

# **Lab 11:**

# **Server Security**

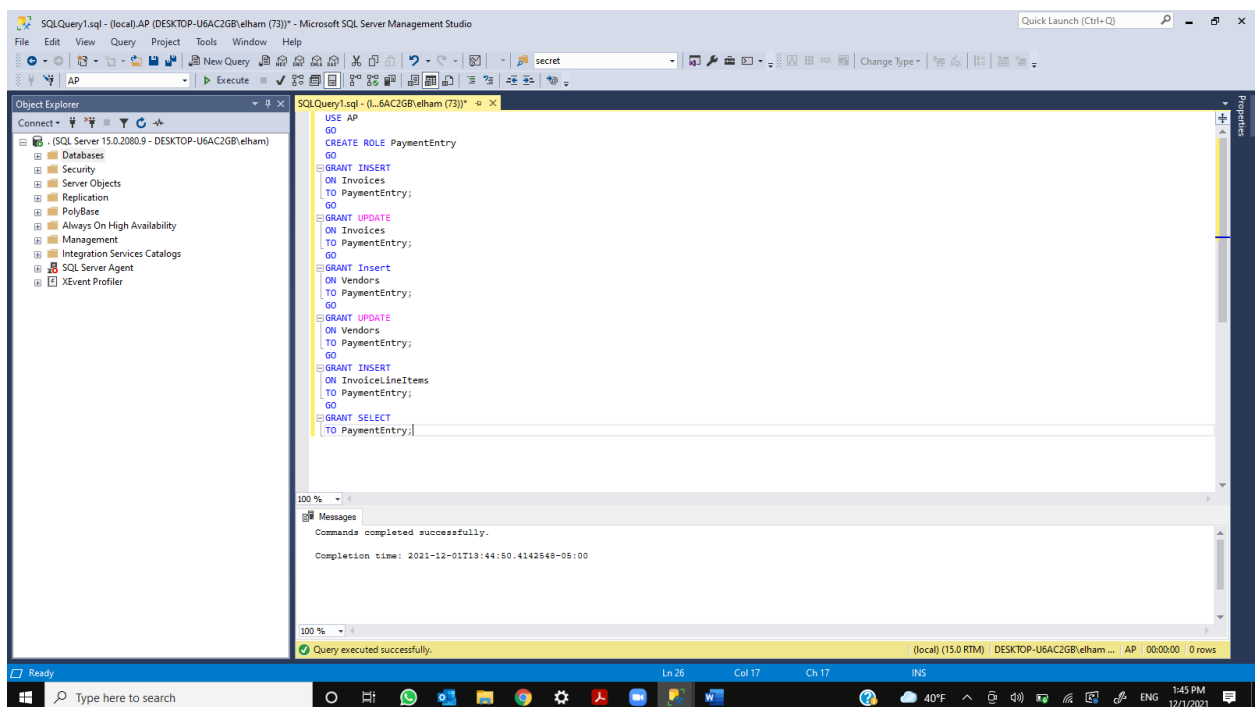
# **Solutions**

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1. Write a script that creates a user-defined database role named PaymentEntry in the AP database. Give UPDATE and INSERT permission to the new role for the Vendors and Invoices table, INSERT permission for the InvoiceLineItems table, and SELECT permission for all user tables.

```
USE AP
GO
CREATE ROLE PaymentEntry
GO
GRANT INSERT
ON Invoices
TO PaymentEntry;
GO
GRANT UPDATE
ON Invoices
TO PaymentEntry;
GO
GRANT Insert
ON Vendors
TO PaymentEntry;
GO
GRANT UPDATE
ON Vendors
TO PaymentEntry;
GO
GRANT INSERT
ON InvoiceLineItems
TO PaymentEntry;
GO
GRANT SELECT
TO PaymentEntry;
```

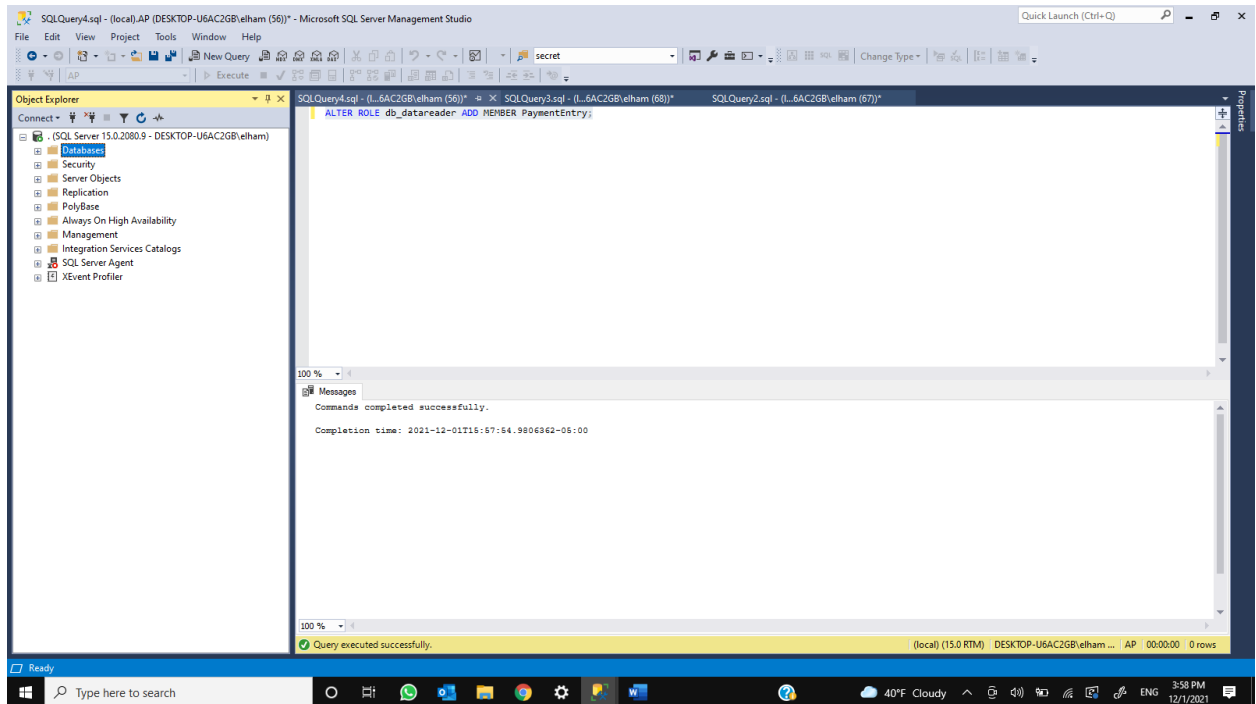


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Remark: here we created a user-defined database role named PaymentEntry in the AP database. We gave UPDATE and INSERT permission for the Vendors and Invoices table and INSERT permission for the InvoiceLineItems table and SELECT permission.

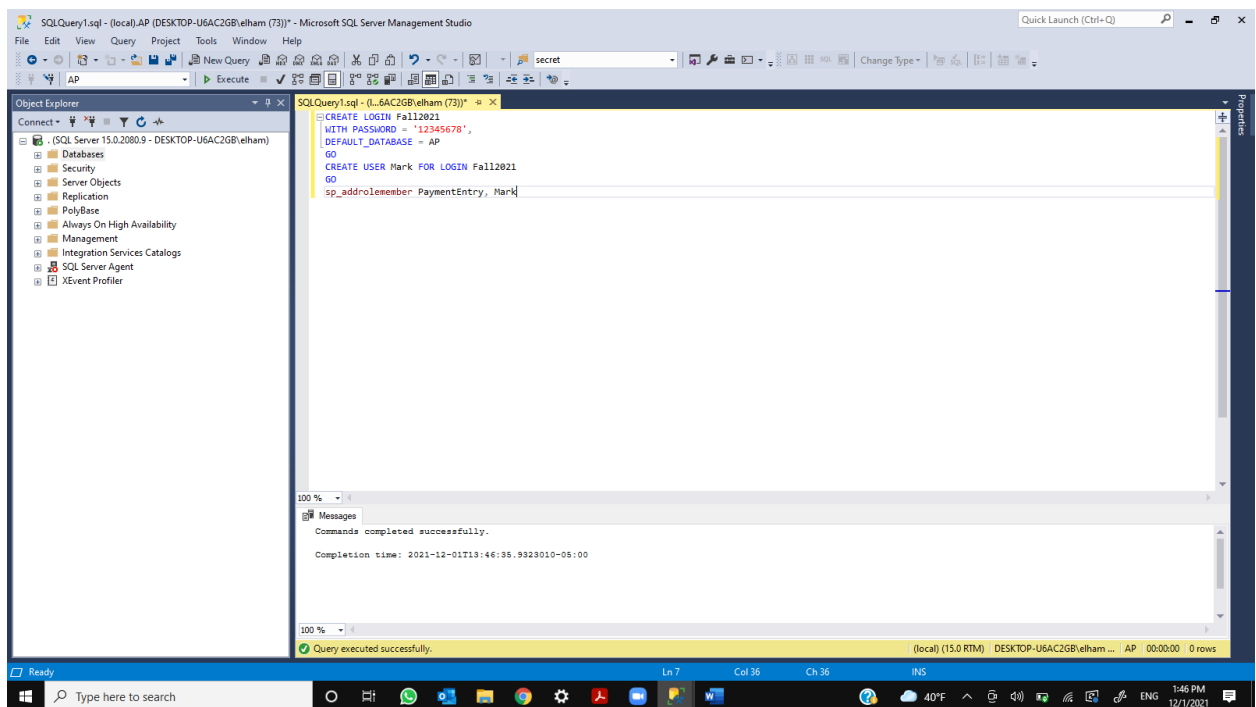
We can also use this script to grant SELECT permission for all user tables:

```
ALTER ROLE db_datareader ADD MEMBER PaymentEntry;
```



2. Write a script that (1) creates a login ID named "Fall2021" with the password "12345678"; (2) sets the default database for the login to the AP database; (3) creates a user named "Mark" for the login; and (4) assigns the user to the PaymentEntry role you created in question 1.

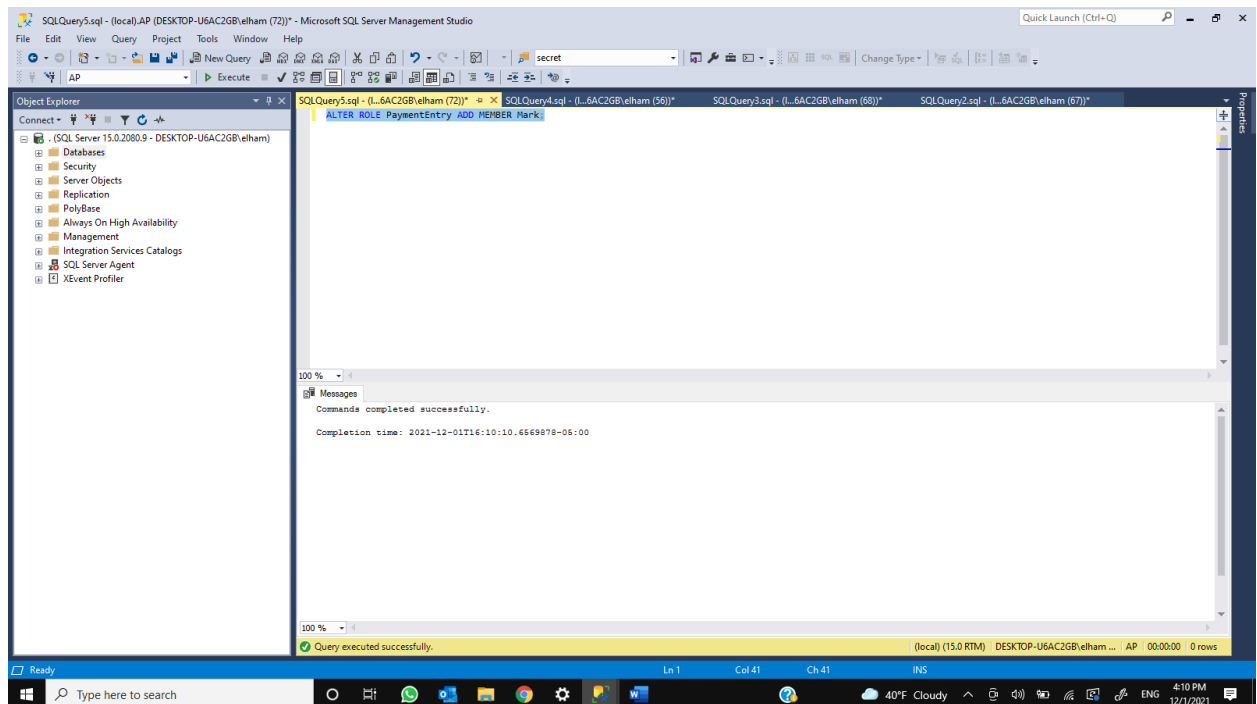
```
CREATE LOGIN Fall2021
WITH PASSWORD = '12345678',
DEFAULT_DATABASE = AP
GO
CREATE USER Mark FOR LOGIN Fall2021
GO
sp_addrolemember PaymentEntry, Mark
```



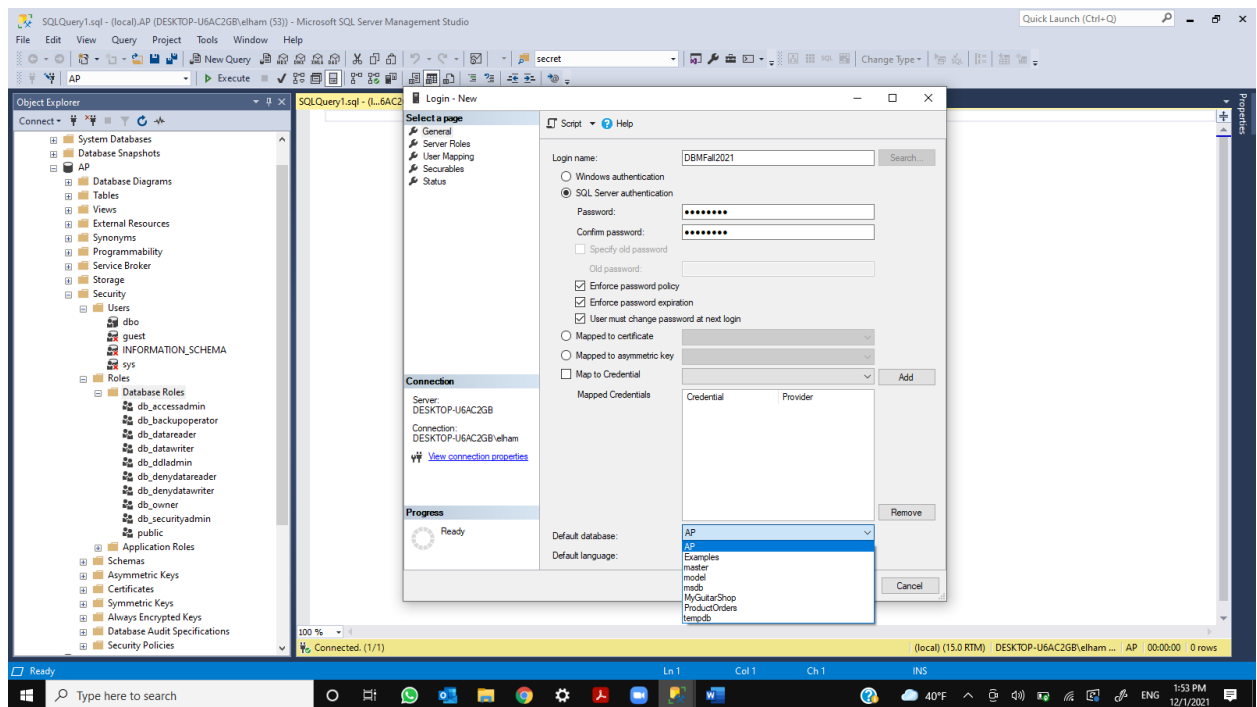
Remark: Here we created the login ID "Fall2021" with the password "12345678". We also set the default database to AP. The user named "Mark" has got created for the login; then we assigned the user to the PaymentEntry role which we created in question 1.

We can also use this script to assign Mark to PaymentEntry role:

```
ALTER ROLE PaymentEntry ADD MEMBER Mark;
```

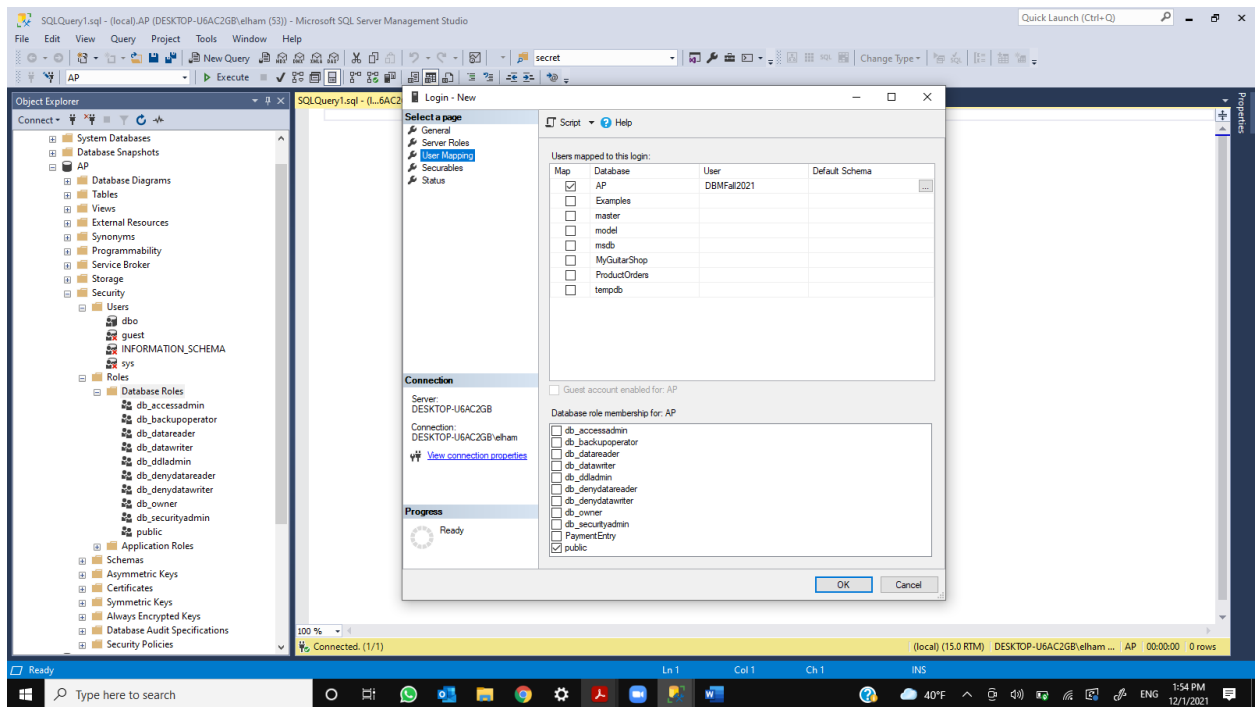


3. Using the Management Studio (do not write a query), create a login ID named "DBMFall2021" with the password "Fall1202" and set the default database to the AP database. Then, grant the login ID access to the AP database, create a user for the login ID named "Fall" and assign the user to the PaymentEntry role you created in question 1.



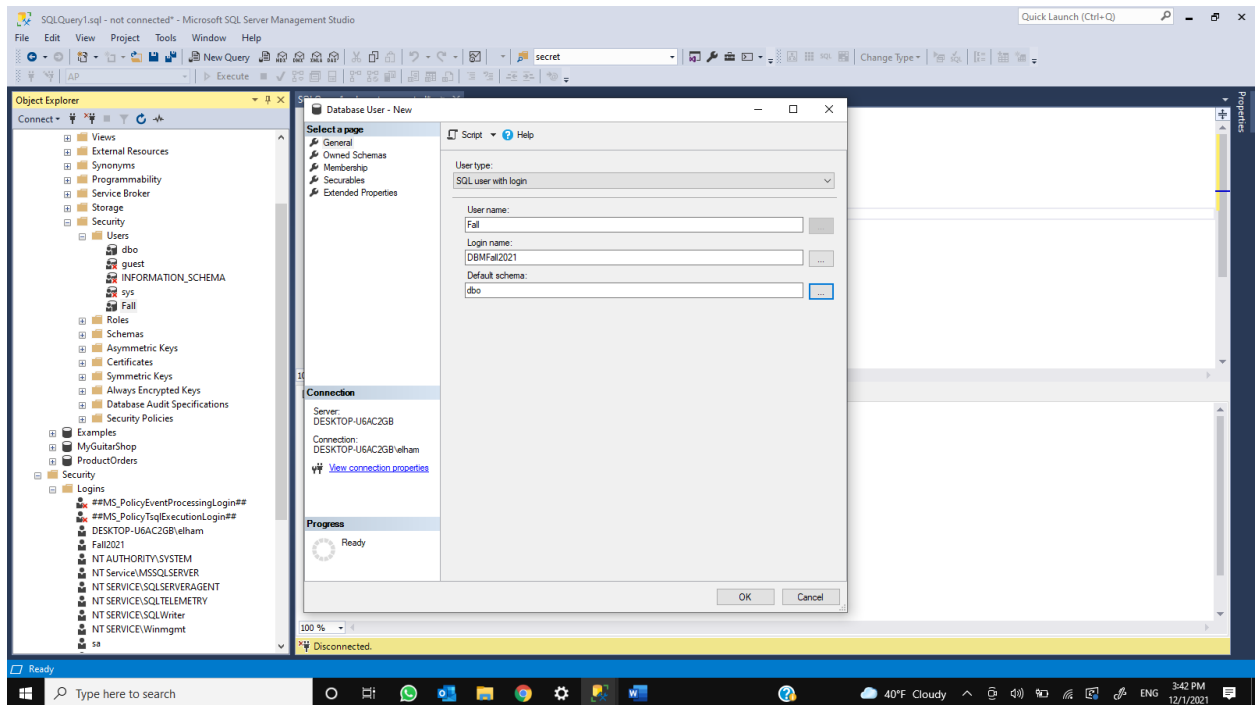
Remark: Using the Management Studio we created a login ID named "DBMFall2021" with the password "Fall1202". Then we set the default database to the AP database.

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Remark: Here we granted the login ID access to the AP database.

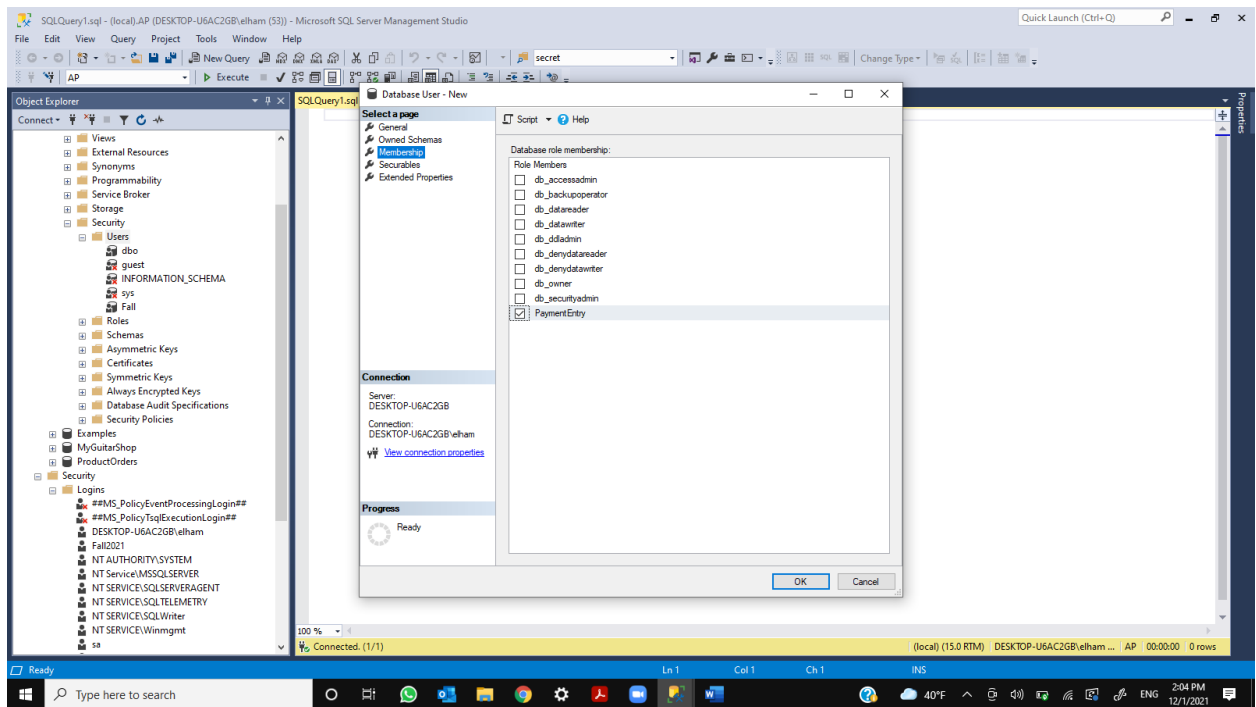
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Remark: Here we created a user for the login ID named "Fall"



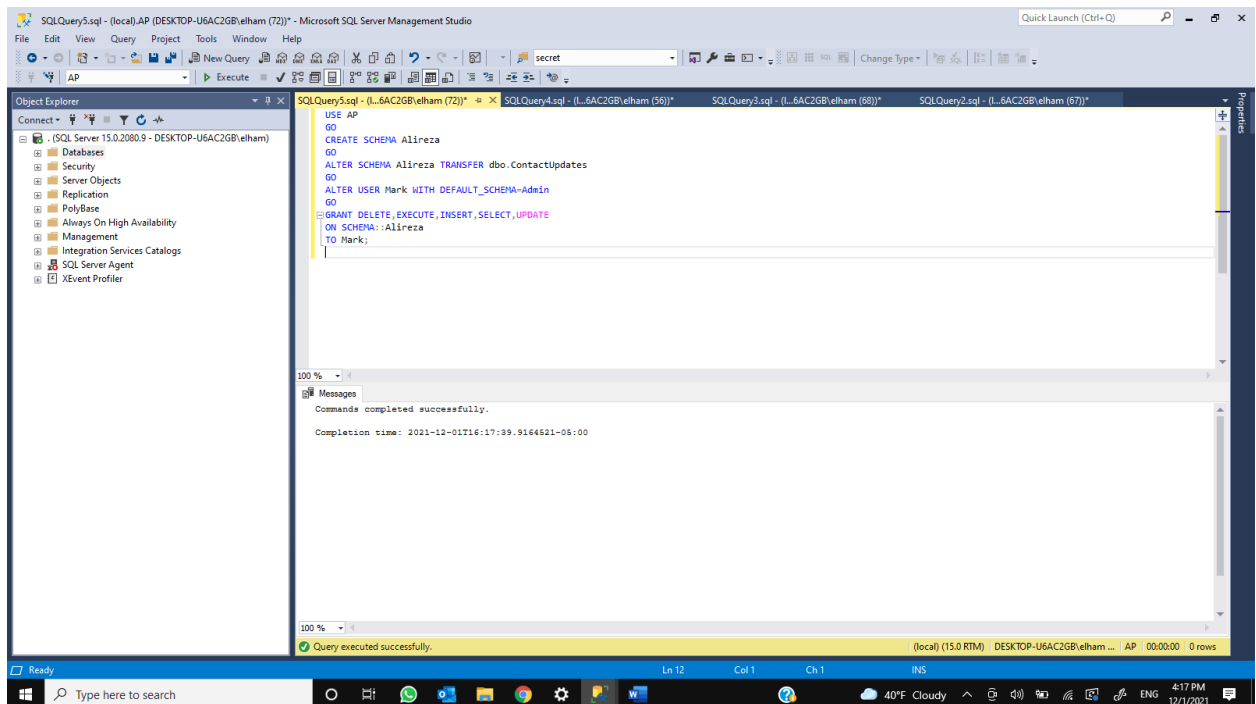
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Remark: Here we assigned the user to the PaymentEntry role.

4. Write a script that (1) creates a schema named as your own name, (2) transfers the table named ContactUpdates from the dbo schema to your schema, (3) assigns the Admin schema as the default schema for the user named 'Mark' that you created in question 2, (4) grants all standard privileges except for REFERENCES and ALTER to 'Mark' for your schema.

```
USE AP
GO
CREATE SCHEMA Alireza
GO
ALTER SCHEMA Alireza TRANSFER dbo.ContactUpdates
GO
ALTER USER Mark WITH DEFAULT_SCHEMA=Admin
GO
GRANT DELETE,EXECUTE,INSERT,SELECT,UPDATE
ON SCHEMA::Alireza
TO Mark;
```



Remark:

- I created the schema named Alireza. Then I wrote a script which transfers the table named ContactUpdates from the dbo schema to Alireza. Then I assigned the Admin schema as the default schema for the user named 'Mark'. This script also grants all standard privileges (except for REFERENCES and ALTER) to 'Mark'.

Remarks on the lab:

The questions were really helpful which have broadened my horizon in database administration. I learned how to create roles and allocate permission on databases and schemas to increase security.

Thank you for your time.

Sincerely,

Seyed Alireza