```

The Results pane at the bottom shows the output of the query, displaying a table with columns 'VehicleTemperatureID', 'Celsius', and 'Fahrenheit'.

VehicleTemperatureID	Celsius	Fahrenheit
1	65724	3.83
2	65735	4.27
3	65741	3.83
4	65742	4.25
5	65744	4.08
6	65745	4.53
7	65746	3.35
8	65747	3.32

The status bar at the bottom indicates the query was executed successfully, returning 100 rows.

## Stored Procedure:

The screenshot shows the Microsoft SQL Server Management Studio interface. The Object Explorer on the left displays the database structure for 'WideWorldImporters'. The main query window contains the following SQL code:

```
34 Warehouse.StockItemHoldings.ReorderLevel AS 'Reorder Level'
35 FROM Warehouse.StockItemHoldings INNER JOIN
36 Warehouse.StockItems ON Warehouse.StockItemID = Warehouse.StockItemID
37 WHERE ReorderLevel > QuantityOnHand
38 ORDER BY 'On Hand';
39 GO
40
41 -- execute the stored procedure
42 EXECUTE Warehouse.uspLowInventory
43
44 -- clean up the WideWorldImporters database
45 DROP PROCEDURE Warehouse.uspLowInventory;
46 GO
```

The Results pane at the bottom shows the output of the query, displaying a table with columns 'ID', 'Item Name', 'On Hand', and 'Reorder Level'.

ID	Item Name	On Hand	Reorder Level
1	86 "The Gu" red shirt XML tag t-shirt (White) 5XL	3	5
2	184 Shipping carton (Brown) 305x305x305mm	38	50

The status bar at the bottom indicates the query was executed successfully, returning 2 rows.

## Parameterized Procedure:

The screenshot shows the Microsoft SQL Server Enterprise Manager interface. The Object Explorer on the left displays the database structure, including the 'WideWorldImporters' database. The central pane shows the SQL query editor with the following code:

```
44 Warehouse.StockItems ON Warehouse.Colors.ColorID = Warehouse.StockItems.ColorID INNER
45 ;
46 WHERE ColorName = @paramColor
47 ;
48 GO
49
50 EXEC Warehouse.uspSelectProductsByColor;
51 GO
52 EXEC Warehouse.uspSelectProductsByColor 'Red'
53 GO
54
55 -- clean up the WideWorldImporters database
56 DROP PROCEDURE Warehouse.uspSelectProductsByColor;
57 GO
```

The Results pane at the bottom displays the output of the query, showing a table with 5 rows of data:

StockItemID	StockItemName	QuantityOnHand	RecommendedRetailPrice	ColorName
50	RC toy sedan car with remote control (Red) 1/50 s...	100946	37.38	Red
64	RC vintage American toy coupe with remote contr...	213248	44.85	Red
68	Ride on toy sedan car (Red) 1/12 scale	80953	343.85	Red
73	Ride on vintage American toy coupe (Red) 1/12 sc...	106477	426.08	Red
176	Bubblewrap dispenser (Red) 1.5m	41251	358.80	Red

## Chapter Quiz:

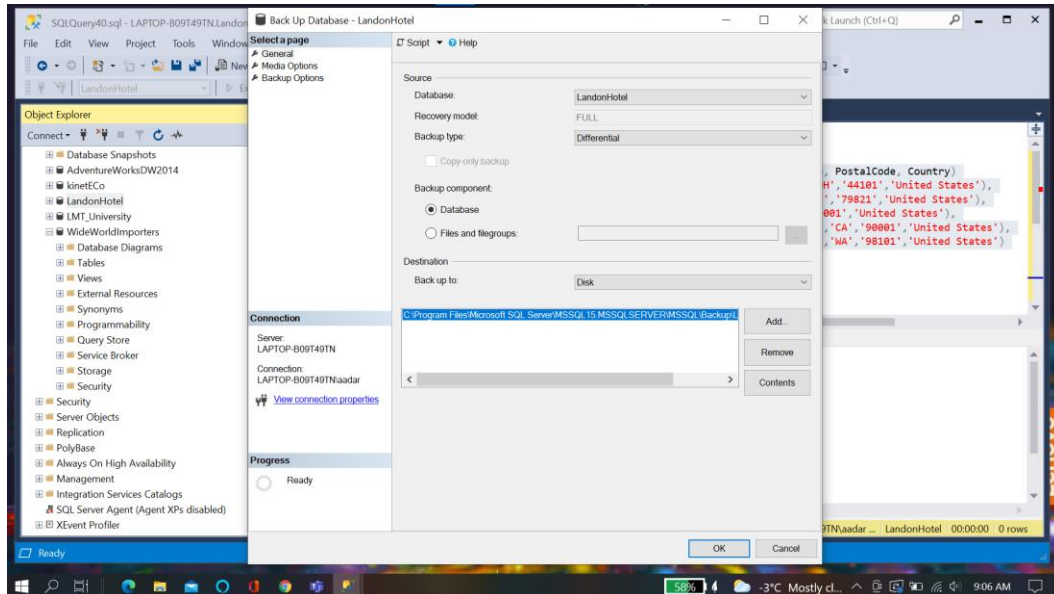
The screenshot shows the LinkedIn Learning interface for the 'Microsoft SQL Server 2019 Essential Training' course. The 'Contents' sidebar on the left lists the following items:

- Use built-in functions (3m 20s)
- Leverage user-defined scalar functions (6m 50s)
- Introduction to stored procedures (3m 16s)
- Create stored procedures (3m 54s)
- Parameterized stored procedures (3m 14s)
- Chapter Quiz (6 questions)
- 8. Backup and Restore
- Create a full backup of the database

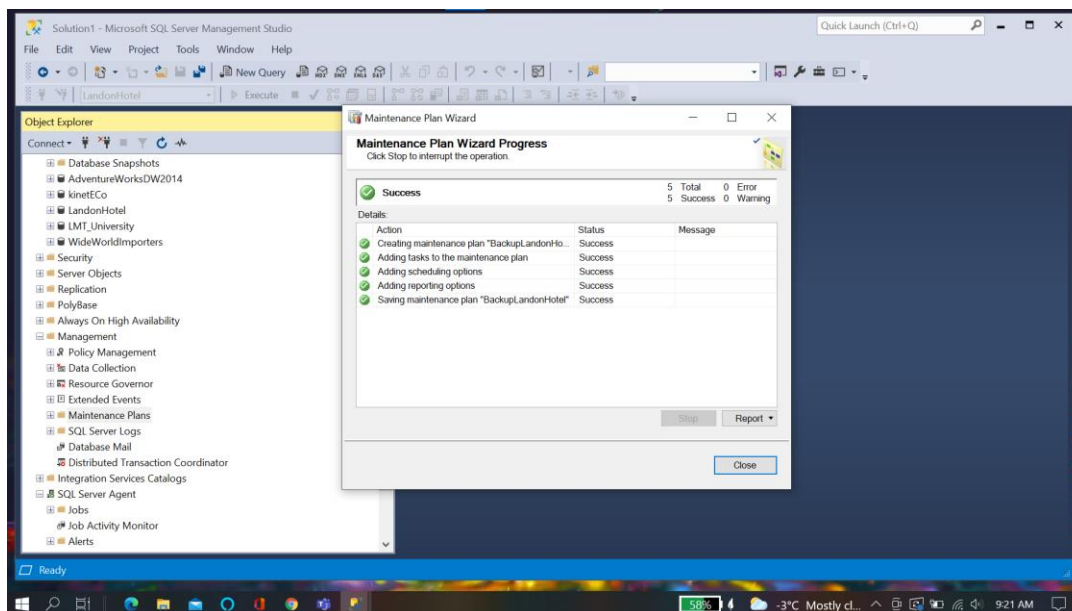
The main content area displays the 'Chapter Quiz' results, showing a congratulatory message: 'You answered 6 of 6 questions correctly. You successfully completed all questions in this quiz.' Below the message are two buttons: 'Review all answers' and 'Continue watching'.

## Chapter 8:

### Backup Differential

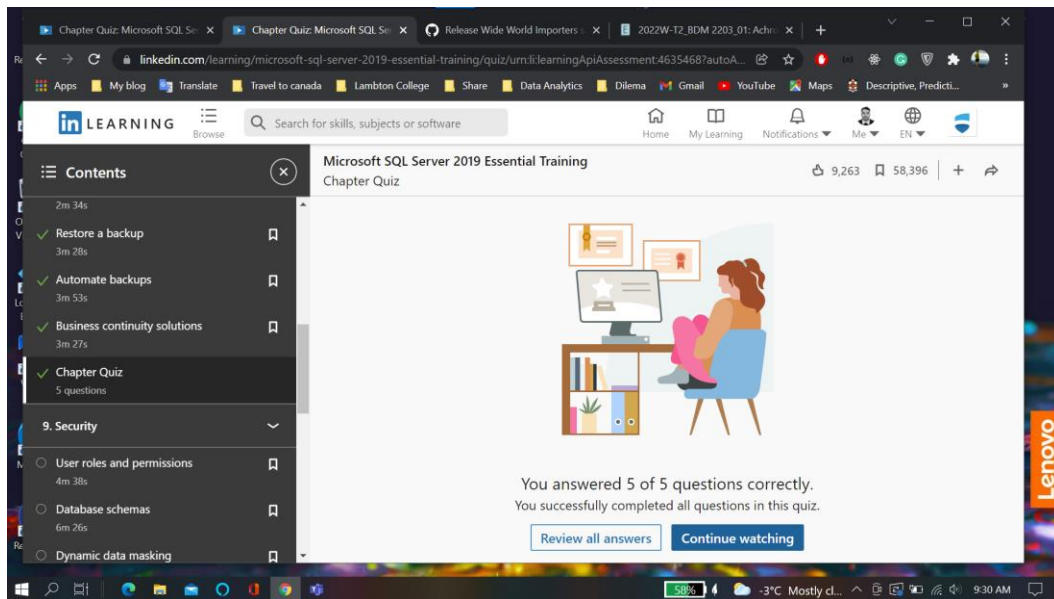


### Automate Backup:



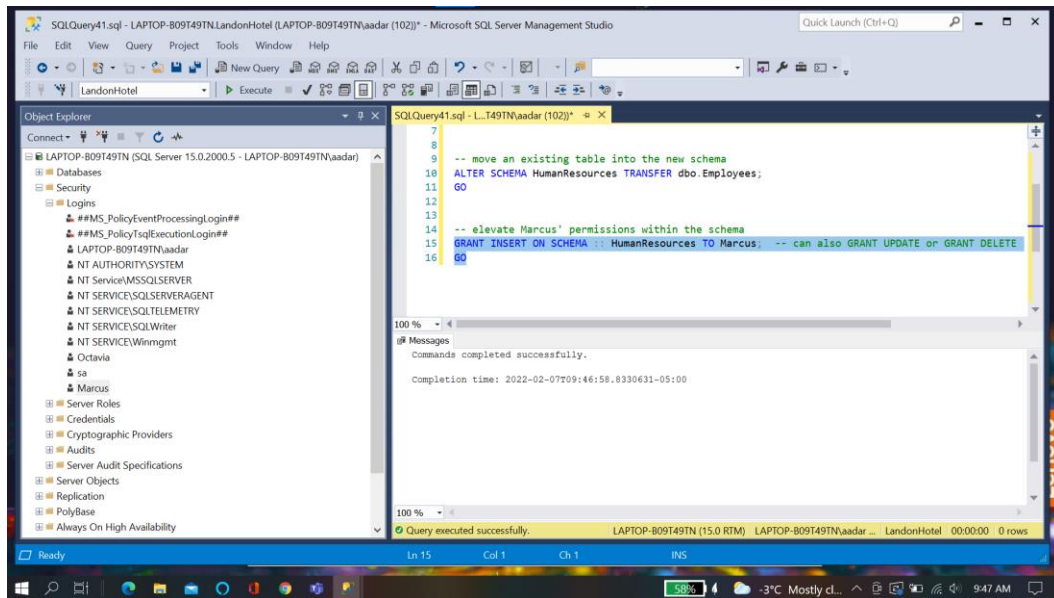


## Chapter Quiz



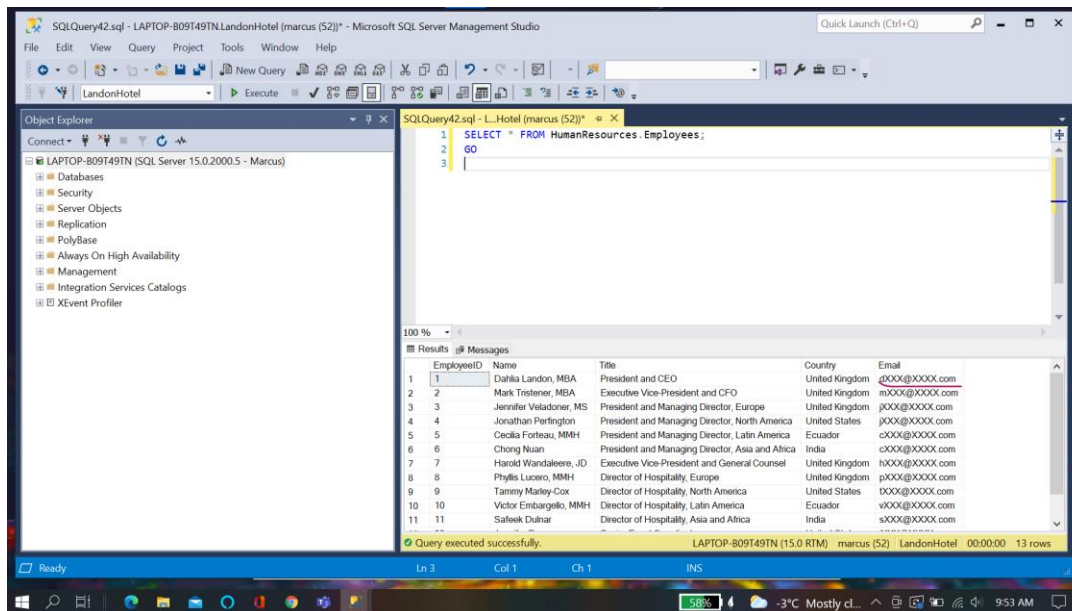
## Chapter 9:

### Altering Schema to give permission

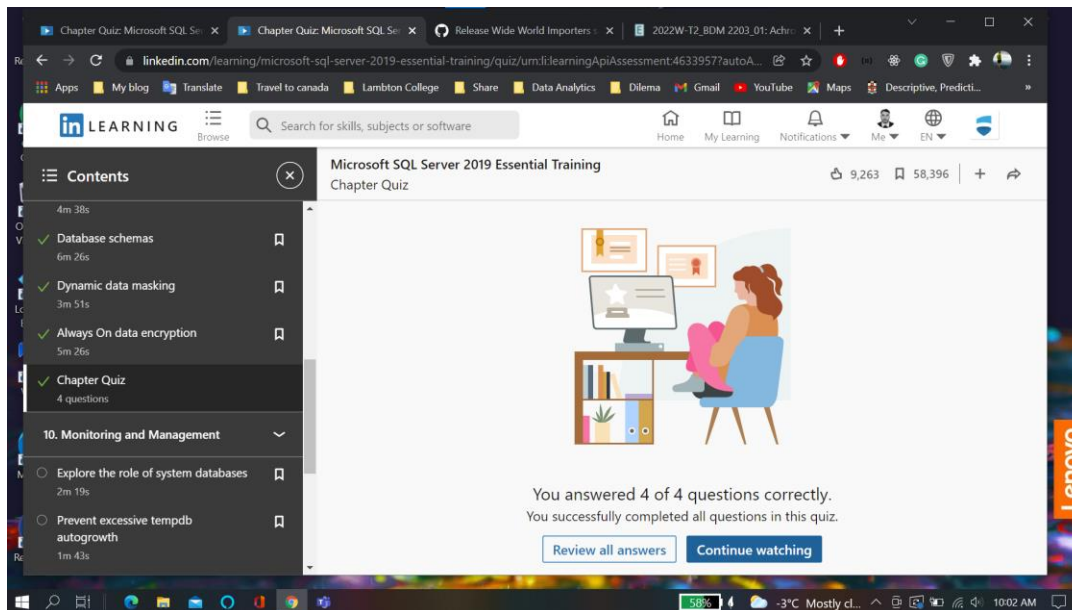




## Dynamic Data Masking:

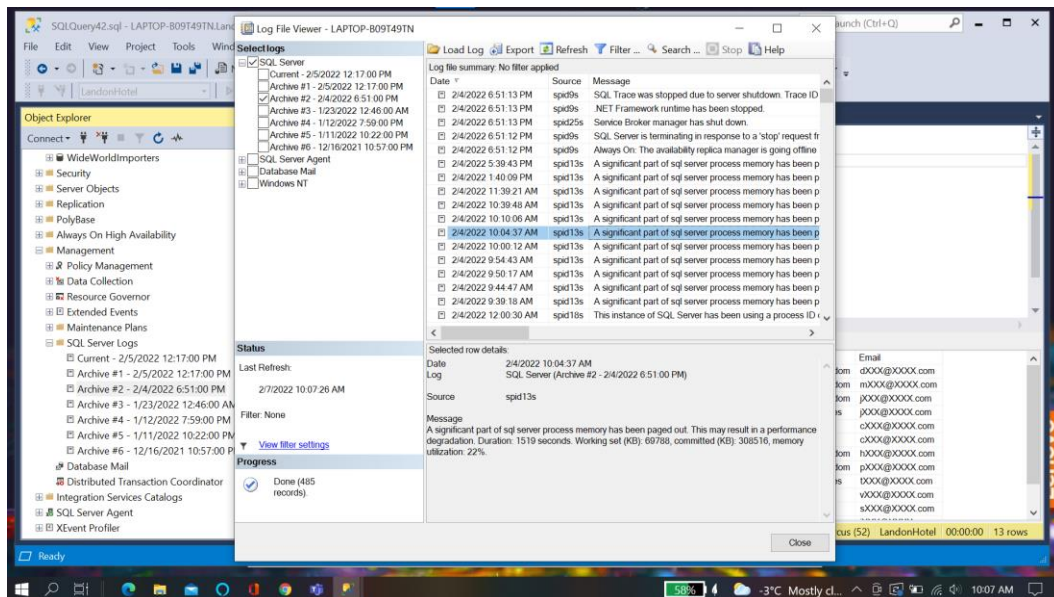


## Chapter Quiz:

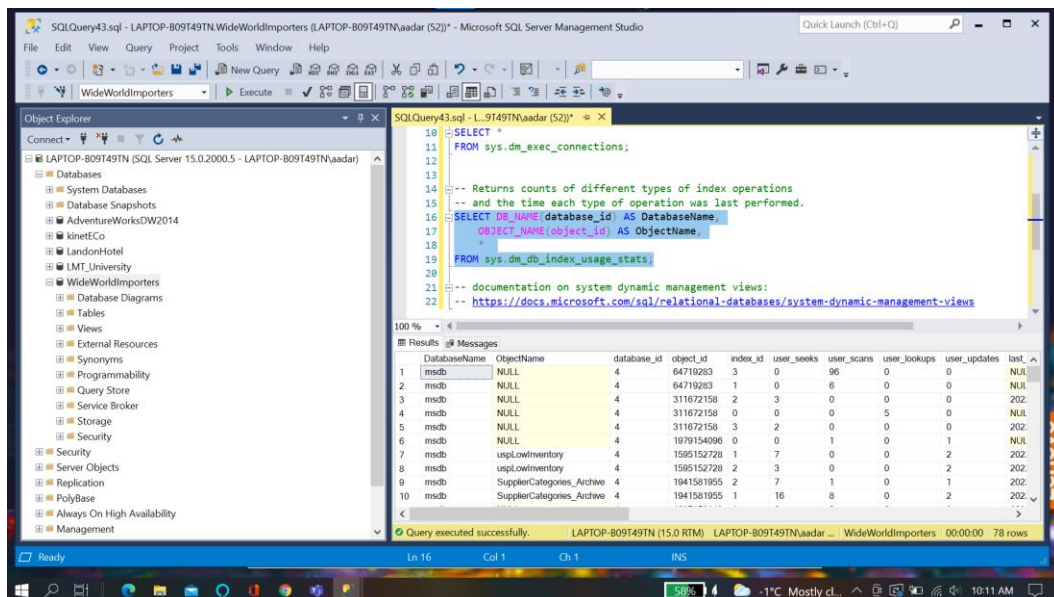


## Chapter 10

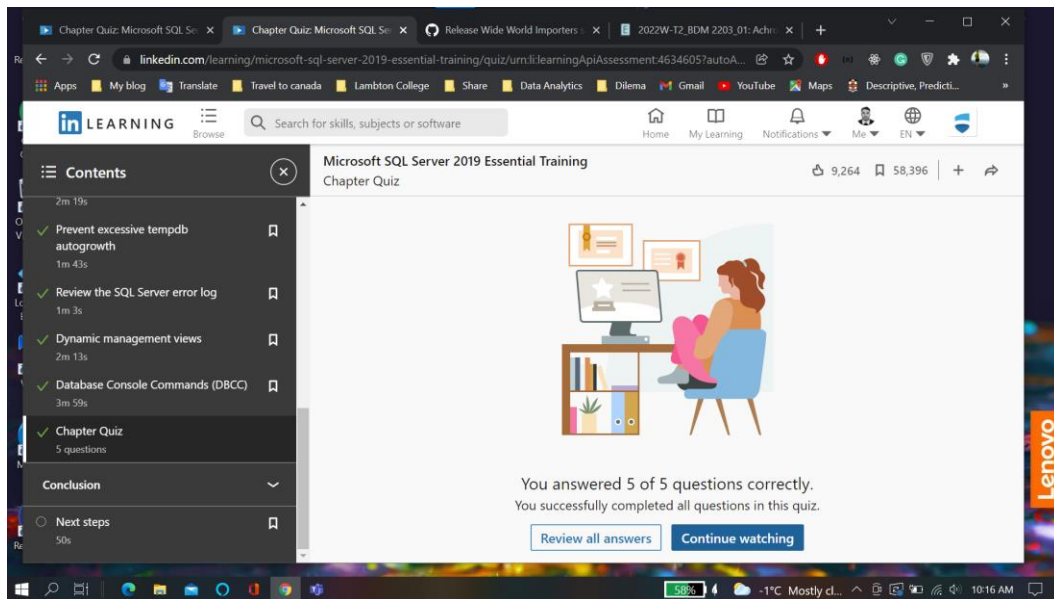
### Error logs



### Dynamic Management View:



## Chapter Quiz:



## Course Completion Certificate:

