20764 Administering a Microsoft SQL Database Infrastructure
Project 1

## Introduction

This project will test your knowledge on the labs that you have completed in this course. You will work with the database you created in Assignment 5, making modifications as necessary. **Ensure that you have completed Assignments 5, 8 and 10 in their entirety** before you begin this project. In addition, before you begin, please ensure that you verify the information that is your RetailSales database, and re-run SQL commands as necessary.

## Database Structure

The following tables should already represent the structure of your RetailSales database.

| Database: | Retail Sales | | | | |
|---|---|---|---|---|---|
| Table: | Ottawa.Customers | | Table: | Ottawa.Suppliers | |
| Column Name | Character Type | Max Characters | Column Name | Character Type | Max Characters |
| CUSTOMERID | int (PK) | | SUPPLIERID | int (PK) | |
| FIRSTNAME | varchar | 100 | SUPPLIERNAME | varchar | 100 |
| LASTNAME | varchar | 100 | ADDRESS | varchar | 100 |
| ADDRESS | varchar | 100 | CITY | varchar | 100 |
| CITY | varchar | 100 | PROVINCE | varchar | 100 |
| PROVINCE | varchar | 100 | POSTALCODE | varchar | 100 |
| PHONENUMBER | varchar | 100 | PHONENUMBER | varchar | 100 |
| | | | | | |
| Table: | Ottawa.Products | | Table: | Transactions | |
| Column Name | Character Type | Max Characters | Column Name | Character Type | Max Characters |
| PRODUCTID | int (PK) | | TRANSNUM | int (PK) | |
| DESCRIPTION | varchar | 255 | PRODUCTID | int (FK) | |
| COST | money | | CUSTOMERID | int (FK) | |
| RETAILPRICE | money | | RETAILPRICE | money | |
| SUPPLIERID | int (FK) | | QUANTITY | int | |
| | | | | | |

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## Table Information:

Add the following information into the tables.

| **Customers Table** | | | |
|---|---|---|---|
| CustomerID: | 120 | CustomerID: | 121 |
| FirstName: | Henriette | FirstName: | Rosina |
| LastName: | Samuel | LastName: | Strinati |
| Address: | 120 Kings Cross Lane | Address: | 121 Hopkins Lane |
| City: | Marionette | City: | Kingston |
| Province: | QC | Province: | ON |
| PostalCode: | R5T 6N8 | PostalCode: | U8Y 9L1 |
| PhoneNumber: | 611-556-9852 | PhoneNumber: | 545-556-9866 |
| CustomerID: | 122 | CustomerID: | 123 |
| FirstName: | Fillipo | FirstName: | Raffaele |
| LastName: | Candreva | LastName: | Spina |
| Address: | 52 Ferrari Drive | Address: | 12 Gianni De Luca St |
| City: | Folliero | City: | Vulcan |
| Province: | BC | Province: | AB |
| PostalCode: | Y9K 8K0 | PostalCode: | P90 8T3 |
| PhoneNumber: | 151-456-7855 | PhoneNumber: | 611-556-9852 |
| **Suppliers Table** | | | |
| SupplierID: | 779562 | SupplierID: | 688559 |
| SupplierName: | Multimicro Inc | SupplierName: | ChrisCo |
| Address: | 29 Multimicro Way | Address: | 73 Wild Goose Road |
| City: | Laval | City: | WaWa |
| Province: | QC | Province: | ON |
| PostalCode: | U8P 0Y7 | PostalCode: | P0S 0A2 |
| PhoneNumber: | 819-966-3579 | PhoneNumber: | 552-669-9866 |
| **Products Table** | | | |
| ProductID: | 6689995 | ProductID: | 6685585 |
| Description: | Logitech Ergo K860 | Description: | High Speed 4K HDMI Cable, 25ft |
| Cost: | 101.10 | Cost: | 12.00 |
| RetailPrice | 150.00 | RetailPrice | 19.99 |
| SupplierID | 779562 | SupplierID | 779562 |
| **Transactions Table** | | | |
| TransNum: | 55487766 | TransNum: | 382746 |
| CustomerID: | 122 | CustomerID: | 122 |
| ProductID: | 6689995 | ProductID: | 6689995 |
| RetailPrice: | 150.00 | RetailPrice: | 179.00 |
| Quantity: | 5 | Quantity: | 3 |

## Query

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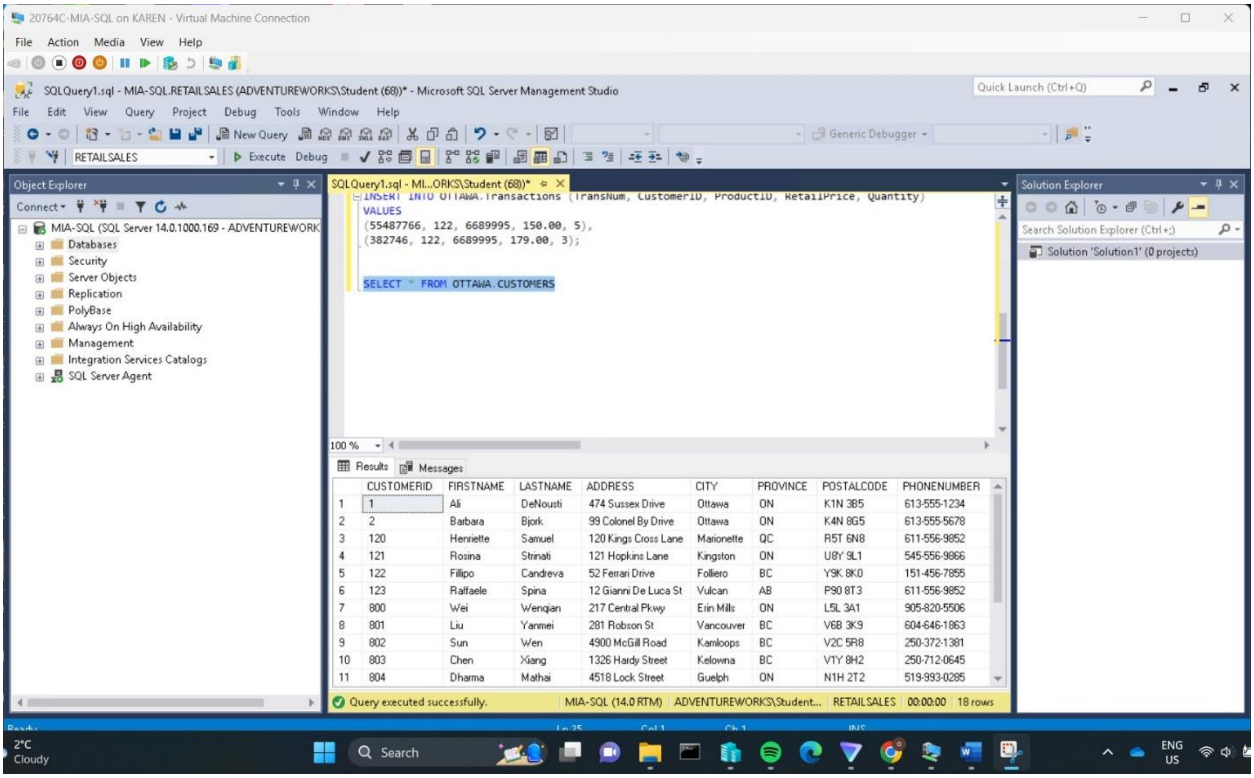
- Run a query that display the contents of all tables (do four separate queries)
    - Take a screenshot



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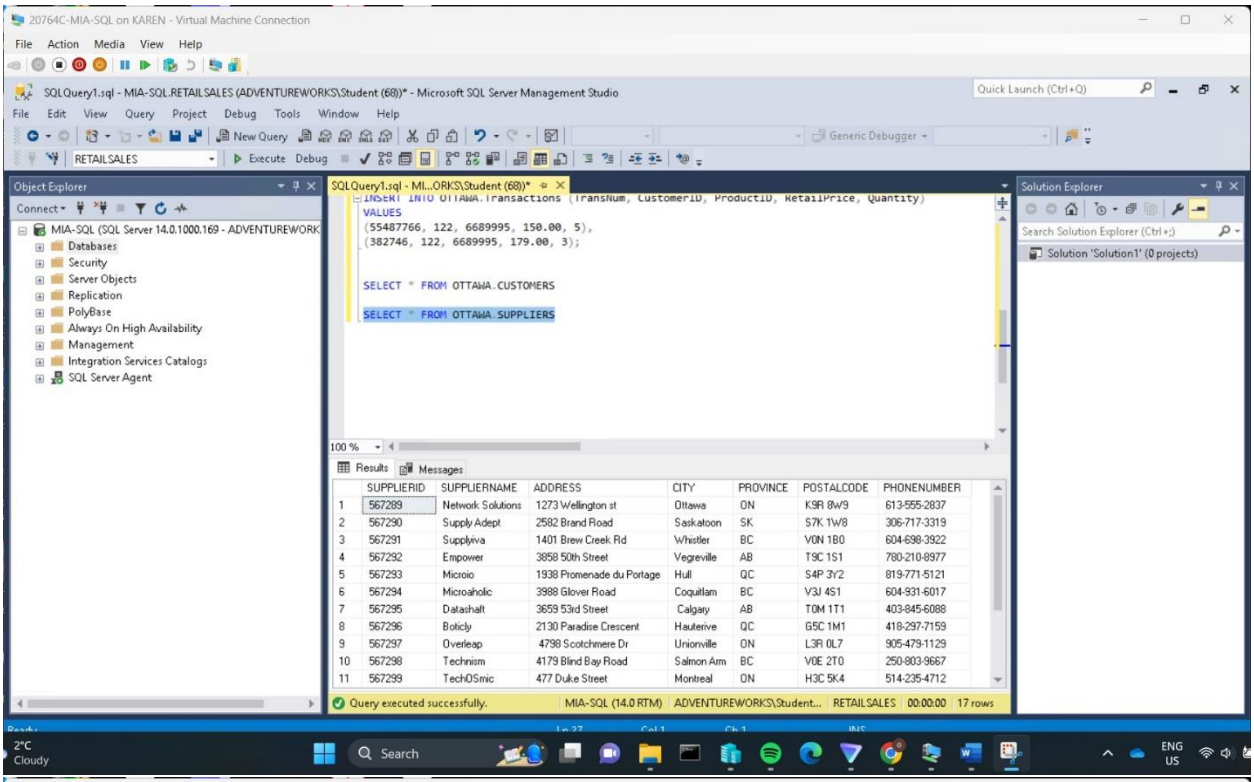


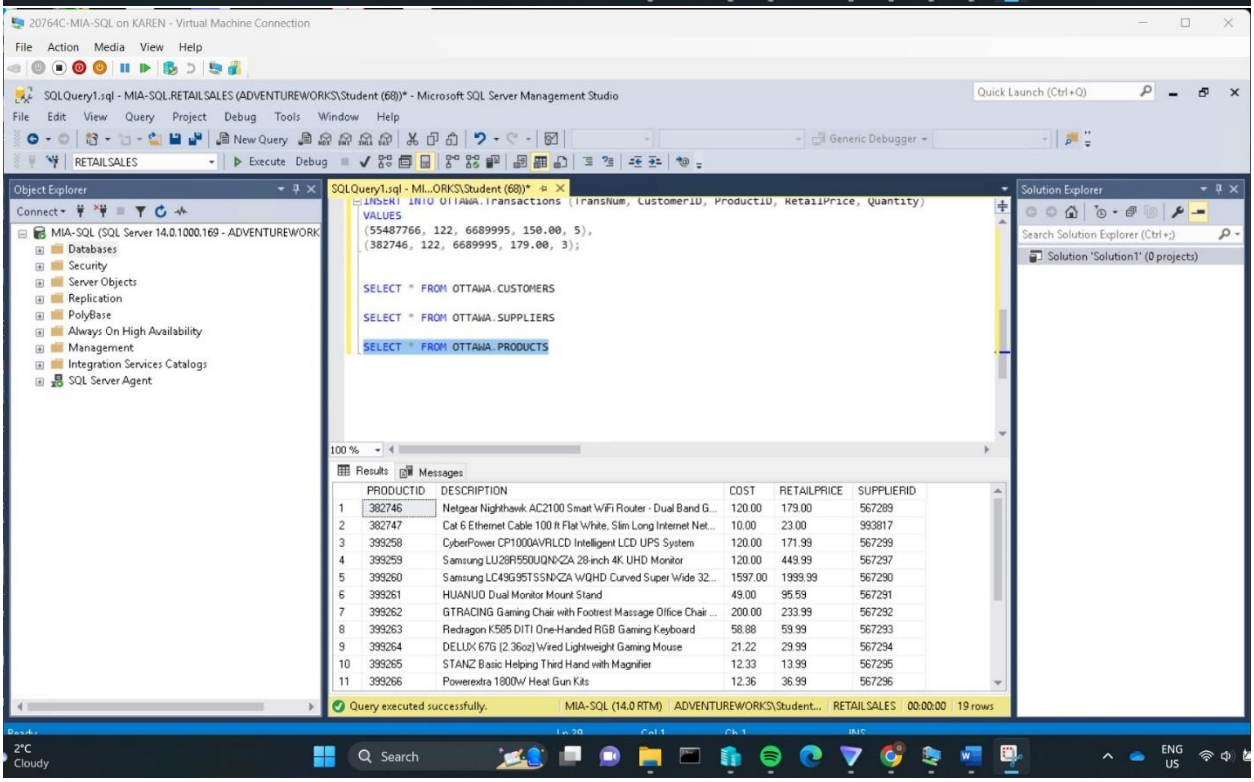

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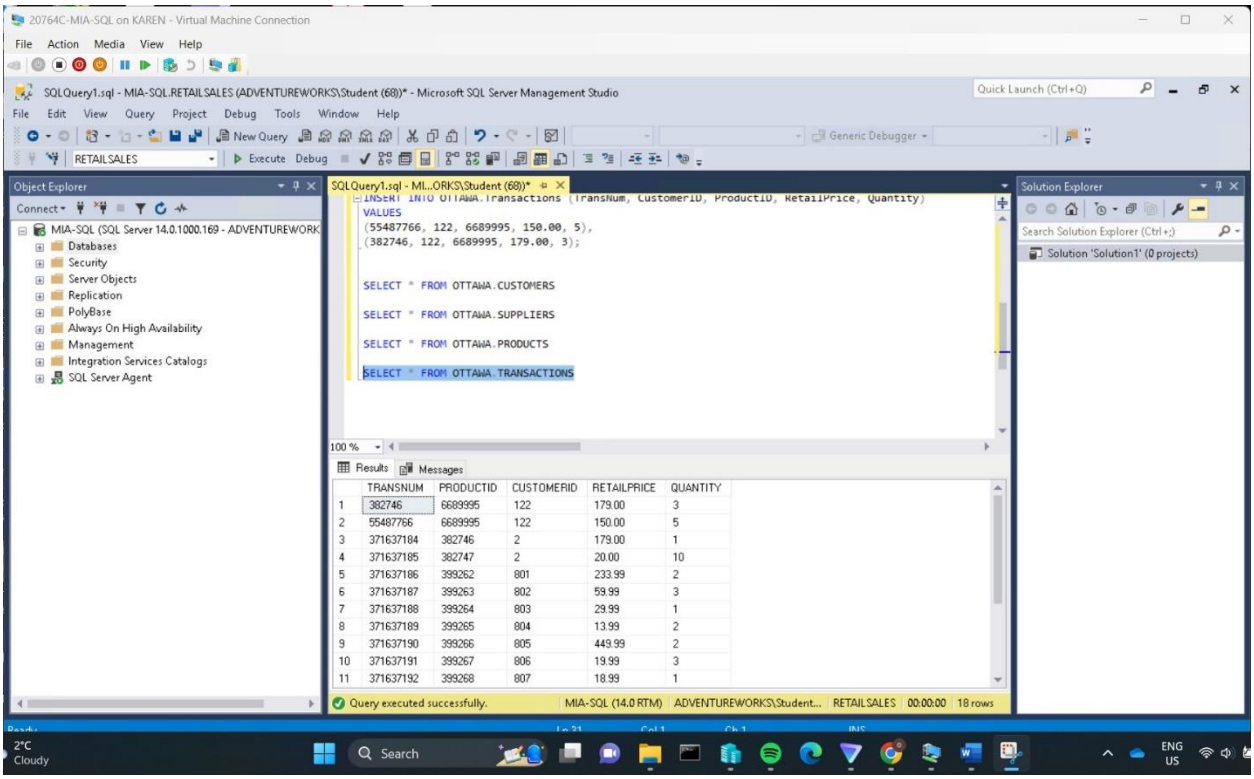


- Run a query that displays only the first 5 lines of the Customers table
    - Take a screenshot

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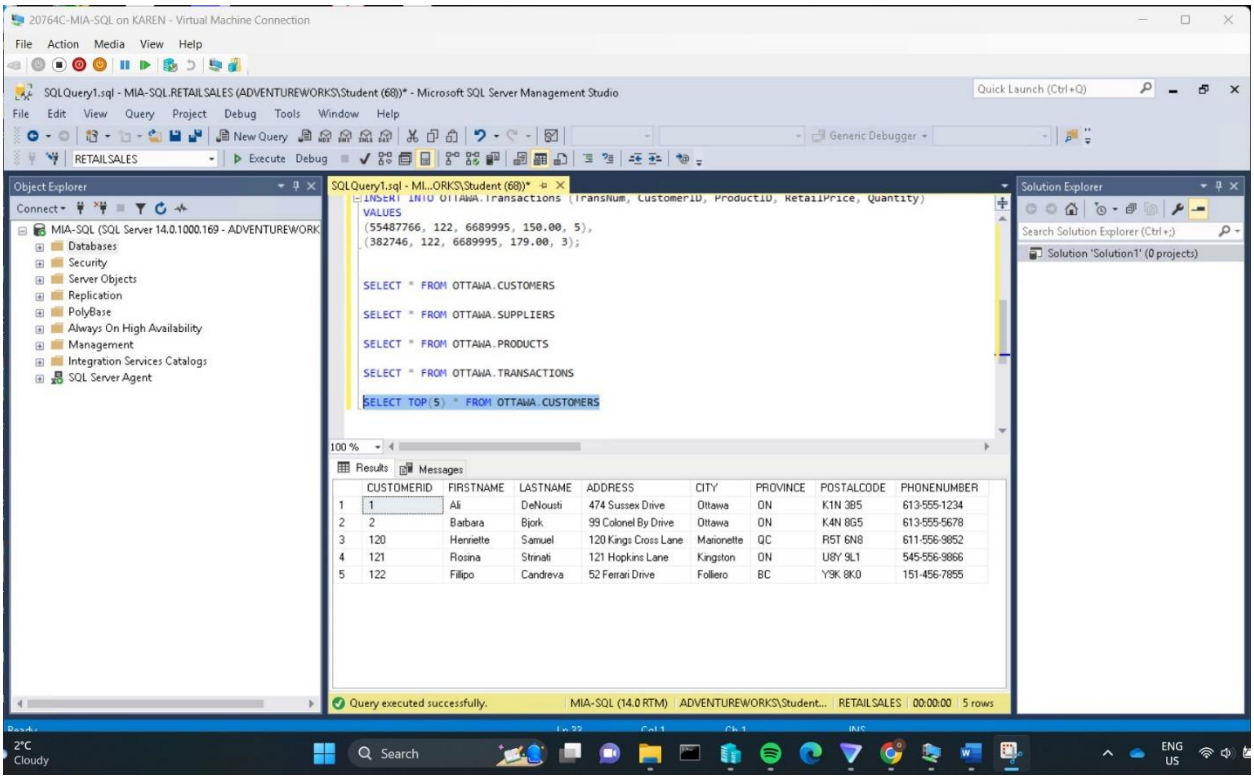
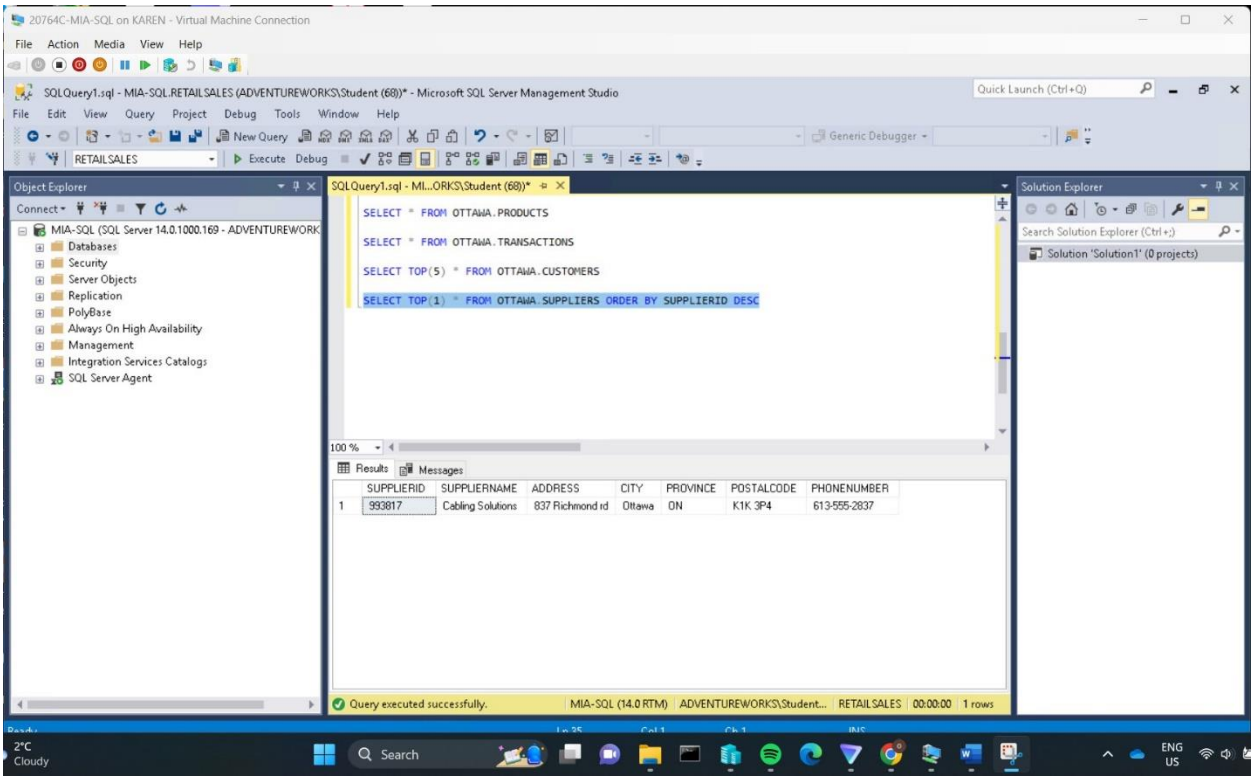



- Run a query that displays the last line in the Suppliers table
    - Take a screenshot



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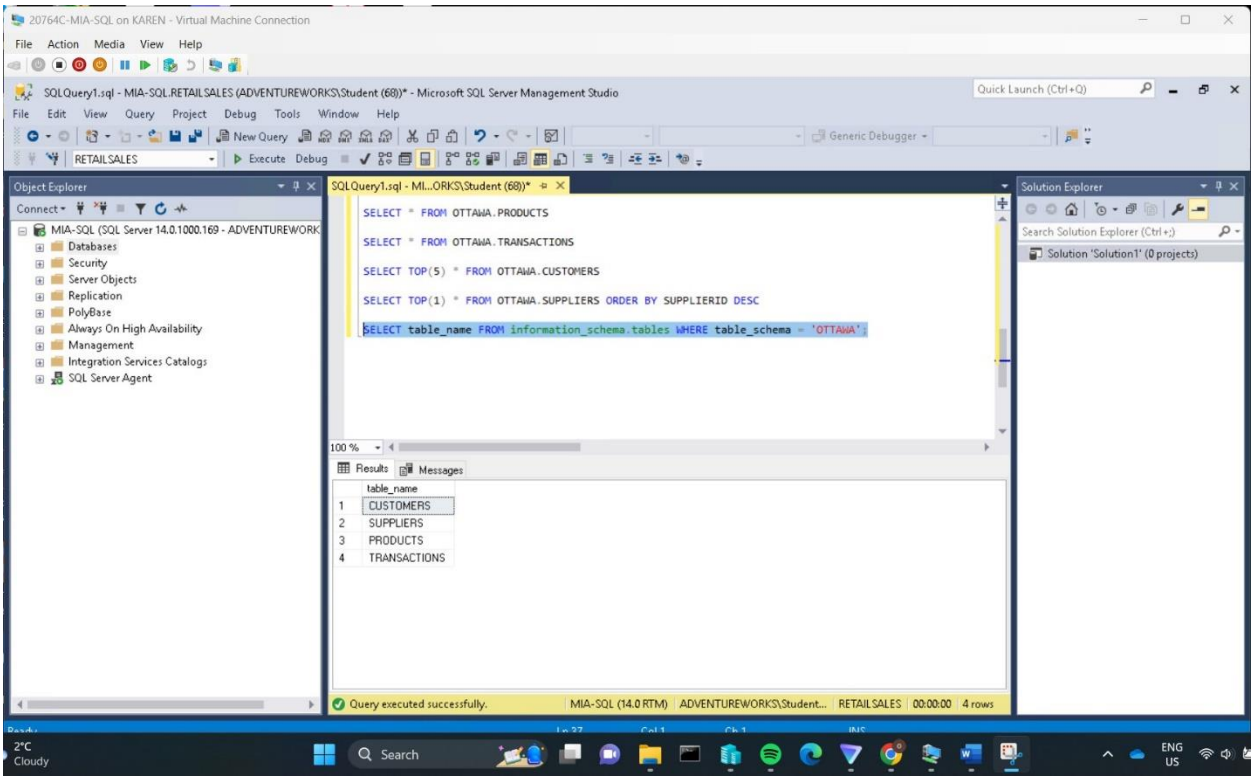
- Run a query that displays the names of the four tables that you created in the RetailSales database
    - Take a screenshot




## Backup

- Perform a Full backup of the RetailSales database
    - Take a screenshot that displays the size of the RetailSales database backup
    - Note: You can either run an SQL query on the size of the backup or take a screenshot of File Explorer showing the file size.

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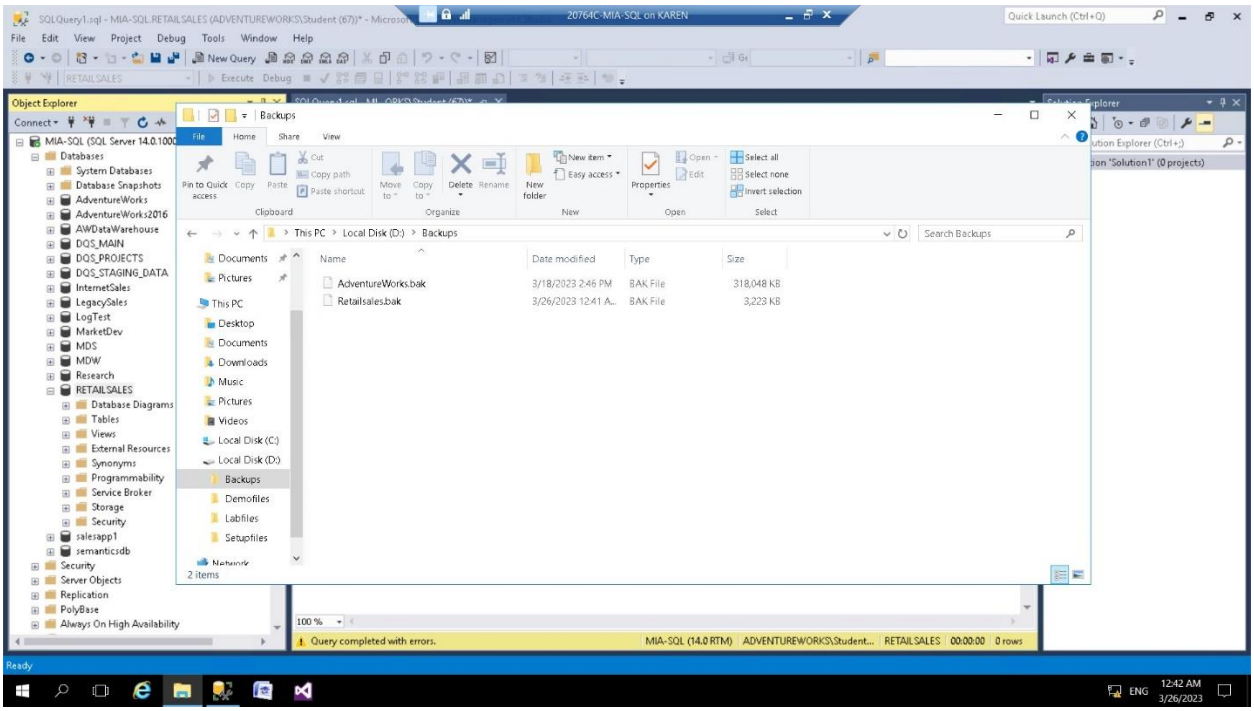

## Table Information (Revisited)

Add the following information to the database into the appropriate table.

| **Customers Table** | |
|---|---|
| CustomerID: | 130 |
| FirstName: | Tamara |
| LastName: | Egorova |
| Address: | 6665 Kiseleva Way |
| City: | Seren |
| Province: | MN |
| PostalCode: | S9E 3R3 |
| PhoneNumber: | 955-556-2223 |
| **Suppliers Table** | |
| SupplierID: | 8859992 |
| SupplierName: | Kalindi Corp |
| Address: | 1 Starfield Way |
| City: | Cali |
| Province: | YK |
| PostalCode: | C8A L1E |
| PhoneNumber: | 332-654-7855 |
| **Products Table** | |
| ProductID: | 62223335 |
| Description: | Projector Screen 100 Inch 16:9 |
| Cost: | 51.00 |
| RetailPrice | 109.96 |
| SupplierID | 8859992 |
| **Transactions Table** | |
| TransNum: | 55488855 |
| CustomerID: | 121 |

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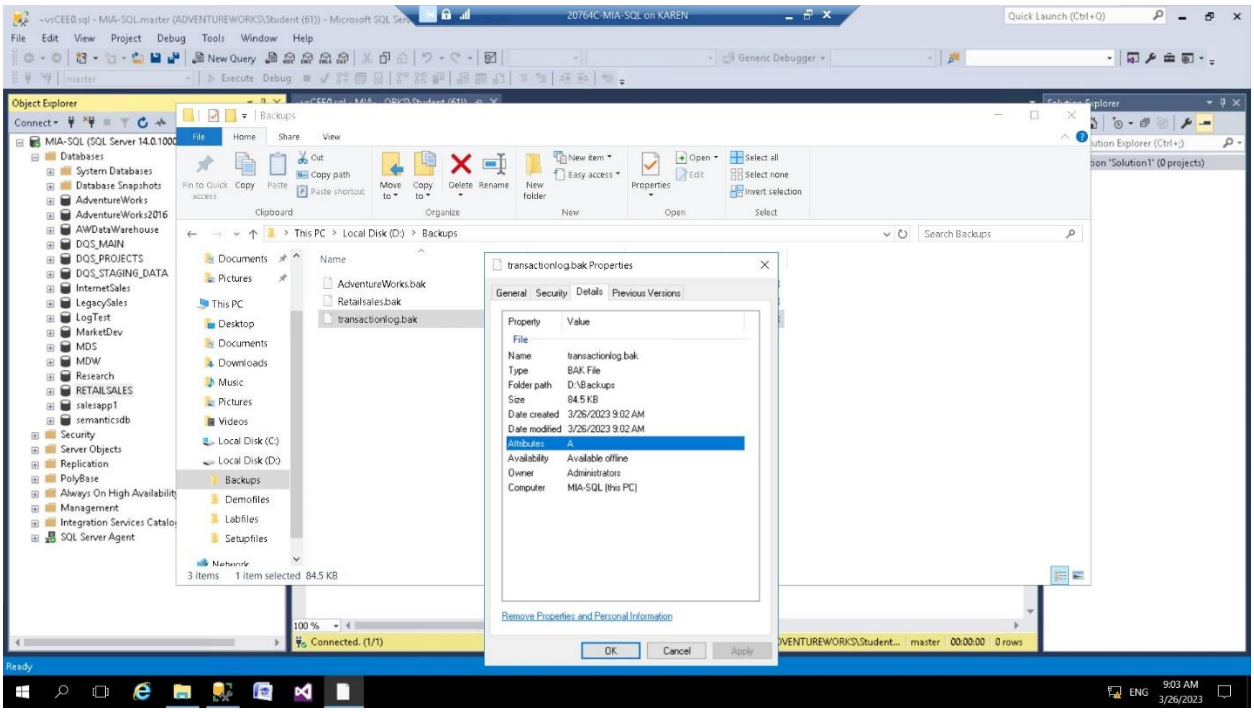
| | |
|---|---|
| ProductID: | 62223335 |
| RetailPrice: | 109.96 |
| Quantity: | 1 |

## Backup (Revisited)

- Perform a transaction log backup of the RetailSales database
    - Take a screenshot showing the size of the transaction log backup




## Query

- Run a query displaying the last line entered of each table
    - Take a screenshot for each query

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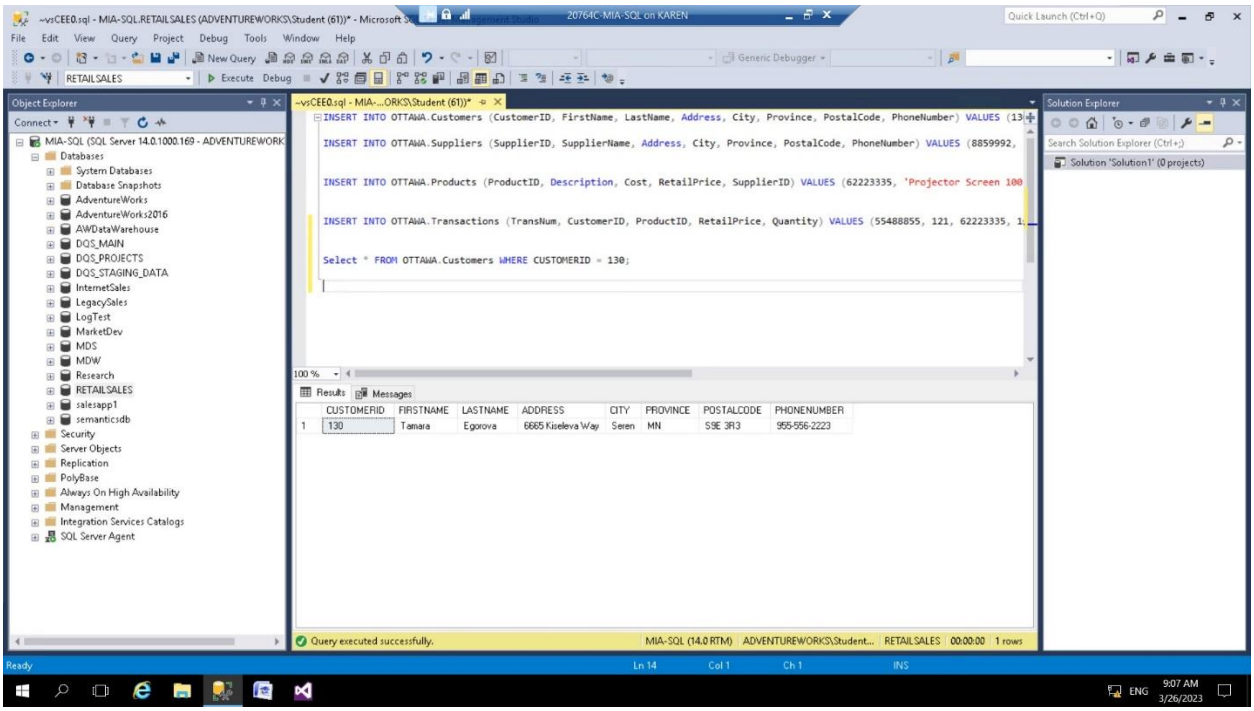

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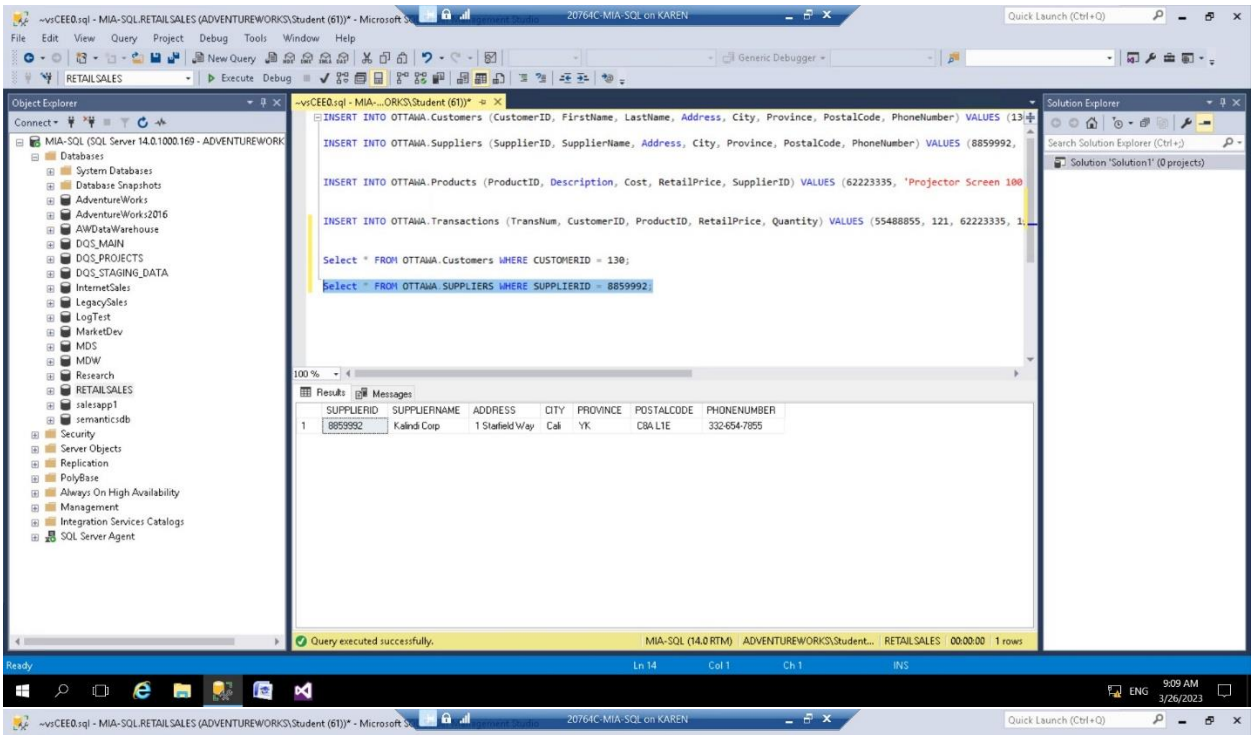


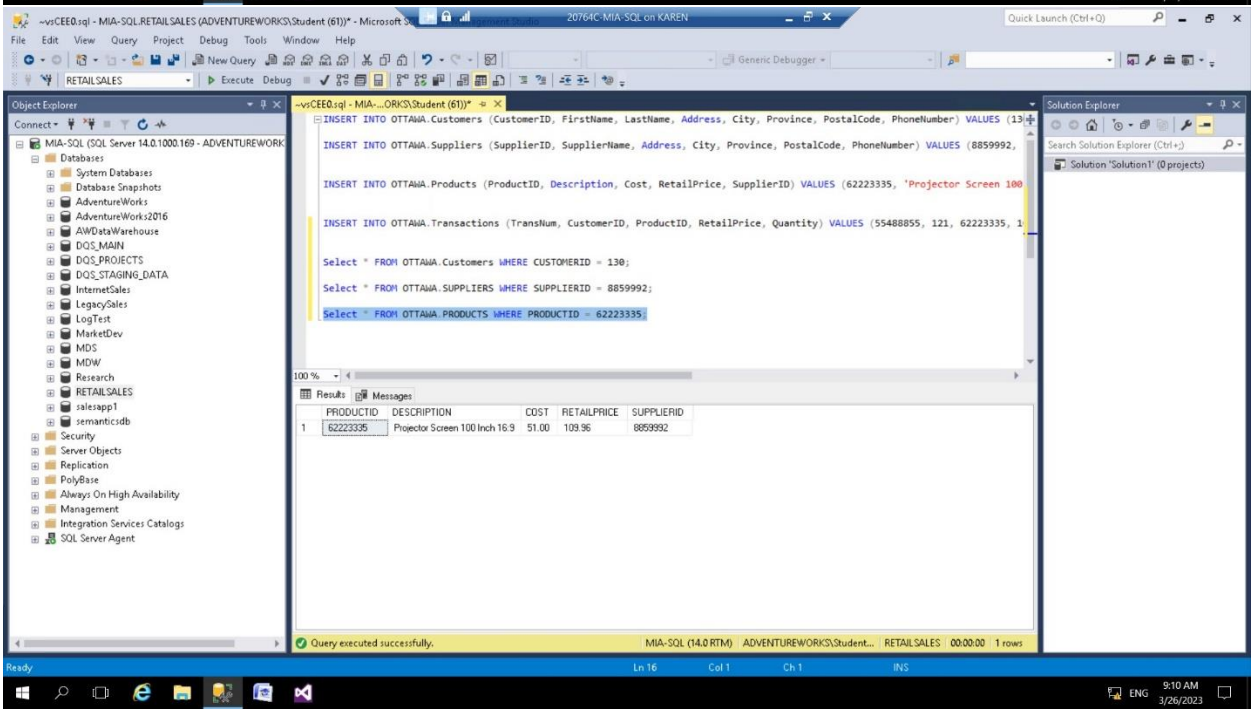

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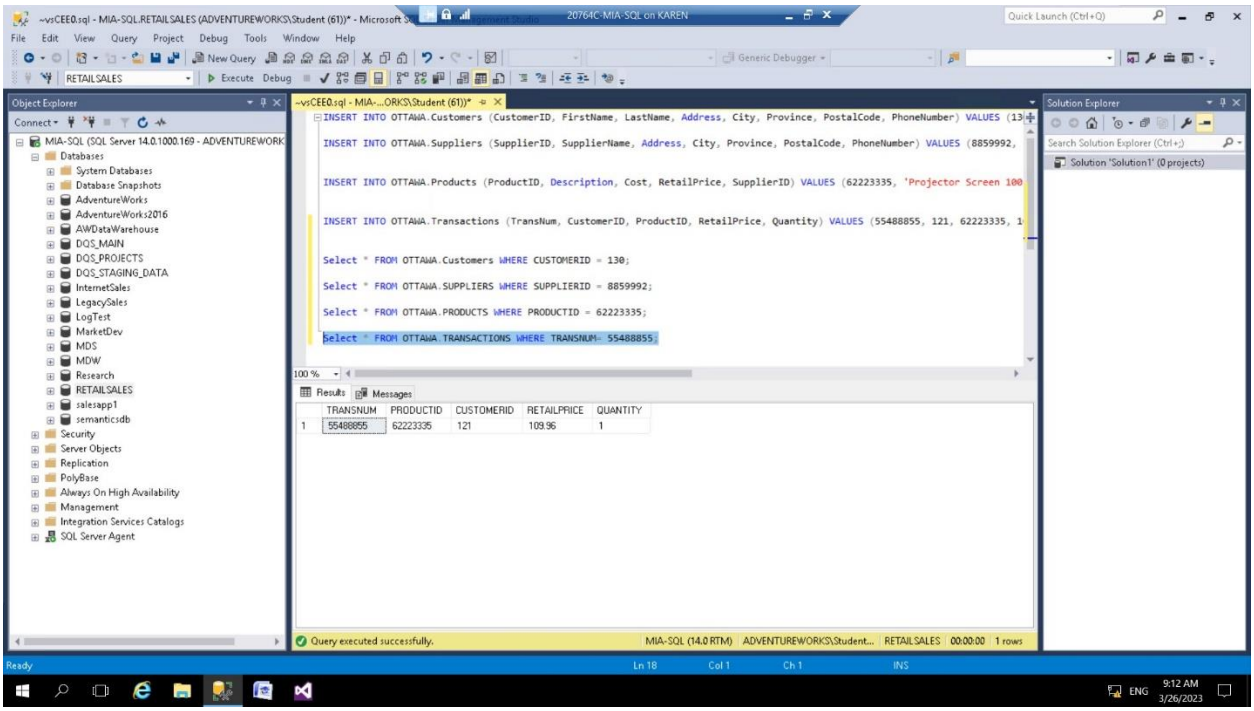


## Security

- Create a **dynamic display mask** that hides the Customer Phone Numbers in the Customers table
- **Encrypt** the Cost field in the Products table
- Create a **dynamic display mask** that hides the address information in the Suppliers table

## Query

- Run a query that shows the information in the Customers table has been masked
    - Take a screenshot
    - Note: Do not show me the unmasked data

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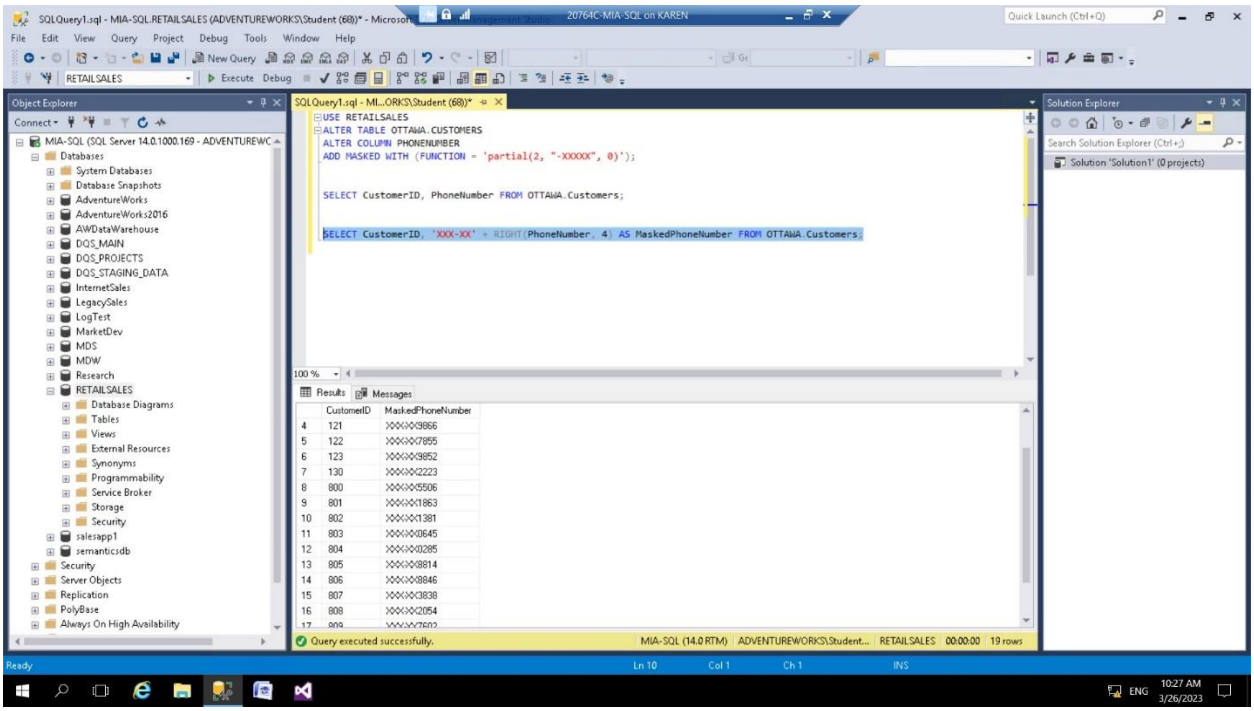
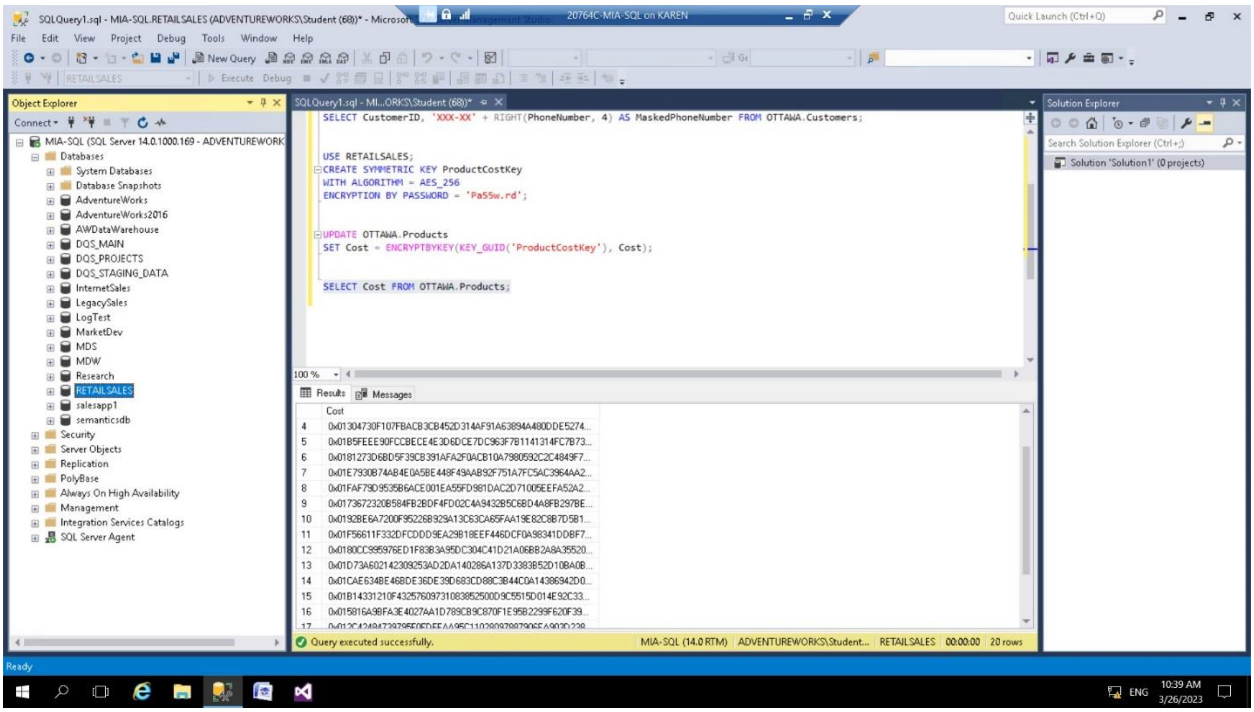



- Run a query showing that the cost field in the Products table has been encrypt
    - Take a screenshot




- Run a query showing that the Suppliers address information is masked

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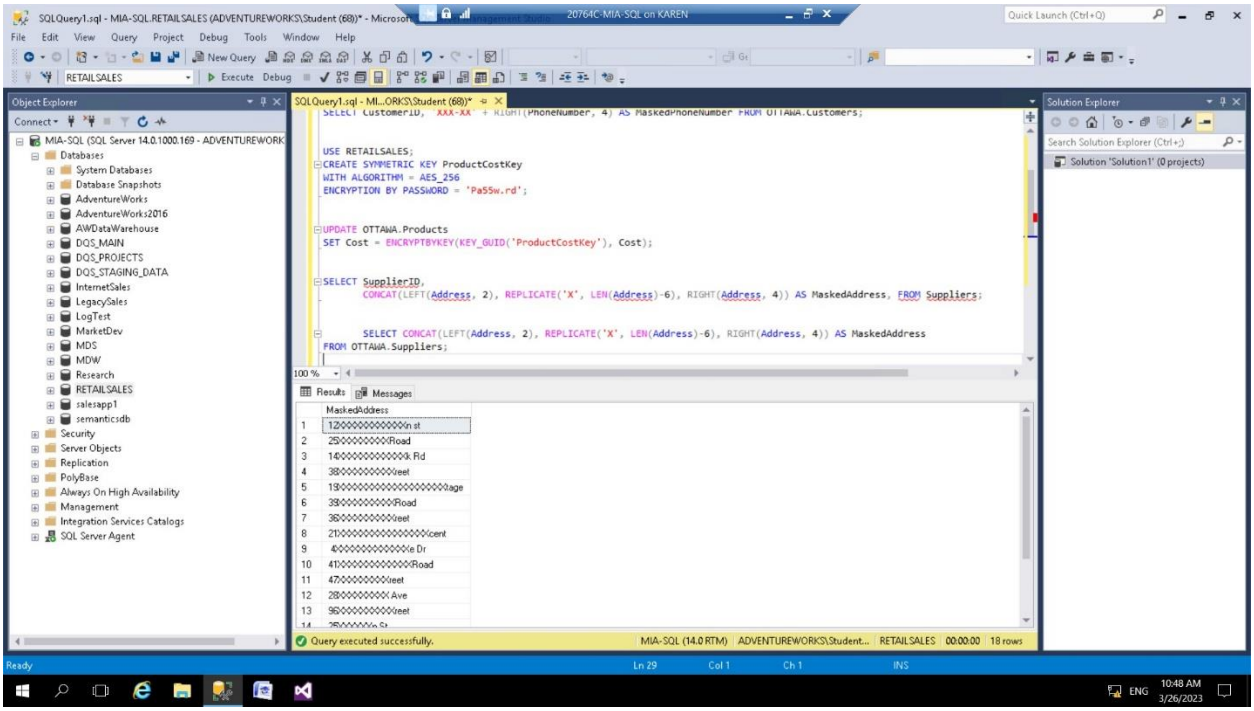
- Take a screenshot
- Note: Do not show me the unmasked data




## Submission

Screenshots of the successful completion of all your queries are required. You may paste the screenshots in the individual “Query” sections of this document.

You are also required to provide screenshots of the backup files that you created.

You must also include all the Transact-SQL syntax used.

ALL TRANSACT-SQL USED

USE RETAILSALES;

INSERT INTO ottawa.Customers (CustomerID, FirstName, LastName, Address, City, Province, PostalCode, PhoneNumber)

INSERT INTO Ottawa.Suppliers (SupplierID, SupplierName, Address, City, Province, PostalCode, PhoneNumber) VALUES

INSERT INTO OTTAWA.Products (ProductID, Description, Cost, RetailPrice, SupplierID)
VALUES

```
INSERT INTO OTTAWA.Transactions (TransNum, CustomerID, ProductID, RetailPrice, Quantity)
VALUES


SELECT * FROM OTTAWA.CUSTOMERS

SELECT * FROM OTTAWA.SUPPLIERS

SELECT * FROM OTTAWA.PRODUCTS

SELECT * FROM OTTAWA.TRANSACTIONS

SELECT TOP(5) * FROM OTTAWA.CUSTOMERS

SELECT TOP(1) * FROM OTTAWA.SUPPLIERS ORDER BY SUPPLIERID DESC

SELECT table_name FROM information_schema.tables WHERE table_schema = 'OTTAWA';

Select * FROM OTTAWA.CUSTOMERS WHERE CUSTOMERID = 130;

Select * FROM OTTAWA.SUPPLIERS WHERE SUPPLIERID = 8859992;

Select * FROM OTTAWA.PRODUCTS WHERE PRODUCTID = 62223335;

Select * FROM OTTAWA.TRANSACTIONS WHERE TRANSNUM= 55488855;

USE RETAILSALES
ALTER TABLE OTTAWA.CUSTOMERS
ALTER COLUMN PHONENUMBER
ADD MASKED WITH (FUNCTION = 'partial(2, "-XXXXX", 0)');

USE RETAILSALES
ALTER TABLE OTTAWA.SUPPLIERS
ALTER COLUMN ADDRESS
ADD MASKED WITH (FUNCTION = 'partial(2, "-XXXXX", 0)');


SELECT CustomerID, 'XXX-XX' + RIGHT(PhoneNumber, 4) AS MaskedPhoneNumber
FROM OTTAWA.Customers;

SELECT CONCAT(LEFT(Address, 2), REPLICATE('X', LEN(Address)-6), RIGHT(Address, 4)) AS
MaskedAddress

FROM OTTAWA.Suppliers;
```