

# Kishinchand Chellaram College, Mumbai-2020

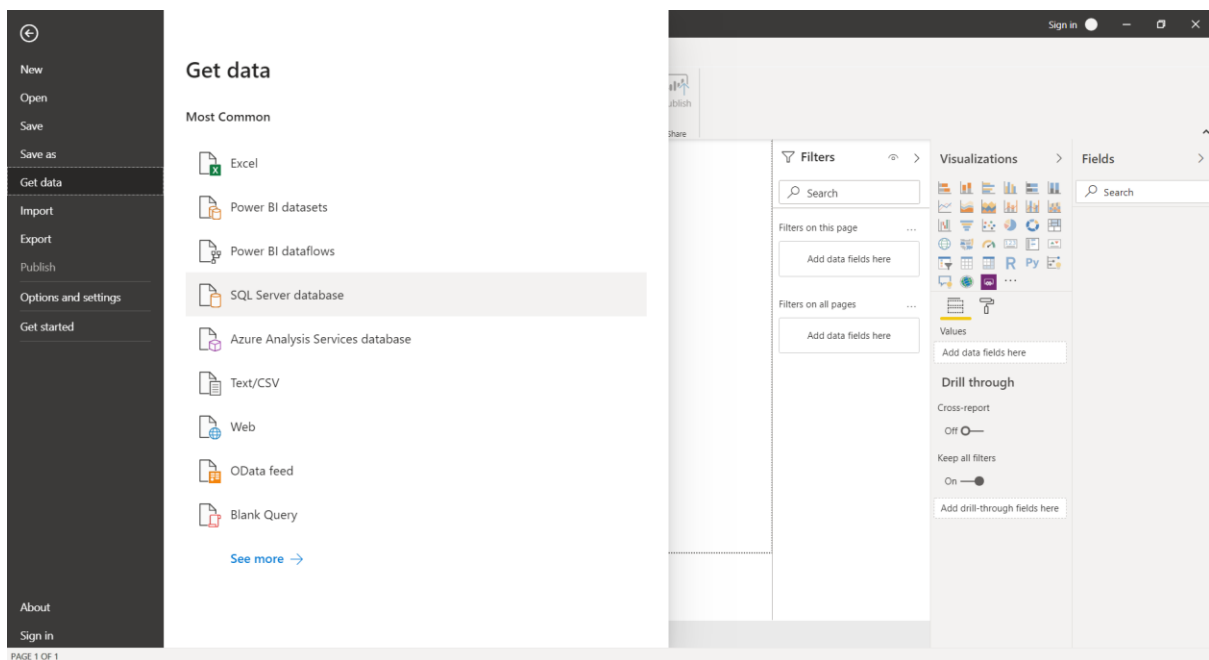
## FY / SY / TY B Sc. (I.T) Semester \_\_\_\_\_

### Practical No: - 1

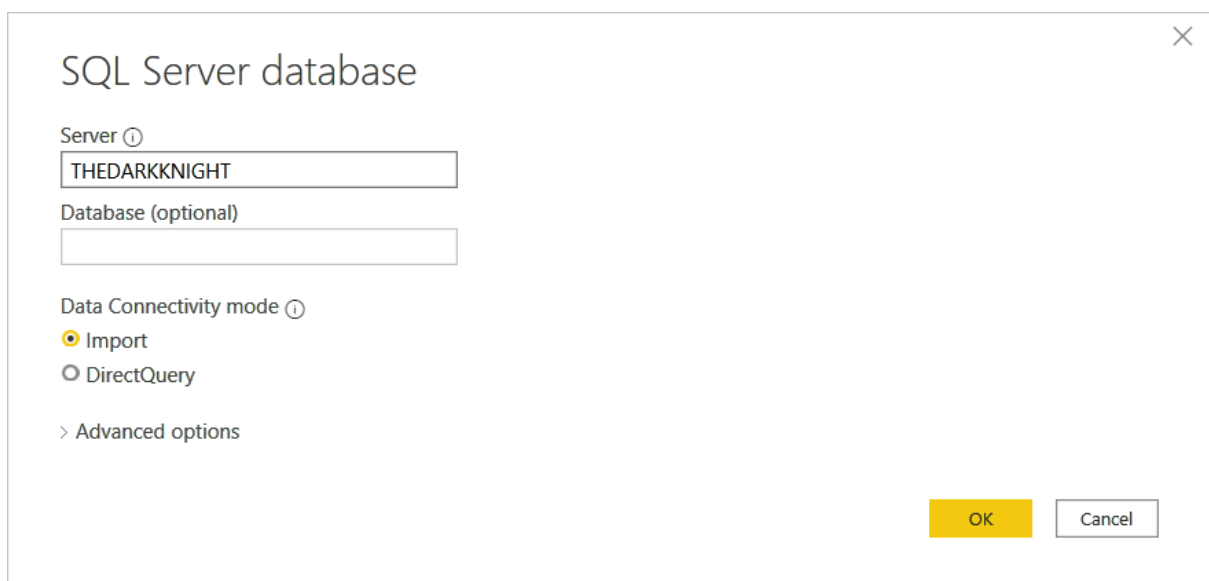
**Aim:** - Import the legacy data from different sources such as (Excel, SqlServer, Oracle etc.) and load in the target system. (You can download sample database such as Adventureworks, Northwind, foodmart etc.)

#### Steps: -

1. Open PowerBi Desktop -> Get Data -> SQL Server Database



2. Type your server name -> OK



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3. Navigator will show your database -> select any table -> Load

Navigator

Display Options ▾

☐ Purchasing.ShipMethod

☐ Purchasing.Vendor

☐ Sales.CountryRegionCurrency

☐ Sales.CreditCard

☐ Sales.Currency

☐ Sales.CurrencyRate

☐ Sales.Customer

☐ Sales.PersonCreditCard

☐ Sales.SalesOrderDetail

☐ Sales.SalesOrderHeader

☐ Sales.SalesOrderHeaderSalesReason

☒ Sales.SalesPerson

☐ Sales.SalesPersonQuotaHistory

☐ Sales.SalesReason

☐ Sales.SalesTaxRate

☐ Sales.SalesTerritory

☐ Sales.SalesTerritoryHistory

☐ Sales.ShoppingCartItem

☐ Sales.SpecialOffer

☐ Sales.SpecialOfferProduct

Sales.SalesPerson

BusinessEntityID	TerritoryID	SalesQuota	Bonus	CommissionPct
274	null	null	0.00	0.00
275	2	3,00,000.00	4,100.00	0.01
276	4	2,50,000.00	2,000.00	0.02
277	3	2,50,000.00	2,500.00	0.02
278	6	2,50,000.00	500.00	0.01
279	5	3,00,000.00	6,700.00	0.01
280	1	2,50,000.00	5,000.00	0.01
281	4	2,50,000.00	3,550.00	0.01
282	6	2,50,000.00	5,000.00	0.02
283	1	2,50,000.00	3,500.00	0.01
284	1	3,00,000.00	3,900.00	0.02
285	null	null	0.00	0.00
286	9	2,50,000.00	5,650.00	0.02
287	null	null	0.00	0.00
288	8	2,50,000.00	75.00	0.02
289	10	2,50,000.00	5,150.00	0.02
290	7	2,50,000.00	985.00	0.02

Select Related Tables

Load

Transform Data

Cancel

Load

Sales SalesPerson

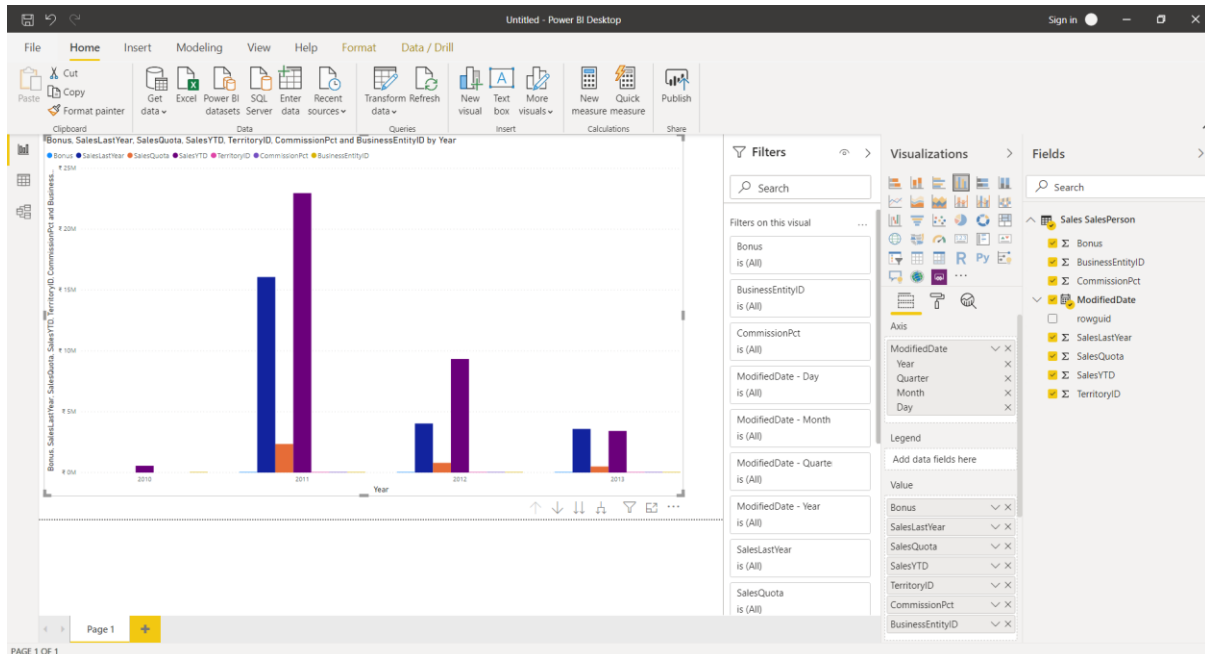
Creating connection in model...

Cancel

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4. Finally convert data into graph and display the output.



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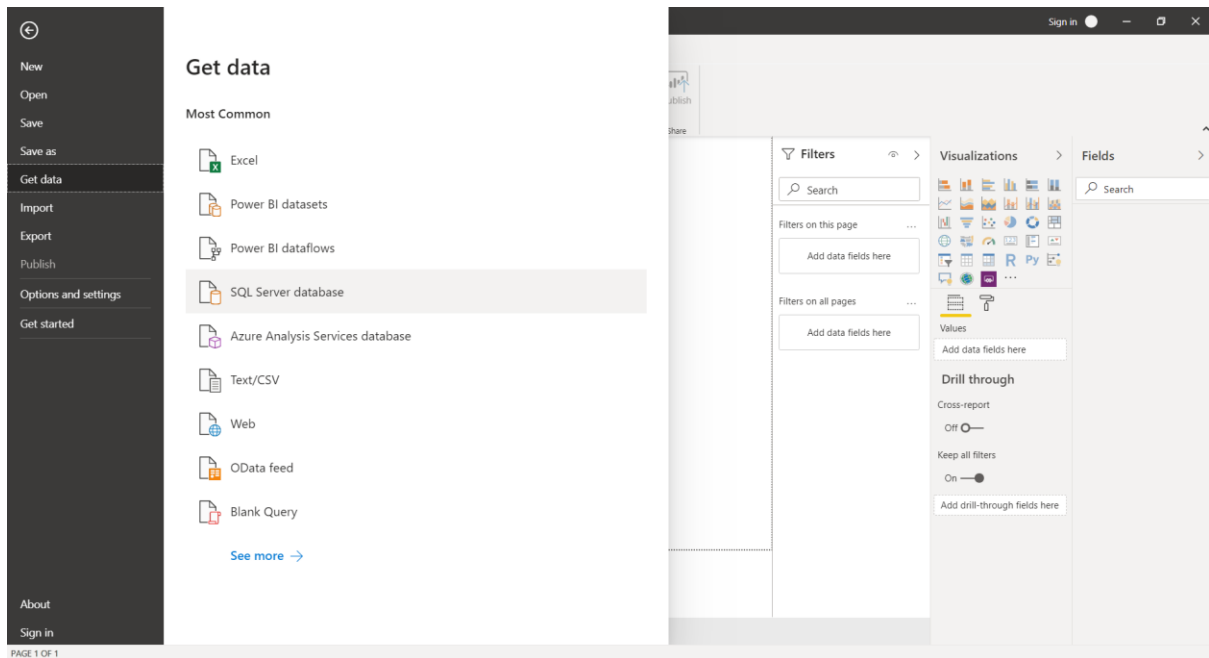
## FY / SY / TY B Sc. (I.T) Semester \_\_\_\_\_

### Practical No: - 2

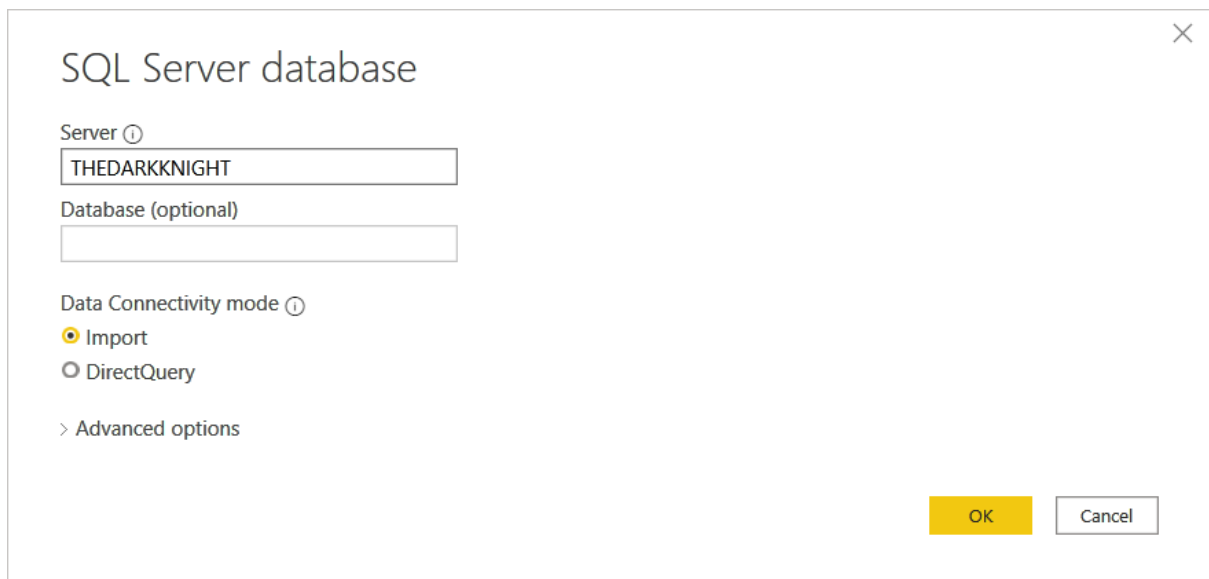
**Aim:** - Perform the Extraction Transformation and Loading (ETL) process to construct the database in the SqlServer.

**Steps:** -

1. Open PowerBi Desktop -> Get Data -> SQL Server Database



2. Type your server name -> OK



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3. Navigator will show your database -> select any table -> Transform Data

Navigator

Display Options ▾

☐ Purchasing.ShipMethod

☐ Purchasing.Vendor

☐ Sales.CountryRegionCurrency

☐ Sales.CreditCard

☐ Sales.Currency

☐ Sales.CurrencyRate

☐ Sales.Customer

☐ Sales.PersonCreditCard

☐ Sales.SalesOrderDetail

☐ Sales.SalesOrderHeader

☐ Sales.SalesOrderHeaderSalesReason

☒ Sales.SalesPerson

☐ Sales.SalesPersonQuotaHistory

☐ Sales.SalesReason

☐ Sales.SalesTaxRate

☐ Sales.SalesTerritory

☐ Sales.SalesTerritoryHistory

☐ Sales.ShoppingCartItem

☐ Sales.SpecialOffer

☐ Sales.SpecialOfferProduct

Sales.SalesPerson

BusinessEntityID	TerritoryID	SalesQuota	Bonus	CommissionPct
274	null	null	0.00	0.00
275	2	3,00,000.00	4,100.00	0.01
276	4	2,50,000.00	2,000.00	0.02
277	3	2,50,000.00	2,500.00	0.02
278	6	2,50,000.00	500.00	0.01
279	5	3,00,000.00	6,700.00	0.01
280	1	2,50,000.00	5,000.00	0.01
281	4	2,50,000.00	3,550.00	0.01
282	6	2,50,000.00	5,000.00	0.02
283	1	2,50,000.00	3,500.00	0.01
284	1	3,00,000.00	3,900.00	0.02
285	null	null	0.00	0.00
286	9	2,50,000.00	5,650.00	0.02
287	null	null	0.00	0.00
288	8	2,50,000.00	75.00	0.02
289	10	2,50,000.00	5,150.00	0.02
290	7	2,50,000.00	985.00	0.02

Select Related Tables

Load

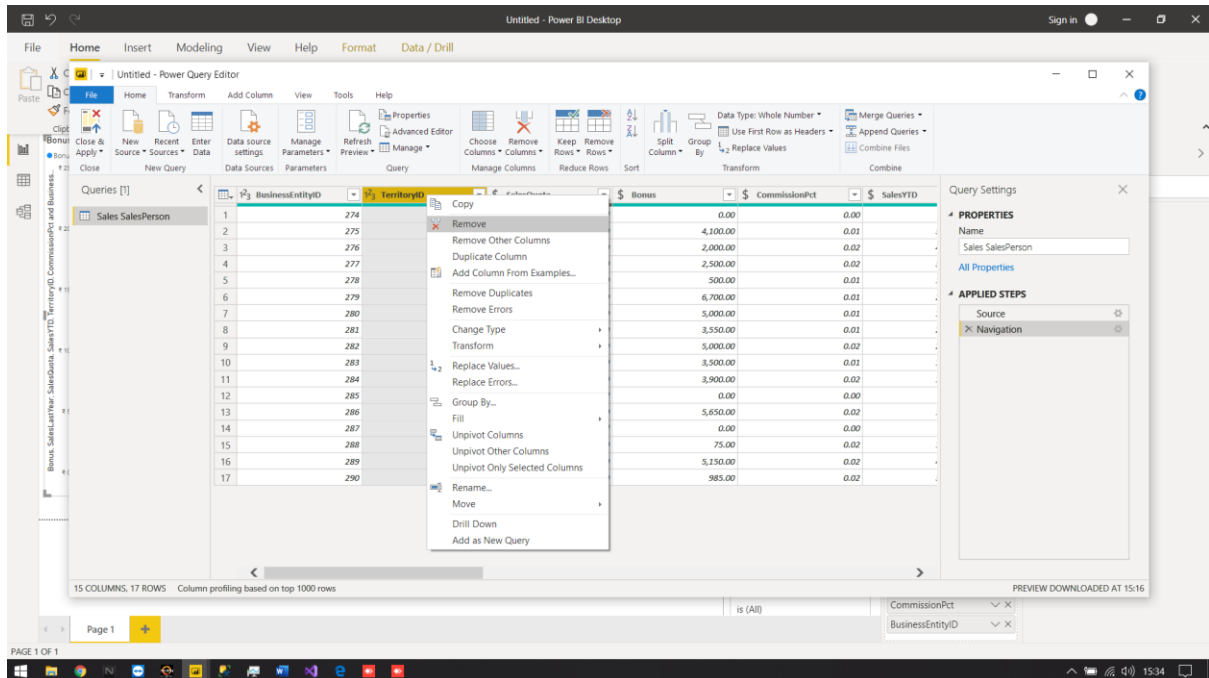
Transform Data

Cancel

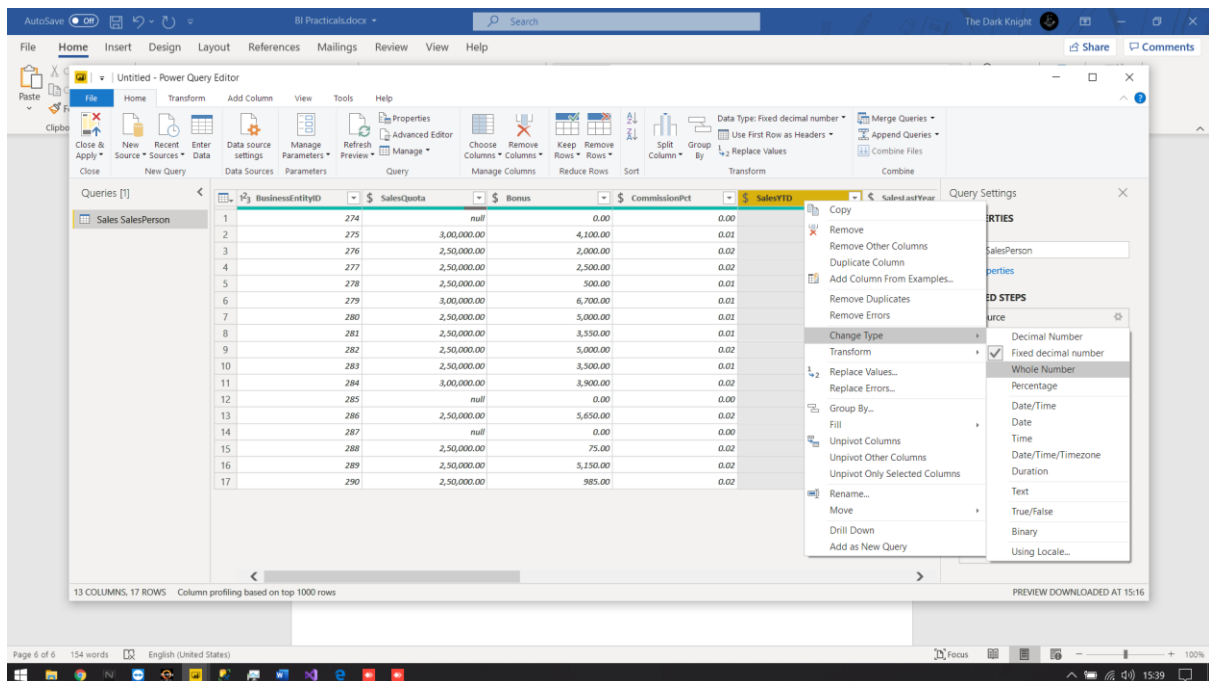
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4. Manage Columns -> Remove Columns with null values and unnecessary data to display only what is required.



5. Manage Columns -> Convert Column -> Change data unit into Whole Number.



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6. Manage Columns -> Expand another table (Human Resources) -> add selected columns of choice.

Choose Columns

Choose the columns to keep

Search Columns

- ☒ (Select All Columns)
- ☒ BusinessEntityID
- ☒ SalesQuota
- ☒ Bonus
- ☒ CommissionPct
- ☒ SalesYTD
- ☒ SalesLastYear
- ☒ ModifiedDate
- ☒ HumanResources.Employee.Gender
- ☒ Sales.SalesOrderHeader
- ☒ Sales.SalesPerson.QuotaHistory
- ☒ Sales.SalesTerritory
- ☒ Sales.SalesTerritoryHistory
- ☒ Sales.Store

OK Cancel

13 COLUMNS, 17 ROWS Column profiling based on top 1000 rows

PREVIEW DOWNLOADED AT 15:41

Manage Columns

Choose the columns to keep

Search Columns

- ☒ (Select All Columns)
- ☒ BusinessEntityID
- ☒ SalesQuota
- ☒ Bonus
- ☒ CommissionPct
- ☒ SalesYTD
- ☒ SalesLastYear
- ☒ ModifiedDate
- ☒ HumanResources.Employee.Gender
- ☒ Sales.SalesOrderHeader
- ☒ Sales.SalesPerson.QuotaHistory
- ☒ Sales.SalesTerritory
- ☒ Sales.SalesTerritoryHistory
- ☒ Sales.Store

OK Cancel

13 COLUMNS, 17 ROWS Column profiling based on top 1000 rows

PREVIEW DOWNLOADED AT 15:41

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### 7. Add Custom Column -> Calculate a new column value (Bonus Percentage)

Power Query Editor - Query Settings

**PROPERTIES**

Name: Sales SalesPerson

**APPLIED STEPS**

- Source
- Navigation
- Removed Columns
- Expanded HumanResources.E...
- Changed Type
- Removed Columns1
- Added Custom

	Sales.SalesPersonQuotaHistory	Sales.SalesTerritory	Sales.SalesTerritoryHistory	Sales.Store	BonusPercentage
1	Value	Table	Table	Table	null
2	Value	Table	Table	Table	1.36666667
3	Value	Table	Table	Table	0.8
4	Value	Table	Table	Table	1
5	Value	Table	Table	Table	0.2
6	Value	Table	Table	Table	2.23333333
7	Value	Table	Table	Table	2
8	Value	Table	Table	Table	1.42
9	Value	Table	Table	Table	2
10	Value	Table	Table	Table	1.4
11	Value	Table	Table	Table	1.3
12	Value	Table	Table	Table	null
13	Value	Table	Table	Table	2.26
14	Value	Table	Table	Table	null
15	Value	Table	Table	Table	0.03
16	Value	Table	Table	Table	2.06
17	Value	Table	Table	Table	0.394

12 COLUMNS, 17 ROWS Column profiling based on top 1000 rows

PREVIEW DOWNLOADED AT 15:56

### 8. Rename & Reorder the columns

Power Query Editor - Query Settings

**PROPERTIES**

Name: Sales SalesPerson

**APPLIED STEPS**

- Source
- Navigation
- Removed Columns
- Expanded HumanResources.E...
- Changed Type
- Removed Columns1
- Added Custom
- Reordered Columns

	BusinessEntityID	SalesQuota	Bonus	BonusPercentage	SalesYTD	SalesLastYear
1	274	null	0.00	null	559698	
2	275	3,00,000.00	4,100.00	1.36666667	3763178	
3	276	2,50,000.00	2,000.00	0.8	4251369	
4	277	2,50,000.00	2,500.00	1	3189418	
5	278	2,50,000.00	500.00	0.2	1453719	
6	279	3,00,000.00	6,700.00	2.23333333	2315186	
7	280	2,50,000.00	5,000.00	2	1352577	
8	281	2,50,000.00	3,550.00	1.42	2458536	
9	282	2,50,000.00	5,000.00	2	2604541	
10	283	2,50,000.00	3,500.00	1.4	1573013	
11	284	3,00,000.00	3,900.00	1.3	1576562	
12	285	null	0.00	null	172524	
13	286	2,50,000.00	5,650.00	2.26	1421811	
14	287	null	0.00	null	519906	
15	288	2,50,000.00	75.00	0.03	1827067	
16	289	2,50,000.00	5,150.00	2.06	4116871	
17	290	2,50,000.00	985.00	0.394	3121616	

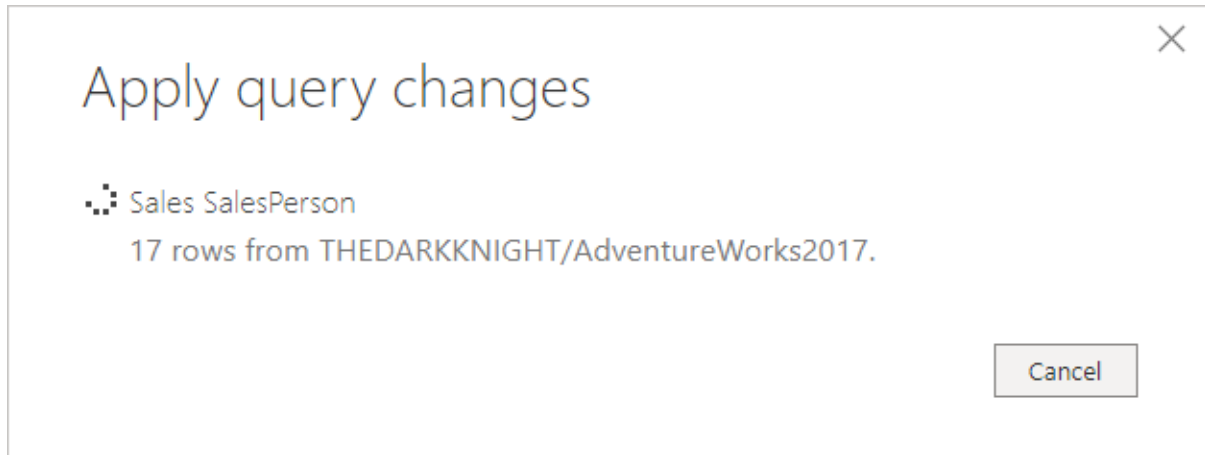
12 COLUMNS, 17 ROWS Column profiling based on top 1000 rows

PREVIEW DOWNLOADED AT 15:56

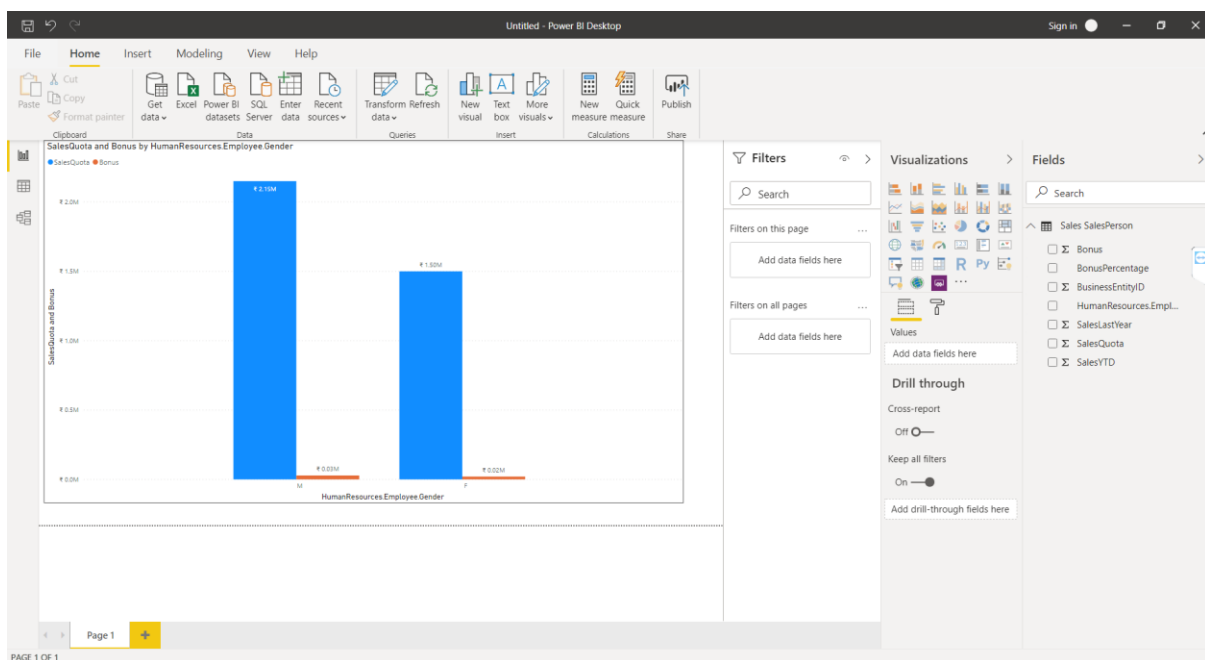


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9. Show the relationship output (Gender Based Sales & Bonus Relationship)



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### Practical No: - 3

**Aim:** - Create the Data staging area for the selected database & Create the cube with suitable dimension and fact tables based on ROLAP, MOLAP and HOLAP model.

**Steps:** -

1. Create a new Multidimensional Project.

Configure your new project

Analysis Services Multidimensional and Data Mining Project

Project name

MultidimensionalPractical3

Location

C:\Users\jampee\source\repos

Solution

Create new solution

Solution name ⓘ

MultidimensionalPractical3

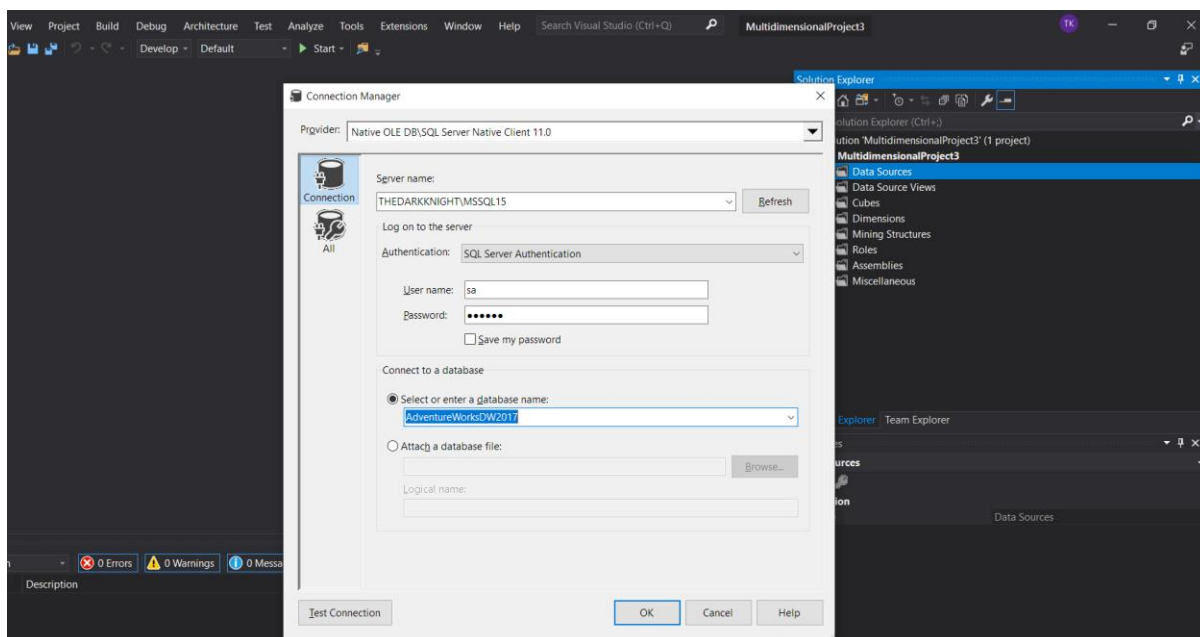
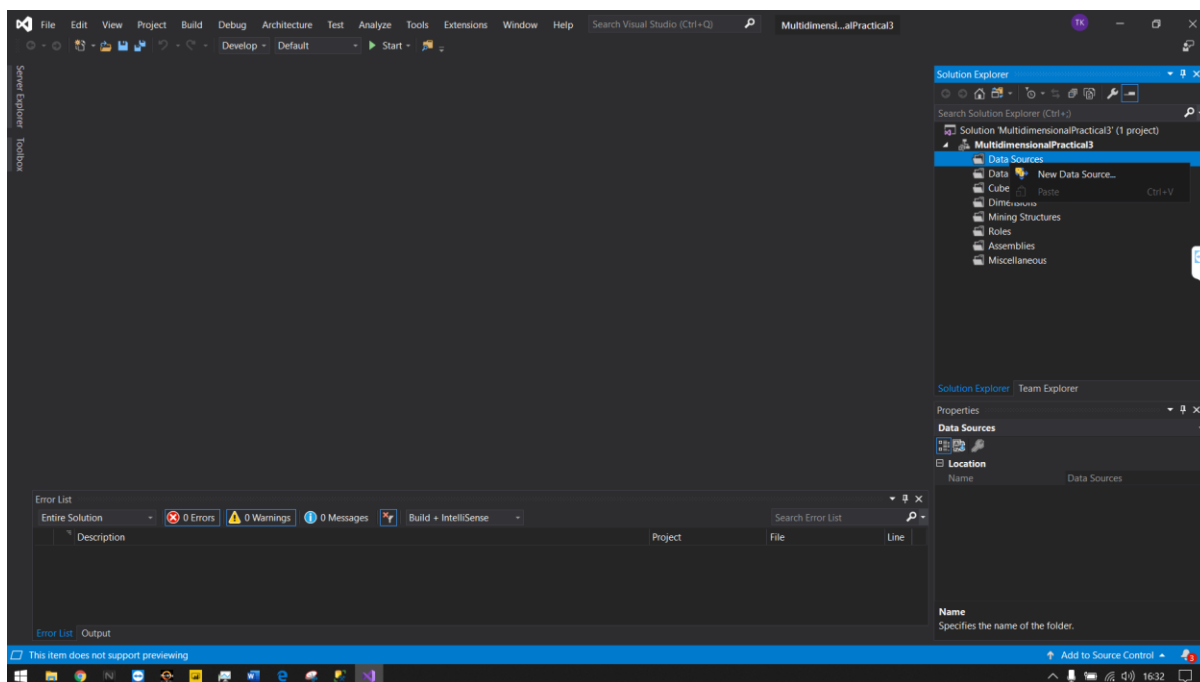
☐ Place solution and project in the same directory

Back Create

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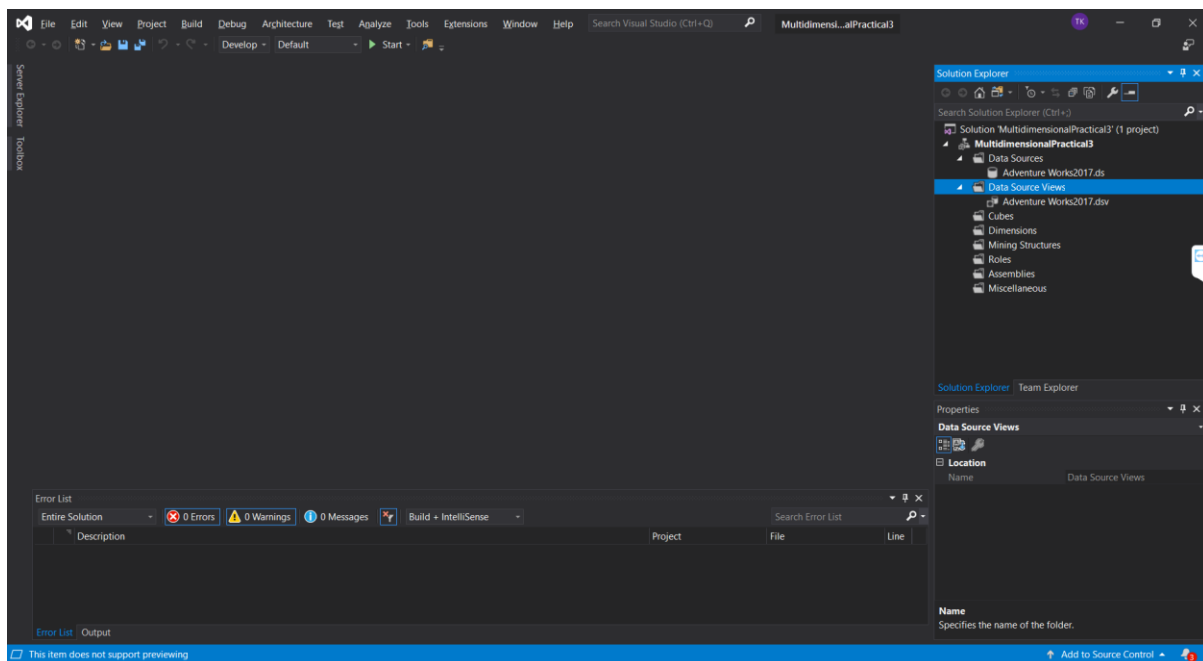
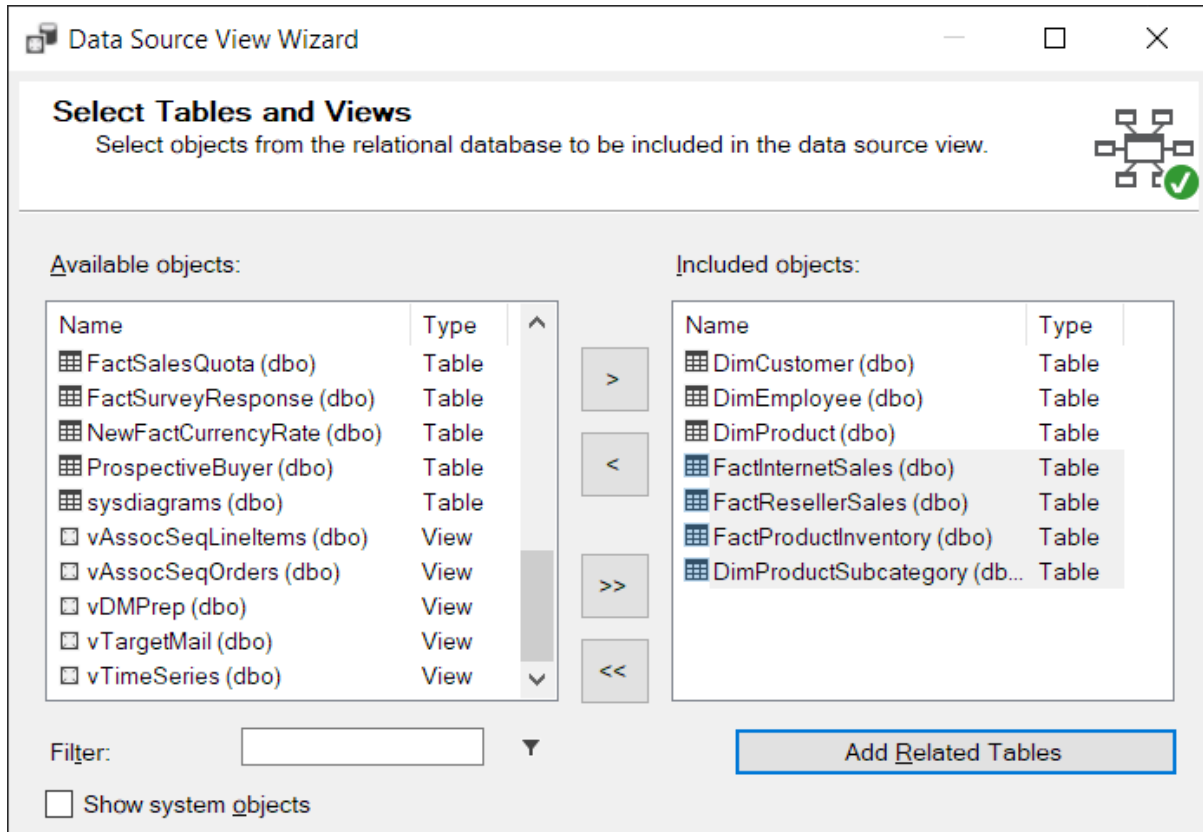
2. Go to DataSource & add a new source.



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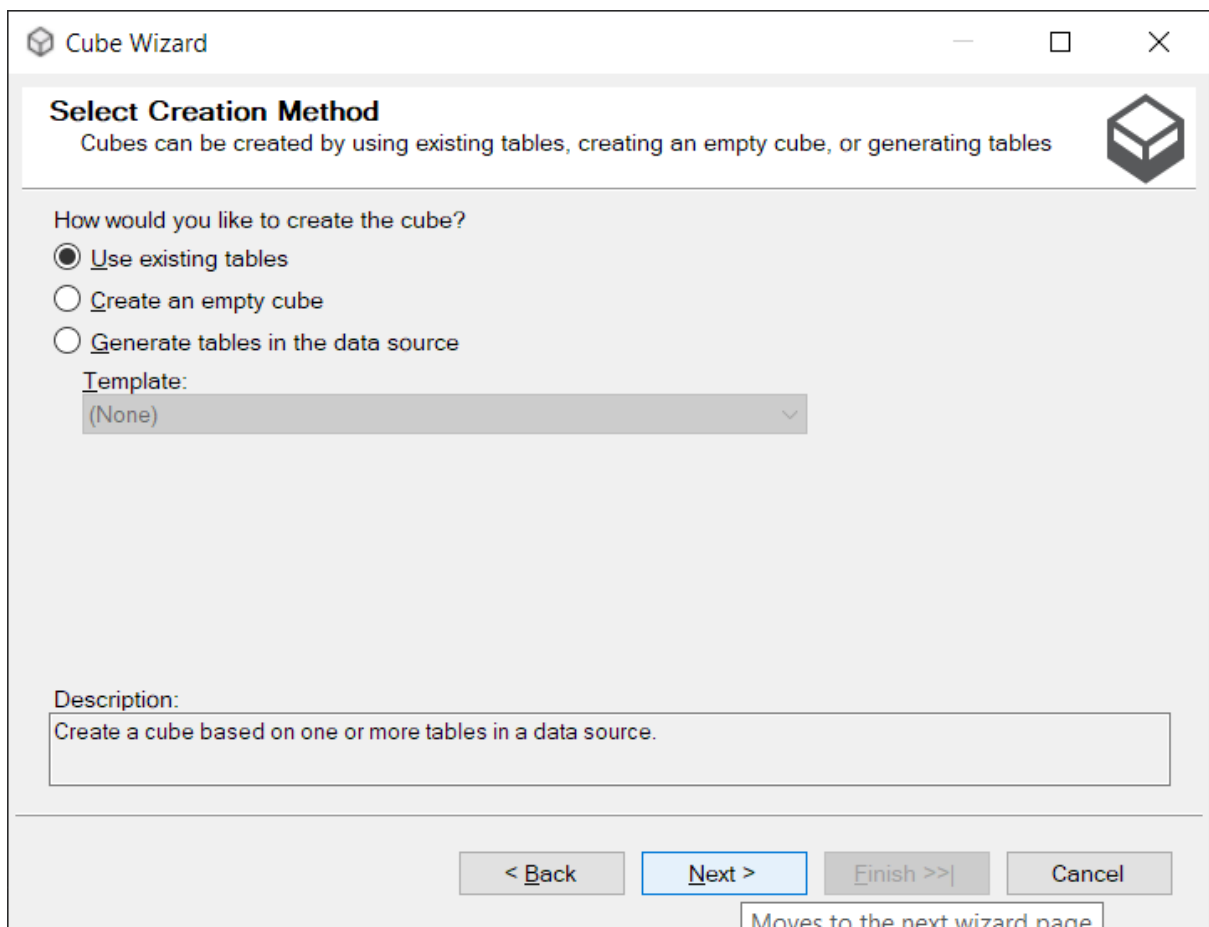
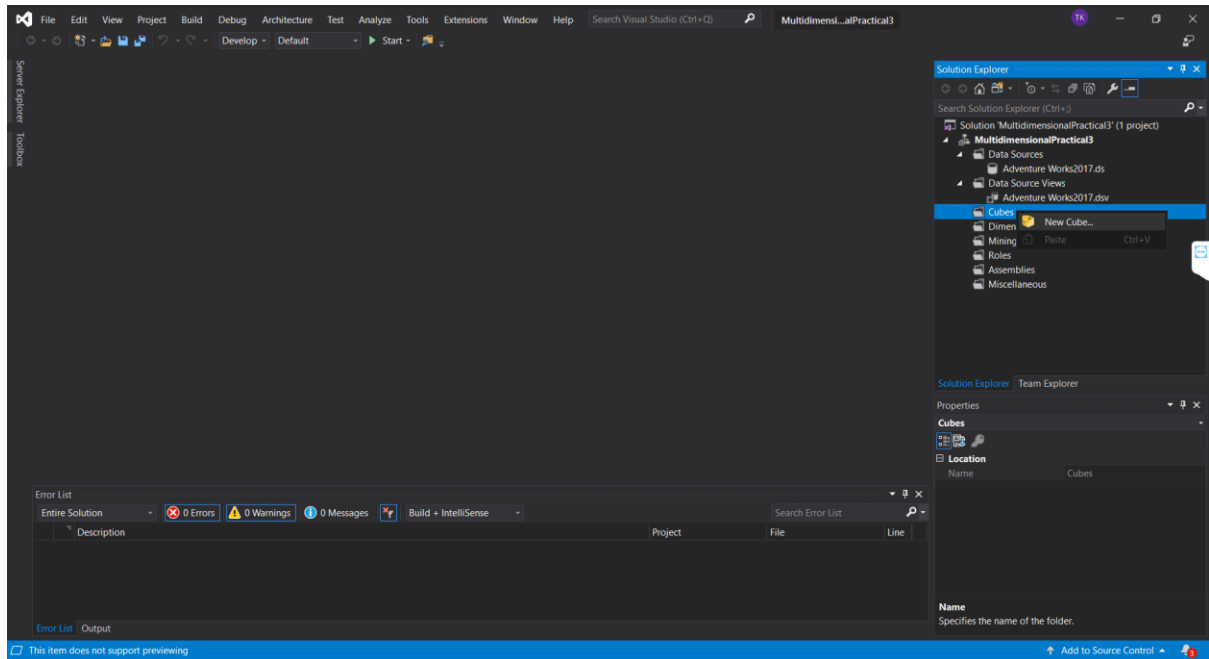
3. Create a view from the added Source.



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4. Create a new cube to generate data to be displayed.



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The screenshot shows the 'Select Measure Group Tables' dialog box in the Cube Wizard. The 'Data source view' is set to 'Adventure Works DW2017'. Under 'Measure group tables', the following tables are listed with checkboxes: DimCustomer, DimEmployee, DimProduct, FactInternetSales (checked), FactResellerSales (checked), FactProductInventory (checked), and DimProductSubcategory. A 'Suggest' button is located to the right of the table list. At the bottom, there are buttons for '< Back', 'Next >', 'Finish >>|', and 'Cancel'.

**Cube Wizard**

**Select Measure Group Tables**  
Select a data source view or diagram and then select the tables that will be used for measure groups.

Data source view:  
Adventure Works DW2017

Measure group tables: Suggest

- ☐ DimCustomer
- ☐ DimEmployee
- ☐ DimProduct
- ☒ FactInternetSales
- ☒ FactResellerSales
- ☒ FactProductInventory
- ☐ DimProductSubcategory

< Back   Next >   Finish >>|   Cancel

### 5. Change properties of Multidimensional Project.

The screenshot shows the 'MultidimensionalPractical3 Property Pages' dialog box. The 'Configuration' is set to 'Active(Development)' and the 'Platform' is 'N/A'. The 'Deployment' tab is selected in the left sidebar. The 'Options' section shows 'Processing Option' as 'Do Not Process', 'Transactional Deployment' as 'False', and 'Server Mode' as 'Deploy Changes Only'. The 'Target' section shows 'Server' as 'THEDARKKNIGHT\MSSQL15' and 'Database' as 'MultidimensionalPractical3'. A 'Server' section at the bottom explains that it is the Analysis Services instance to which the project will be deployed. At the bottom right, there are 'OK', 'Cancel', and 'Apply' buttons.

MultidimensionalPractical3 Property Pages

Configuration: Active(Development) Platform: N/A Configuration Manager...

Configuration Properties  
Build  
Debugging  
Deployment

**Options**

Processing Option	Do Not Process
Transactional Deployment	False
Server Mode	Deploy Changes Only

**Target**

Server	THEDARKKNIGHT\MSSQL15
Database	MultidimensionalPractical3

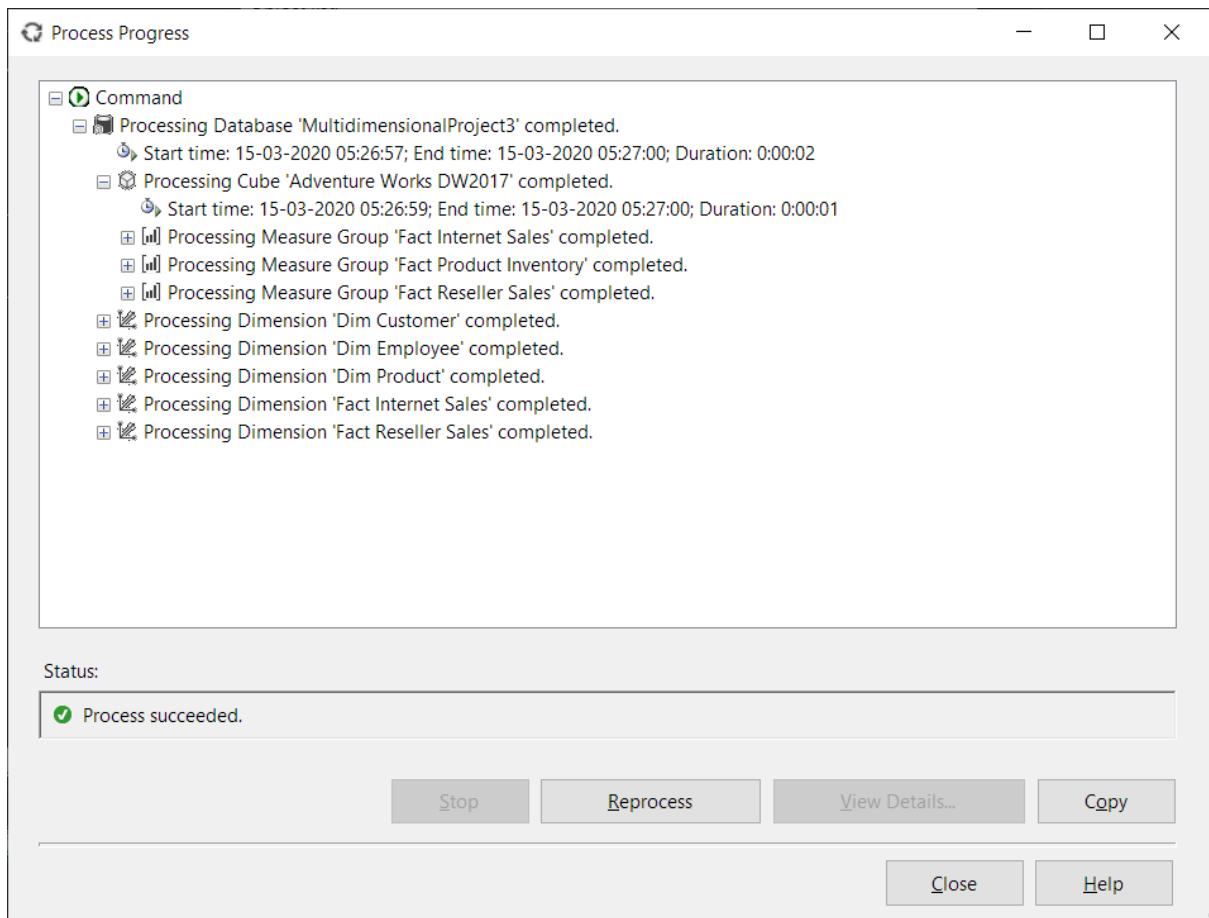
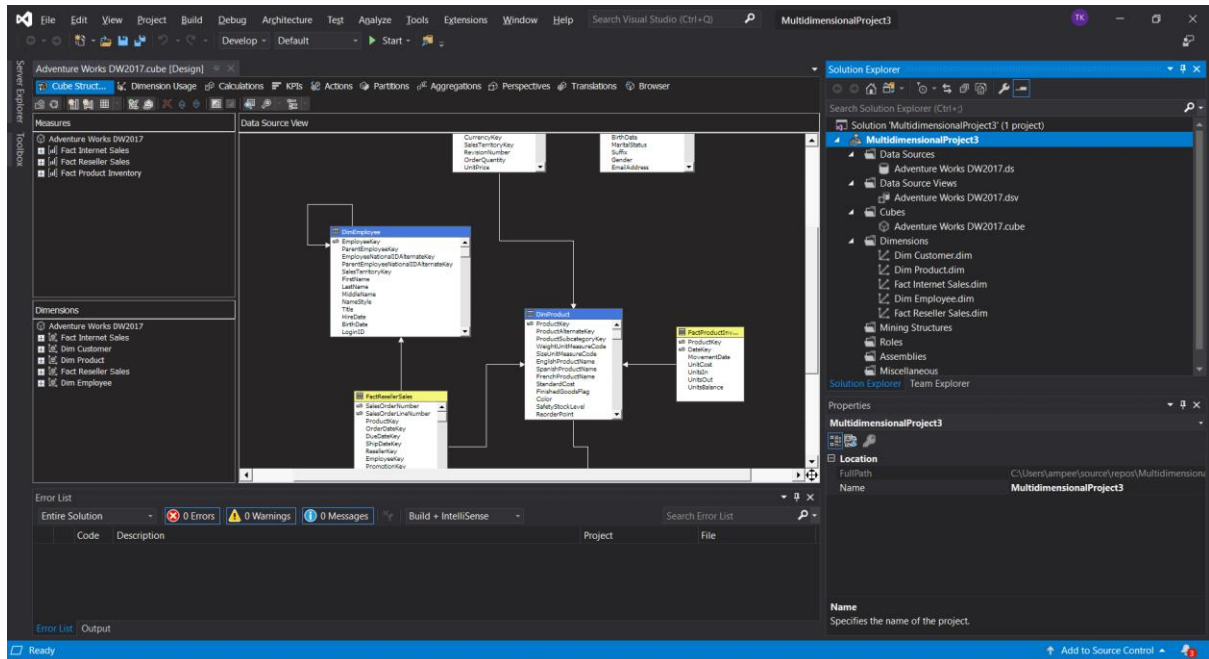
**Server**  
The Analysis Services instance to which the project will be deployed.

OK Cancel Apply

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### 6. Show Deployment Process.



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6. Click on browse and fire a query.

The screenshot displays the SQL Server Data Tools (SSDT) environment. The main window shows the 'Adventure Works DW2017.cube [Design]' with the 'Browse' tab selected. The table view displays the following data:

Sales Order Number	Order Quantity	Sales Amount	Unit Price	Total Product Cost
SO43697	1	3578.27	3578.27	2171.2942
SO43698	1	3399.99	3399.99	1912.1544
SO43699	1	3399.99	3399.99	1912.1544
SO43700	1	699.0982	699.0982	413.1463
SO43701	1	3399.99	3399.99	1912.1544
SO43702	1	3578.27	3578.27	2171.2942
SO43703	1	3578.27	3578.27	2171.2942
SO43704	1	3374.99	3374.99	1898.0944
SO43705	1	3399.99	3399.99	1912.1544
SO43706	1	3578.27	3578.27	2171.2942
SO43707	1	3578.27	3578.27	2171.2942
SO43708	1	699.0982	699.0982	413.1463
SO43709	1	3578.27	3578.27	2171.2942
SO43710	1	3578.27	3578.27	2171.2942
SO43711	1	3578.27	3578.27	2171.2942
SO43712	1	3578.27	3578.27	2171.2942

The Error List at the bottom shows the following warnings:

- Database [MultidimensionalProject3]: The database has no Time dimension. Consider creating one.
- Dimension [Dim Product]: Create hierarchies in non-parent child dimensions.
- Dimension [Fact Reseller Sales]: Create hierarchies in non-parent child dimensions.
- Dimension [Fact Internet Sales]: Create hierarchies in non-parent child dimensions.



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### Practical No: - 4

**Aim:** - a. Create the ETL map and setup for execution. b. Execute the MDX queries to extract the data from the Datawarehouse.

**Steps:** -

#### **PART A -> Create the ETL map and setup for execution**

1. Create a new Multidimensional Project.

Configure your new project

Analysis Services Multidimensional and Data Mining Project

Project name  
MultidimensionalPractical3

Location  
C:\Users\jampee\source\repos

Solution  
Create new solution

Solution name ⓘ  
MultidimensionalPractical3

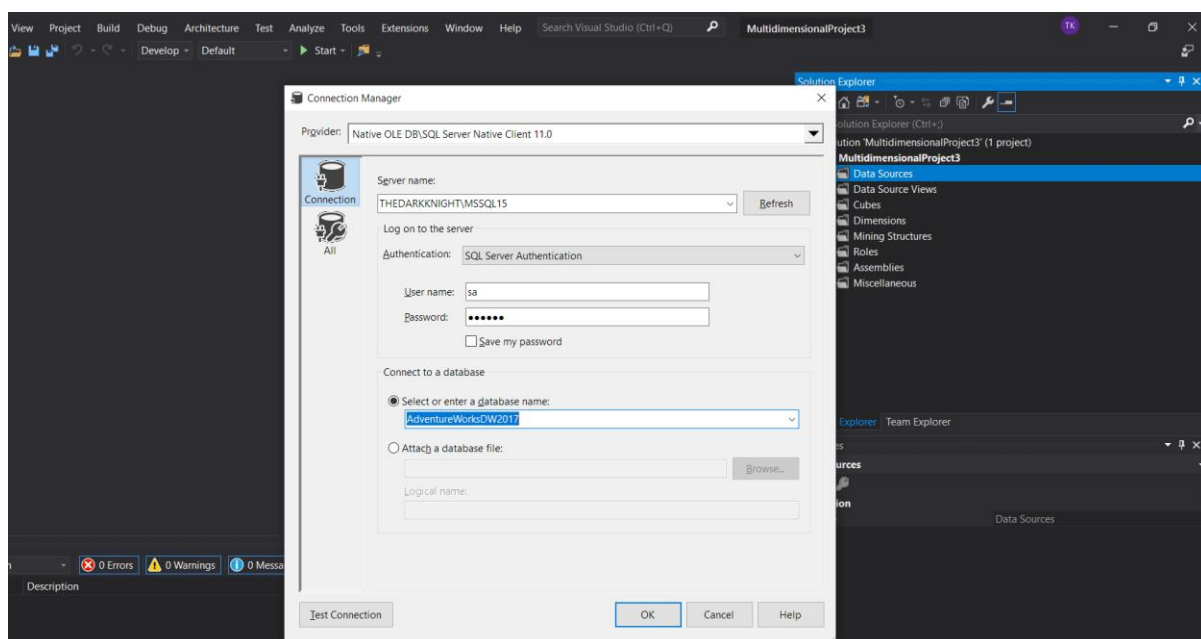
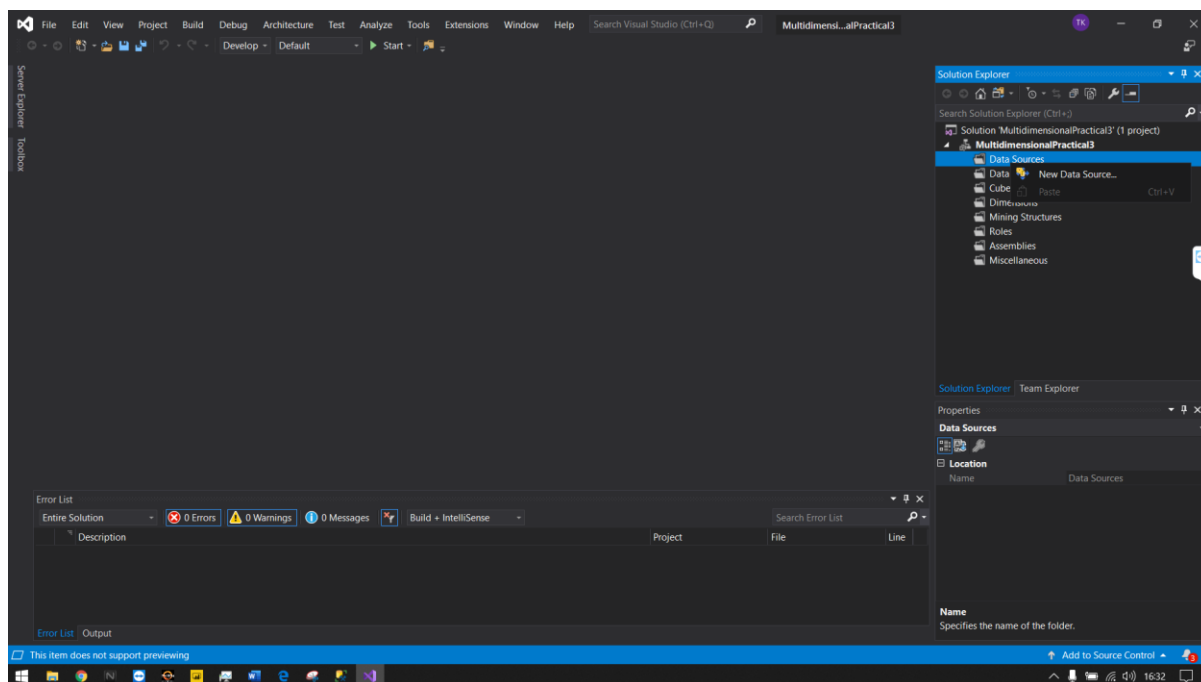
☐ Place solution and project in the same directory

Back Create

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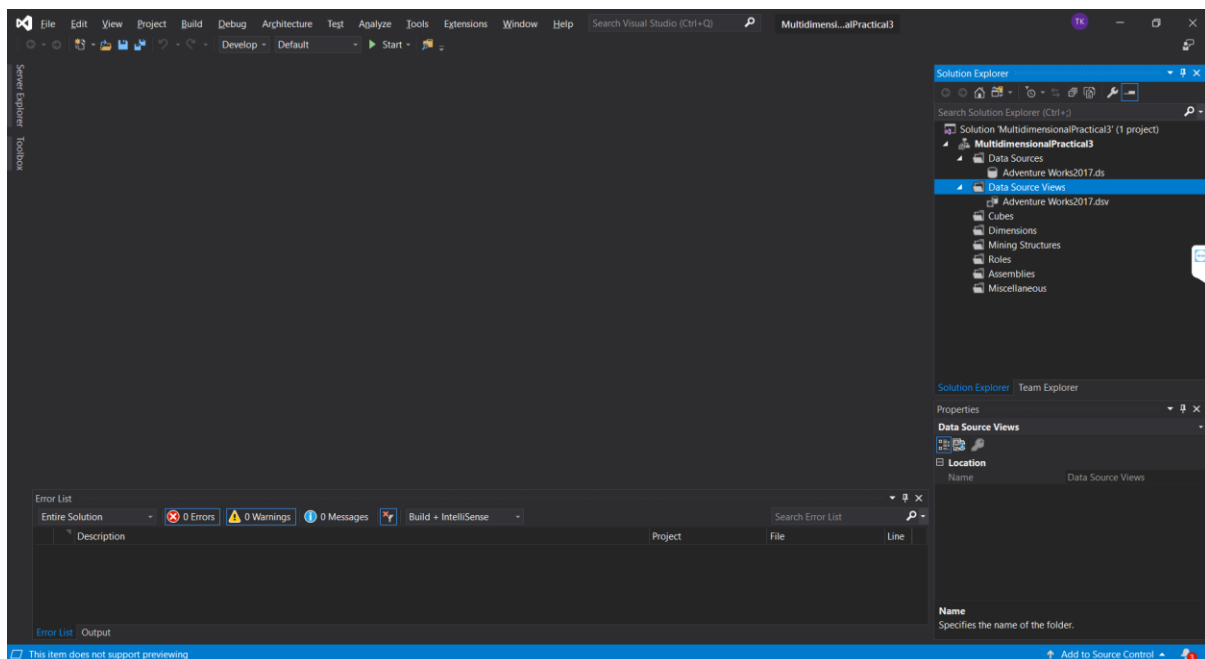
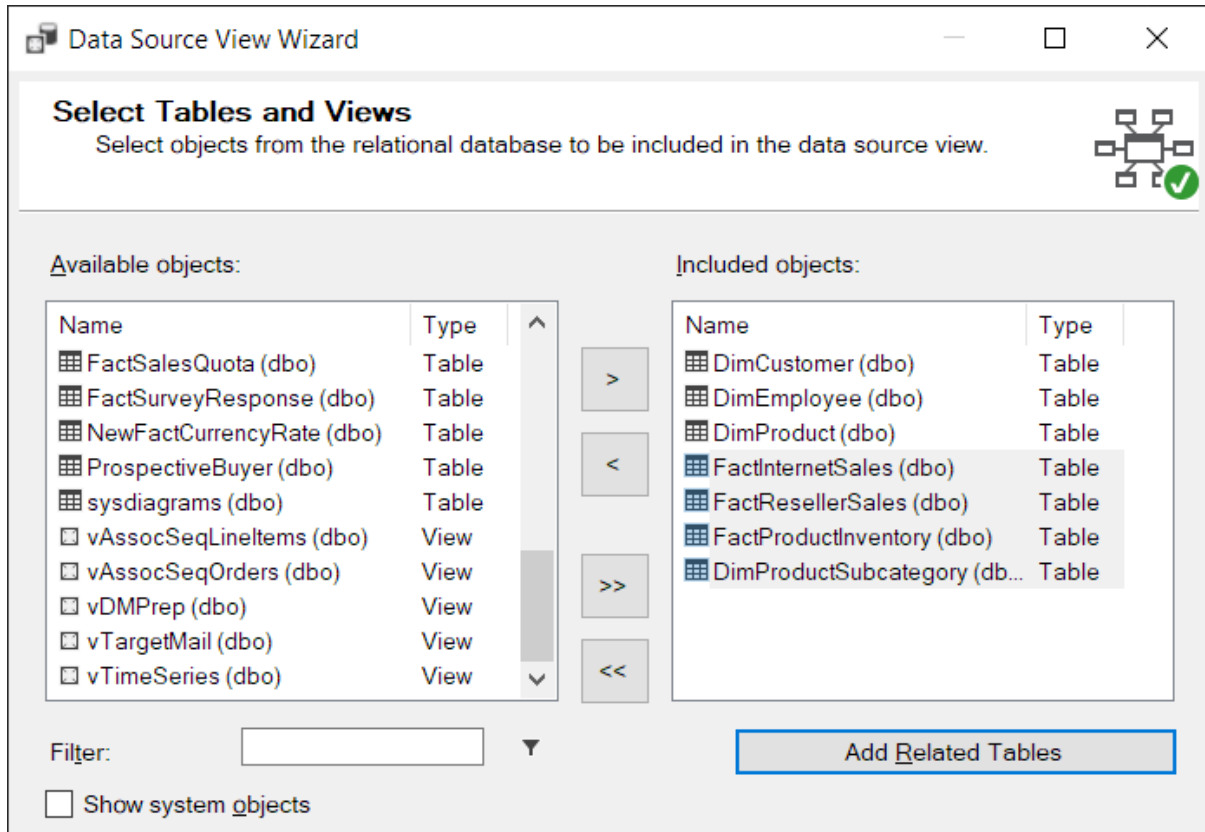
2. Go to DataSource & add a new source.



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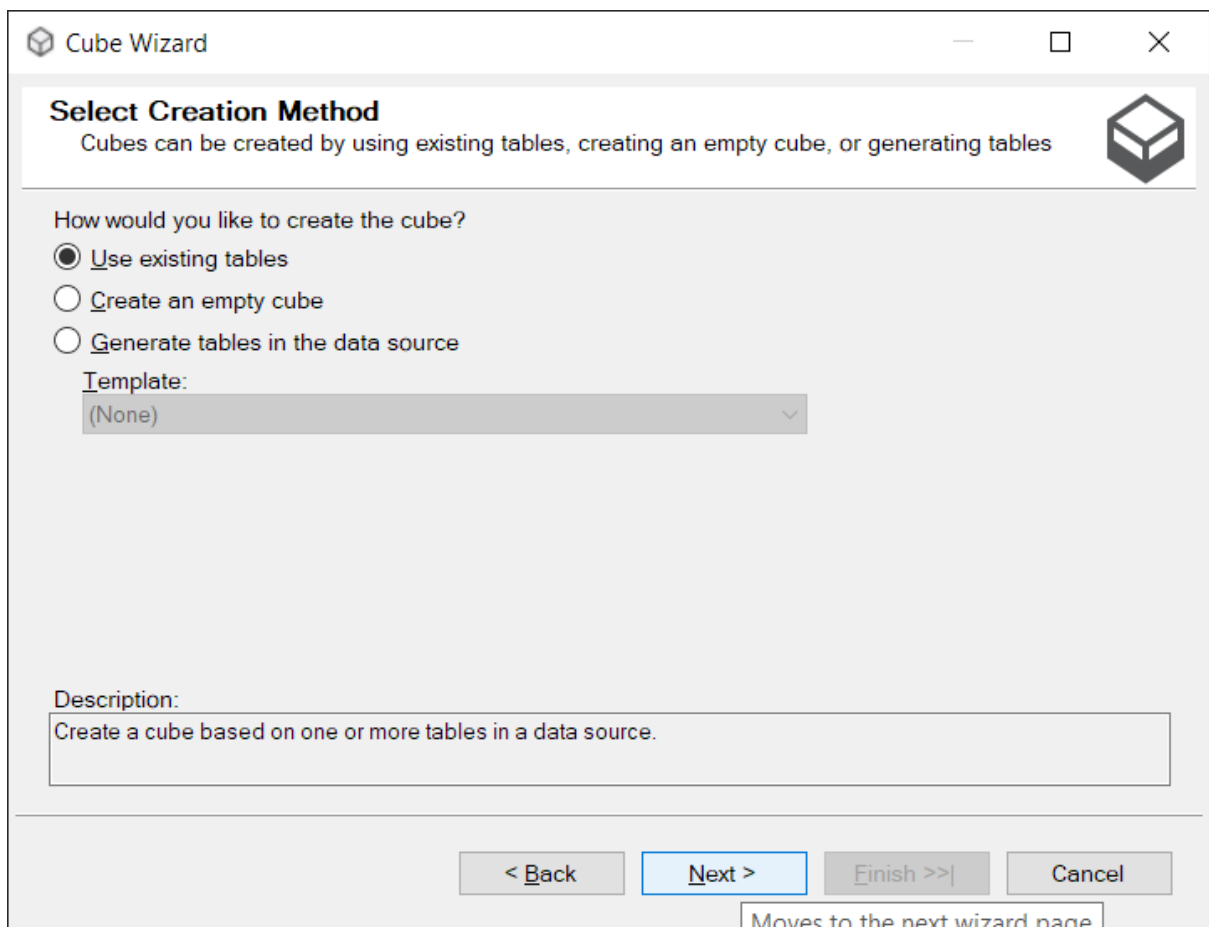
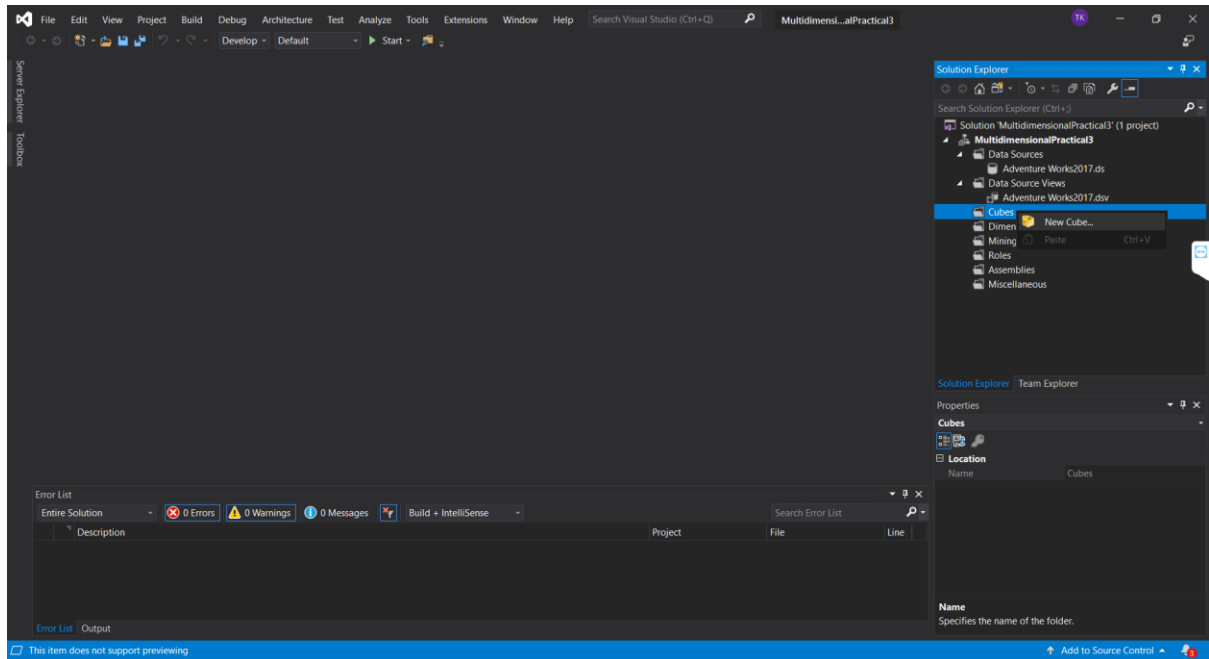
3. Create a view from the added Source.



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4. Create a new cube to generate data to be displayed.



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The screenshot shows the 'Select Measure Group Tables' dialog box in the Cube Wizard. The 'Data source view' is set to 'Adventure Works DW2017'. Under 'Measure group tables', the following tables are listed with checkboxes: DimCustomer, DimEmployee, DimProduct, FactInternetSales (checked), FactResellerSales (checked), FactProductInventory (checked), and DimProductSubcategory. A 'Suggest' button is located to the right of the table list. At the bottom, there are buttons for '< Back', 'Next >', 'Finish >>|', and 'Cancel'.

**Cube Wizard**

**Select Measure Group Tables**  
Select a data source view or diagram and then select the tables that will be used for measure groups.

Data source view:  
Adventure Works DW2017

Measure group tables: Suggest

- ☐ DimCustomer
- ☐ DimEmployee
- ☐ DimProduct
- ☒ FactInternetSales
- ☒ FactResellerSales
- ☒ FactProductInventory
- ☐ DimProductSubcategory

< Back   Next >   Finish >>|   Cancel

### 5. Change properties of Multidimensional Project.

The screenshot shows the 'MultidimensionalPractical3 Property Pages' dialog box. The 'Configuration' is set to 'Active(Development)' and the 'Platform' is 'N/A'. The 'Deployment' tab is selected in the left sidebar. The 'Options' section shows 'Processing Option' as 'Do Not Process', 'Transactional Deployment' as 'False', and 'Server Mode' as 'Deploy Changes Only'. The 'Target' section shows 'Server' as 'THEDARKKNIGHT\MSSQL15' and 'Database' as 'MultidimensionalPractical3'. A 'Server' section at the bottom explains that it is the Analysis Services instance to which the project will be deployed. At the bottom right, there are 'OK', 'Cancel', and 'Apply' buttons.

MultidimensionalPractical3 Property Pages

Configuration: Active(Development) Platform: N/A Configuration Manager...

Configuration Properties  
Build  
Debugging  
Deployment

**Options**

Processing Option	Do Not Process
Transactional Deployment	False
Server Mode	Deploy Changes Only

**Target**

Server	THEDARKKNIGHT\MSSQL15
Database	MultidimensionalPractical3

**Server**  
The Analysis Services instance to which the project will be deployed.

OK Cancel Apply

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### 6. Show Deployment Process.

The screenshot displays the SQL Server Data Tools (SSDT) interface. The main window shows the 'Adventure Works DW2017.cube [Design]' view, which includes a 'Data Source View' and a 'Dimensions' pane. The 'Data Source View' shows a complex data model with tables like 'DimEmployee', 'DimProduct', and 'FactInternetSales'. The 'Dimensions' pane lists dimensions such as 'Dim Customer', 'Dim Product', 'Fact Internet Sales', 'Dim Employee', and 'Fact Reseller Sales'. The 'Solution Explorer' on the right shows the project structure, including 'Data Sources', 'Data Source Views', 'Cubes', and 'Dimensions'. The 'Properties' window at the bottom right shows the 'Location' property set to 'C:\Users\lampen\source\repos\MultidimensionalProject3'.

Below the SSDT window, a 'Process Progress' dialog box is open, showing the deployment process. The 'Command' pane lists the following steps:

- Processing Database 'MultidimensionalProject3' completed.
  - Start time: 15-03-2020 05:26:57; End time: 15-03-2020 05:27:00; Duration: 0:00:02
- Processing Cube 'Adventure Works DW2017' completed.
  - Start time: 15-03-2020 05:26:59; End time: 15-03-2020 05:27:00; Duration: 0:00:01
  - Processing Measure Group 'Fact Internet Sales' completed.
  - Processing Measure Group 'Fact Product Inventory' completed.
  - Processing Measure Group 'Fact Reseller Sales' completed.
  - Processing Dimension 'Dim Customer' completed.
  - Processing Dimension 'Dim Employee' completed.
  - Processing Dimension 'Dim Product' completed.
  - Processing Dimension 'Fact Internet Sales' completed.
  - Processing Dimension 'Fact Reseller Sales' completed.

The 'Status' section shows a green checkmark and the text 'Process succeeded.' Below the status, there are buttons for 'Stop', 'Reprocess', 'View Details...', 'Copy', 'Close', and 'Help'.

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6. Click on browse and fire a query.

The screenshot displays the SQL Server Data Tools (SSDT) interface for the 'Adventure Works DW2017.cube' project. The 'Browse' tab is selected, showing a table of sales data with columns: Sales Order Number, Order Quantity, Sales Amount, Unit Price, and Total Product Cost. The 'Error List' at the bottom indicates four warnings: 'Database [MultidimensionalProject3]: The database has no Time dimension. Consider creating one.', 'Dimension [Dim Product]: Create hierarchies in non-parent child dimensions.', 'Dimension [Fact Reseller Sales]: Create hierarchies in non-parent child dimensions.', and 'Dimension [Fact Internet Sales]: Create hierarchies in non-parent child dimensions.' The 'Solution Explorer' on the right shows the project structure, including 'Data Sources', 'Data Source Views', 'Cubes', 'Dimensions', 'Fact Tables', 'Mining Structures', 'Roles', 'Assemblies', and 'Miscellaneous'.

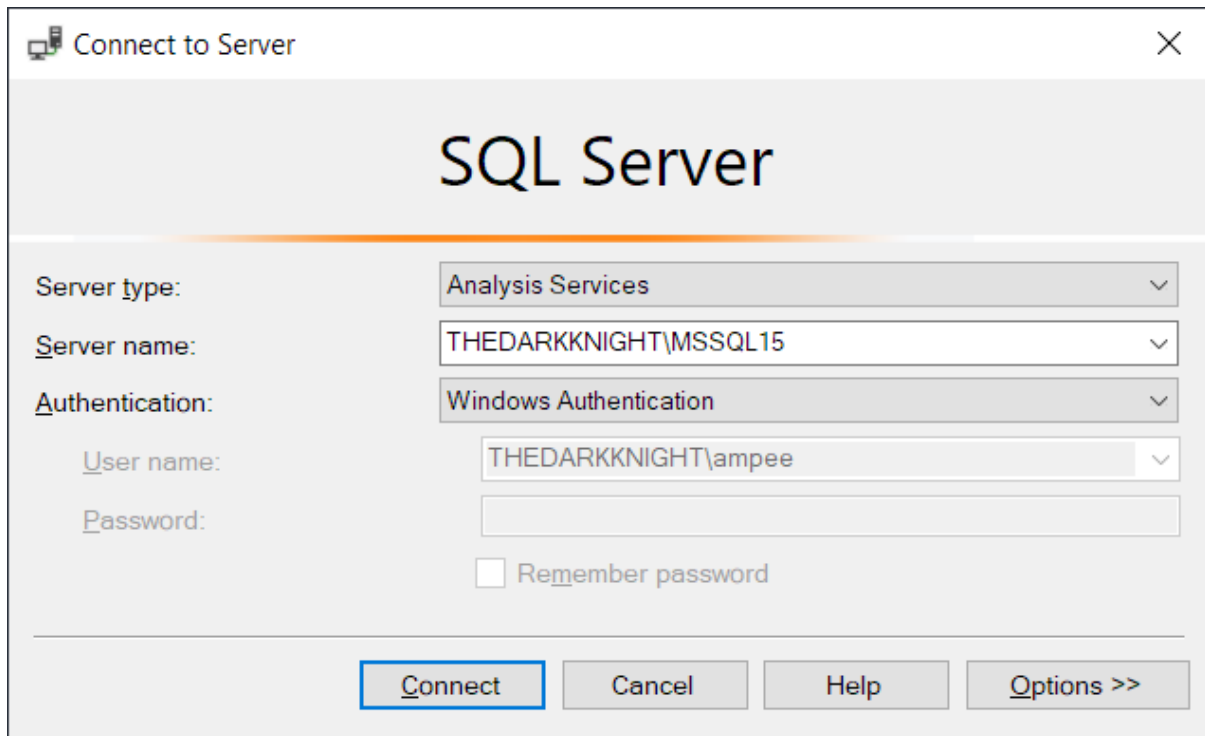
Sales Order Number	Order Quantity	Sales Amount	Unit Price	Total Product Cost
SO43697	1	3578.27	3578.27	2171.2942
SO43698	1	3399.99	3399.99	1912.1544
SO43699	1	3399.99	3399.99	1912.1544
SO43700	1	699.0982	699.0982	413.1463
SO43701	1	3399.99	3399.99	1912.1544
SO43702	1	3578.27	3578.27	2171.2942
SO43703	1	3578.27	3578.27	2171.2942
SO43704	1	3374.99	3374.99	1898.0944
SO43705	1	3399.99	3399.99	1912.1544
SO43706	1	3578.27	3578.27	2171.2942
SO43707	1	3578.27	3578.27	2171.2942
SO43708	1	699.0982	699.0982	413.1463
SO43709	1	3578.27	3578.27	2171.2942
SO43710	1	3578.27	3578.27	2171.2942
SO43711	1	3578.27	3578.27	2171.2942
SO43712	1	3578.27	3578.27	2171.2942

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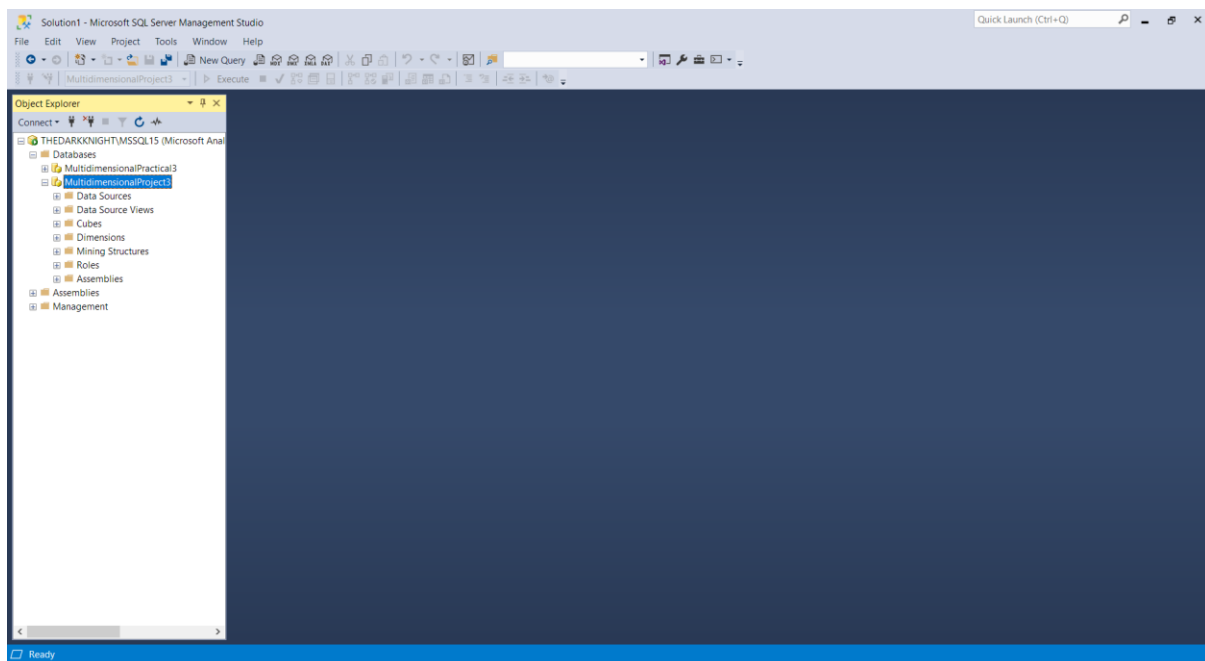
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**PART B -> Execute MDX Query to extract data from Warehouse.**

1. Open SQL Server Management Studio -> Select Analysis Server Engine -> Connect.



2. Open the Multi Dimension Project from earlier and load it.

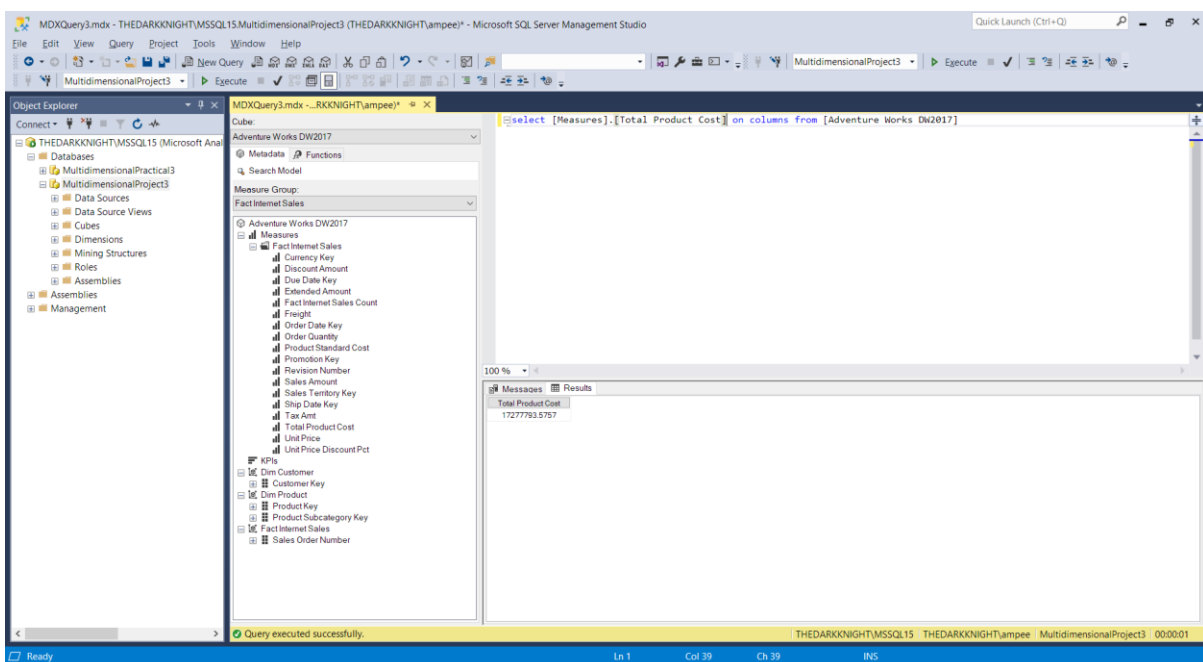
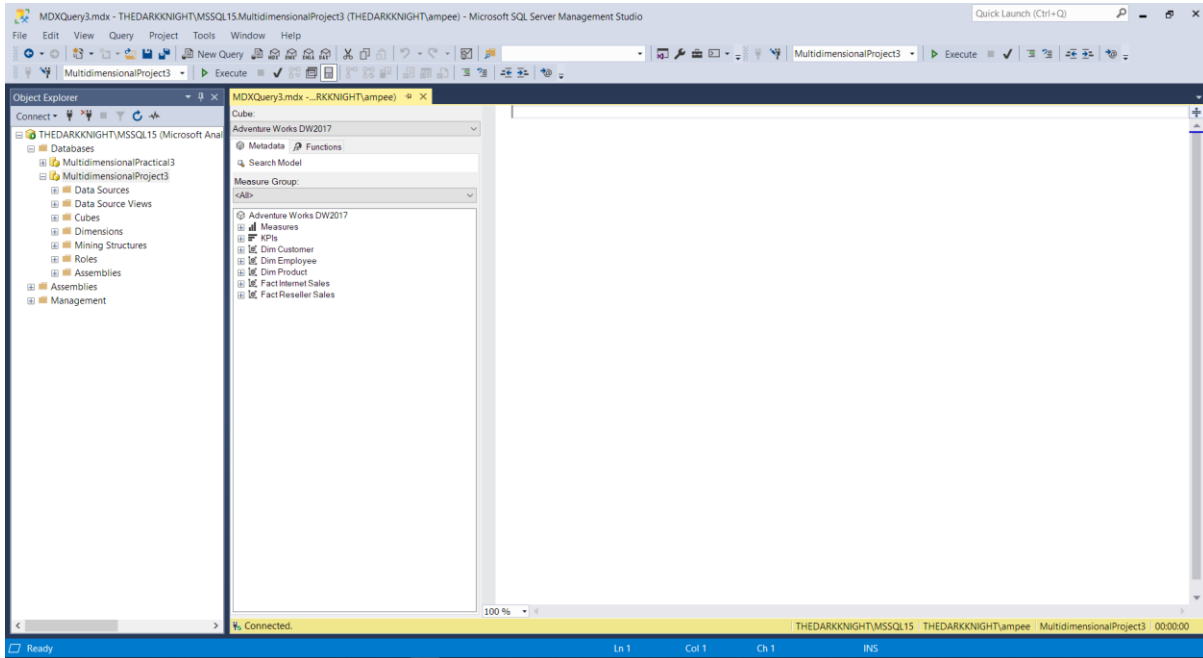




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3. Execute MDX Query to fetch result from Data Warehouse. (Select total production cost).



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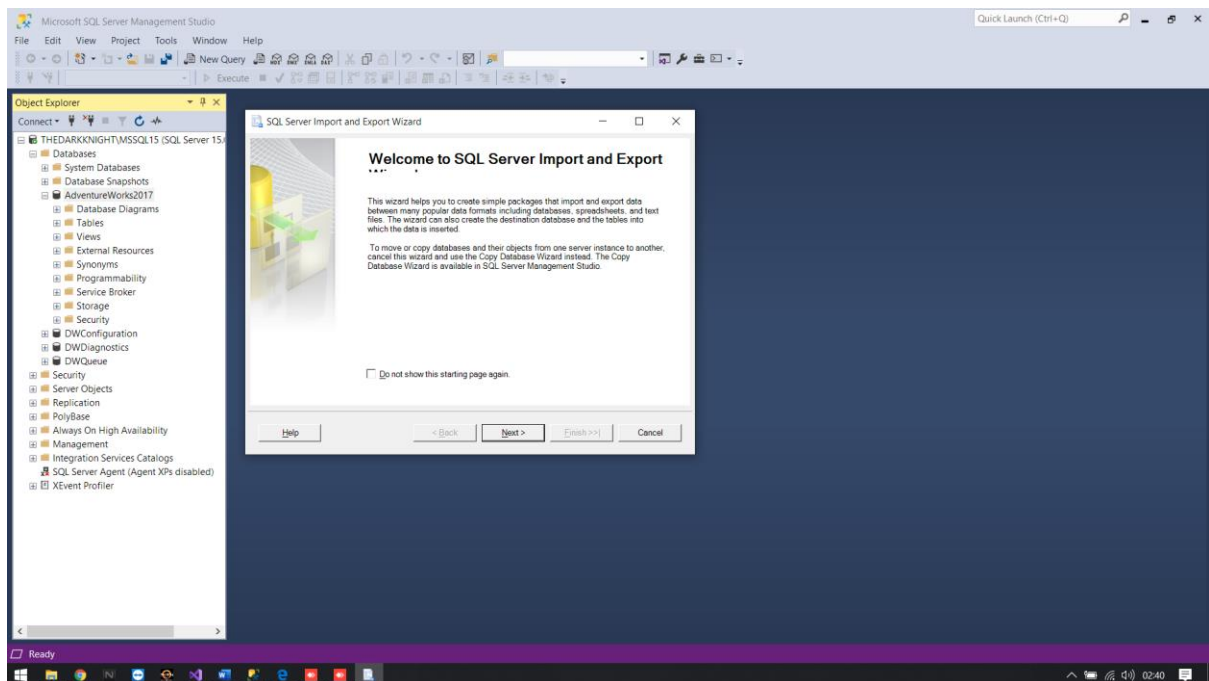
### Practical No: - 5

**Aim:** - a. Import the Datawarehouse data in Microsoft Excel and create the Pivot table and Pivot Chart. b. Import the cube in Microsoft Excel and create the Pivot table and Pivot Chart to perform data analysis.

### PART A -> Import the Datawarehouse data in Microsoft Excel and create the Pivot table and Pivot Chart

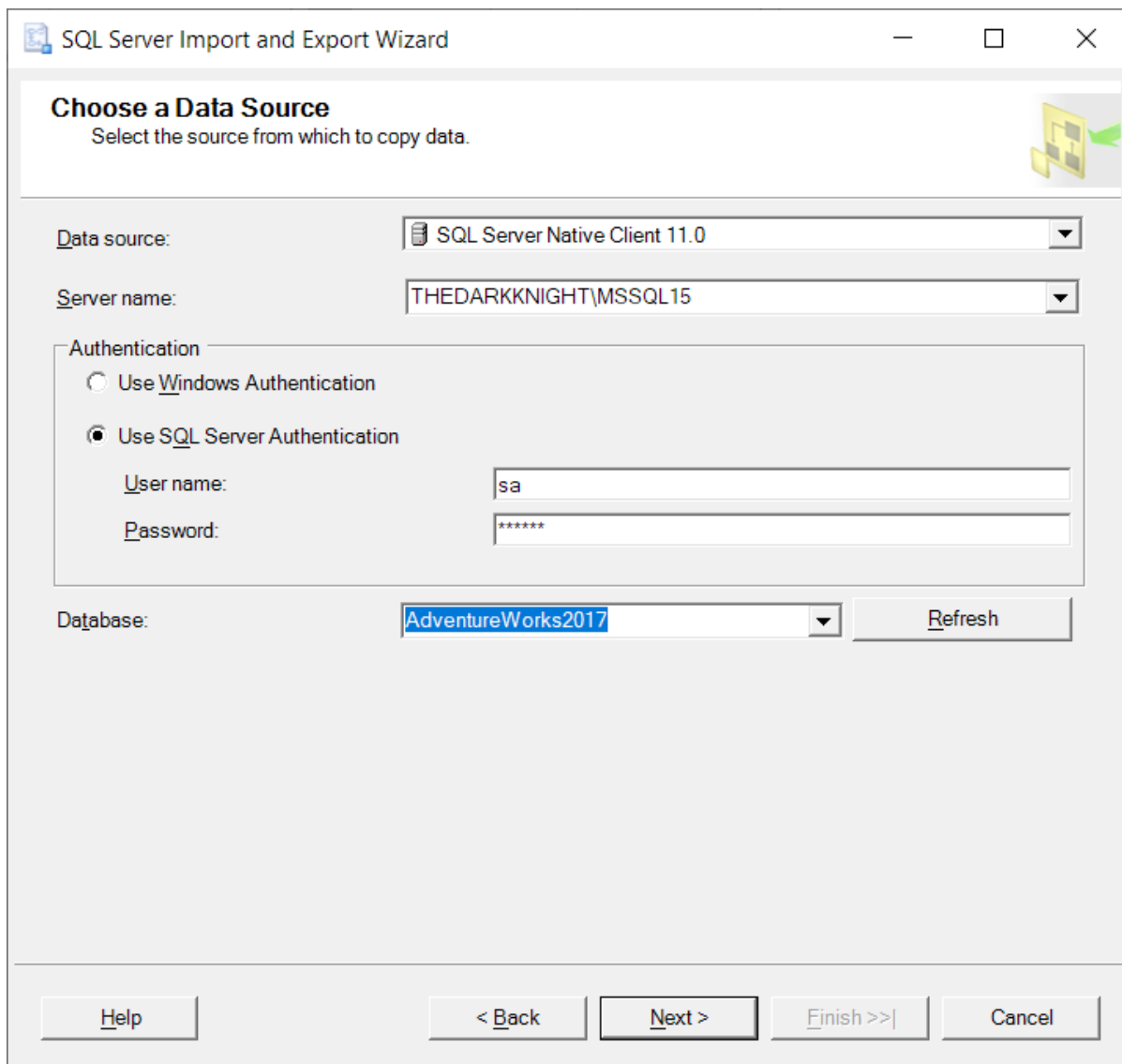
#### Steps: -

1. Export dB from Microsoft SQL Server Management Studio.



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The screenshot shows the 'SQL Server Import and Export Wizard' window, specifically the 'Choose a Data Source' step. The window title is 'SQL Server Import and Export Wizard'. The main heading is 'Choose a Data Source' with the instruction 'Select the source from which to copy data.' and a small icon of a folder with a green arrow. The 'Data source' dropdown is set to 'SQL Server Native Client 11.0'. The 'Server name' dropdown is set to 'THEDARKKNIGHT\MSSQL15'. Under the 'Authentication' section, 'Use SQL Server Authentication' is selected. The 'User name' field contains 'sa' and the 'Password' field contains '\*\*\*\*\*'. The 'Database' dropdown is set to 'AdventureWorks2017' and there is a 'Refresh' button next to it. At the bottom, there are buttons for 'Help', '< Back', 'Next >', 'Finish >>', and 'Cancel'.

SQL Server Import and Export Wizard

**Choose a Data Source**  
Select the source from which to copy data.

Data source: SQL Server Native Client 11.0

Server name: THEDARKKNIGHT\MSSQL15

Authentication

☐ Use Windows Authentication

☒ Use SQL Server Authentication

User name: sa

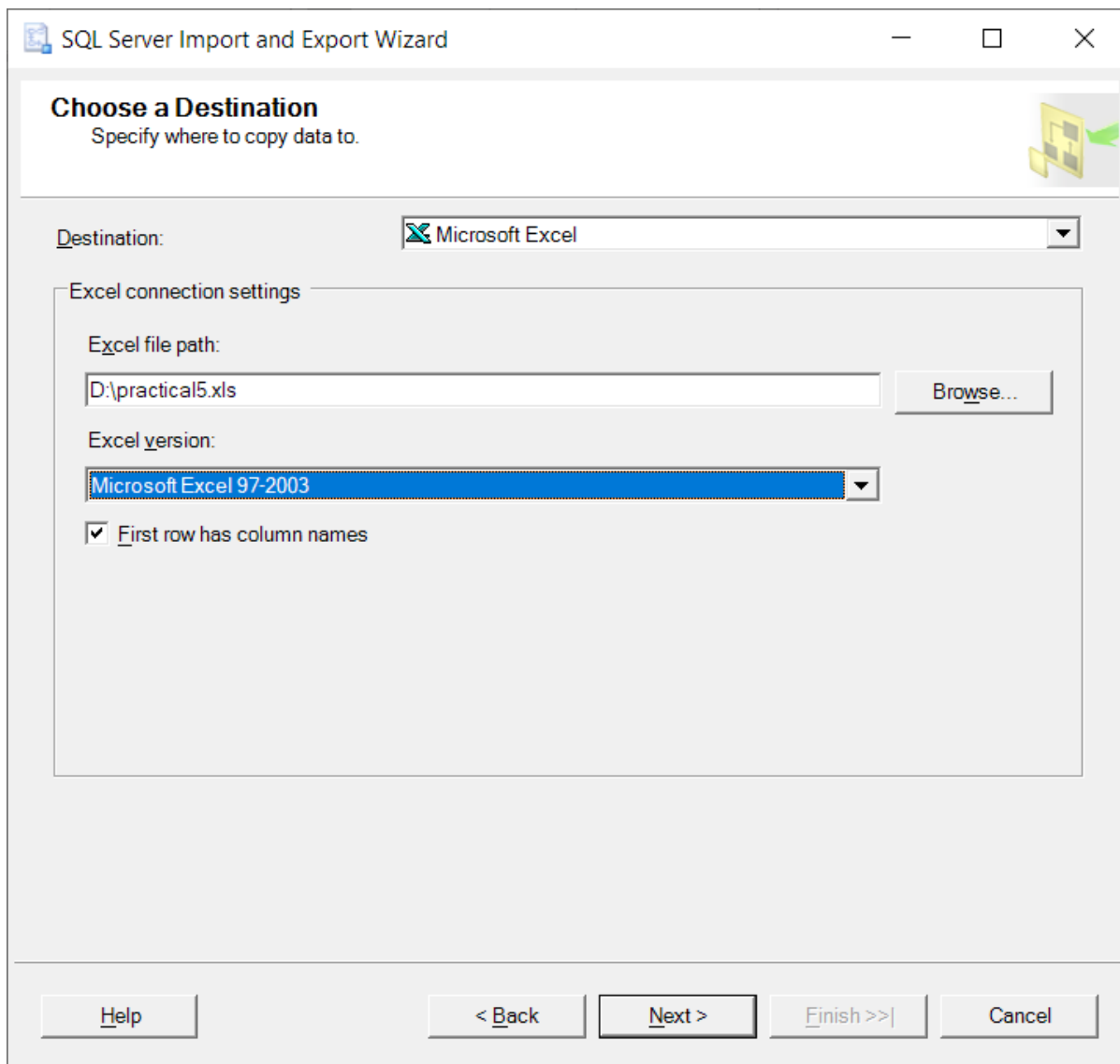
Password: \*\*\*\*\*

Database: AdventureWorks2017 Refresh

Help < Back Next > Finish >> Cancel

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The screenshot shows the 'SQL Server Import and Export Wizard' window, specifically the 'Choose a Destination' step. The window title is 'SQL Server Import and Export Wizard'. The main heading is 'Choose a Destination' with the subtitle 'Specify where to copy data to.' and a small icon of a folder with a green arrow. The 'Destination' dropdown menu is set to 'Microsoft Excel'. Below this, the 'Excel connection settings' section is expanded, showing the 'Excel file path' as 'D:\practical5.xls' with a 'Browse...' button next to it. The 'Excel version' dropdown is set to 'Microsoft Excel 97-2003'. The checkbox 'First row has column names' is checked. At the bottom, there are buttons for 'Help', '< Back', 'Next >', 'Finish >>', and 'Cancel'.

SQL Server Import and Export Wizard

**Choose a Destination**  
Specify where to copy data to.

Destination: Microsoft Excel

Excel connection settings

Excel file path:  
D:\practical5.xls Browse...

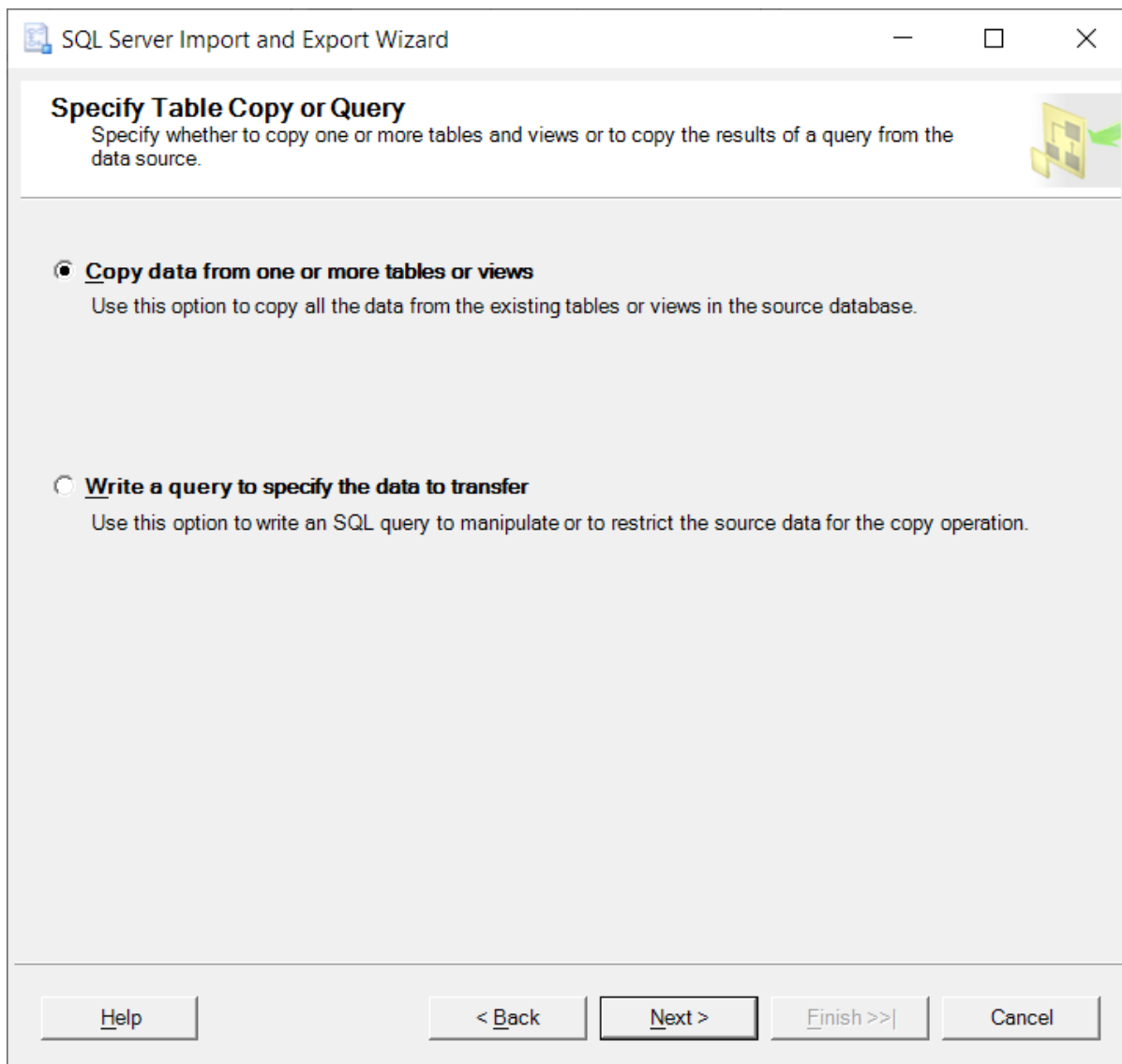
Excel version:  
Microsoft Excel 97-2003

☒ First row has column names

Help < Back Next > Finish >> Cancel

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The screenshot shows the 'SQL Server Import and Export Wizard' window. The title bar reads 'SQL Server Import and Export Wizard'. The main heading is 'Specify Table Copy or Query' with a subtitle 'Specify whether to copy one or more tables and views or to copy the results of a query from the data source.' There are two radio button options: 'Copy data from one or more tables or views' (selected) and 'Write a query to specify the data to transfer'. The bottom of the window contains a navigation bar with buttons: 'Help', '< Back', 'Next >', 'Finish >>', and 'Cancel'.

SQL Server Import and Export Wizard

**Specify Table Copy or Query**  
Specify whether to copy one or more tables and views or to copy the results of a query from the data source.

☒ **Copy data from one or more tables or views**  
Use this option to copy all the data from the existing tables or views in the source database.

☐ **Write a query to specify the data to transfer**  
Use this option to write an SQL query to manipulate or to restrict the source data for the copy operation.

Help   < Back   Next >   Finish >>   Cancel

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SQL Server Import and Export Wizard

**Select Source Tables and Views**  
Choose one or more tables and views to copy.

Tables and views:

Source: THEDARKKNIGHT\MSSQL15	Destination: D:\practical5.xls
<input type="checkbox"/> [Purchasing].[Vendor]	
<input type="checkbox"/> [Sales].[CountryRegionCurrency]	
<input type="checkbox"/> [Sales].[CreditCard]	
<input checked="" type="checkbox"/> [Sales].[Currency]	'Currency'
<input type="checkbox"/> [Sales].[CurrencyRate]	
<input type="checkbox"/> [Sales].[Customer]	
<input type="checkbox"/> [Sales].[PersonCreditCard]	
<input checked="" type="checkbox"/> [Sales].[SalesOrderDetail]	'SalesOrderDetail'
<input type="checkbox"/> [Sales].[SalesOrderHeader]	
<input type="checkbox"/> [Sales].[SalesOrderHeaderSalesReason]	
<input checked="" type="checkbox"/> [Sales].[SalesPerson]	'SalesPerson'
<input checked="" type="checkbox"/> [Sales].[SalesPersonQuotaHistory]	'SalesPersonQuotaHistory'
<input type="checkbox"/> [Sales].[SalesReason]	
<input type="checkbox"/> [Sales].[SalesTaxRate]	
<input type="checkbox"/> [Sales].[SalesTerritory]	
<input type="checkbox"/> [Sales].[SalesTerritoryHistory]	

Edit Mappings... Preview...

Help < Back Next > Finish >> Cancel

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SQL Server Import and Export Wizard

**Review Data Type Mapping**  
Select a table to review how its data types map to those in the destination and how it handles conversion issues.

Table:

Source	Destination
[Sales].[Currency]	'Currency'
[Sales].[SalesOrderDetail]	'SalesOrderDetail'
[Sales].[SalesPerson]	'SalesPerson'
[Sales].[SalesPersonQuotaHistory]	'SalesPersonQuotaHistory'

Data type mapping:

Source Column	Source Type	Destination Col...	Destination Type	Convert	On Error	On Truncati...
CurrencyCode	nchar	CurrencyCode	VarChar			
Name	nvarchar	Name	LongText	<input checked="" type="checkbox"/>	Use Global	Use Global
ModifiedDate	datetime	ModifiedDate	DateTime			

To view conversion details, double-click the row that contains the column source type to be converted.

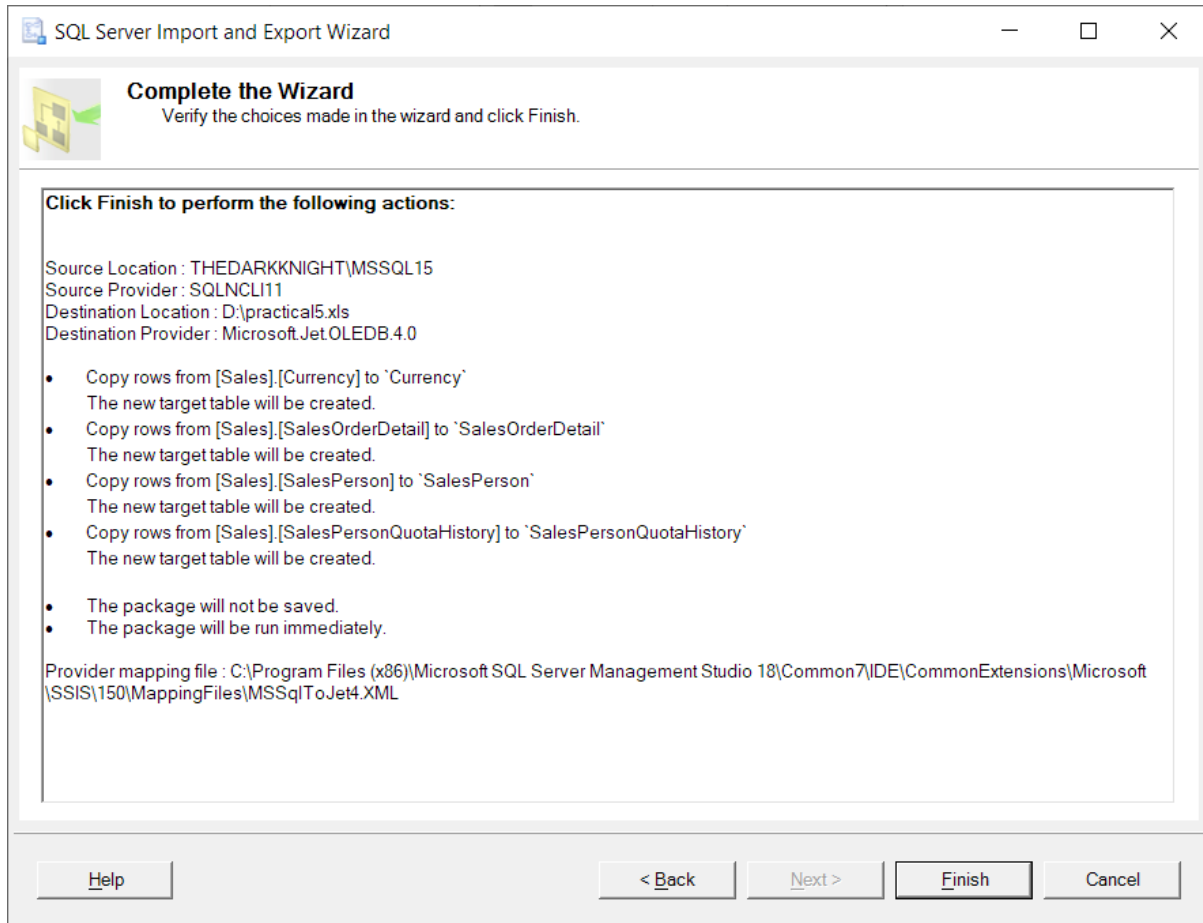
On Error (global) Fail

On Truncation (global) Fail

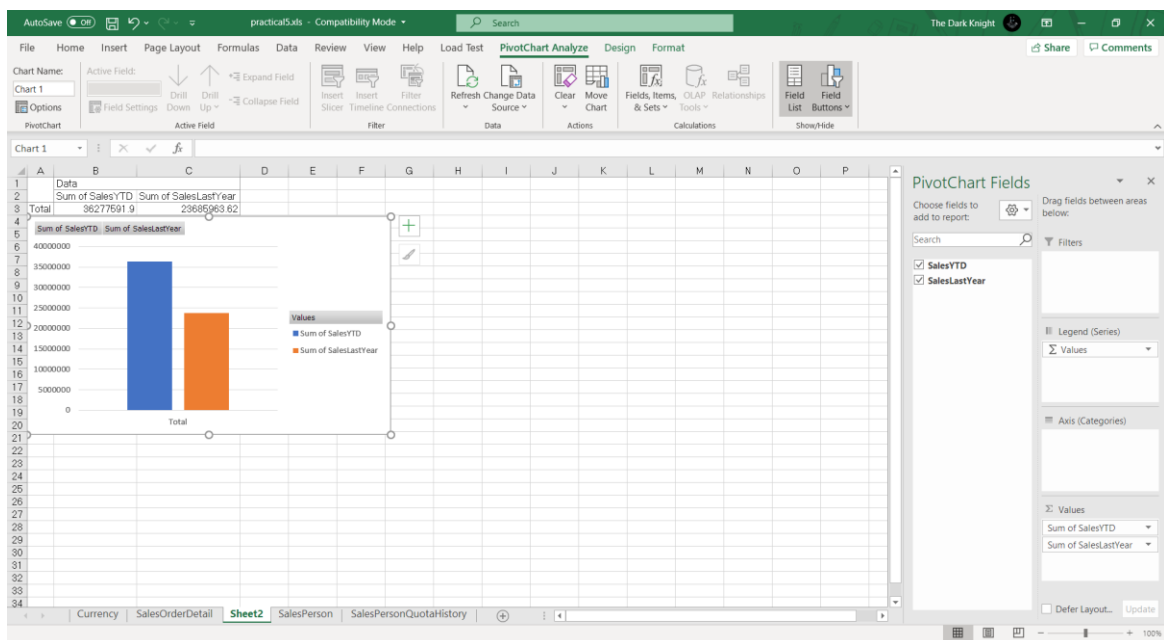
[Help](#)
[< Back](#)
[Next >](#)
[Finish >>](#)
[Cancel](#)

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2. Open excel file & generate a graph using the data available.





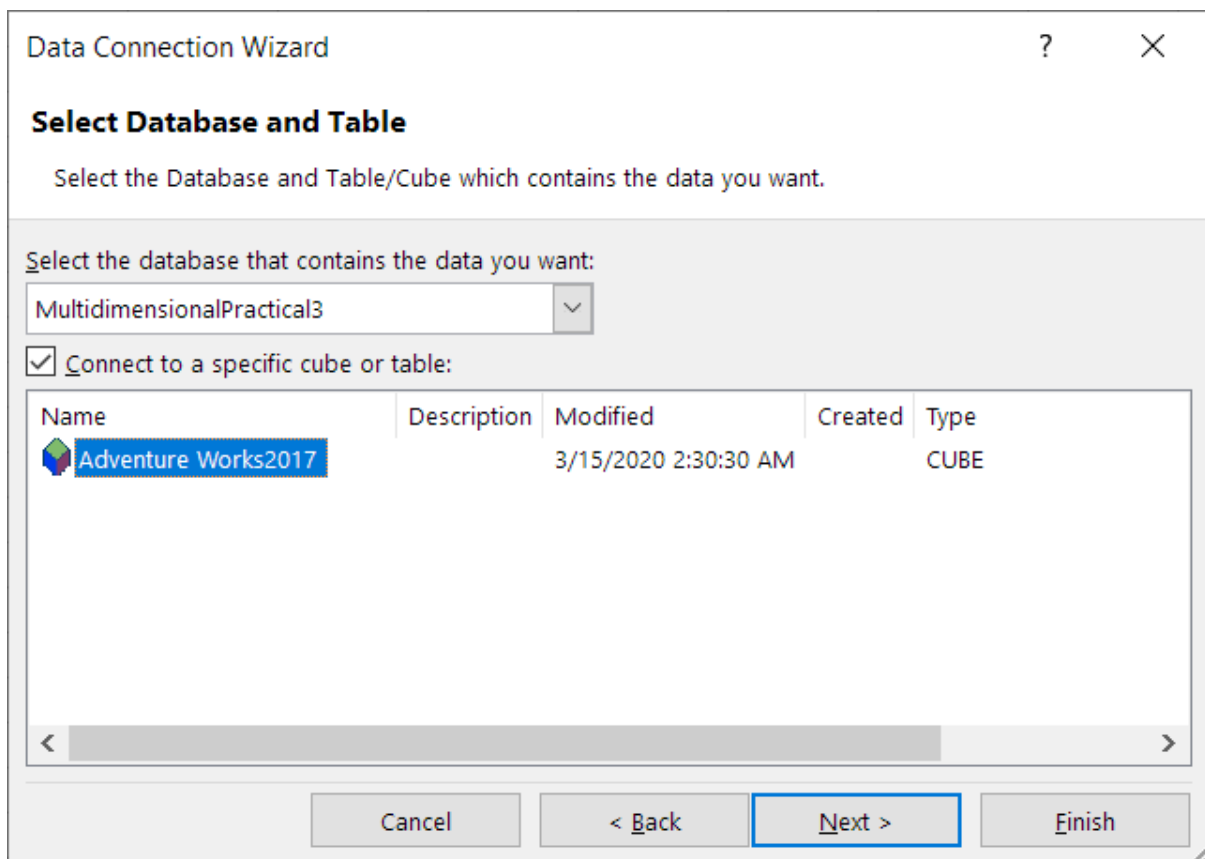
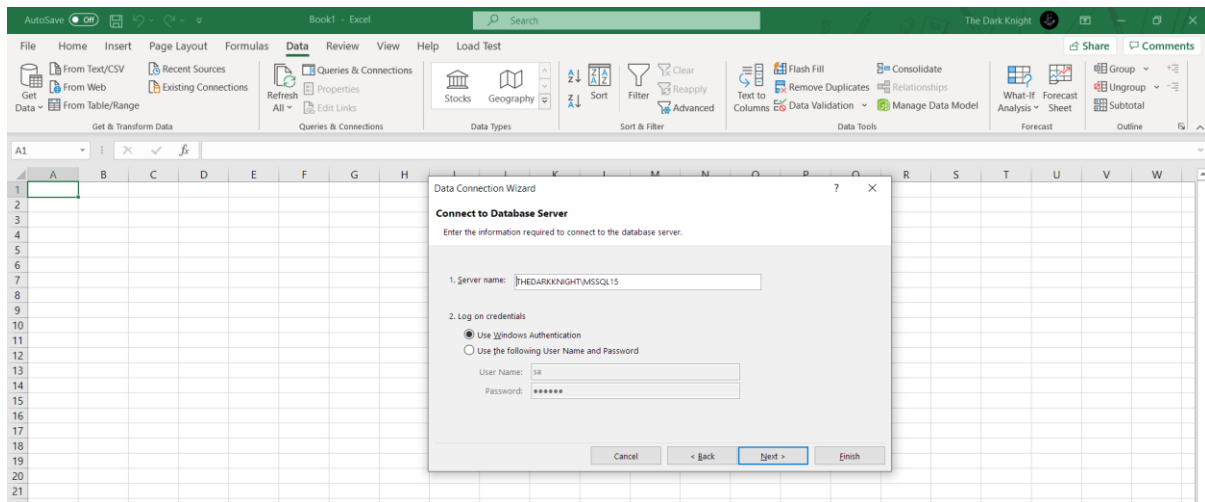
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**PART B -> Import the cube in Microsoft Excel and create the Pivot table and Pivot Chart to perform data analysis**

**Steps: -**

1. Connect to database server and add the dB with cubes.



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Data Connection Wizard ? ×

**Save Data Connection File and Finish**

Enter a name and description for your new Data Connection file, and press Finish to save.

File Name:  
THEDARKKNIGHT\_MSSQL15 MultidimensionalPractical3 Adventure Works2017.odc Browse...

☐ Save password in file

Description:  
Basic Cube Example \(\*~\*)/

Friendly Name:  
THEDARKKNIGHT\_MSSQL15 MultidimensionalPractical3 Adventure Works2017

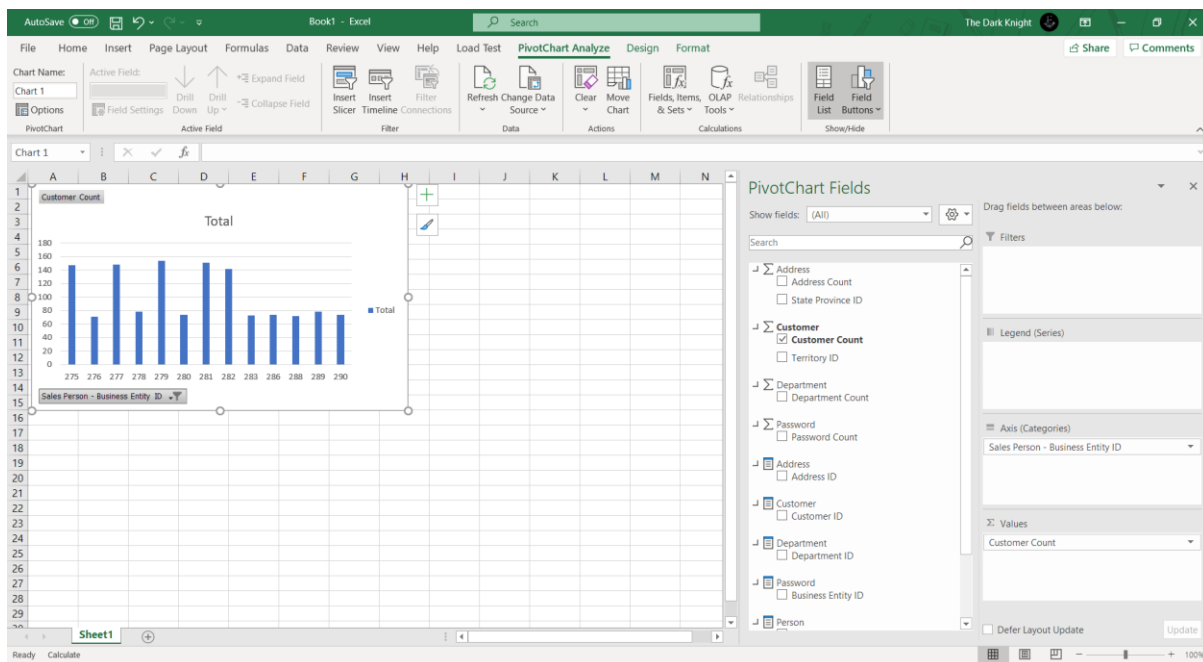
Search Keywords:

☐ Always attempt to use this file to refresh data

Excel Services: Authentication Settings...

Cancel < Back Next > Finish

## 2. Render the graph



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### Practical No: - 6

**Aim:** - Apply the what – if Analysis for data visualization. Design and generate necessary reports based on the data warehouse data.

**Steps:** -

1. Import data from dB to excel.

Search

The Dark Knight

Share Comments

Purchasing PurchaseOrderDetail

PurchaseOrderDetailID	Production.Product.Name	ProductID	OrderQty	UnitPrice	LineTotal
1	Adjustable Race	1	4	50	201
2	Thin-Jam Hex Nut 9	359	3	45	135
3	Thin-Jam Hex Nut 10	360	3	46	137
4	Seat Post	530	550	16	8847
5	Headset Ball Bearings	4	3	57	171
6	HL Road Rim	512	550	37	20397
7	Touring Rim	513	550	27	14628
8	LL Crankarm	317	550	27	14882
9	ML Crankarm	318	550	34	18468

Columns [12]  
[PurchaseOrderDetailID](#), [Production.Product.Name](#), [ProductID](#), [OrderQty](#), [UnitPrice](#), [LineTotal](#), [ReceivedQty](#), [RejectedQty](#), [StockedQty](#), [Purchasing.PurchaseOrderHeader.TaxAmt](#), [Purchasing.PurchaseOrderHeader.TotalDue](#), [Percentage Of Accepted Products](#)

Last refreshed  
04:41

Load status  
Loaded to worksheet

Data Sources [1]  
[TheDarkKnight\mssql15;AdventureWorks2017](#)

VIEW IN WORKSHEET EDIT ... DELETE

Queries & ..  
 Queries | Connections  
 1 query  
 Purchasing PurchaseOrderDetail  
 8,845 rows loaded.

2. ETL the data.

Purchasing PurchaseOrderDetail - Power Query Editor

File Home Transform Add Column View

Close & Load Refresh Advanced Editor Choose Columns Remove Columns Keep Rows Remove Rows Sort Split Column Group By Data Type: Whole Number Use First Row as Headers Replace Values Merge Queries Append Queries Combine Files Manage Parameters Data source settings New Source Recent Sources

PurchaseOrderDetailID	Production.Product.Name	ProductID	OrderQty	UnitPrice	LineTotal
1	Adjustable Race	1	4	50	201
2	Thin-Jam Hex Nut 9	359	3	45	135
3	Thin-Jam Hex Nut 10	360	3	46	137
4	Seat Post	530	550	16	8847
5	Headset Ball Bearings	4	3	57	171
6	HL Road Rim	512	550	37	20397
7	Touring Rim	513	550	27	14628
8	LL Crankarm	317	550	27	14882
9	ML Crankarm	318	550	34	18468
10	HL Crankarm	319	550	46	25335
11	External Lock Washer 3	403	3	47	142
12	External Lock Washer 4	404	3	45	136
13	External Lock Washer 9	405	3	50	149
14	External Lock Washer 5	406	3	45	136
15	External Lock Washer 7	407	3	43	130

Query Settings

PROPERTIES  
 Name  
 Purchasing PurchaseOrderDetail  
[All Properties](#)

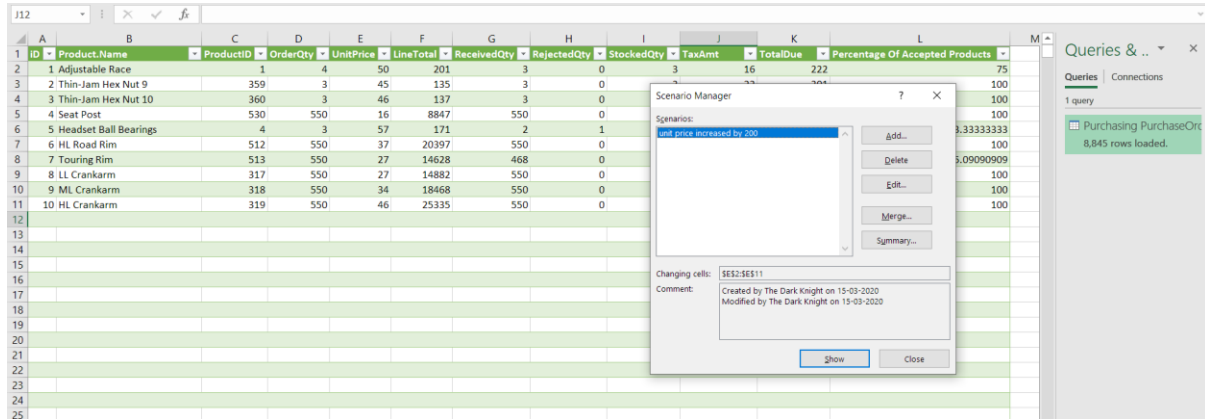
APPLIED STEPS  
 Source  
 Navigation  
 Removed Columns  
 Expanded Production.Product  
 Expanded Purchasing.Purchas...  
 Reordered Columns  
 Changed Type  
 Added Custom

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3. Select Data -> What If Analysis -> Scenario Manager -> Add New Scenario.

Scenario: all unit prices increased by 200



4. Click on Summary to check the result.

B	C	D	E
<b>Scenario Summary</b>			
Current Values: unit price increased by 200			
<b>Changing Cells:</b>			
\$E\$2		50	250
\$E\$3		45	245
\$E\$4		46	246
\$E\$5		16	216
\$E\$6		57	257
\$E\$7		37	237
\$E\$8		27	227
\$E\$9		27	227
\$E\$10		34	234
\$E\$11		46	246
<b>Result Cells:</b>			
\$F\$2		200	1000
\$F\$3		135	735
\$F\$4		138	738
\$F\$5		8800	118800
\$F\$6		171	771
\$F\$7		20350	130350
\$F\$8		14850	124850
\$F\$9		14850	124850
\$F\$10		18700	128700
\$F\$11		25300	135300

Notes: Current Values column represents values of changing cells at time Scenario Summary Report was created. Changing cells for each scenario are highlighted in gray.

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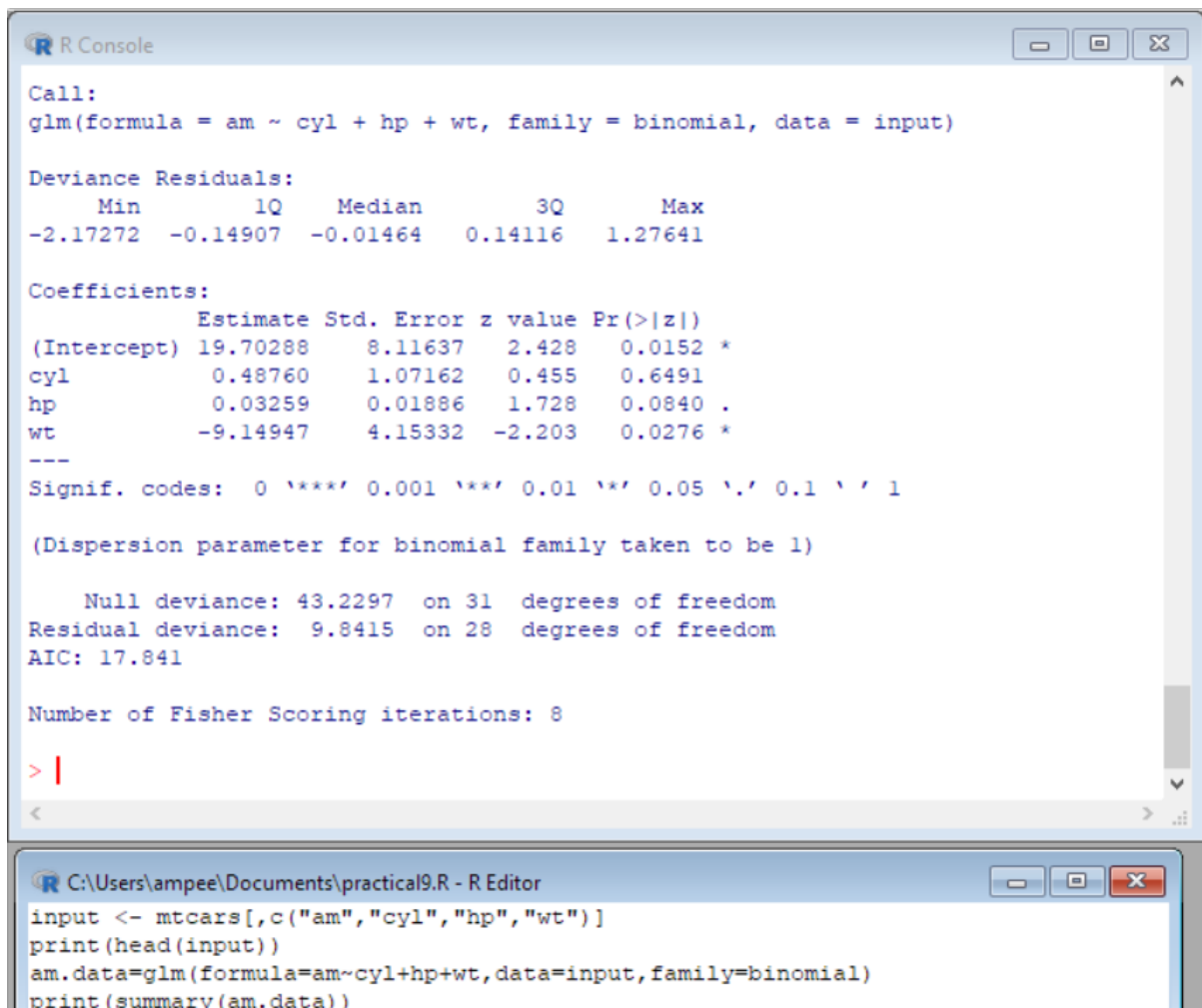
### Practical No: - 7

**Aim:** - Perform the data classification using classification algorithm.

**PART A -> Perform logistic regression in the given data warehouse.**

**Code:** -

```
input <- mtcars[, c("am", "cyl", "hp", "wt")]
print(head(input))
am.data = glm(formula = am ~ cyl + hp + wt, data = input, family = binomial)
print(summary(am.data))
```



The image shows two windows from an R environment. The top window is the 'R Console', which displays the output of the R code. The bottom window is the 'R Editor', which shows the source code being executed.

**R Console Output:**

```
Call:
glm(formula = am ~ cyl + hp + wt, family = binomial, data = input)

Deviance Residuals:
    Min       1Q   Median       3Q      Max
-2.17272  -0.14907  -0.01464   0.14116   1.27641

Coefficients:
            Estimate Std. Error z value Pr(>|z|)
(Intercept)  19.70288     8.11637   2.428  0.0152 *
cyl           0.48760     1.07162   0.455  0.6491
hp            0.03259     0.01886   1.728  0.0840 .
wt          -9.14947     4.15332  -2.203  0.0276 *
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

(Dispersion parameter for binomial family taken to be 1)

    Null deviance: 43.2297  on 31  degrees of freedom
Residual deviance:  9.8415  on 28  degrees of freedom
AIC: 17.841

Number of Fisher Scoring iterations: 8
> |
```

**R Editor Code:**

```
C:\Users\ampee\Documents\practical9.R - R Editor
input <- mtcars[, c("am", "cyl", "hp", "wt")]
print(head(input))
am.data = glm(formula = am ~ cyl + hp + wt, data = input, family = binomial)
print(summary(am.data))
```

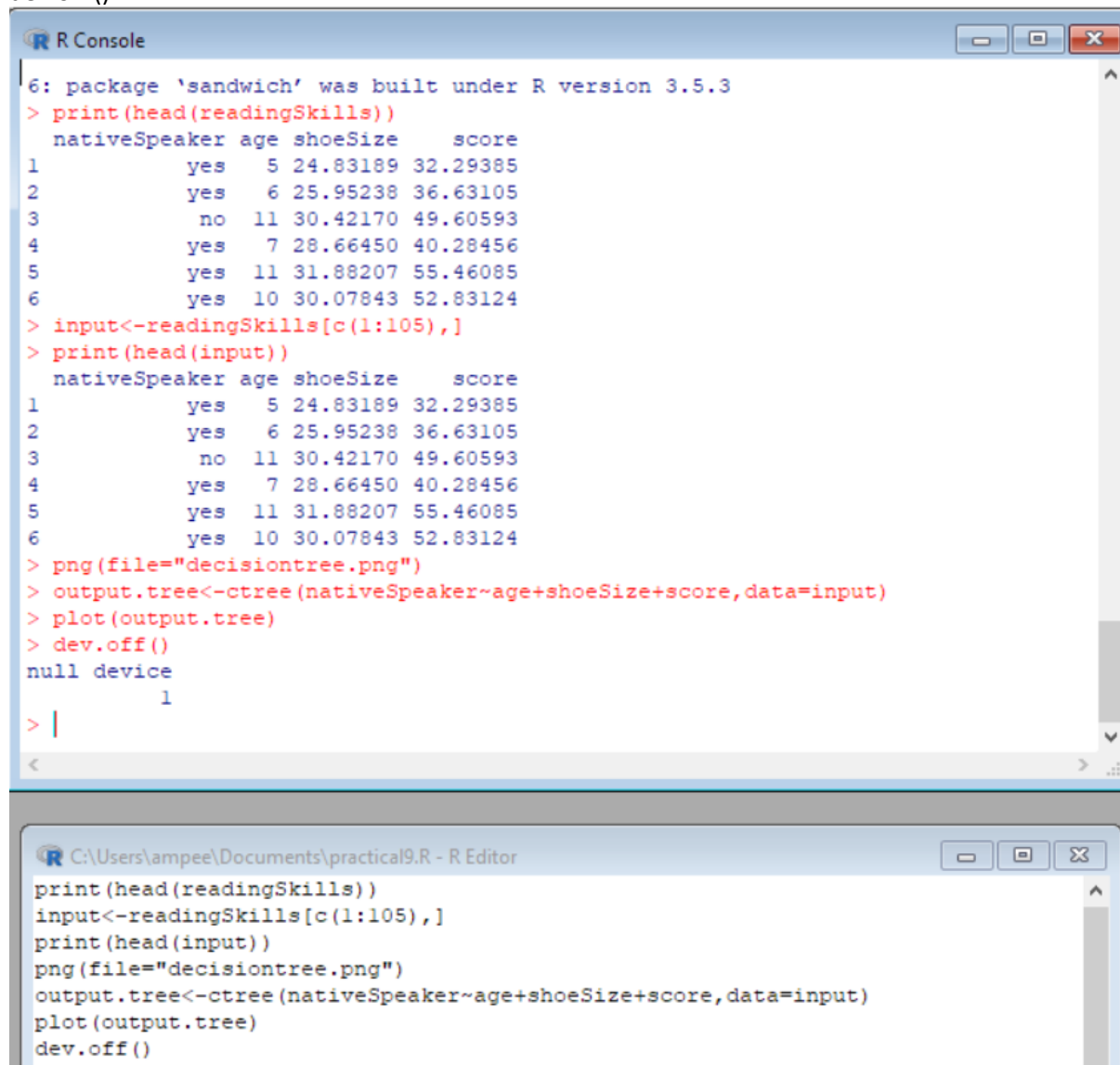
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**PART B -> Perform the data classification using classification algorithm**

**Code: -**

```
library(party)
print(head(readingSkills))
input<-readingSkills [c (1:105),]
print(head(input))
png(file="decisiontree.png")
output. tree<-ctree (nativeSpeaker~age+shoeSize+score, data=input)
plot (output. tree)
dev.off ()
```



The image shows two windows from an R environment. The top window is the 'R Console' and the bottom is the 'R Editor'.

**R Console Output:**

```
6: package 'sandwich' was built under R version 3.5.3
> print(head(readingSkills))
  nativeSpeaker age shoeSize   score
1          yes   5 24.83189 32.29385
2          yes   6 25.95238 36.63105
3           no  11 30.42170 49.60593
4          yes   7 28.66450 40.28456
5          yes  11 31.88207 55.46085
6          yes  10 30.07843 52.83124
> input<-readingSkills[c(1:105),]
> print(head(input))
  nativeSpeaker age shoeSize   score
1          yes   5 24.83189 32.29385
2          yes   6 25.95238 36.63105
3           no  11 30.42170 49.60593
4          yes   7 28.66450 40.28456
5          yes  11 31.88207 55.46085
6          yes  10 30.07843 52.83124
> png(file="decisiontree.png")
> output.tree<-ctree(nativeSpeaker~age+shoeSize+score, data=input)
> plot(output.tree)
> dev.off()
null device
      1
> |
```

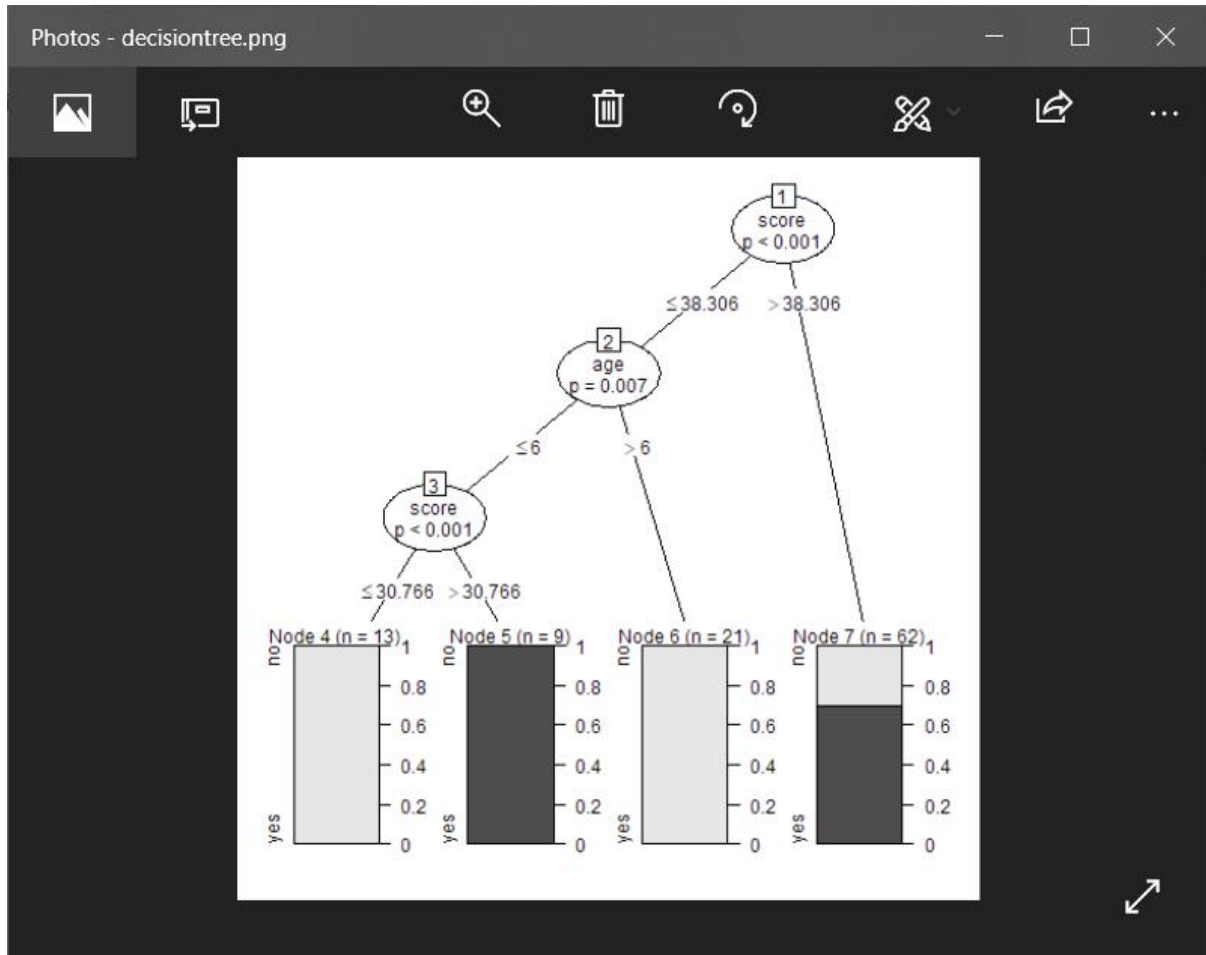
**R Editor Code:**

```
print(head(readingSkills))
input<-readingSkills[c(1:105),]
print(head(input))
png(file="decisiontree.png")
output.tree<-ctree(nativeSpeaker~age+shoeSize+score, data=input)
plot(output.tree)
dev.off()
```

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From the decision tree, we can conclude the people with reading skills less than 38.3 and also age is greater than 6 they are not a motive speaker.



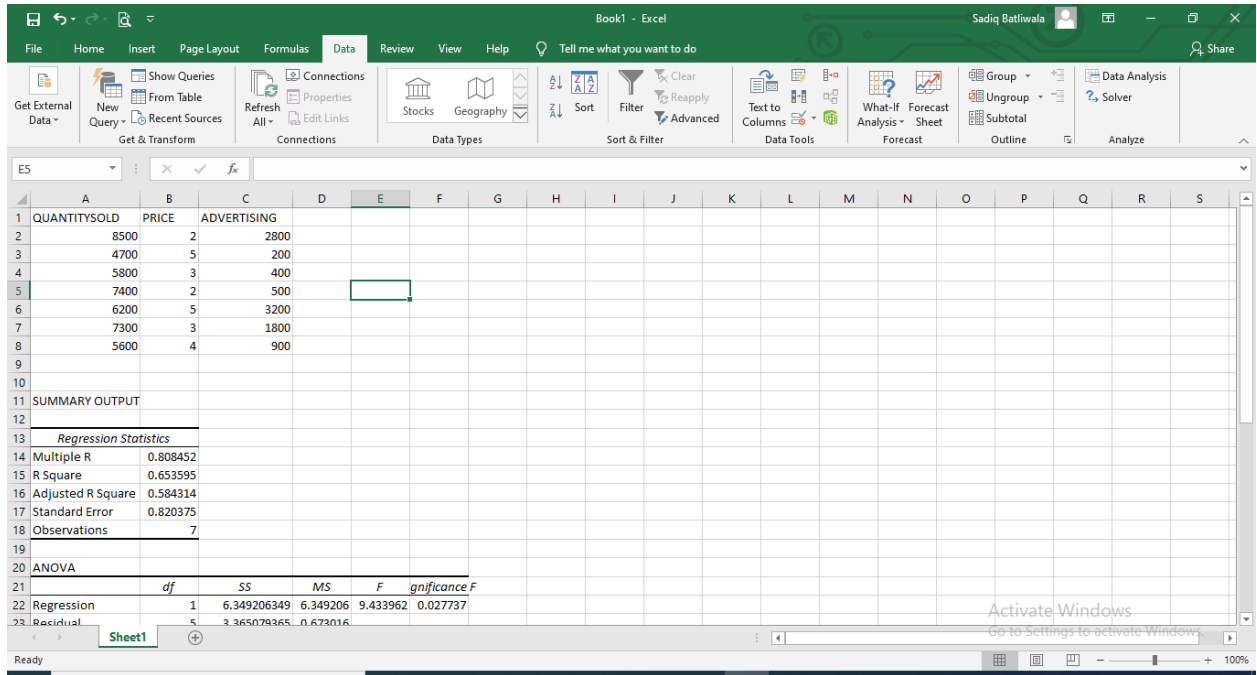
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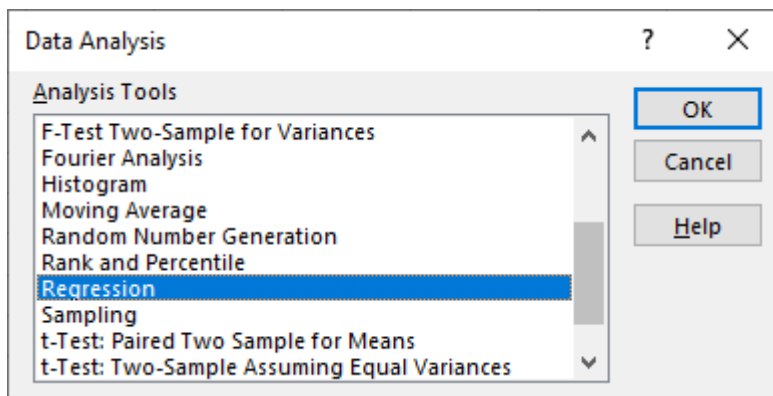
### PART C -> Linear Regression with Excel

#### Steps: -

##### 1. Import data into excel



##### 2. Apply Data Analysis -> Regression





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**Regression**

**Input**

Input Y Range:

Input X Range:

☒ Labels ☐ Constant is Zero

☐ Confidence Level:  %

**Output options**

☒ Output Range:

☐ New Worksheet Ply:

☐ New Workbook

**Residuals**

☒ Residuals ☐ Residual Plots

☐ Standardized Residuals ☐ Line Fit Plots

**Normal Probability**

☐ Normal Probability Plots

OK Cancel Help

Book1 - Excel

Sadiq Batliwala

File Home Insert Page Layout Formulas Data Review View Help Tell me what you want to do

Clipboard Font Alignment Number Styles Cells Editing

C45 =B27+B28\*A45+B29\*B45

SUMMARY OUTPUT										
Regression Statistics										
Multiple R	0.960681431									
R Square	0.961736068									
Adjusted R Square	0.942604102									
Standard Error	310.5239249									
Observations	7									
ANOVA										
	df	SS	MS	F	Significance F					
Regression	2	9694239.57	SE+06	50.269	0.0075					
Residual	4	385700.432	96425							
Total	6	10080000								
Coefficients										
		Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%		
Intercept	8536.213882	336.311746	22.062	2E-05	7462	9610.5	7462	9610.5		
PRICE	-835.7223514	99.6530447	-8.386	0.0011	-1112	-559	-1112	-559		
ADVERTISING	0.592228496	0.1043468	5.6756	0.0048	0.3025	0.8819	0.3025	0.8819		
RESIDUAL OUTPUT										
	Observation	Intercept	QUANTITY	Residuals						
	1	8536.213882	223.952175	-23.008367						
	2	4476.047825	223.952175	-465.33623						
	3	6265.938227	233.18513	-52.733311						
	4	7160.003421	204.94188	-126.33012						
	5	6252.733311	204.94188	-126.33012						
	6	7095.05812	204.94188	-126.33012						
	7	5726.330123	204.94188	-126.33012						
	PRICE	ADVERTISING	QUANTITY SOLD							
	4	3000	6970.003961							

Activate Windows  
Go to Settings to activate Windows.

Ready

# Kishinchand Chellaram College, Mumbai-2020

## FY / SY / TY B Sc. (I.T) Semester \_\_\_\_\_

3. Render the Output & Check the result -> APPLY Formula=B17+B18\*A36+B19\*B36

### SUMMARY OUTPUT

<i>Regression Statistics</i>	
Multiple R	0.980681
R Square	0.961736
Adjusted R Square	0.942604
Standard Error	310.5239
Observations	7

### ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	9694300	4847150	50.26854	0.001464
Residual	4	385700.4	96425.11		
Total	6	10080000			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95.0%</i>	<i>Upper 95.0%</i>
Intercept	8536.214	386.9117	22.06243	2.5E-05	7461.975	9610.453	7461.975	9610.453
Price	-835.722	99.65304	-8.38632	0.001106	-1112.4	-559.041	-1112.4	-559.041
Advertising	0.592228	0.104347	5.675579	0.004755	0.302515	0.881942	0.302515	0.881942

### RESIDUAL OUTPUT

<i>Observation</i>	<i>Predicted Quantity Sold</i>	<i>Residuals</i>
1	8523.009	-23.009
2	4476.048	223.9522
3	6265.938	-465.938
4	7160.883	239.1166
5	6252.733	-52.7333
6	7095.058	204.9419
7	5726.33	-126.33

Price	advertisement	quantity sold
4	3000	6970.01

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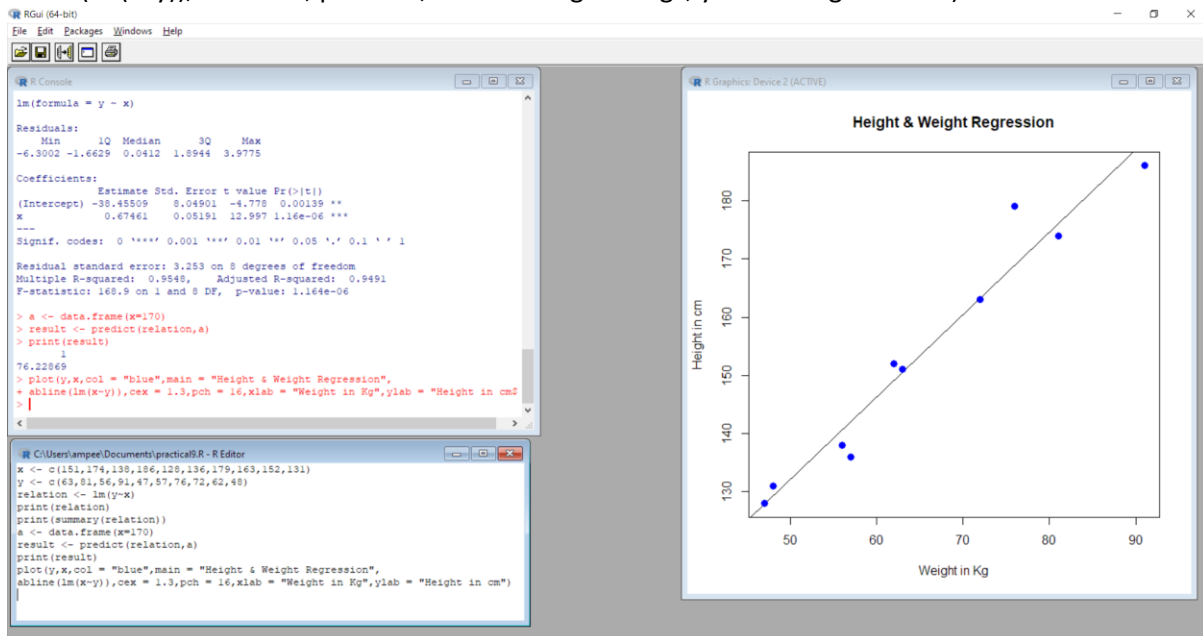
## FY / SY / TY B Sc. (I.T) Semester \_\_\_\_\_

### Practical No: - 9

**Aim:** - Perform the Linear regression on the given data warehouse data.

**Code:** -

```
x <- c (151,174,138,186,128,136,179,163,152,131)
y <- c (63,81,56,91,47,57,76,72,62,48)
relation <- lm(y~x)
print(relation)
print(summary(relation))
a <- data.frame(x=170)
result <- predict (relation, a)
print(result)
plot (y, x, col = "blue", main = "Height & Weight Regression",
abline(lm(x~y)), cex = 1.3, pch = 16, xlab = "Weight in Kg", ylab = "Height in cm")
```



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## FY / SY / TY B Sc. (I.T) Semester \_\_\_\_\_

### Practical No: - 10

**Aim:** - Perform the logistic regression on the given data warehouse data.

**Code:** -

```
bodysize=rnorm (20,30,2)
bodysize=sort(bodysize)
survive=c (0,0,0,0,0,1,0,1,0,0,1,1,0,1,1,1,0,1,1,1)
dat=as.data.frame (cbind (bodysize, survive))
dat
plot (bodysize, survive, xlab="Body size", ylab="Probability of survival")
g=glm (survive~bodysize, family=binomial, dat)
curve (predict (g, data.frame(bodysize=x), type="resp"), add=TRUE)
points (bodysize, fitted(g), pch=20)
```

