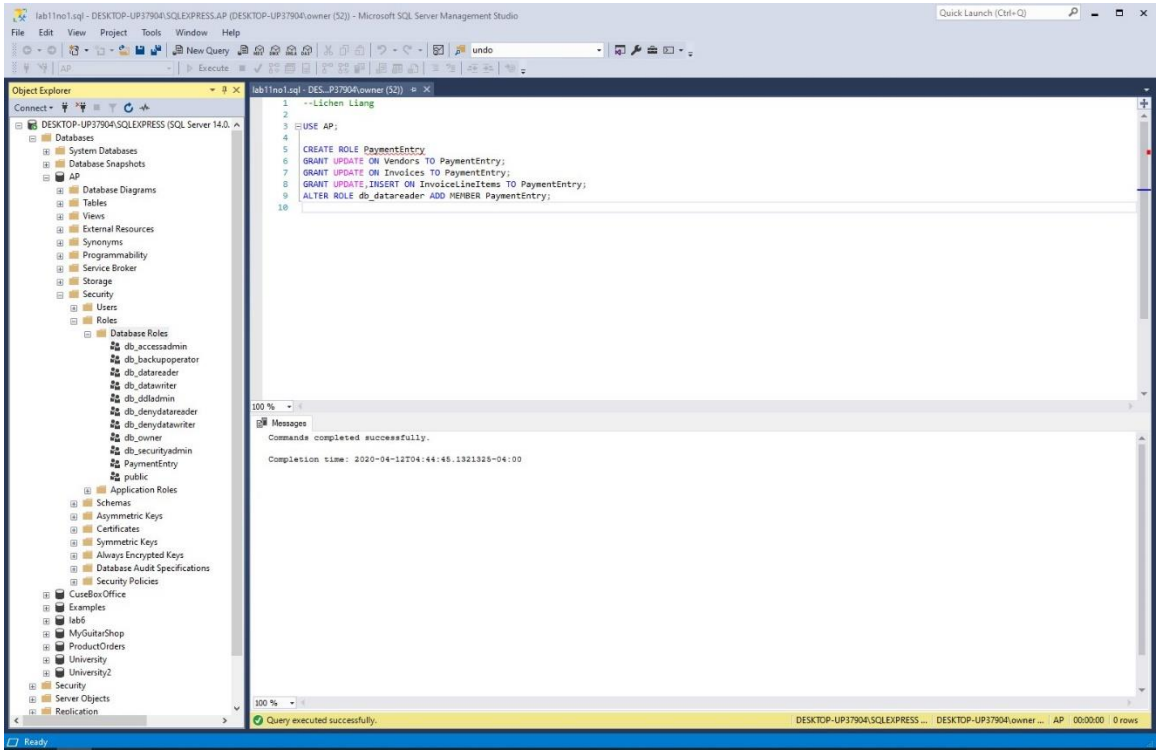
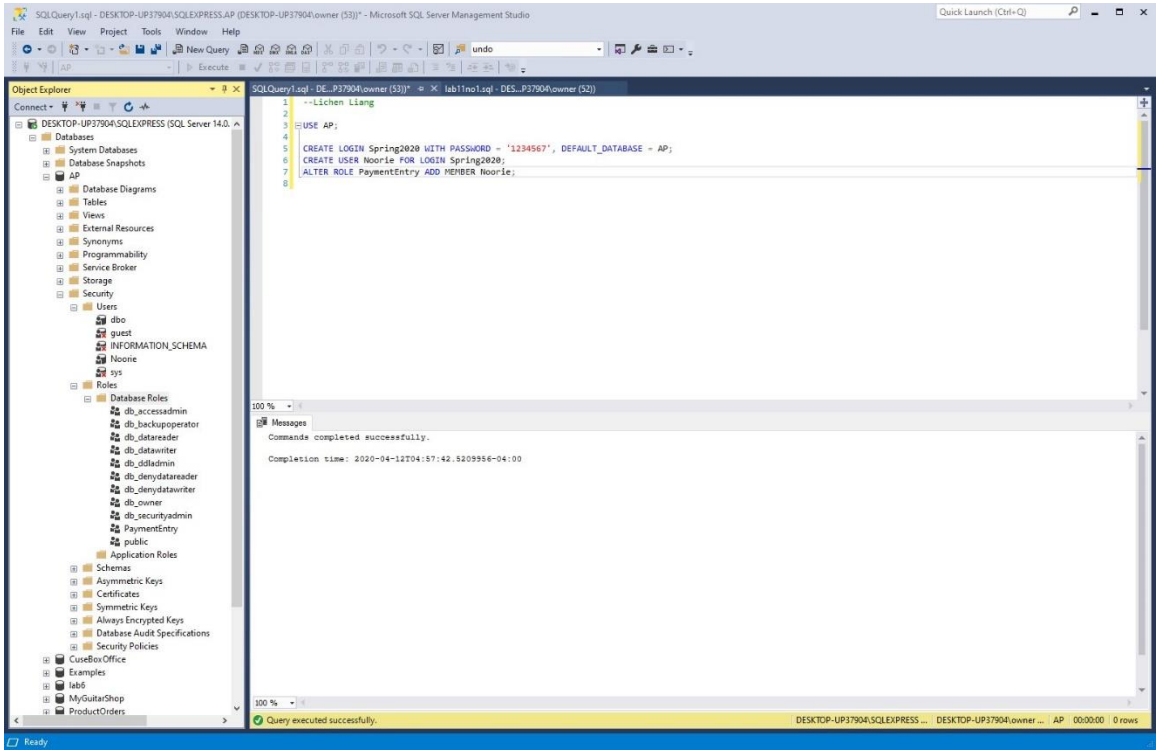
1.
```
USE AP;

CREATE ROLE PaymentEntry
GRANT UPDATE ON Vendors TO PaymentEntry;
GRANT UPDATE ON Invoices TO PaymentEntry;
GRANT UPDATE,INSERT ON InvoiceLineItems TO PaymentEntry;
ALTER ROLE db_datareader ADD MEMBER PaymentEntry;
```



First, use CREATE ROLE to create the role PaymentEntry. Then use GRANT..ON..TO.. to grant permissions on certain tables to certain roles. Finally, use ALTER ROLE…ADD MEMEBER to alter the role and add the role member, and db_datareader allows to read the data, which is the select statement.

2.
```
USE AP;

CREATE LOGIN Spring2020 WITH PASSWORD = '1234567', DEFAULT_DATABASE = AP;
CREATE USER Noorie FOR LOGIN Spring2020;
ALTER ROLE PaymentEntry ADD MEMBER Noorie;
```



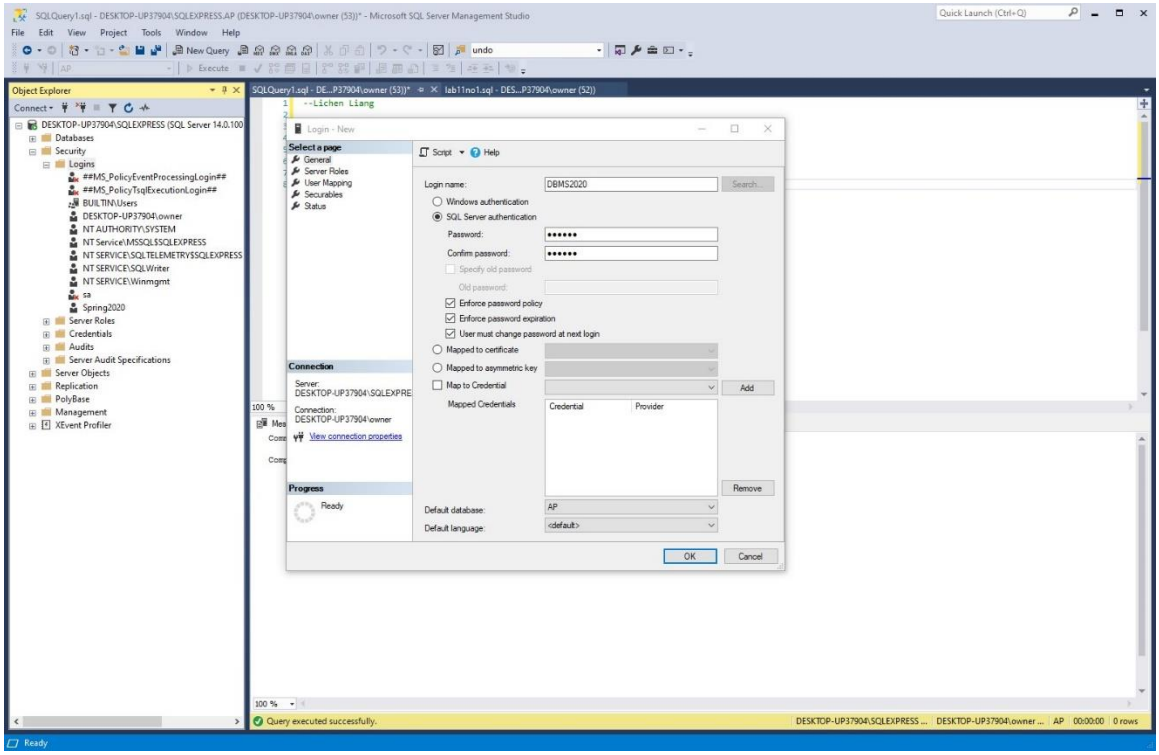
Use CREATE LOGIN…WITH PASSWORD to create a login account with the password in single quotes, then a comma followed by DEFAULT_DATABASE to specify the default database.

Use CREATE USER…FOR LOGIN to create a user that use the login we just created.

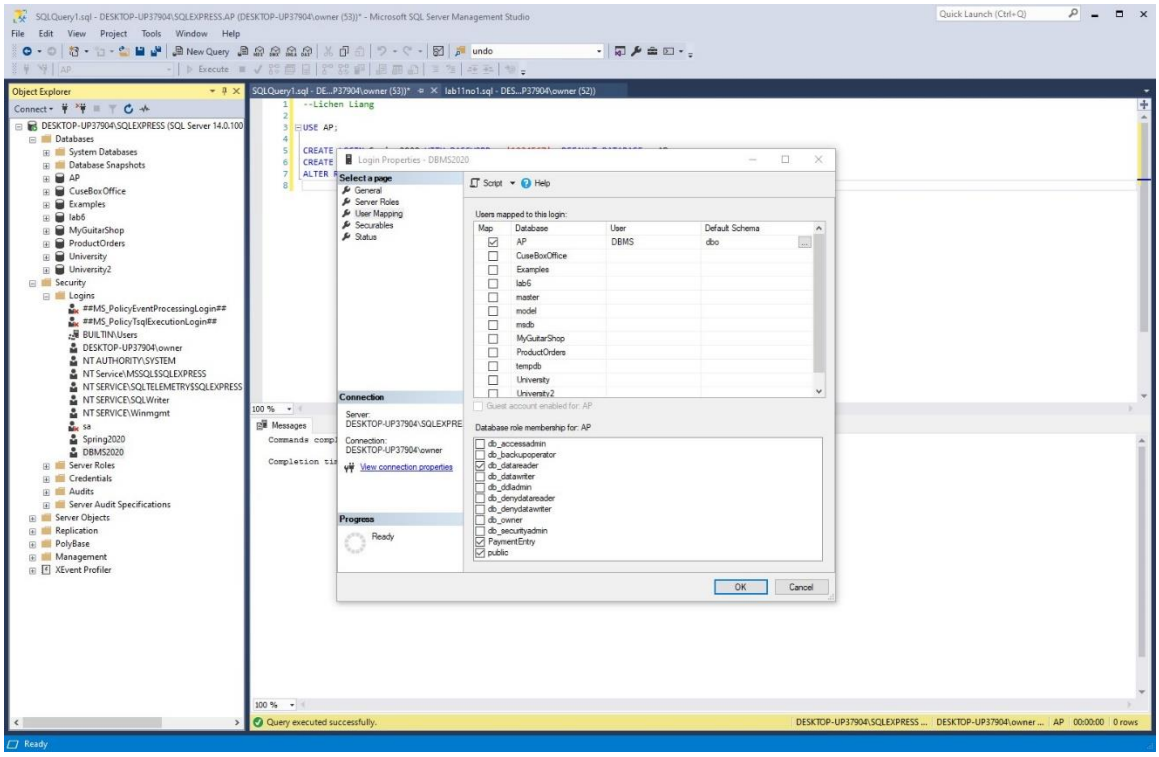
Finally, use ALTER ROLE…ADD MEMBER (similar to question 1) to assign the user to the role.

The Login ID Spring 2020 screenshot can be found in question 3's first image.

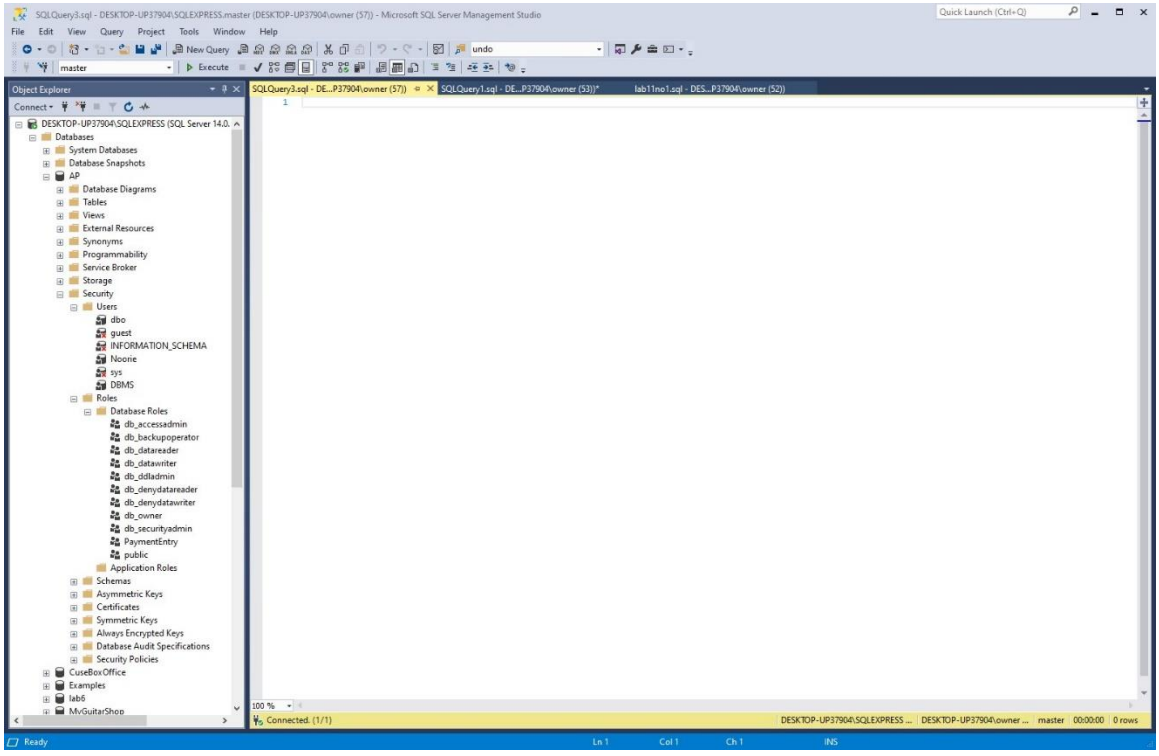
3.



Right click on Login in the Object Explorer and choose New Login. Fill the information required and set default database to AP then hit OK.

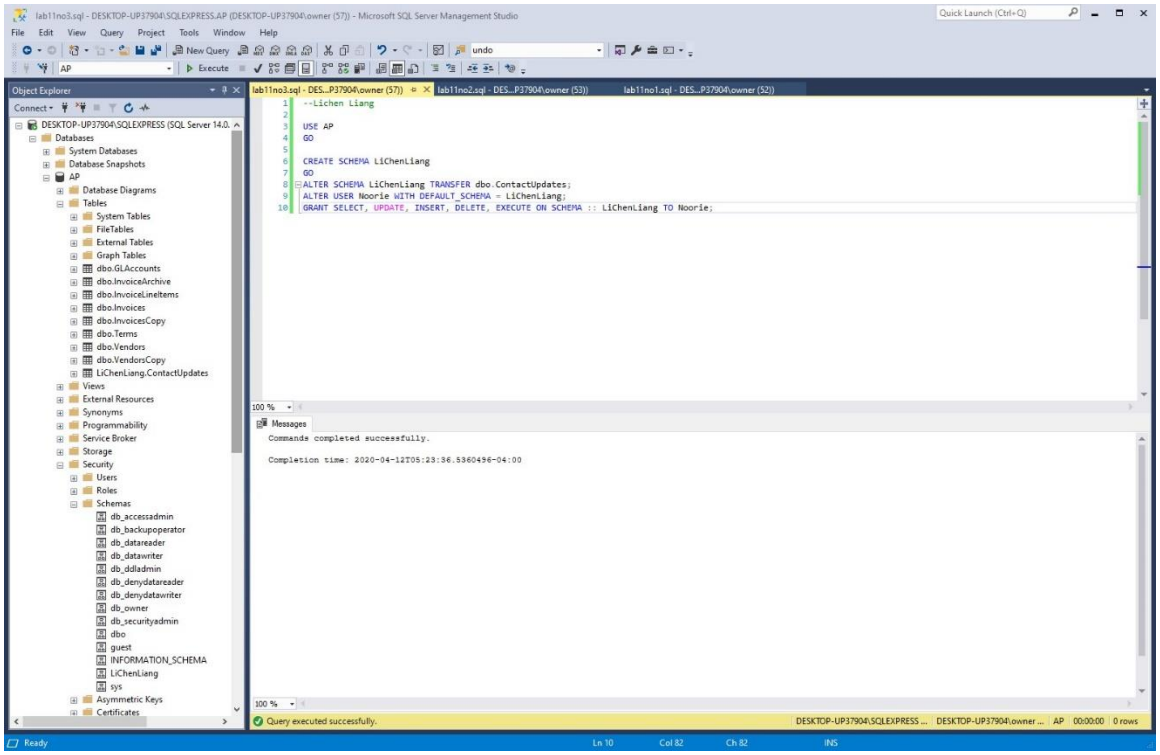


Right click on the DBMS2020 and select Properties, then choose User Mapping on the left column. Tick the AP, change user to DBMS and tick the PaymentEntry in the bottom and hit OK.



This shows the user DBMS being created.

4.
```
USE AP
GO

CREATE SCHEMA LiChenLiang
GO
ALTER SCHEMA LiChenLiang TRANSFER dbo.ContactUpdates;
ALTER USER Noorie WITH DEFAULT_SCHEMA = LiChenLiang;
GRANT SELECT, UPDATE, INSERT, DELETE, EXECUTE ON SCHEMA :: LiChenLiang TO
Noorie;
```



Create a schema using CREATE SCHEMA and use GO to execute it.

Use ALTER SCHEMA…TRANSFER to transfer the ContactUpdates from dbo to me.

Use ALTER USER...WITH DEFAULT_SCHEMA to assign the default schema of that user to me.

Finally, GRANT…ON SCHEMA:: …TO to grant permissions individually, except ‘references’ and ‘alter’ for my schema to Noorie.

Remarks

In this lab we practiced server security concepts, which is very similar to the lecture and a very good hands-on practice. This lab mainly focused on using the correct format to perform certain tasks, so it is pretty straight forward in my opinion. A better or more challenging practice would be a longer and more complicated requirements.