410255:LP-VI. BI	
Experiment No: 2	Perform the Extraction Transformation and Loading(ETL) process to construct the database in the Sql server.

Objective of the Assignment : To introduce the concepts and components ofBusiness Intelligence (BI)

Prerequisite:

1. Basics of ETL Tools.
2. Concept of Sql Server.

Contents for Theory :

1. Extraction
2. Transformation
3. Loading
4. Steps for Perform the Extraction Transformation and Loading (ETL)process to construct the database in the SQL server.

1. Extraction

1. Identify the Data Sources: The first step in the ETL process is to identify thedata sources. This may include files, databases, or other data repositories.
2. Extract the Data: Once the data sources are identified, we need to extract thedata from them. This may involve writing queries to extract the relevant dataor using tools such as SSIS to extract data from files or databases.
3. Validate the Data: After extracting the data, it's important to validate it toensure that it's accurate and complete. This may involve performing dataprofiling or data quality checks.

2. Transformation

1. Clean and Transform the Data: The next step in the ETL process is to clean and transform the data. This may involve removing duplicates, fixing invaliddata, or converting data types. We can use tools such as SSIS or SQL scriptsto perform these transformations.
2. Map the Data: Once the data is cleaned and transformed, we need to map the data to the appropriate tables and columns in the database. This may involvecreating a data mapping document or using a tool such as SSIS to perform the mapping.

3. Loading

1. Create the Database: Before loading the data, we need to create the database and the appropriate tables. This can be done using SQL Server Management Studio or a SQL script.
2. Load the Data: Once the database and tables are created, we can load the data into the database. This may involve using tools such as SSIS or writing SQL scripts to insert the data into the appropriate tables.
3. Validate the Data: After loading the data, it's important to validate it to ensure that it was loaded correctly. This may involve performing data profiling or data quality checks to ensure that the data is accurate and complete.

Perform the Extraction Transformation and Loading (ETL) process to construct the database in the SQL server.

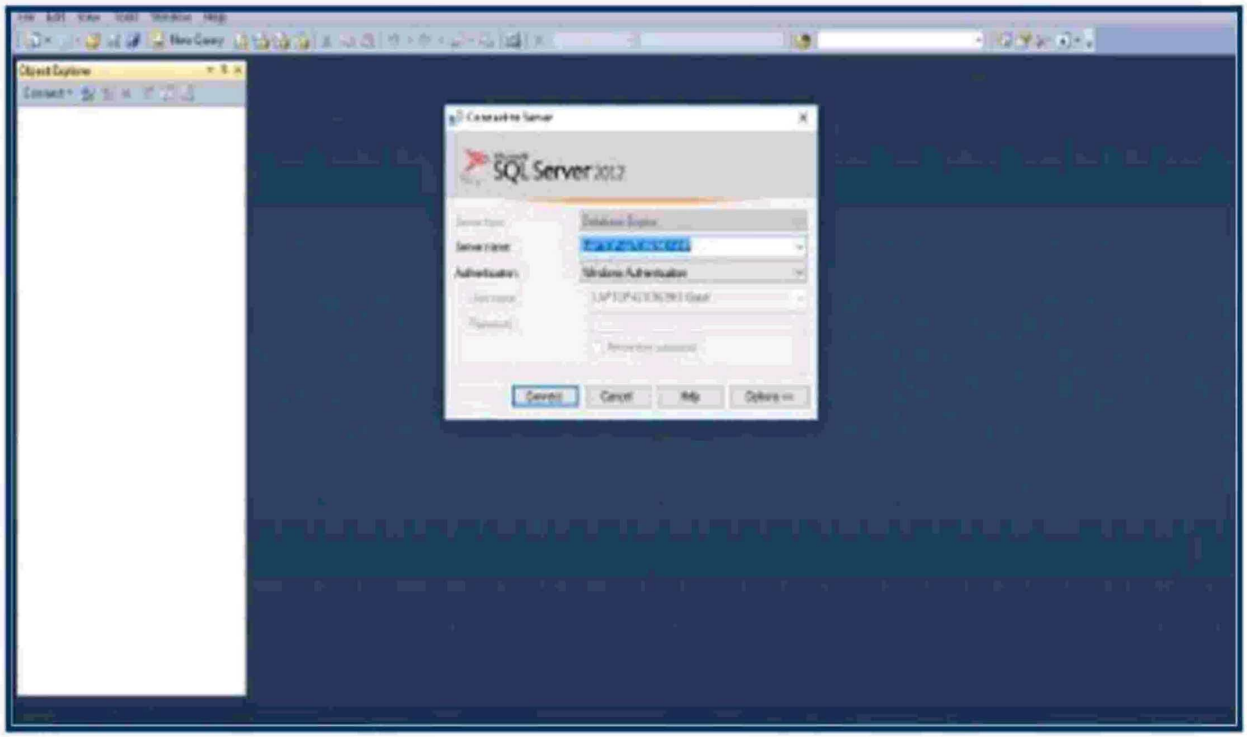
Software requirements:

SQL SERVER 2012 FULL VERSION (SQLServer2012SPl-FullSlipstream-ENU-x86)

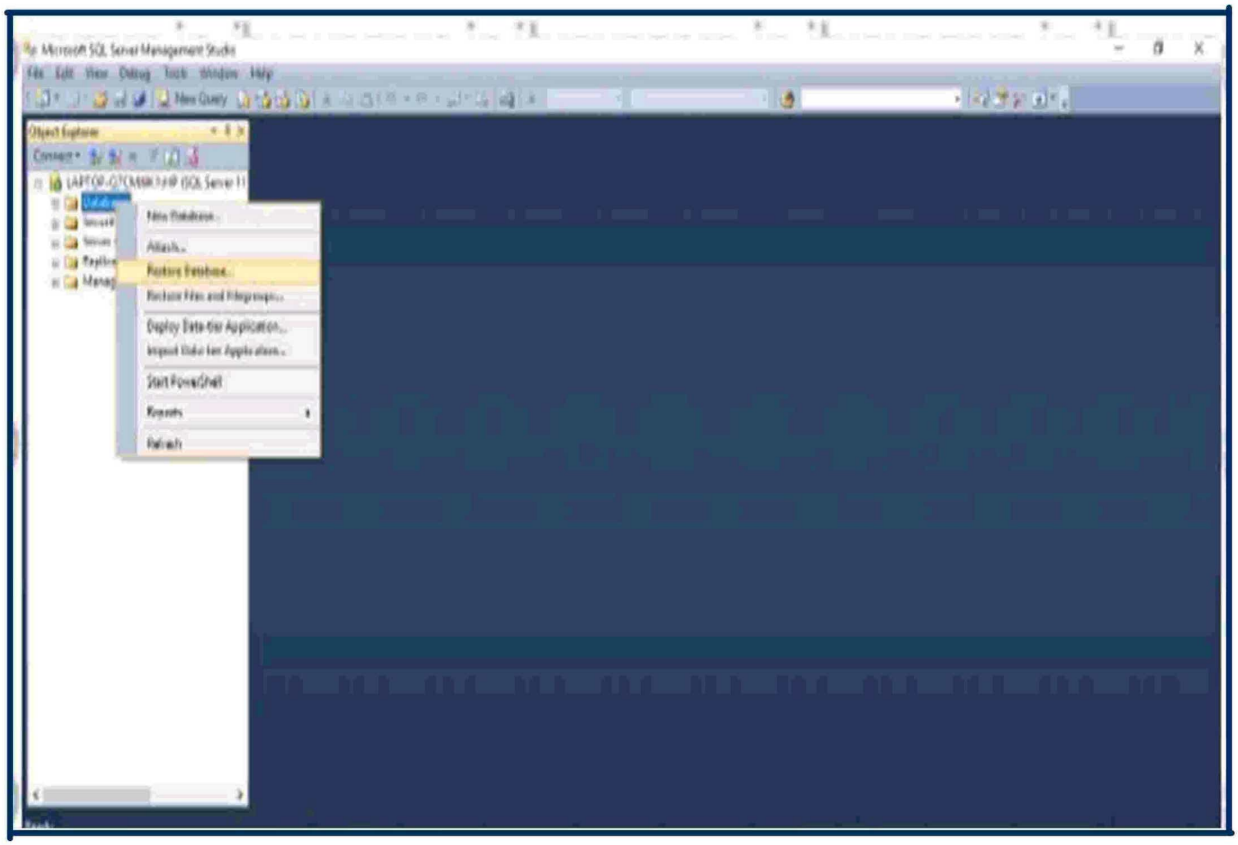
Steps to install SQL SERVER 2012 FULL VERSION

(SQLServer2012SPl- FullSlipstream-ENU-x86) are given in my previous post.

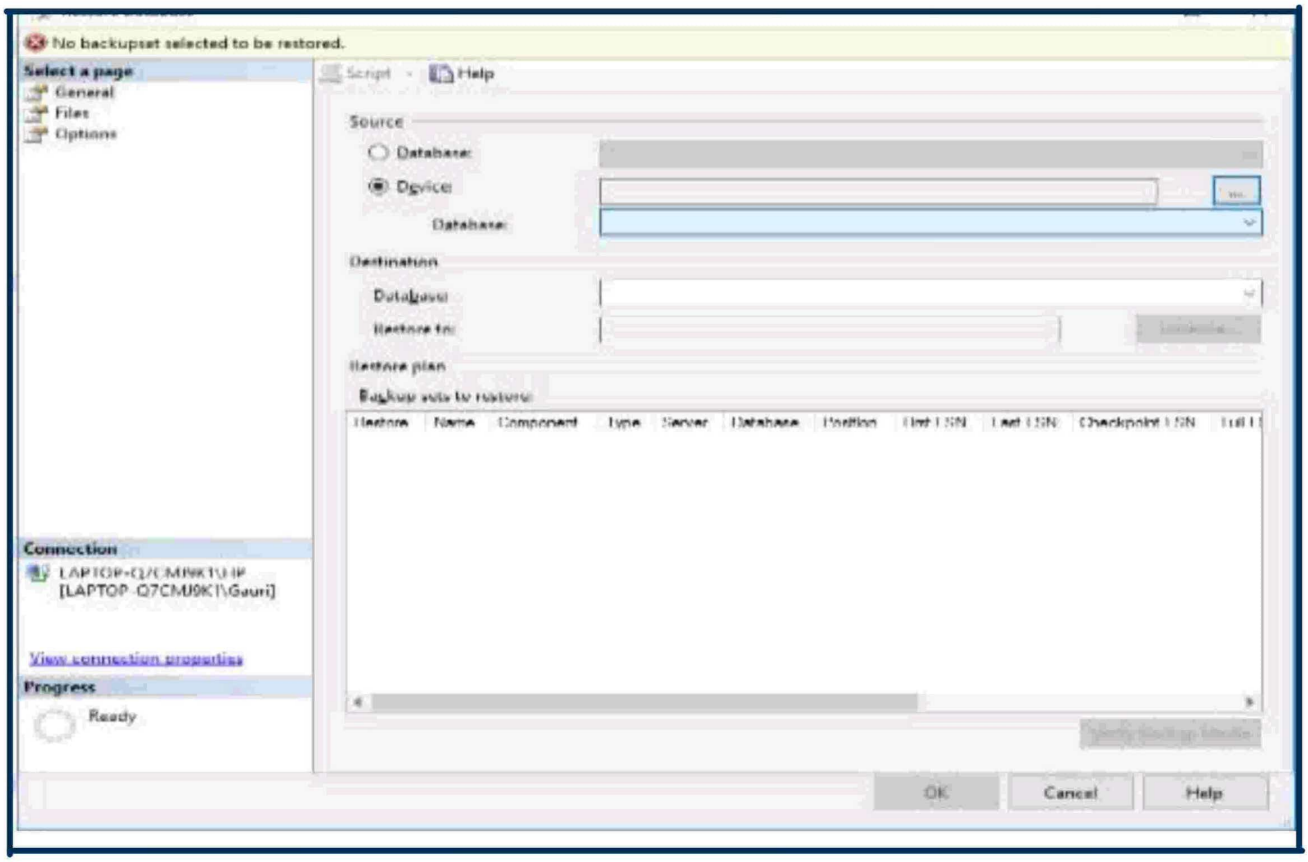
Step 1: Open SQL Server Management Studio to restore backup file

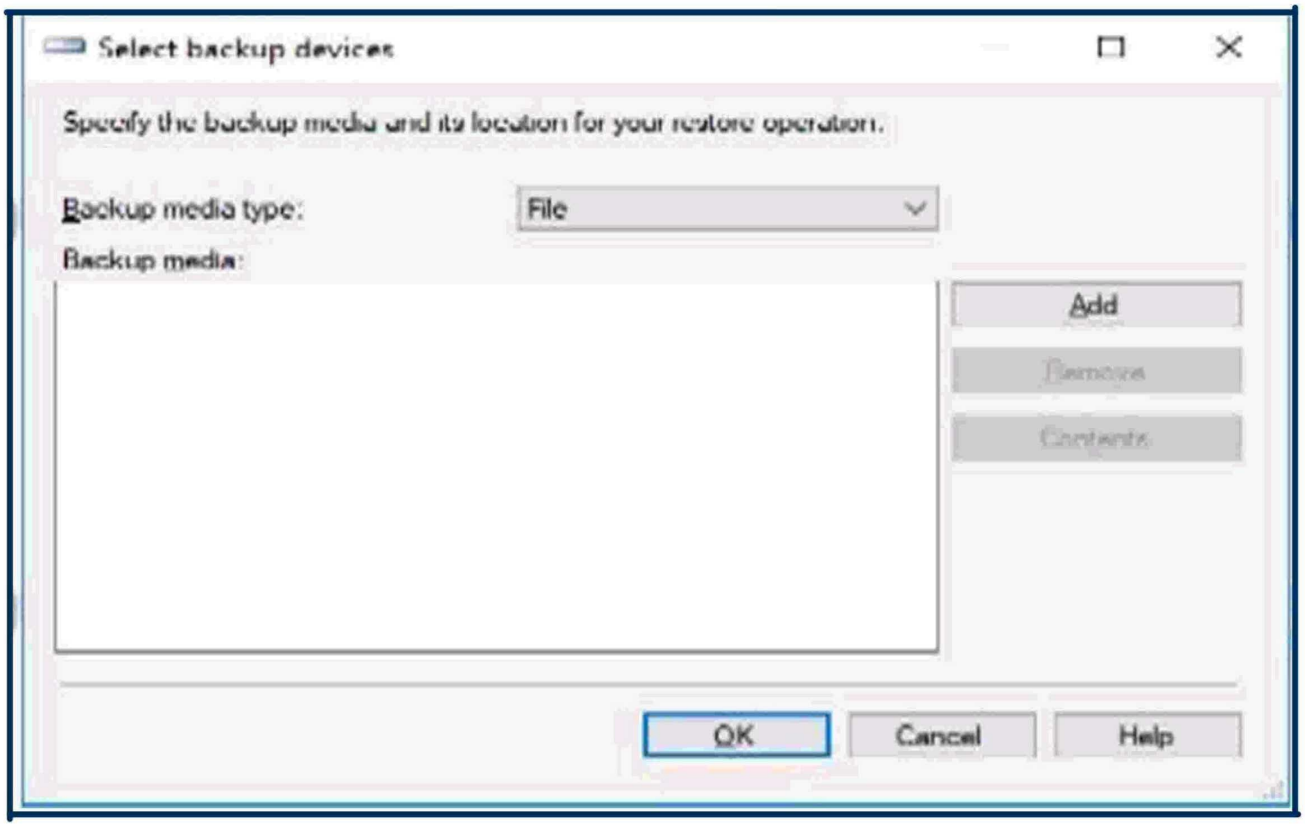


Step 2: Right click on Databases Restore Database

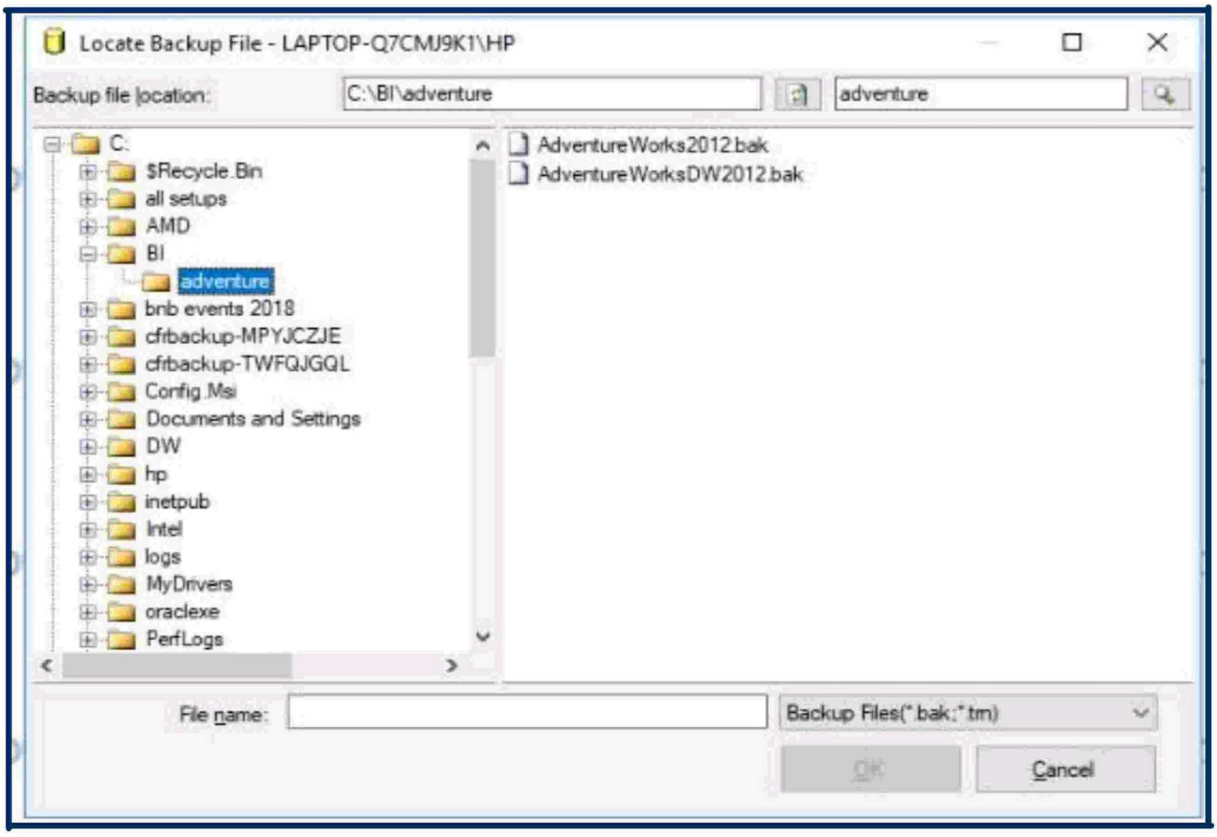


Step 3: Select Device click on  **icon towards end of device box**

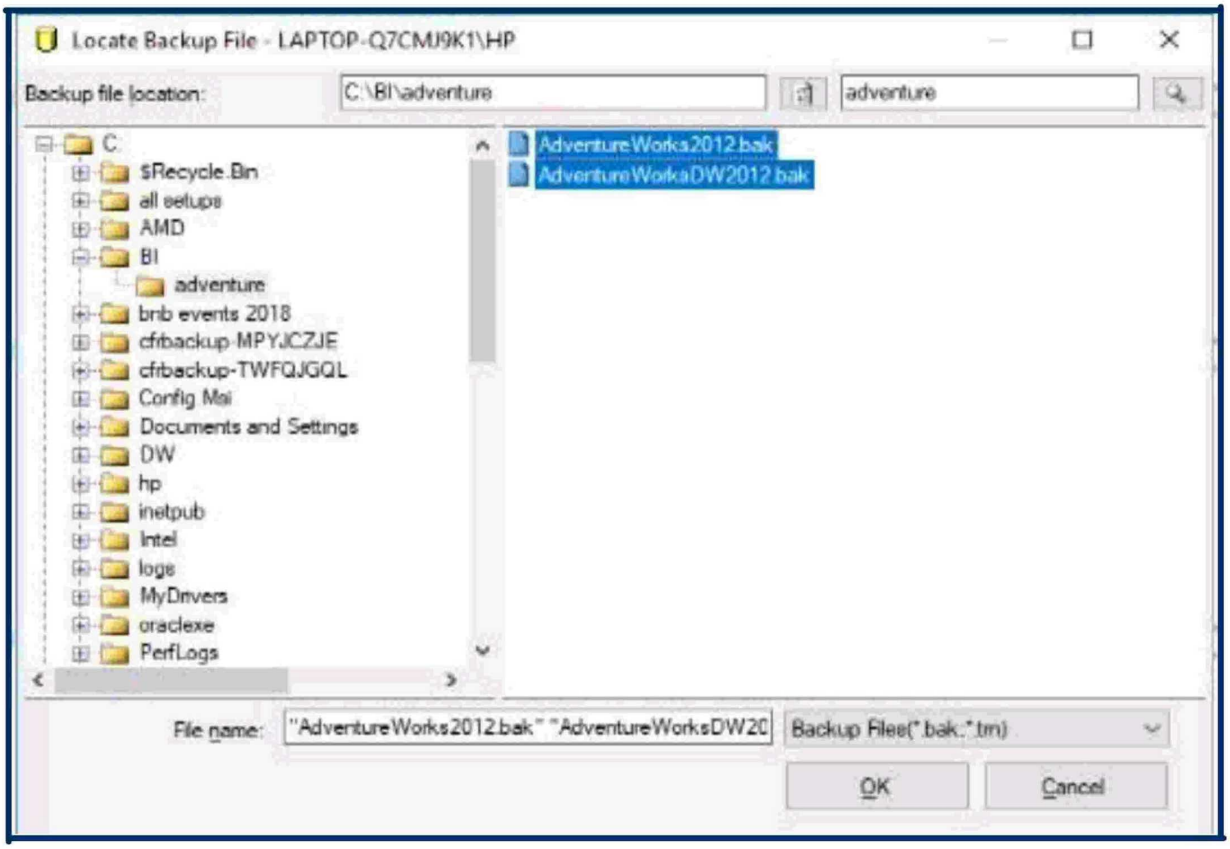




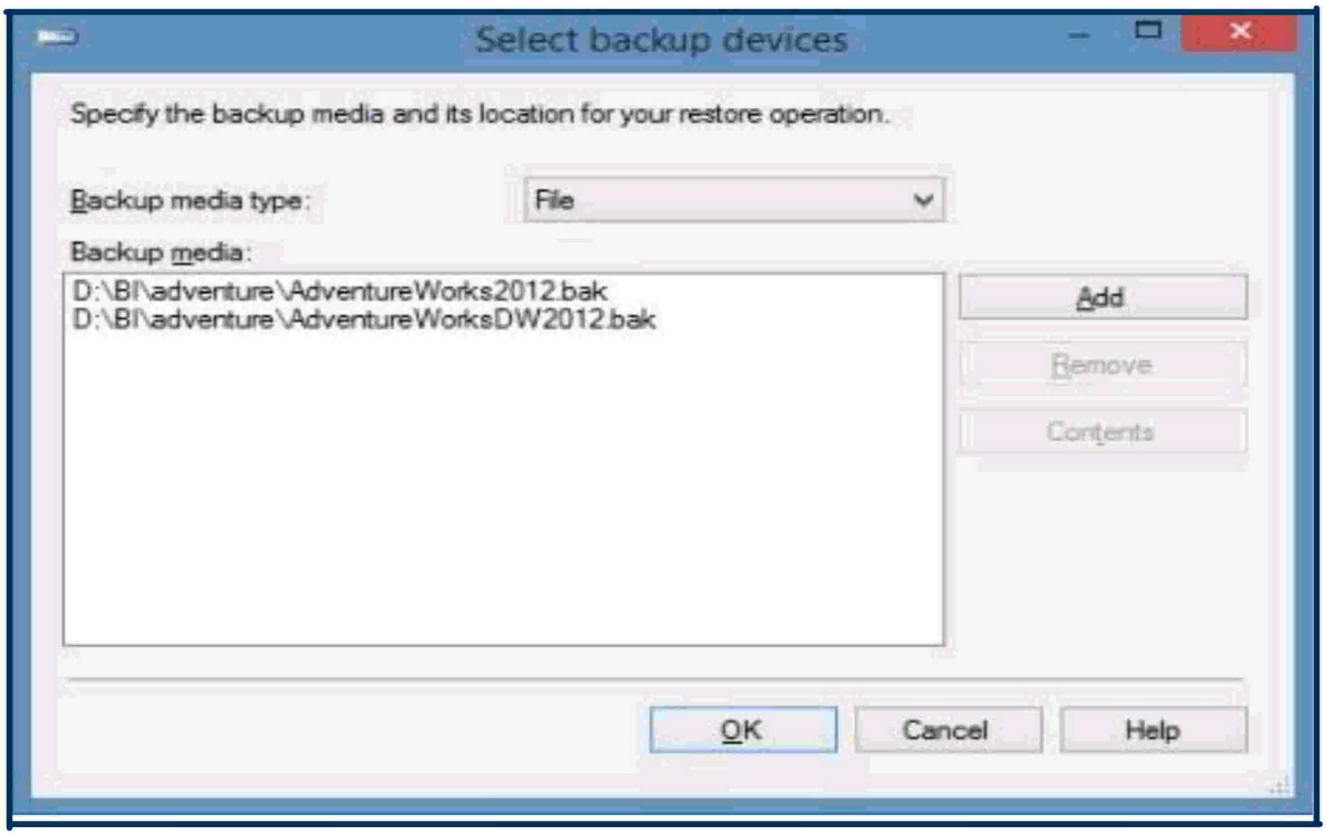
Step 4: Click on Add Select path of backup files

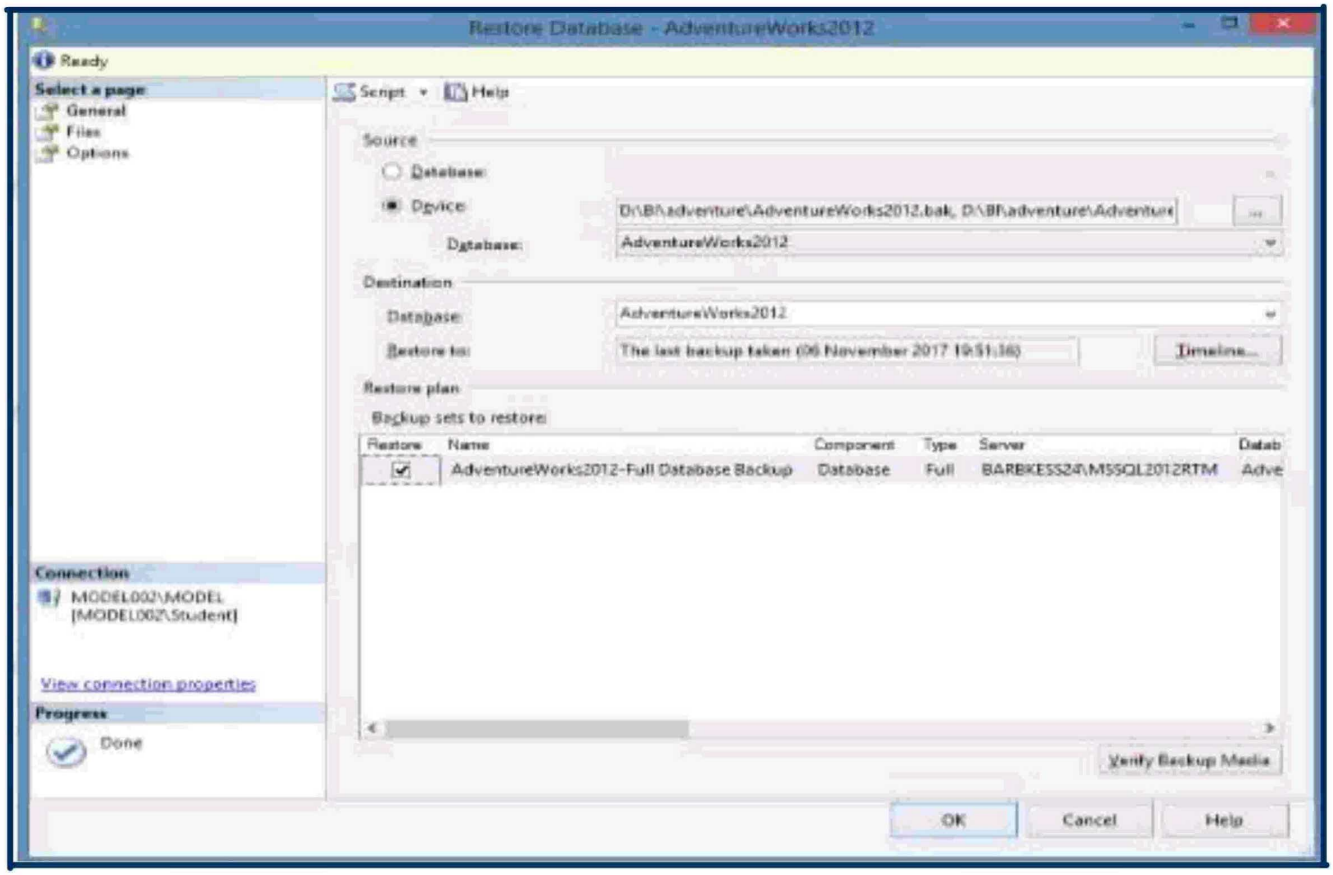


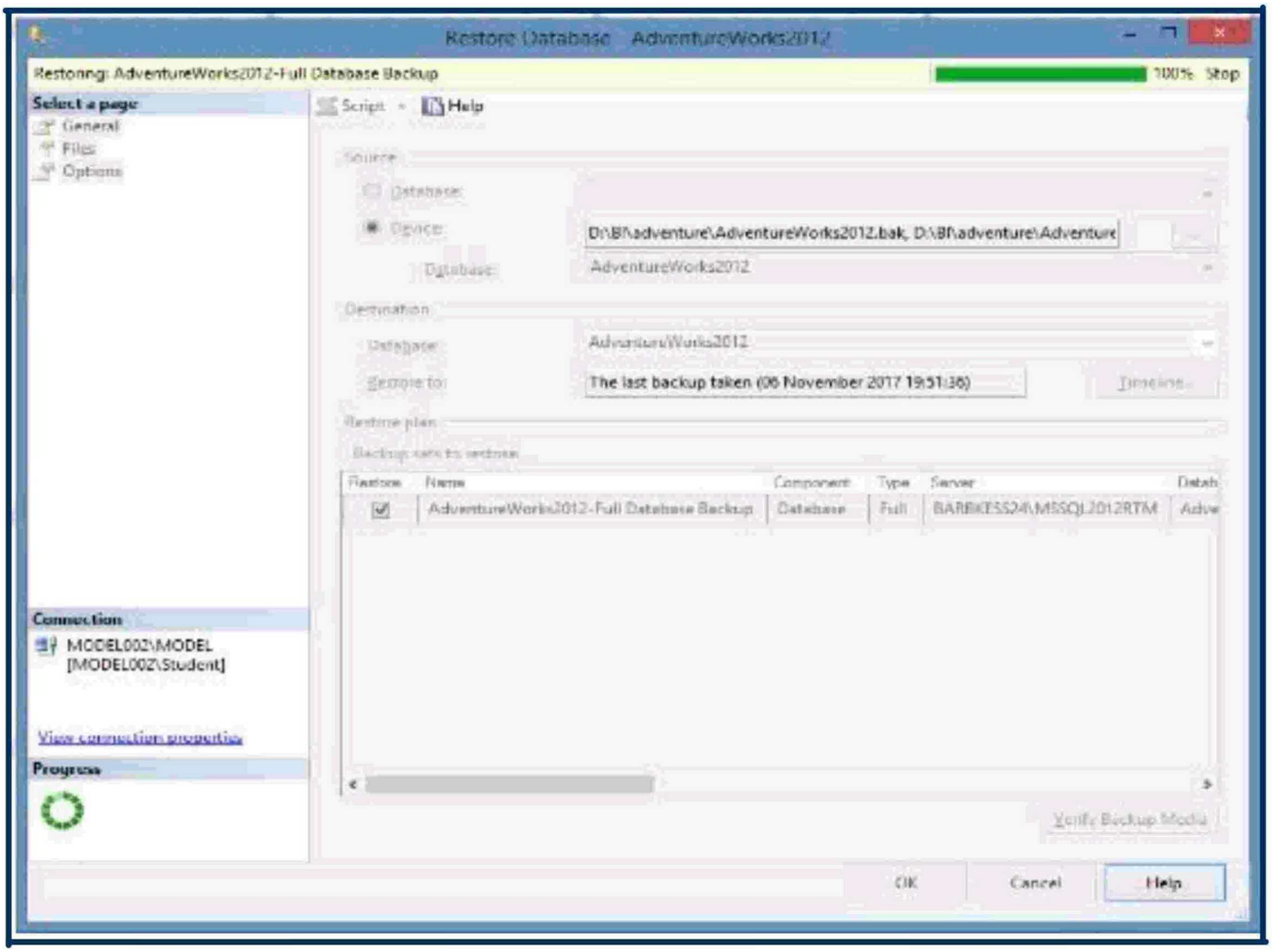
Step 5: Select both files at a time

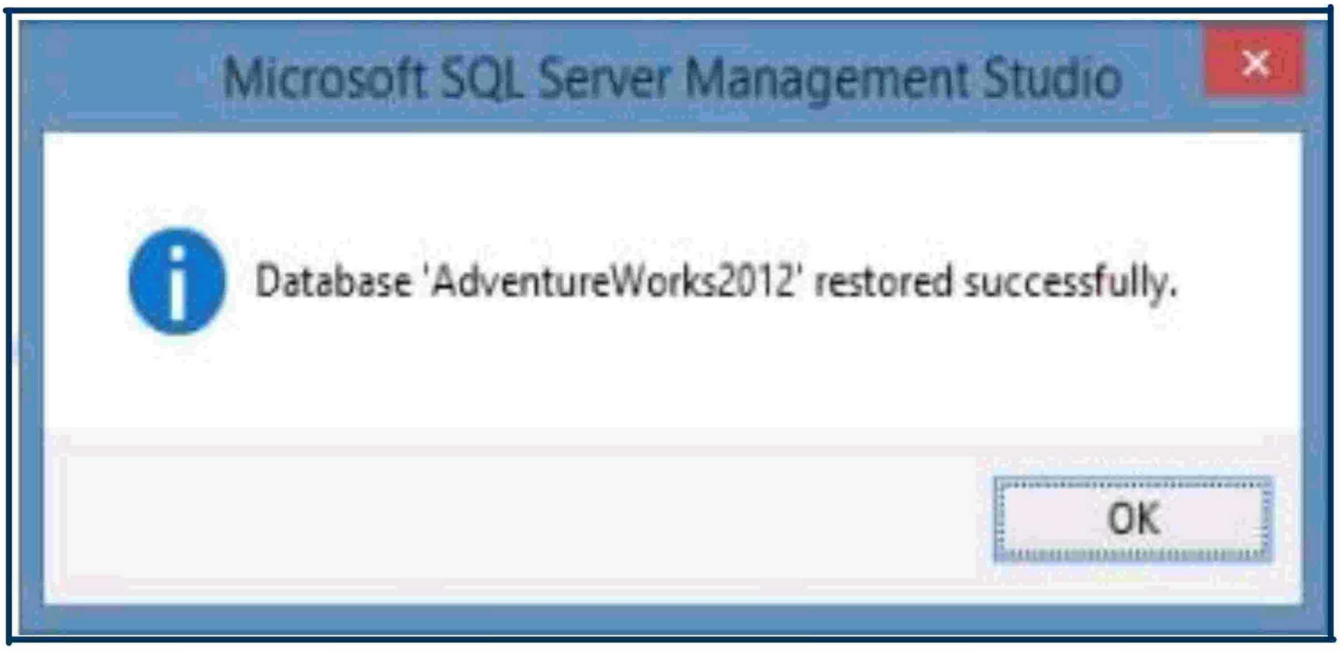


Step 6 : Click ok and in select backup devices window Addboth files of AdventureWorks



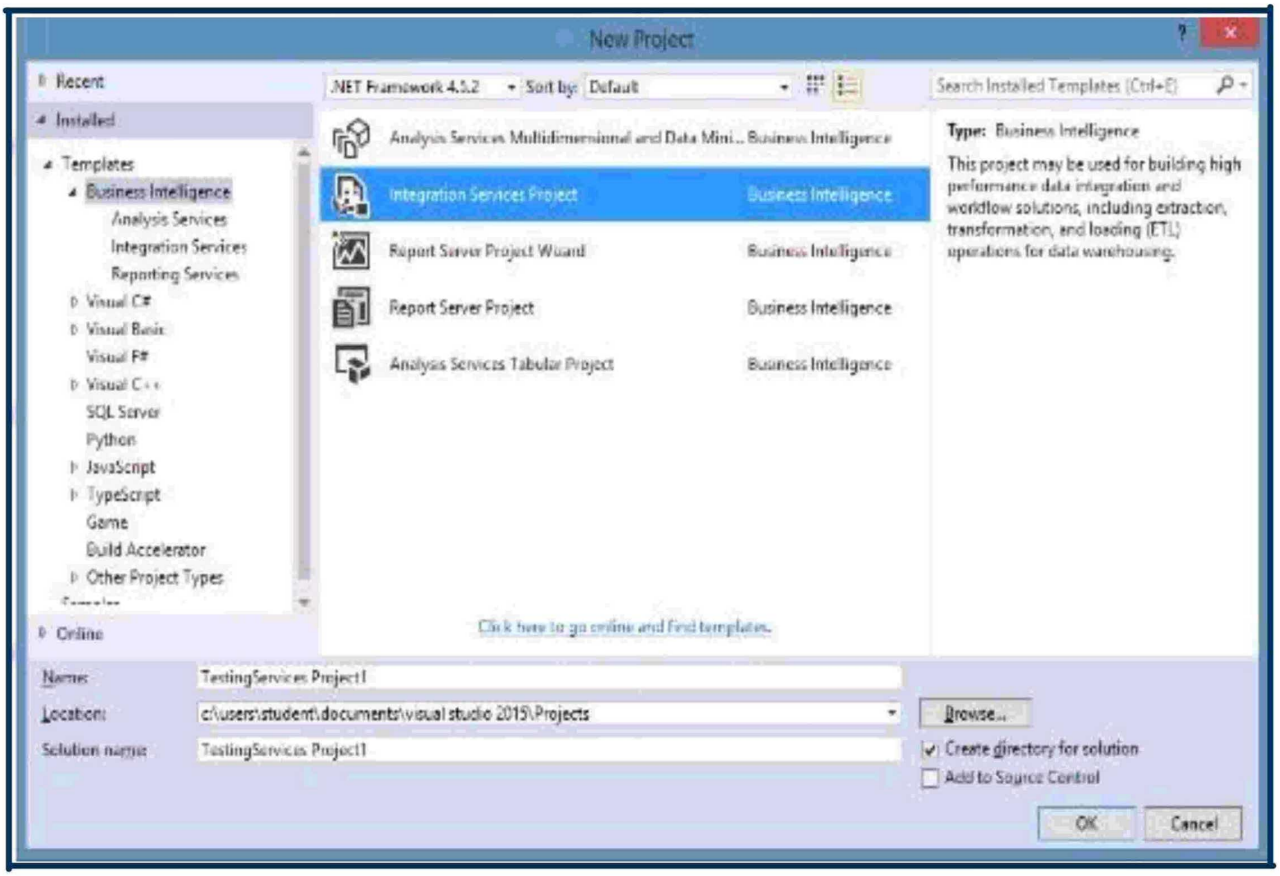


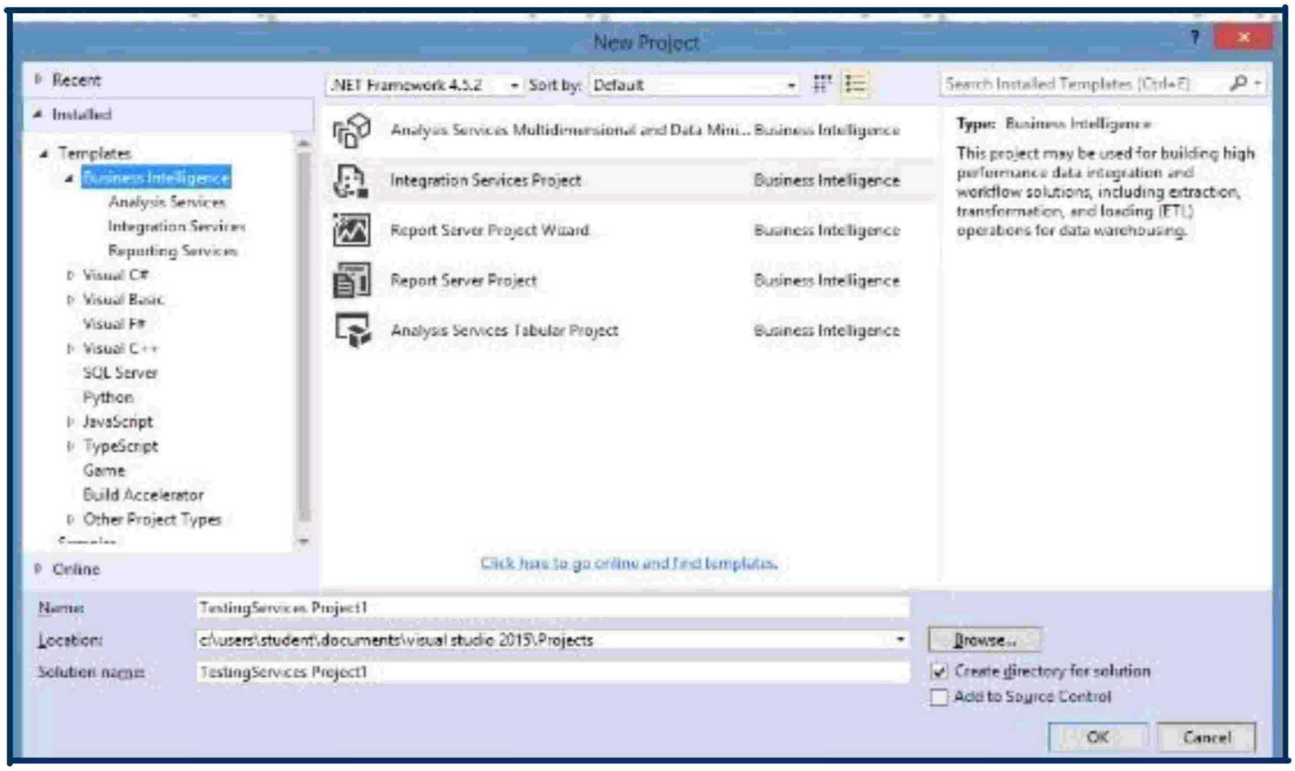

Restore Database - AdventureWorks2012
Restoring: AdventureWorks2012-Full Database Backup
100%
Stop
Select a page
General
Files
Options
Script
Help
Source
Database:
Device:
D:\BI\adventure\AdventureWorks2012.bak; D:\BI\adventure\Adventure
Database:
AdventureWorks2012
Destination
Database:
AdventureWorks2012
Restore to:
The last backup taken (06 November 2017 19:51:36)
Timeline...
Restore plan
Backup sets to restore:
Restore
Name
Component
Type
Server
Datab
AdventureWorks2012-Full Database Backup
Database
Full
BARIKESS24\MSSQL2012RTM
Adve
Verify Backup Media
Connection
MODEL00Z\MODEL
[MODEL00Z\Student]
View connection properties
Progress
OK
Cancel
Help

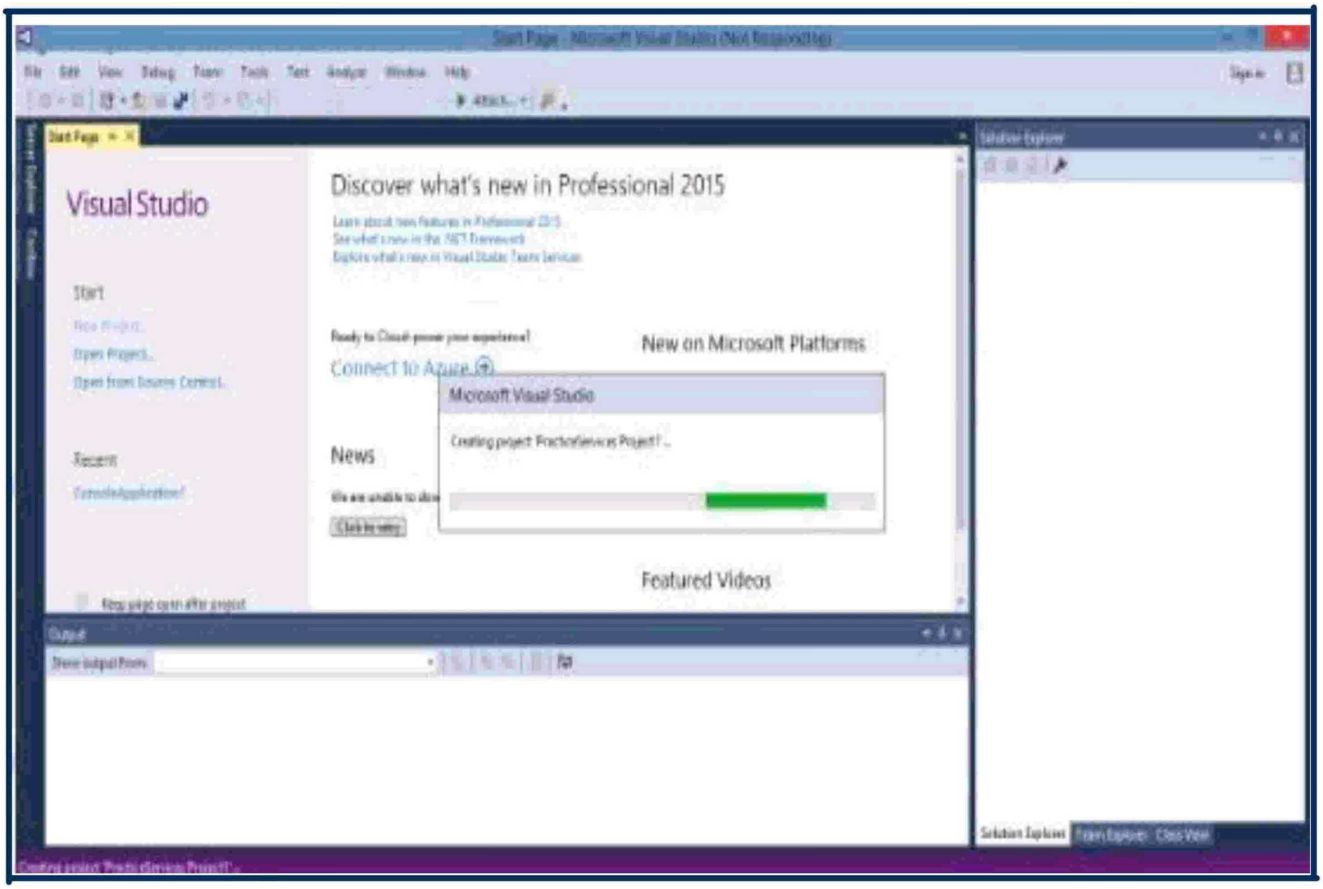

Microsoft SQL Server Management Studio
Database 'AdventureWorks2012' restored successfully.
OK

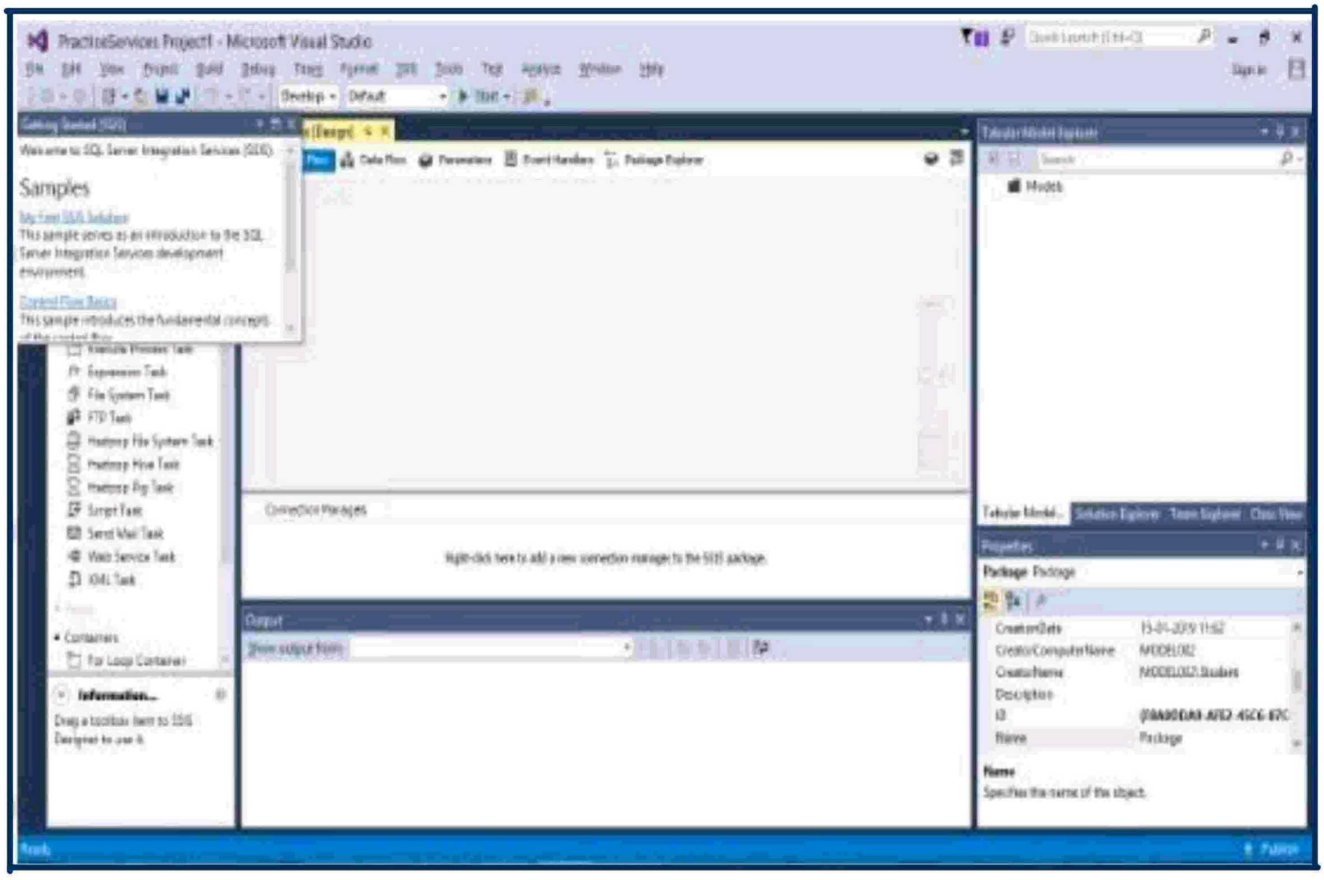
Step 7: Open SQL Server Data Tools

Select File New Project Business Intelligence Integration Services Project & give appropriate project name.



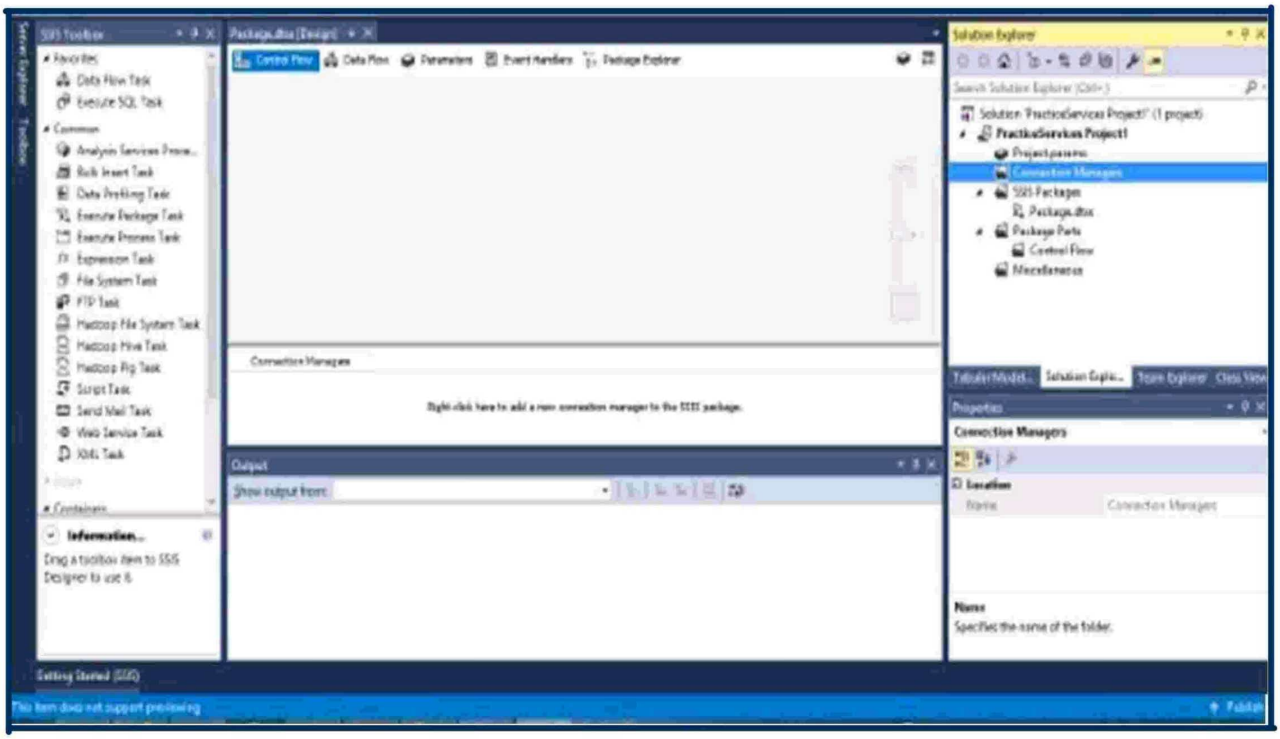



Visual Studio
Discover what's new in Professional 2015
Start
Recent
News
New on Microsoft Platforms
Connect to Azure
Microsoft Visual Studio
Creating project 'PracticeServices Project1'...
Featured Videos
Output
Solution Explorer

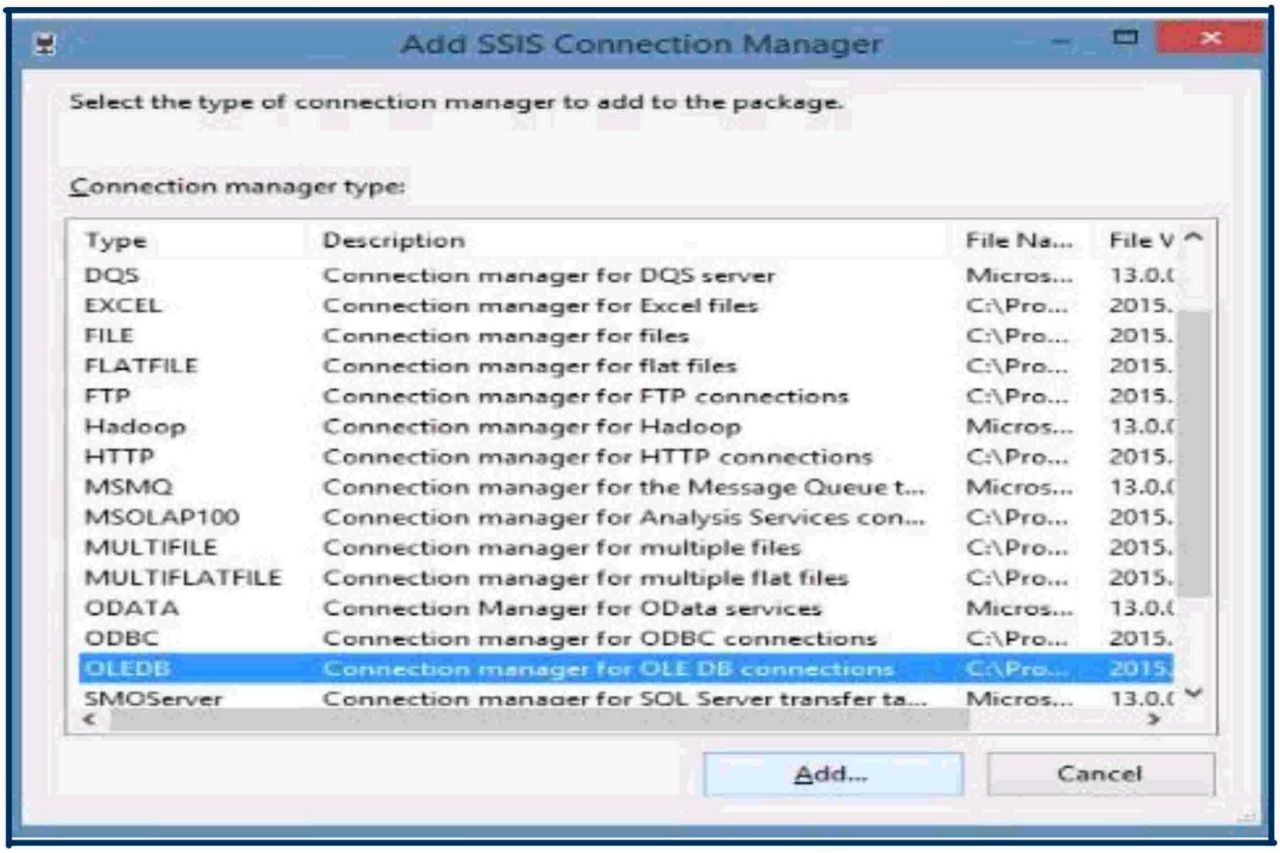

PracticeServices Project1 - Microsoft Visual Studio
Samples
Output
Solution Explorer

Step 8: Right click on Connection Managers in solution explorer and click onNew Connection Manager.

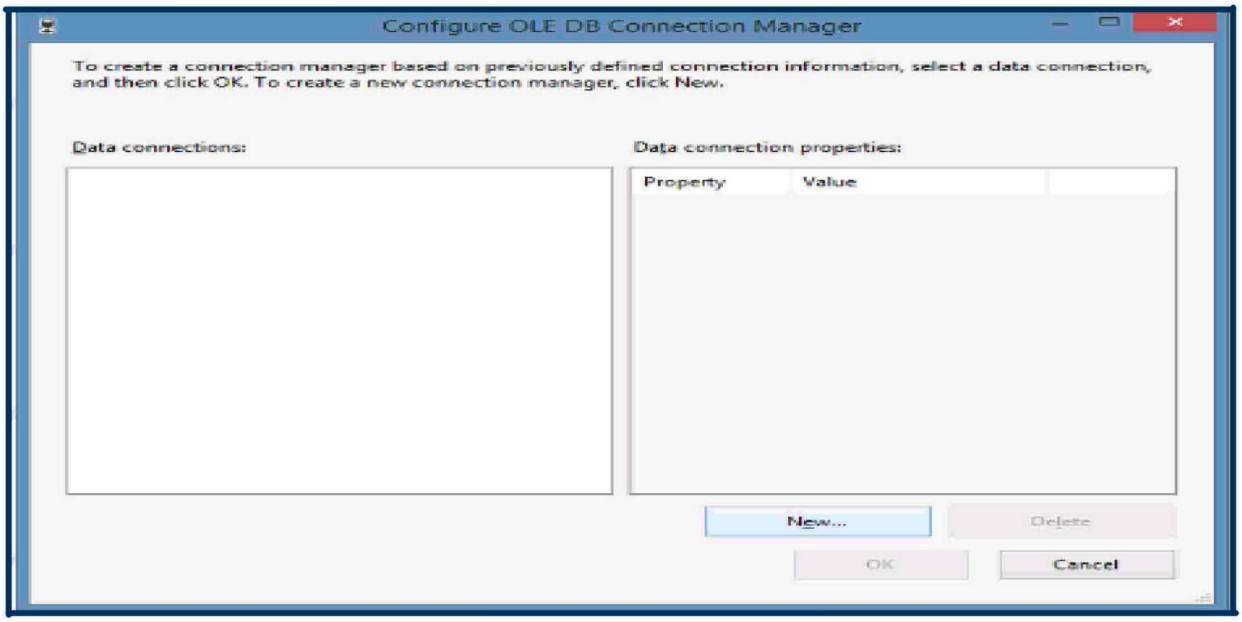
Add the SSIS connection manager window.



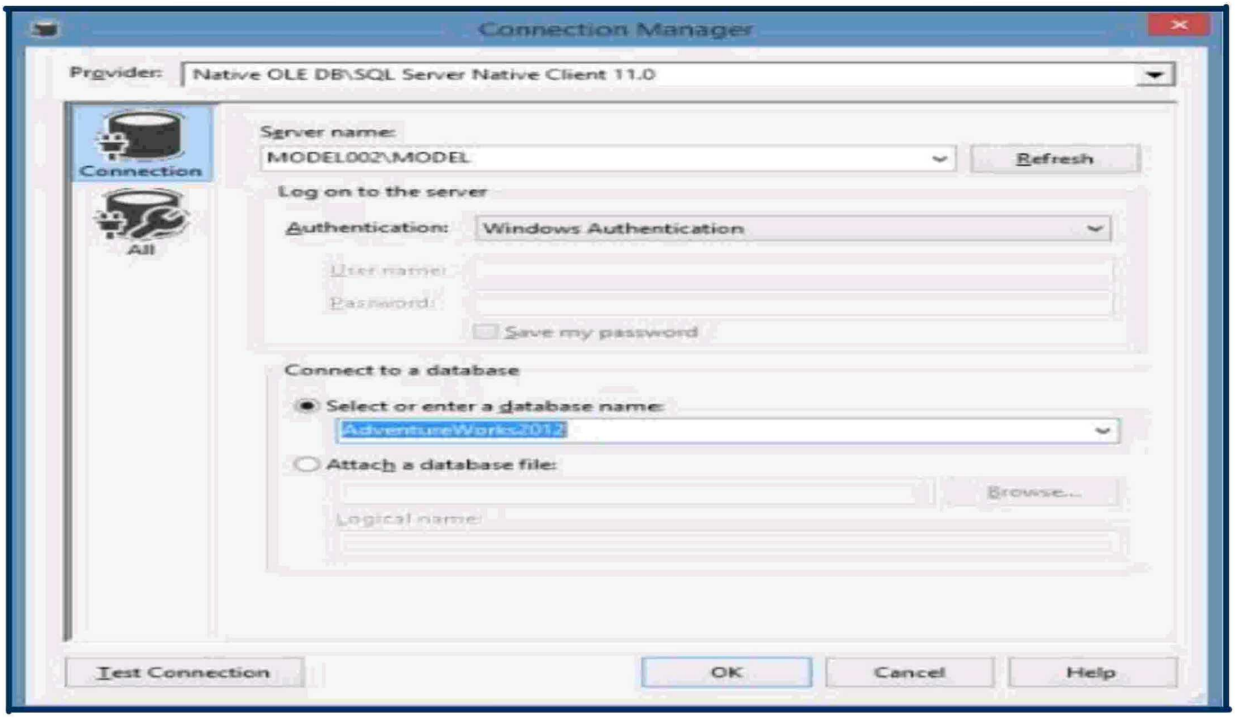
Step 9: Select OLEDB Connection Manager and Click on Add



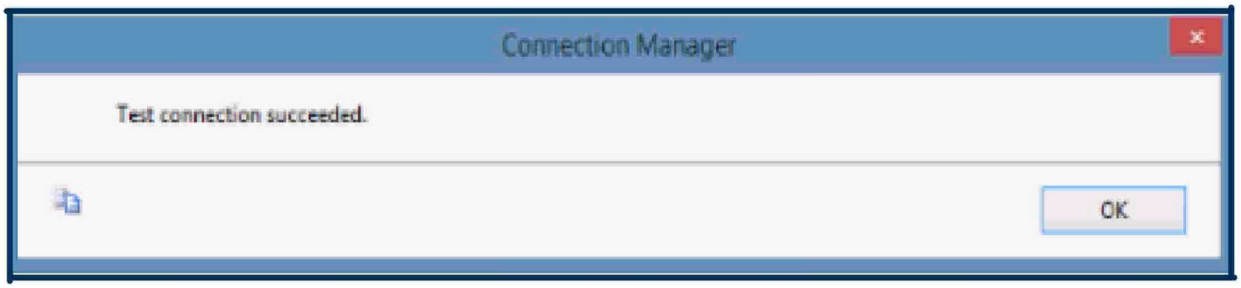
Step 10: Configure OLE DB Connection Manager window appears Click onNew



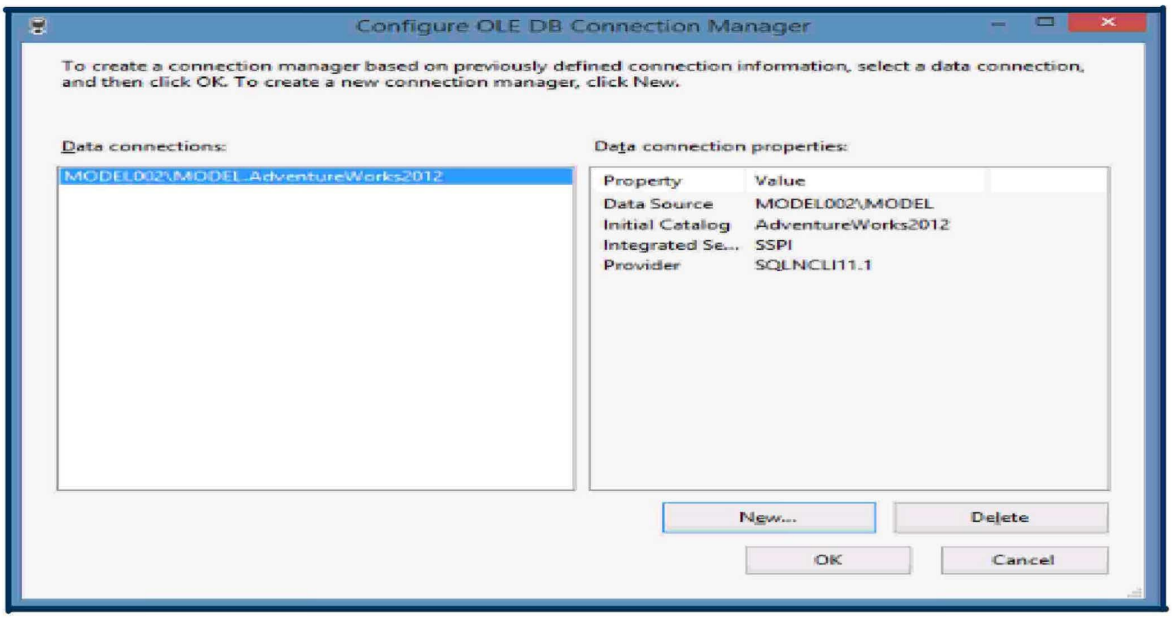
Step 11: Select Server name(as per your machine) from drop down and databasename and click on Test connection.



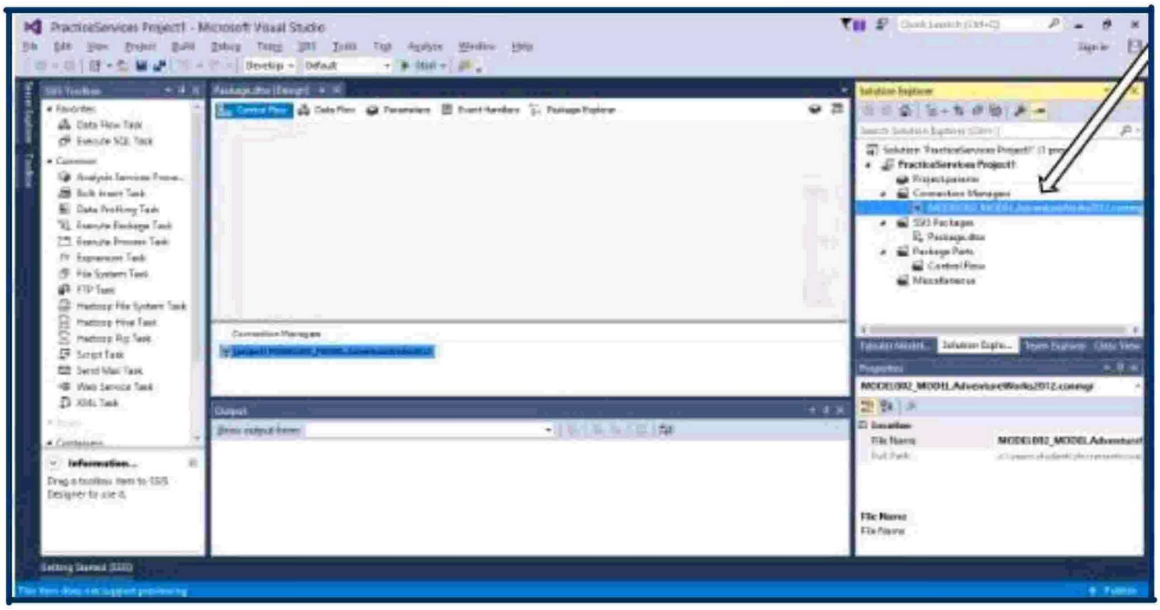
If the test connection succeeded, click on OK.



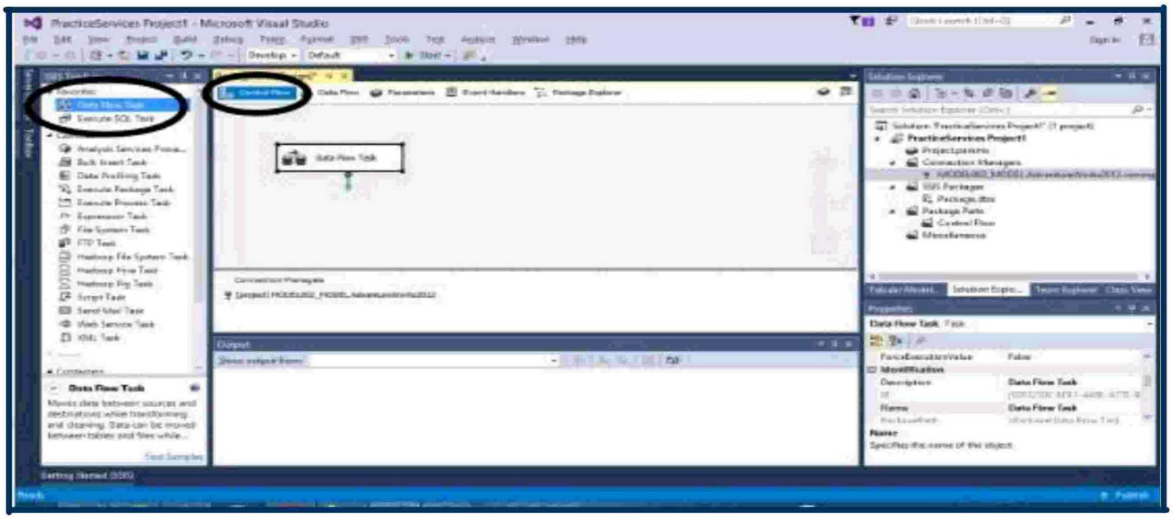
Step 12: Click on OK



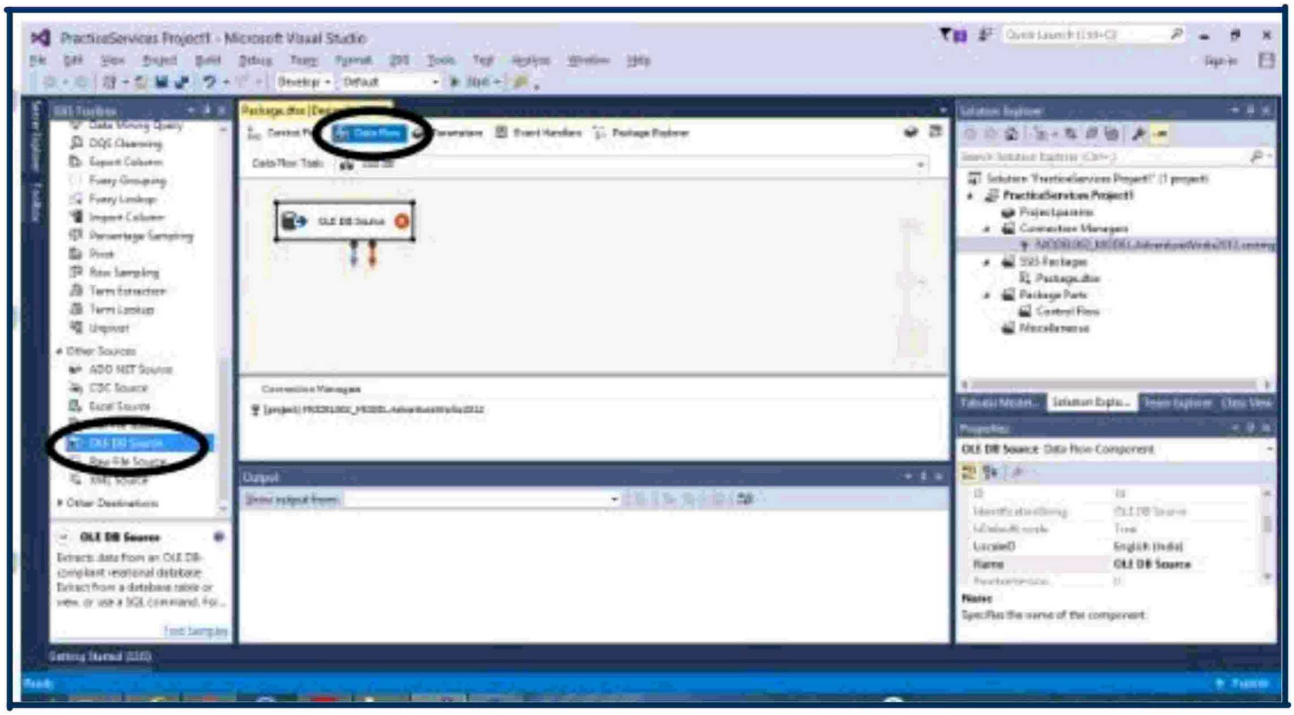
Connection is added to connection manager



Step 13: Drag and drop Data Flow Task in Control Flow tab

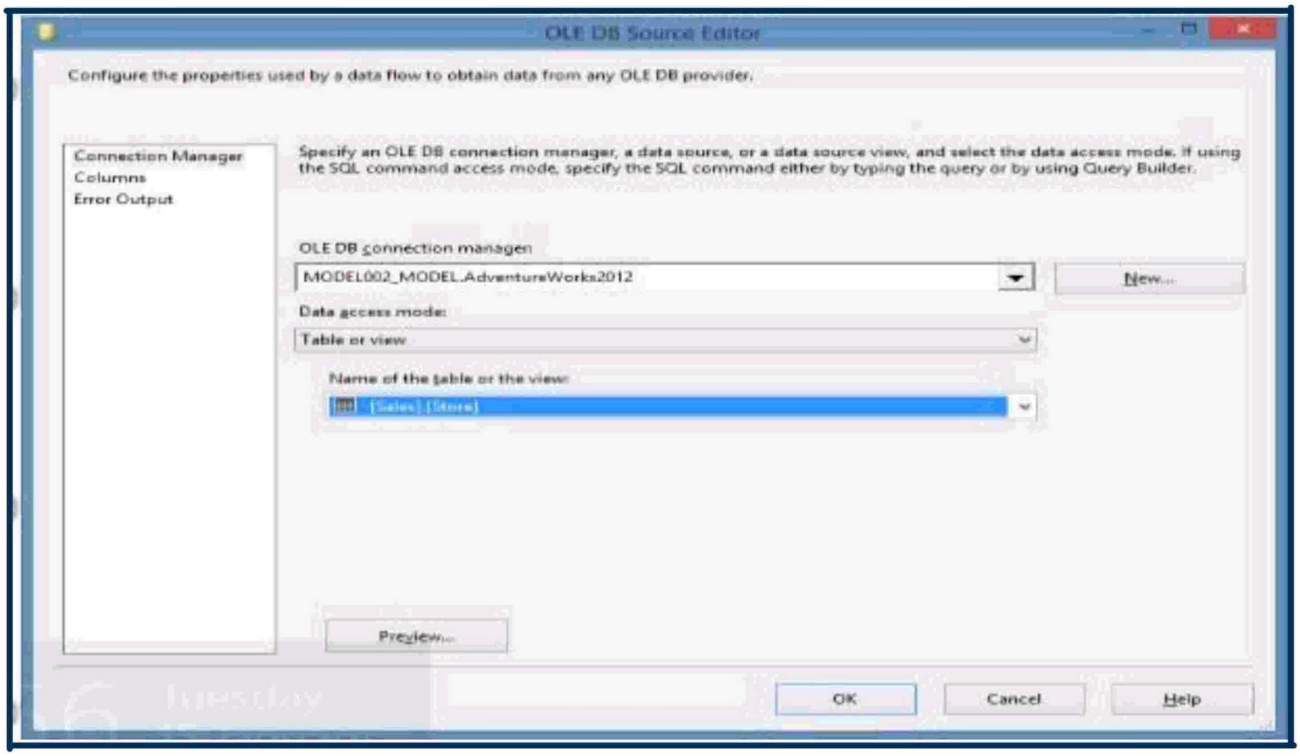


Step 14: Drag OLE DB Source from Other Sources and drop into Data Flow tab



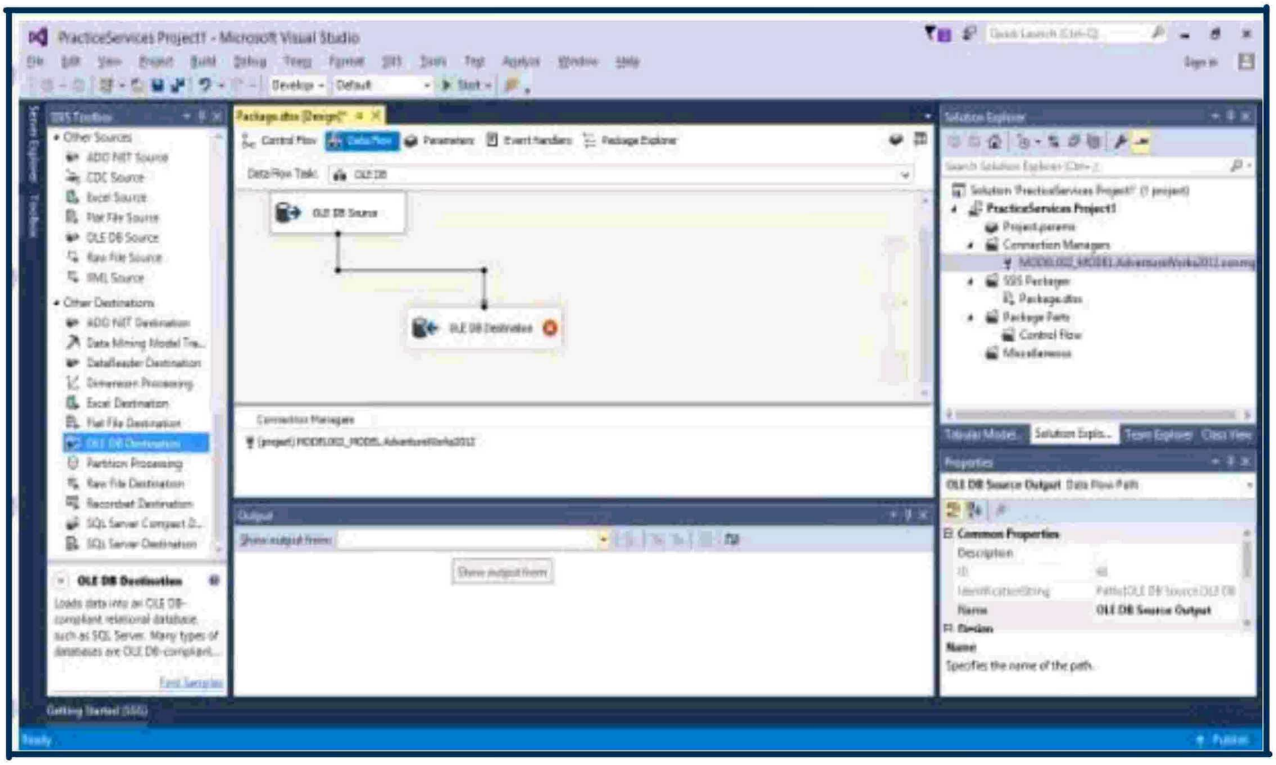
tab

Step 15: Double click on OLE DB source -> OLE DB Source Editor appears->click on New to add connection manager.



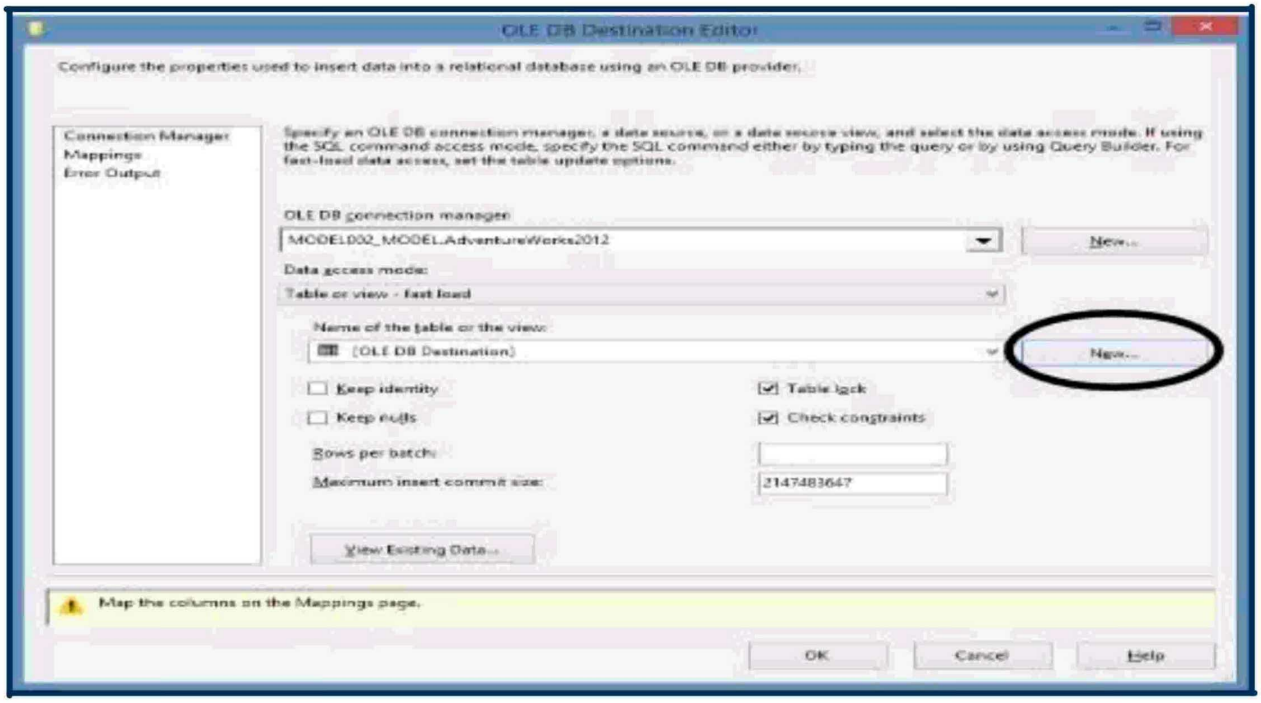
Select [Sales].[Store] table from drop down ok

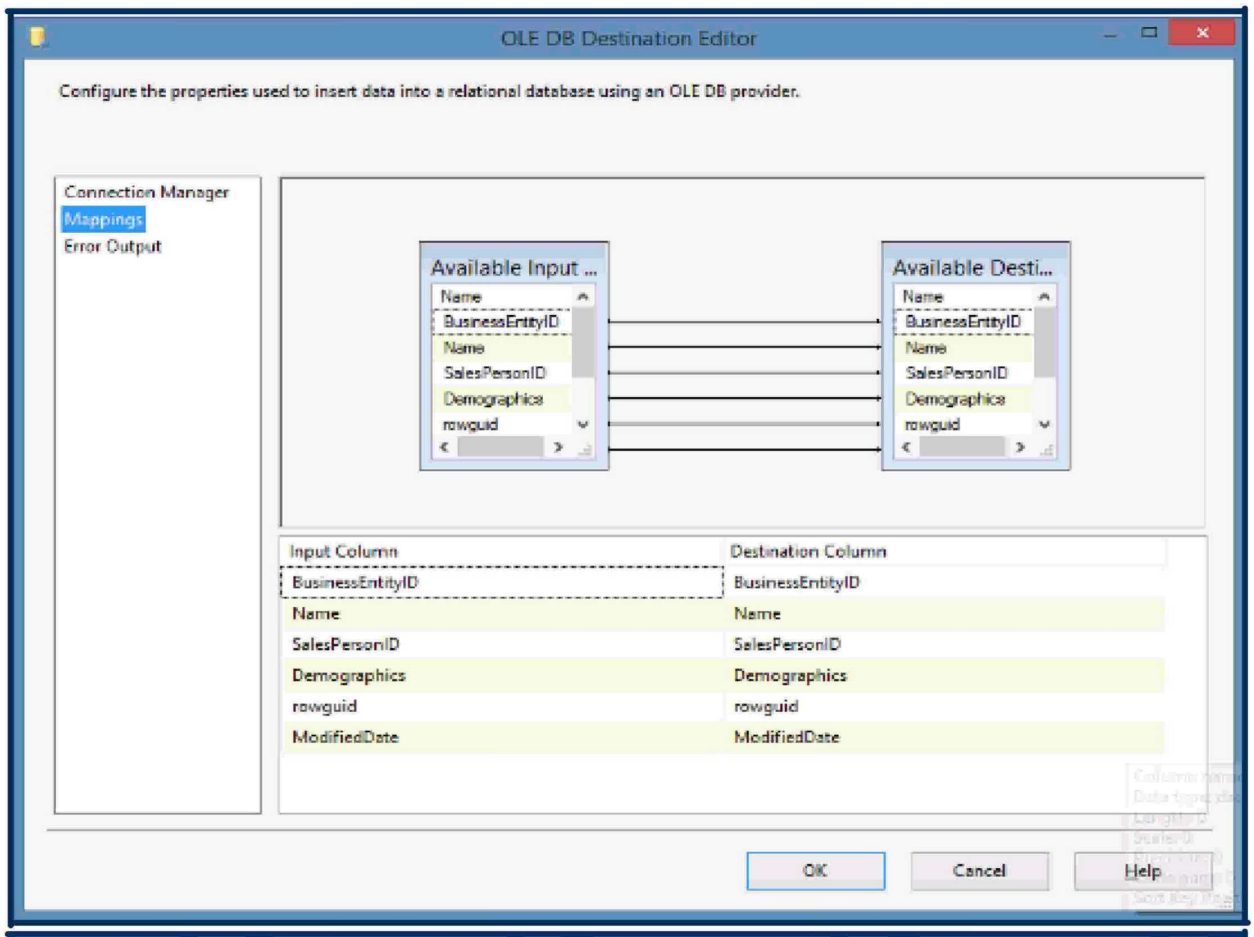
Step 16: Drag ole db destination in data flow tab and connect both

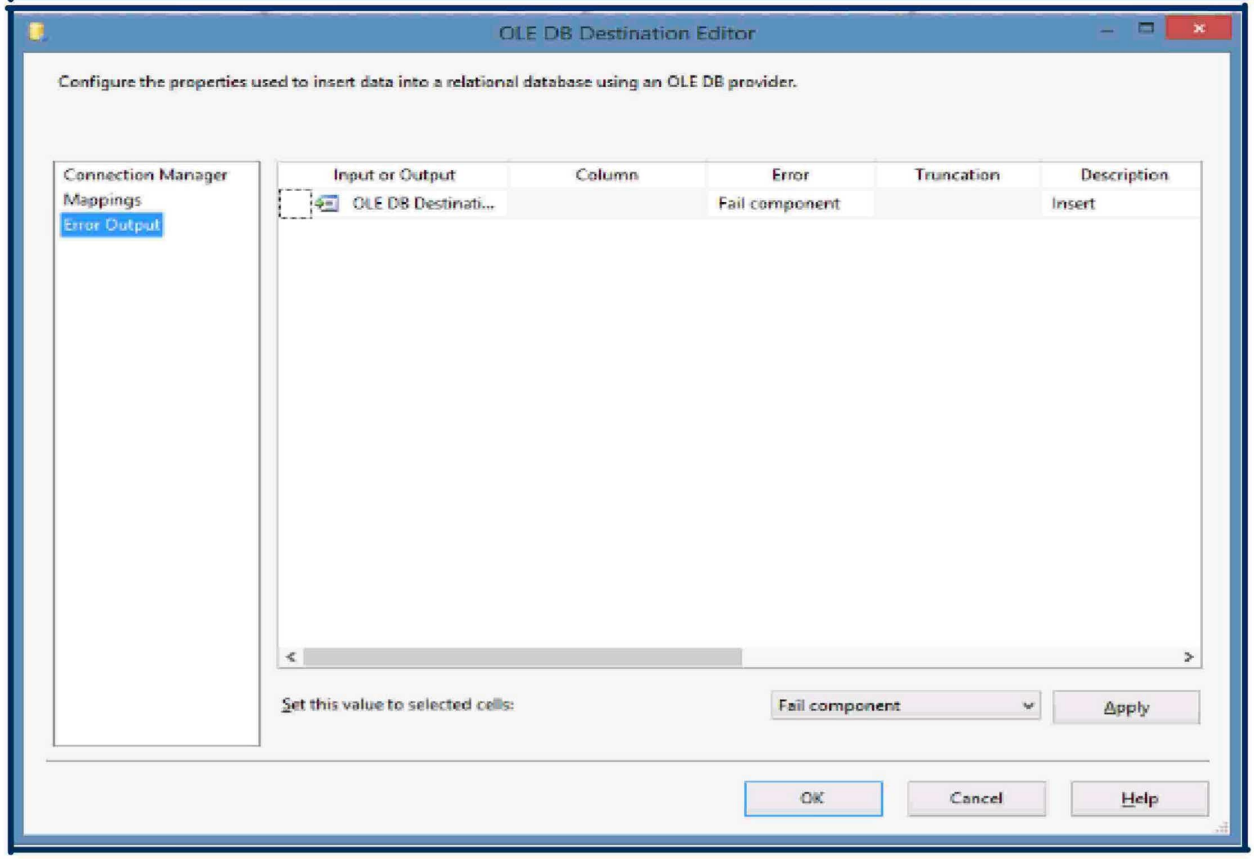


Step 17: Double click on OLE DB destination

Click on New to run the query to get [OLE DB Destination] in Name of the tableor the view.

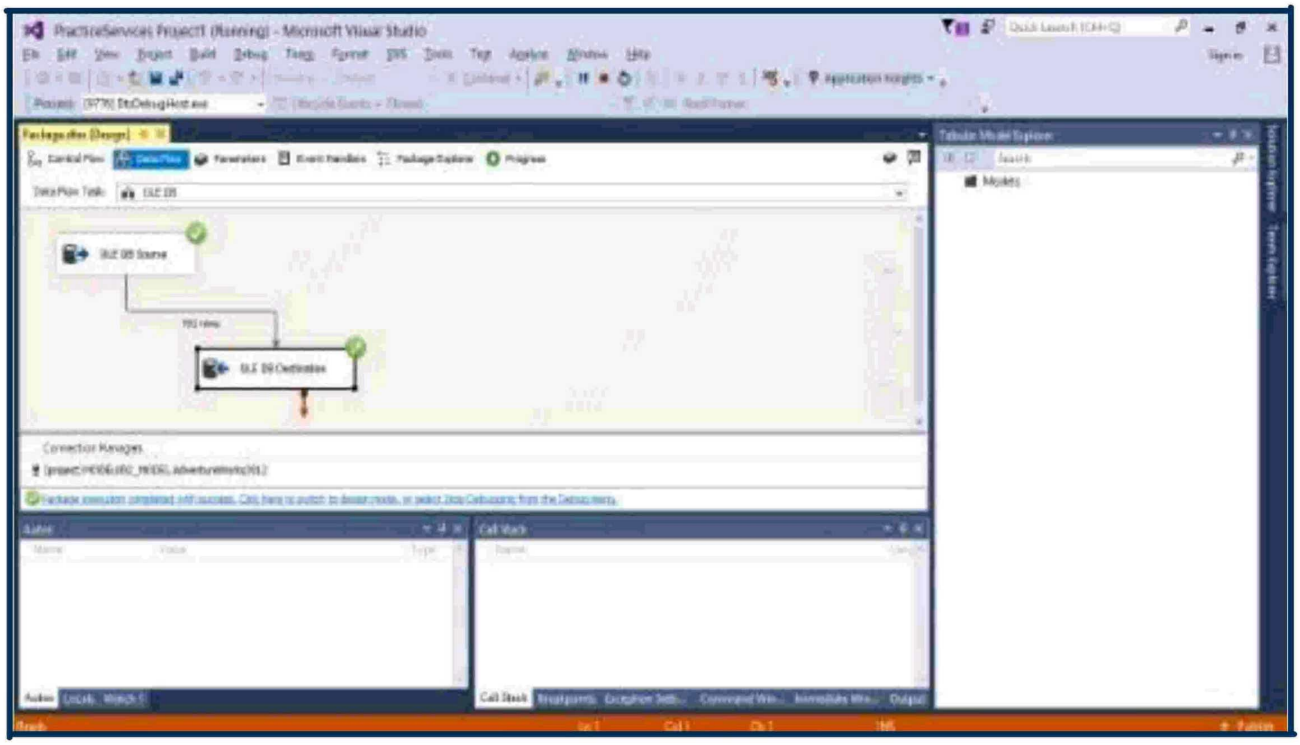



OLE DB Destination Editor
Configure the properties used to insert data into a relational database using an OLE DB provider.
Connection Manager
Mappings
Error Output
Available Input ...
Name
BusinessEntityID
Name
SalesPersonID
Demographics
rowguid
Available Desti...
Name
BusinessEntityID
Name
SalesPersonID
Demographics
rowguid
Input Column
Destination Column
BusinessEntityID
BusinessEntityID
Name
Name
SalesPersonID
SalesPersonID
Demographics
Demographics
rowguid
rowguid
ModifiedDate
ModifiedDate
OK
Cancel
Help


OLE DB Destination Editor
Configure the properties used to insert data into a relational database using an OLE DB provider.
Connection Manager
Mappings
Error Output
Input or Output
Column
Error
Truncation
Description
OLE DB Destinati...
Fail component
Insert
Set this value to selected cells:
Fail component
Apply
OK
Cancel
Help

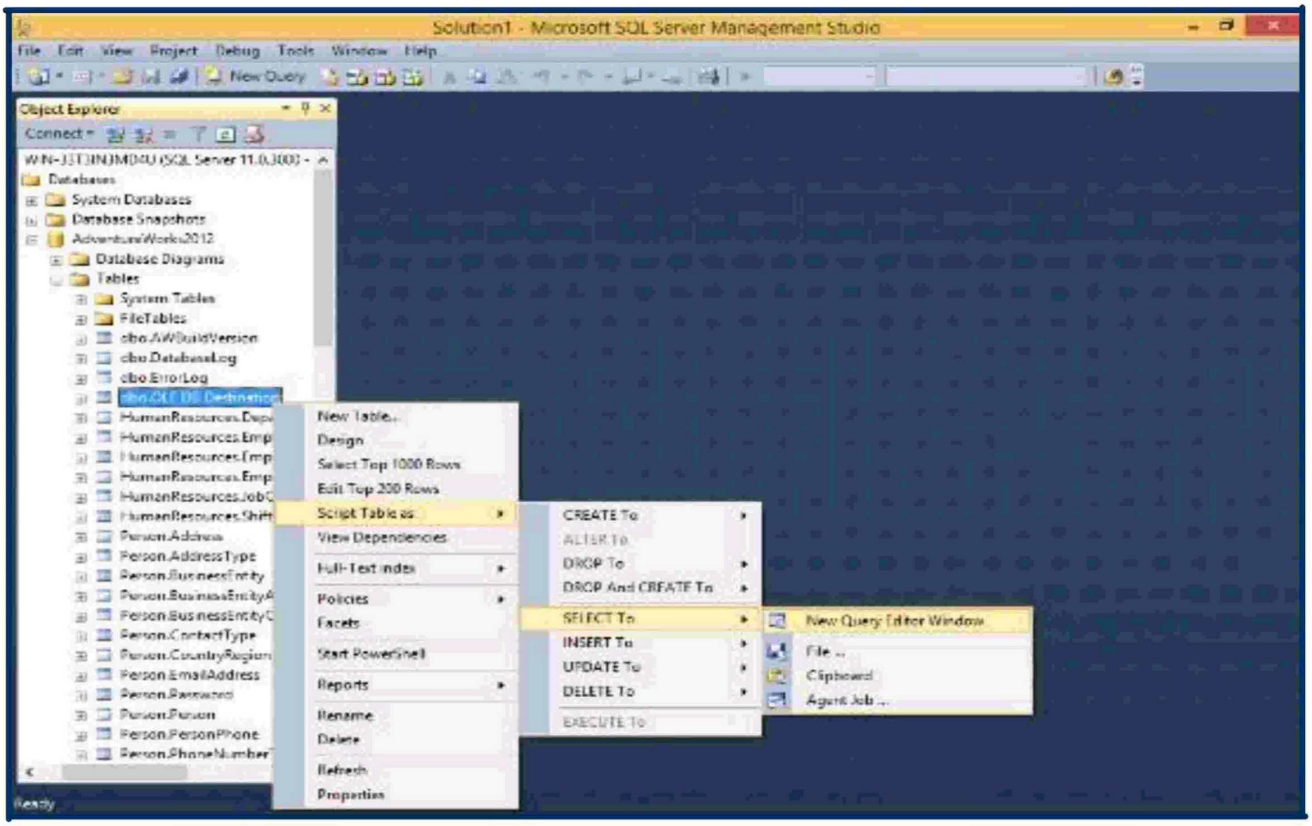
Click on OK.

Step 18: Click on Start



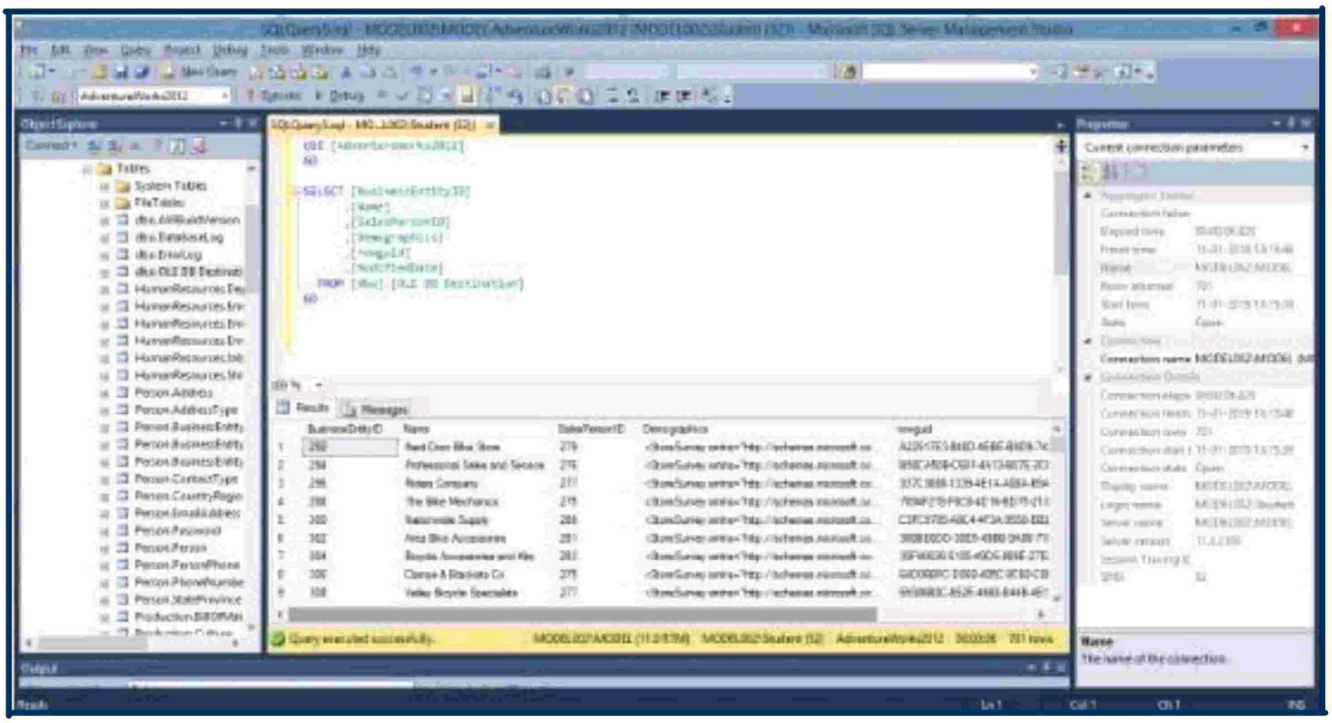
Step 19: Go to SQL Server Management Studio

In database tab Adventureworks Right click on [dbo].[OLE DB Destination]Script Table as SELECT To New Query Editor Window



Step 20: Execute the following query to get output.

```
USE [AdventureWorks2012]GO
SELECT [BusinessEntityID]
,[Name]
,[SalesPersonID]
,[Demographics]
,[rowguid]
,[ModifiedDate]
FROM [dbo].[OLE DB Destination]GO
```



Conclusion : In this way we can perform the ETL process to construct adatabase in SQL Server.

Assignment Questions :

1. Define Extraction.
2. Define Transformation.
3. Define Loading.
4. Draw a flowchart for ETL process to construct a database in SQLServer.