

**BHAVAN'S COLLEGE AUTONOMOUS, ANDHERI-WEST  
PRACTICAL JOURNAL**

**Class: SYIT(NEP)      Sem: III      Roll No.: SYIT-11**

**Date: 03-07-2025**

**Course Name: Business Intelligence(BI)**

**Page no:**

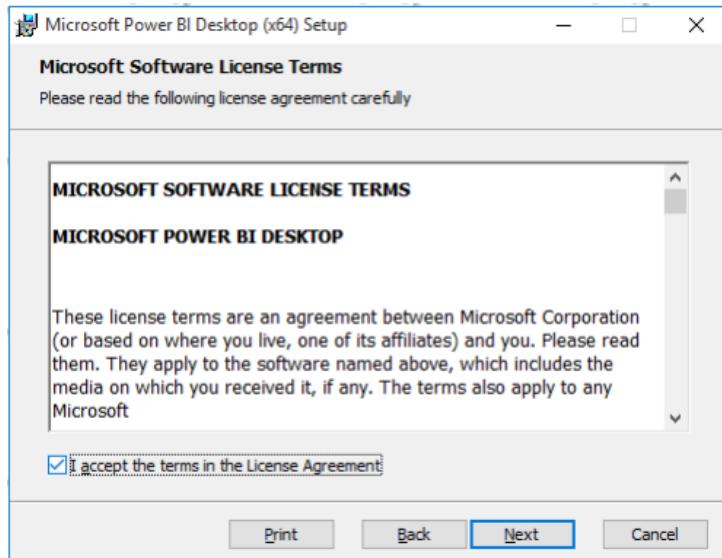
**Practical Number:-**

**Q1] Installation of SOL Server 2012 Full Version  
(SQLServer2012SP1-FullSlipstream-ENU-x86) and Power BI**

**Step 1:-** After downloading Power BI click on setup file  
Click Next.



**Step 2:-** Check on accept and click Next.



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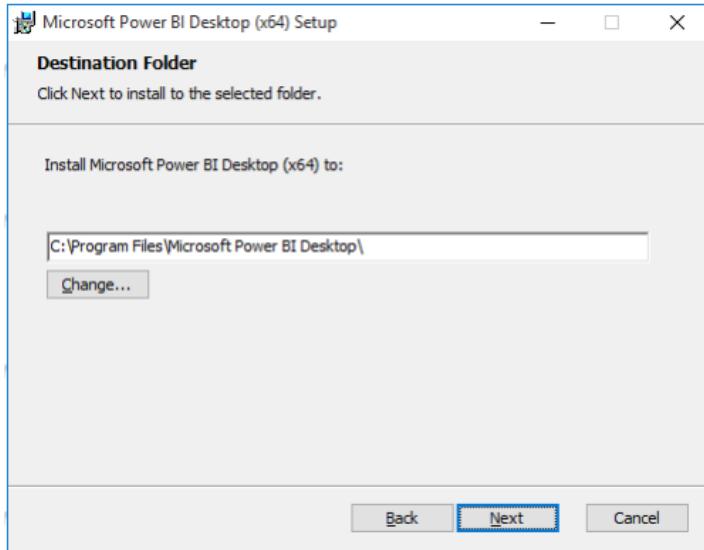
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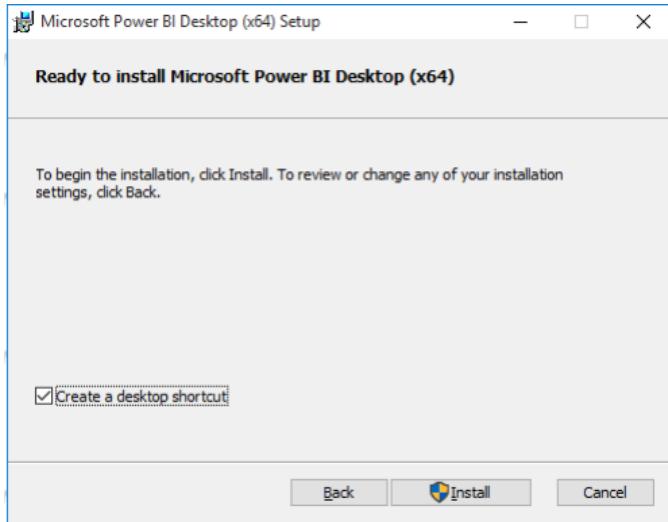
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### Step 3:- Click Next.



### Step 4:- Click on install.



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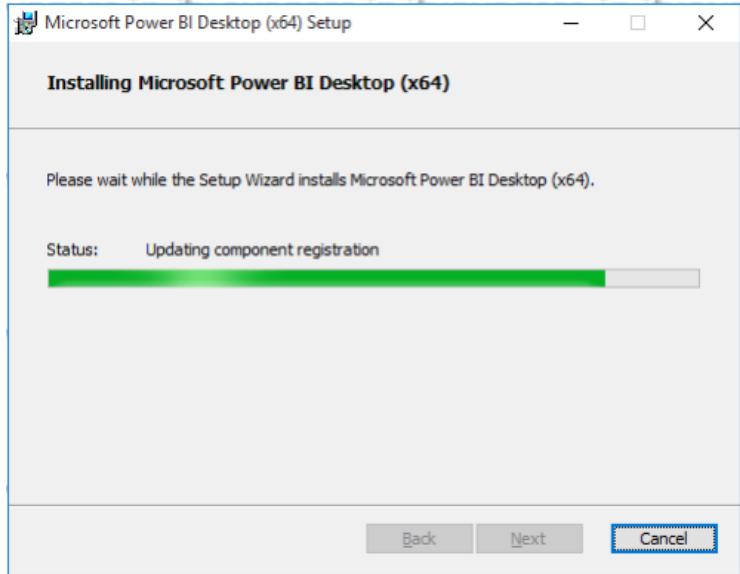
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**Step 5:- After process ends click on Finish.**



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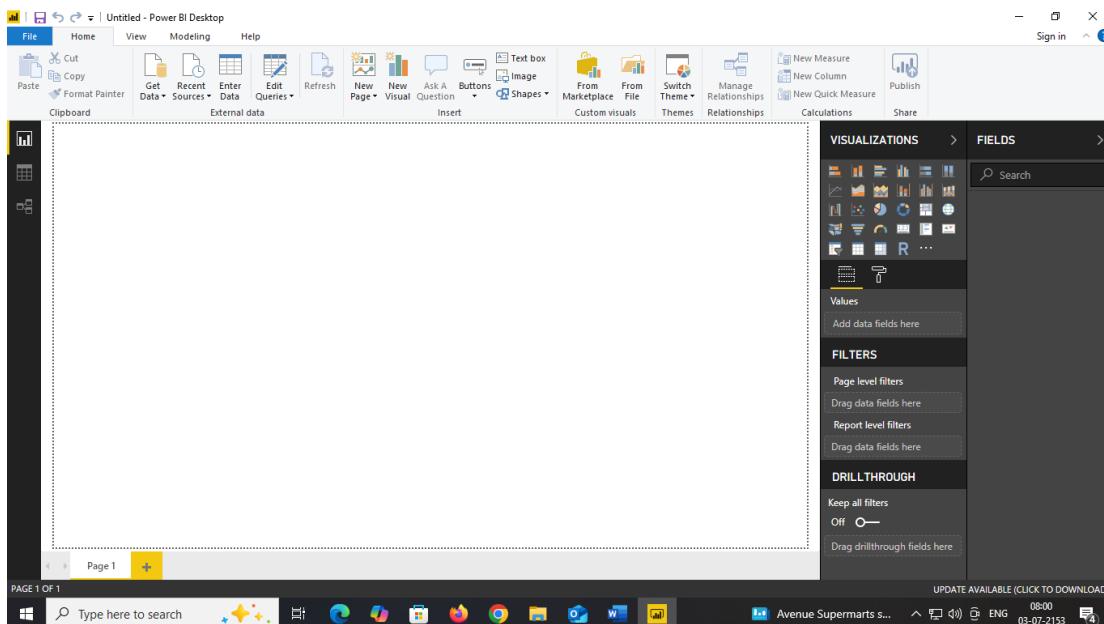
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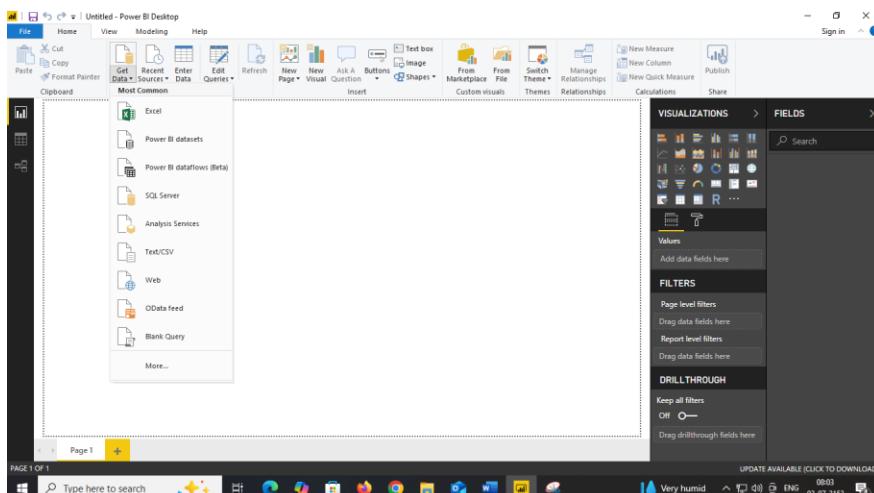
Practical Number:-

**Q2] Import the legacy data from different sources such as ( Excel , SQL Server, Oracle etc.) and load in the target system. ( You can download sample database such as Adventure works, Northwind, food mart etc.)**

**Step 1:- Open Power BI.**



**Step 2:- Click on Get data following list will be displayed → select Excel.**



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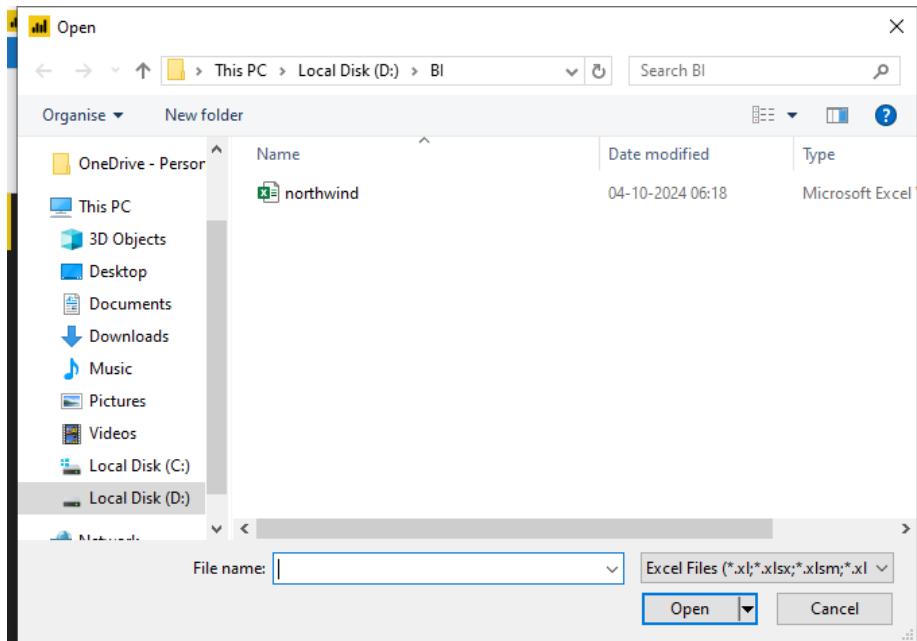
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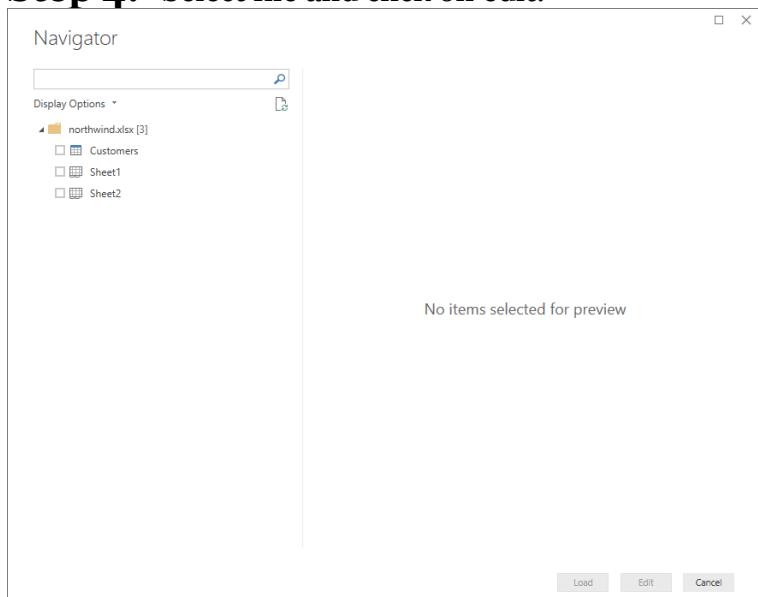
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**Step 3:-** Select required file and click on Open, Navigator screen appears.



**Step 4:-** Select file and click on edit.



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The screenshot shows the Microsoft Power Query Navigator window. On the left, there's a tree view of the 'northwind.xlsx' file, with 'Customers' selected. The main area displays the 'Customers' table with columns: ID, Company, Last Name, First Name, and E-mail Address. The table contains 23 rows of data. At the bottom are 'Load', 'Edit', and 'Cancel' buttons.

**Step 5:-** Power query editor appears.

The screenshot shows the Microsoft Power Query Editor window. The 'Queries [1]' pane on the left lists the 'Customers' query. The main area shows the 'Customers' table with 29 rows and 17 columns. The 'Applied Steps' pane on the right shows a single step: 'Changed Type'. The 'Properties' pane shows the name 'Customers'. The 'Preview' pane at the bottom right shows the data with the note 'PREVIEW DOWNLOADED AT 07:29'.

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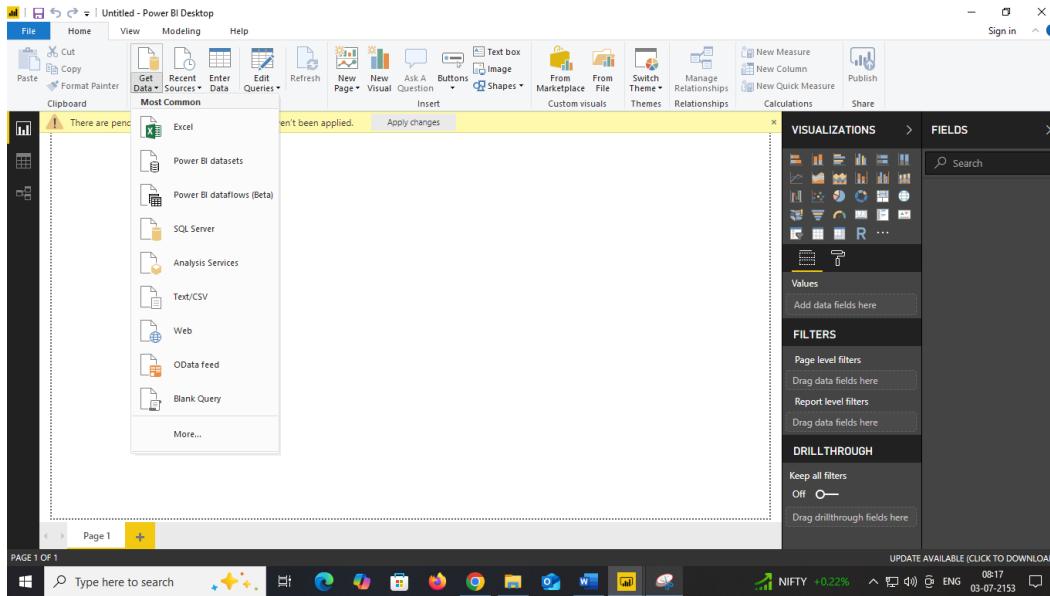
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**Step 6:-** Again, go to POWER BI DESKTOP page, Click on Get Data and select OData feed.



**Step 7:-** Paste url as <http://services.odata.org/V3/Northwind/Northwind.svc/>  
Click on ok.



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**Step 8:-** Select orders table And click on edit

Click on edit to view table.

**Note: If you just want to see preview you can just click on table name without clicking on checkbox.**

Navigator

The Navigator window displays a hierarchical list of tables from a Northwind OData service. The 'Orders' table is selected and highlighted with a yellow checkbox. Other tables like 'CustomerID', 'EmployeeID', 'OrderDate', and 'RequiredDate' are also visible in the table preview.

OrderID	CustomerID	EmployeeID	OrderDate	RequiredDate
10248	VINET	5	04-07-1996 00:00:00	01-08-199
10249	TOMSP	6	05-07-1996 00:00:00	16-08-199
10250	HANAR	4	08-07-1996 00:00:00	05-08-199
10251	VICTE	3	08-07-1996 00:00:00	05-08-199
10252	SUPRD	4	09-07-1996 00:00:00	06-08-199
10253	HANAR	3	10-07-1996 00:00:00	24-07-199
10254	CHOPS	5	11-07-1996 00:00:00	08-08-199
10255	RICSU	9	12-07-1996 00:00:00	09-08-199
10256	WELLI	3	15-07-1996 00:00:00	12-08-199
10257	HILAA	4	16-07-1996 00:00:00	13-08-199
10258	ERNSH	1	17-07-1996 00:00:00	14-08-199
10259	CENTC	4	18-07-1996 00:00:00	15-08-199
10260	OTTIK	4	19-07-1996 00:00:00	16-08-199
10261	QUEDE	4	19-07-1996 00:00:00	16-08-199
10262	RATTC	8	22-07-1996 00:00:00	19-08-199
10263	ERNSH	9	23-07-1996 00:00:00	20-08-199
10264	FOLKO	6	24-07-1996 00:00:00	21-08-199
10265	BLONP	2	25-07-1996 00:00:00	22-08-199
10266	WARTH	3	26-07-1996 00:00:00	06-09-199
10267	FRANK	4	29-07-1996 00:00:00	26-08-199
10268	GROSR	8	30-07-1996 00:00:00	27-08-199
10269	WHITC	5	31-07-1996 00:00:00	14-08-199
10270	WARTH	1	01-08-1996 00:00:00	29-08-199

Untitled - Power Query Editor

The Power Query Editor shows the 'Orders' query with 18 columns and 830 rows. The 'Navigation' step is applied under 'Applied Steps'. The 'Properties' pane shows the query is named 'Orders'.

OrderID	CustomerID	EmployeeID	OrderDate	RequiredDate	Shipped
10248	VINET	5	04-07-1996 00:00:00	01-08-1996 00:00:00	16-0
10249	TOMSP	6	05-07-1996 00:00:00	16-08-1996 00:00:00	10-0
10250	HANAR	4	08-07-1996 00:00:00	05-08-1996 00:00:00	12-0
10251	VICTE	3	08-07-1996 00:00:00	05-08-1996 00:00:00	15-0
10252	SUPRD	4	09-07-1996 00:00:00	06-08-1996 00:00:00	11-0
10253	HANAR	3	10-07-1996 00:00:00	24-07-1996 00:00:00	16-0
10254	CHOPS	5	11-07-1996 00:00:00	08-08-1996 00:00:00	23-0
10255	RICSU	9	12-07-1996 00:00:00	09-08-1996 00:00:00	15-0
10256	WELLI	3	15-07-1996 00:00:00	12-08-1996 00:00:00	17-0
10257	HILAA	4	16-07-1996 00:00:00	13-08-1996 00:00:00	22-0
10258	ERNSH	1	17-07-1996 00:00:00	14-08-1996 00:00:00	23-0
10259	CENTC	4	18-07-1996 00:00:00	15-08-1996 00:00:00	25-0
10260	OTTIK	4	19-07-1996 00:00:00	16-08-1996 00:00:00	29-0
10261	QUEDE	4	19-07-1996 00:00:00	16-08-1996 00:00:00	30-0
10262	RATTC	8	22-07-1996 00:00:00	19-08-1996 00:00:00	25-0
10263	ERNSH	9	23-07-1996 00:00:00	20-08-1996 00:00:00	31-0

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Course Name : BUSSINESS ANALYTICS(BA)

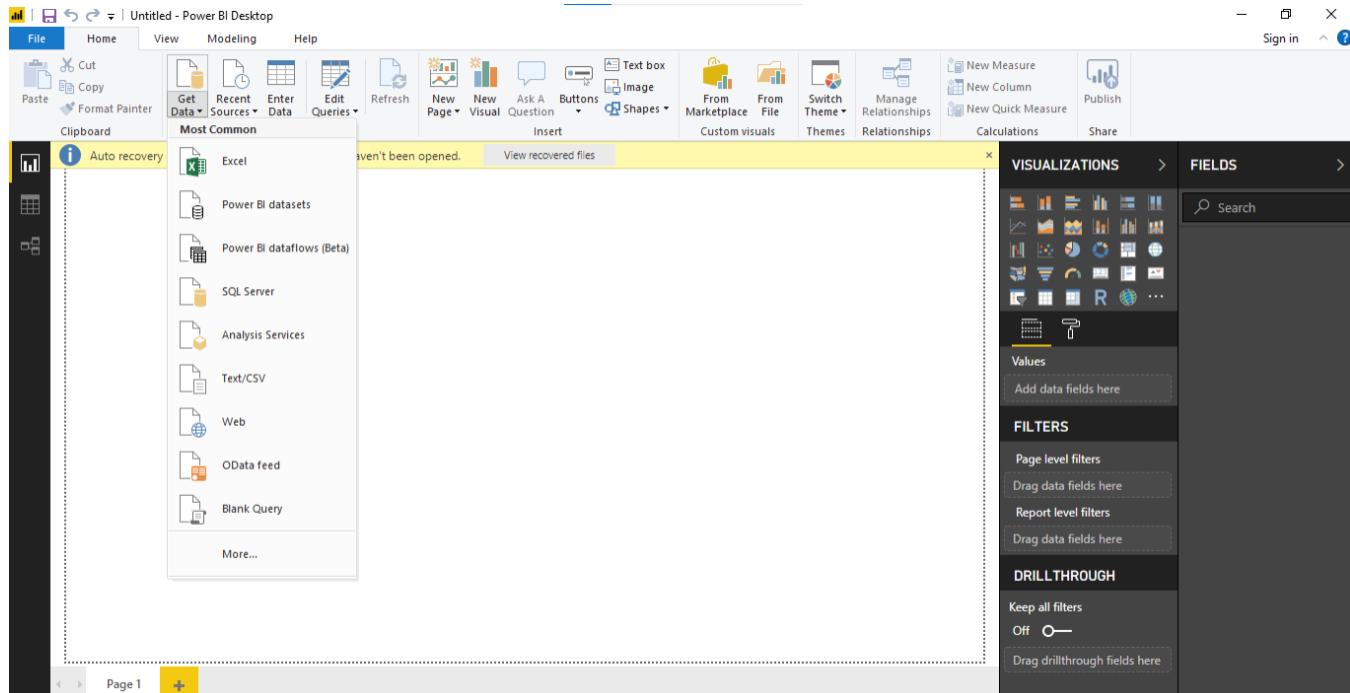
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Perform the Extraction Transformation and Loading (ETL) process to construct the database in the Power BI.

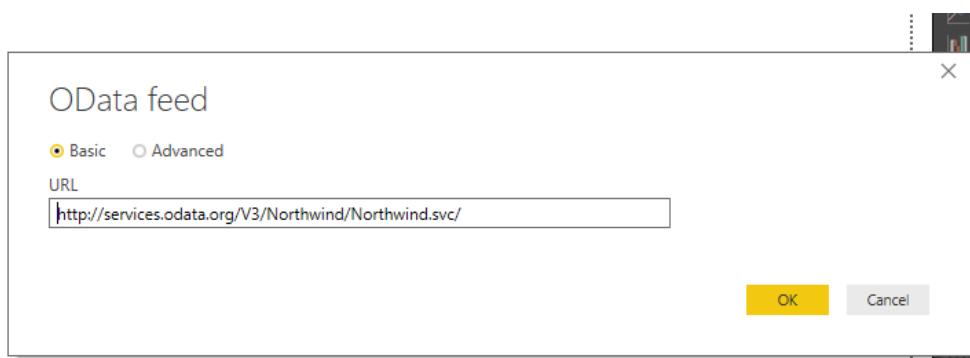
Here are the steps :

Step 1: Open Power BI, Click on Get Data → OData Feed.



Paste Url : <http://services.odata.org/V3/Northwind/Northwind.svc/>

And Click OK



Step 2: Click on Check Box of Products table and then click on Edit

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**Navigator**

Display Options ▾

Products

Preview downloaded on 01 July 2024

ProductID	ProductName	SupplierID	CategoryID	QuantityPerUnit	UnitPrice	UnitsInStock
1	Chai	1	1	10 boxes x 20 bags	18	
2	Chang	1	1	1 24 - 12 oz bottles	19	
3	Aniseed Syrup	1	2	12 - 550 ml bottles	10	
4	Chef Anton's Cajun Seasoning	2	2	48 - 6 oz jars	22	
5	Chef Anton's Gumbo Mix	2	2	36 boxes	21.35	
6	Grandma's Boysenberry Spread	3	2	12 - 8 oz jars	25	
7	Uncle Bob's Organic Dried Pears	3	7	12 - 1 lb pkgs.	30	
8	Northwoods Cranberry Sauce	3	2	12 - 12 oz jars	40	
9	Mishi Kobe Niku	4	6	18 - 500 g pkgs.	97	
10	Ikura	4	8	12 - 200 ml jars	31	
11	Queso Cabrales	5	4	1 kg pkg.	21	
12	Queso Manchego La Pastora	5	4	10 - 500 g pkgs.	38	
13	Konbu	6	8	2 kg box	6	
14	Tofu	6	7	40 - 100 g pkgs.	23.25	
15	Genen Shouyu	6	2	24 - 250 ml bottles	15.5	
16	Pavlova	7	3	32 - 500 g boxes	17.45	
17	Alice Mutton	7	6	20 - 1 kg tins	39	
18	Carnarvon Tigers	7	8	16 kg pkg.	62.5	
19	Teatime Chocolate Biscuits	8	3	10 boxes x 12 pieces	9.2	
20	Sir Rodney's Marmalade	8	3	30 gift boxes	81	
21	Sir Rodney's Scones	8	3	24 pkgs. x 4 pieces	10	
22	Gustaf's Knäckebrot	9	5	24 - 500 g pkgs.	21	
23	Tunnbröd	9	5	12 - 250 g pkgs.	9	

Select Related Tables

Load Edit Cancel

- Remove other columns to only display columns of interest In Query Editor, select the ProductID, ProductName, QuantityPerUnit, and UnitsInStock columns (use Ctrl+ Click to select more than one column, or Shift + Click to select columns that are beside each other).

**Untitled - Power Query Editor**

File Home Transform Add Column View Help

Close & Apply New Source Recent Sources Enter Data Data source settings Manage Parameters Refresh Preview Properties Advanced Editor Choose Columns Remove Columns Keep Rows Remove Rows Manage Columns Reduce Rows Sort Data Type: Any ▾ Use First Row as Headers ▾ Merge Queries Append Queries Combine Files Combine

Queries [3]

This preview may be up to 9 days old. Refresh

ProductID	ProductName	SupplierID	CategoryID	QuantityPerUnit	UnitPrice	UnitsInStock
1	Chai	1	1	10 boxes x 20 bags	18	
2	Chang	1	1	1 24 - 12 oz bottles	19	
3	Aniseed Syrup	1	2	12 - 550 ml bottles	10	
4	Chef Anton's Cajun Seasoning	2	2	48 - 6 oz jars	22	
5	Chef Anton's Gumbo Mix	2	2	36 boxes	21.35	
6	Grandma's Boysenberry Spread	3	2	12 - 8 oz jars	25	
7	Uncle Bob's Organic Dried Pears	3	7	12 - 1 lb pkgs.	30	
8	Northwoods Cranberry Sauce	3	2	12 - 12 oz jars	40	
9	Mishi Kobe Niku	4	6	18 - 500 g pkgs.	97	
10	Ikura	4	8	12 - 200 ml jars	31	
11	Queso Cabrales	5	4	1 kg pkg.	21	
12	Queso Manchego La Pastora	5	4	10 - 500 g pkgs.	38	
13	Konbu	6	8	2 kg box	6	
14	Tofu	6	7	40 - 100 g pkgs.	23.25	
15	Genen Shouyu	6	2	24 - 250 ml bottles	15.5	
16	Pavlova	7	3	32 - 500 g boxes	17.45	
17	Alice Mutton	7	6	20 - 1 kg tins	39	
18	Carnarvon Tigers	7	8	16 kg pkg.	62.5	
19	Teatime Chocolate Biscuits	8	3	10 boxes x 12 pieces	9.2	
20	Sir Rodney's Marmalade	8	3	30 gift boxes	81	
21	Sir Rodney's Scones	8	3	24 pkgs. x 4 pieces	10	
22	Gustaf's Knäckebrot	9	5	24 - 500 g pkgs.	21	
23	Tunnbröd	9	5	12 - 250 g pkgs.	9	

QUERY SETTINGS

Properties Name Products (3) All Properties

Applied Steps Source Navigation

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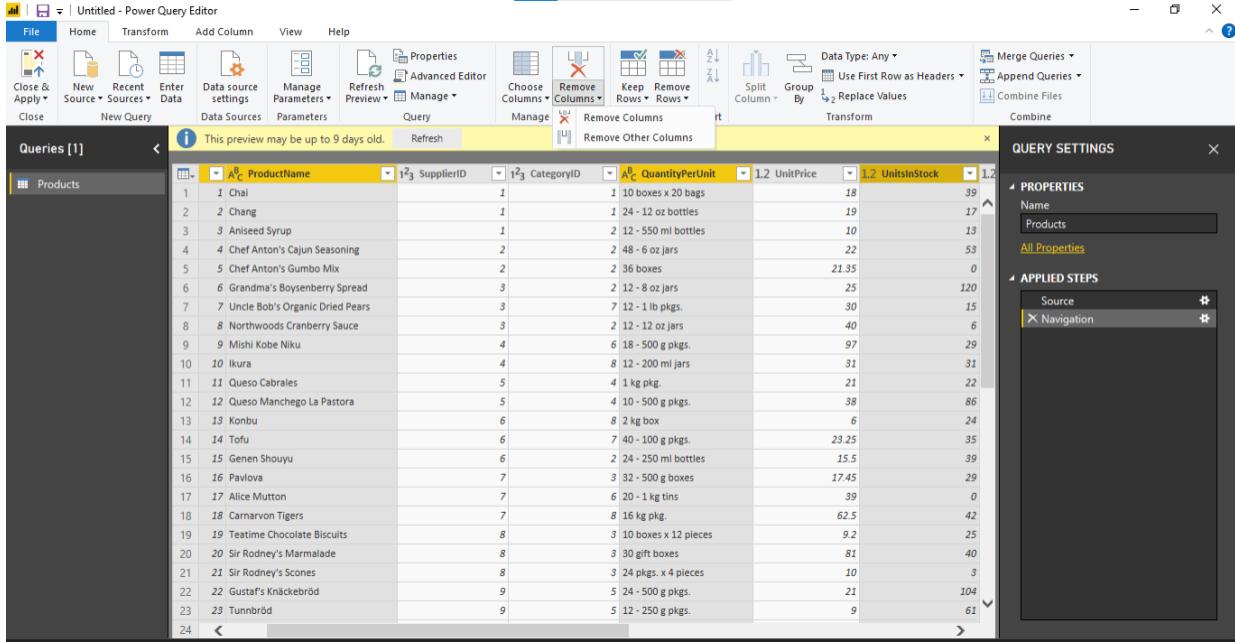
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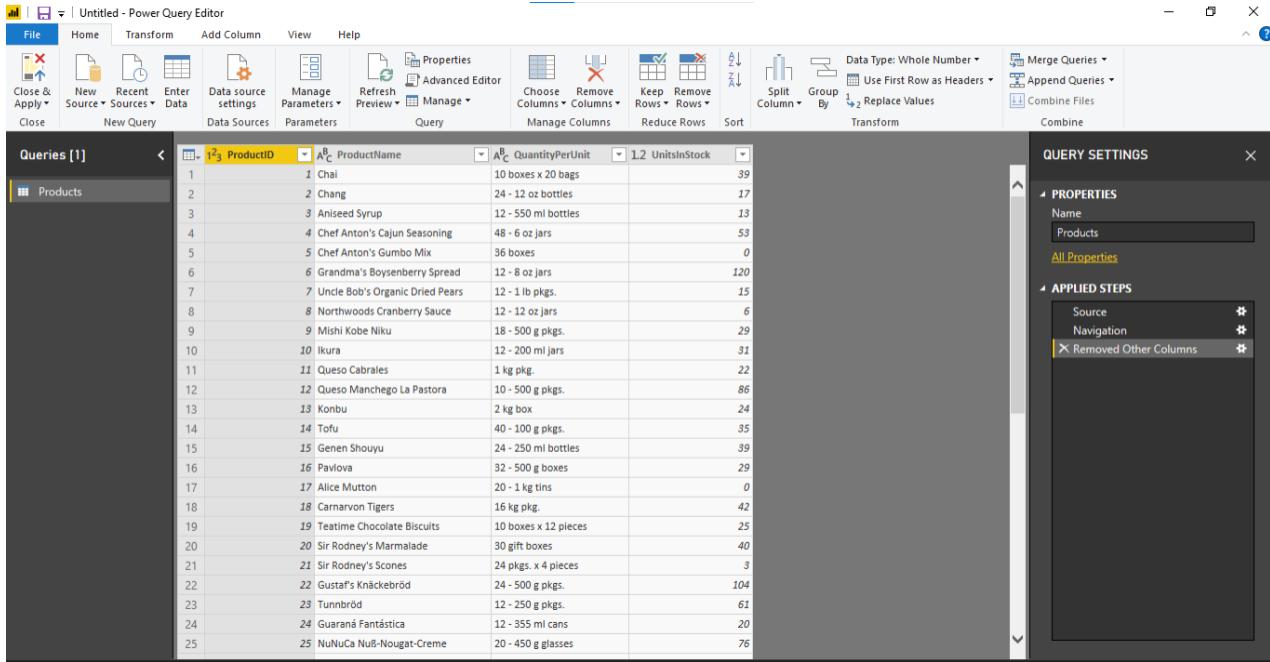
### Practical Number:- 03

Select Remove Columns > Remove Other Columns from the ribbon, or rightclick on a column header and click Remove Other Column



The screenshot shows the Power Query Editor interface. The ribbon is visible at the top with various tabs like File, Home, Transform, Add Column, View, and Help. In the Transform tab, the 'Remove Other Columns' button is highlighted. The main area displays a table of product data with columns: ProductID, ProductName, SupplierID, CategoryID, QuantityPerUnit, UnitPrice, and UnitsInStock. To the right, the 'QUERY SETTINGS' pane shows the 'APPLIED STEPS' section with a step labeled 'Navigation'. A tooltip indicates that this preview may be up to 9 days old.

After selecting Remove Other Columns only selected four columns are displayed other columns are discarded.



This screenshot shows the same Power Query Editor interface after the 'Remove Other Columns' step has been applied. The table now only contains four columns: ProductID, ProductName, QuantityPerUnit, and UnitsInStock. The 'QUERY SETTINGS' pane shows the 'APPLIED STEPS' section with a step labeled 'Removed Other Columns'.

2. Change the data type of the UnitsInStock column a) Select the UnitsInStock column.

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The screenshot shows the Power Query Editor interface with the 'Products' query selected. The 'UnitsInStock' column header is currently set to 'Decimal Number'. The 'Data Type' dropdown in the ribbon is open, displaying various options including 'Whole Number'. The 'QUERY SETTINGS' pane on the right shows the query name as 'Products' and the applied step 'Removed Other Columns'.

b) Select the Data Type drop-down button in the Home ribbon.

c) If not already a Whole Number, select Whole Number for data type from the drop down (the Data Type: button also displays the data type for the current selection).

The screenshot shows the Power Query Editor interface with the 'Products' query selected. The 'UnitsInStock' column header is now explicitly labeled as 'Whole Number'. The 'Data Type' dropdown in the ribbon is closed, showing 'Whole Number' as the selected option. The 'QUERY SETTINGS' pane on the right shows the query name as 'Products' and the applied step 'Removed Other Columns'.

After clicking on Whole number, you can see the changed Datatype in column header of UnitsInStock.

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The screenshot shows the Power Query Editor interface. On the left, the 'Queries [1]' pane lists a single query named 'Products'. The main area displays a table with 25 rows of product data. The columns are labeled 'ProductID', 'ProductName', 'QuantityPerUnit', and 'UnitsInStock'. The 'UnitsInStock' column is currently selected. On the right, the 'QUERY SETTINGS' pane is open, showing the 'APPLIED STEPS' section where the 'Source' step has been changed from its original state to 'Changed Type'.

ProductID	ProductName	QuantityPerUnit	UnitsInStock
1	Chai	10 boxes x 20 bags	39
2	Chang	24 - 12 oz bottles	17
3	Aniseed Syrup	12 - 550 ml bottles	13
4	Chef Anton's Cajun Seasoning	48 - 6 oz jars	53
5	Chef Anton's Gumbo Mix	36 boxes	0
6	Grandma's Boysenberry Spread	12 - 8 oz jars	120
7	Uncle Bob's Organic Dried Pears	12 - 1 lb pkgs.	15
8	Northwoods Cranberry Sauce	12 - 12 oz jars	6
9	Mishi Kobe Niku	18 - 500 g pkgs.	29
10	Ikura	12 - 200 ml jars	31
11	Queso Cabrales	1 kg pkgs.	22
12	Queso Manchego La Pastora	10 - 500 g pkgs.	86
13	Konbu	2 kg box	24
14	Tofu	40 - 100 g pkgs.	35
15	Genen Shouyu	24 - 250 ml bottles	39
16	Pavlova	32 - 500 g boxes	29
17	Alice Mutton	20 - 1 kg tins	0
18	Carnarvon Tigers	16 kg pkg.	42
19	Teatime Chocolate Biscuits	10 boxes x 12 pieces	25
20	Sir Rodney's Marmalade	50 gift boxes	40
21	Sir Rodney's Scones	24 pkgs. x 4 pieces	3
22	Gustaf's Knäckebrot	24 - 500 g pkgs.	104
23	Tunnbrod	12 - 250 g pkgs.	61
24	Guaraná Fantástica	12 - 355 ml cans	20
25	NuNuCa Nüß-Nougat-Creme	20 - 450 g glasses	76

After above step, close query editor and click on Yes to save changes. Now you can view fields of Products table on right side, check all the fields of table to get representation in charts form.

The screenshot shows the Power BI Desktop interface. The top navigation bar includes File, Home, View, Modeling, Help, Format, and Data/Drill. The main workspace contains a 'Stacked column chart' visual with four bars of varying heights. To the right, the 'FIELDS' pane is open, showing the 'Products' table with four columns: ProductID, ProductName, QuantityPerUnit, and UnitsInStock. The 'Visual tools' ribbon is also visible at the top.

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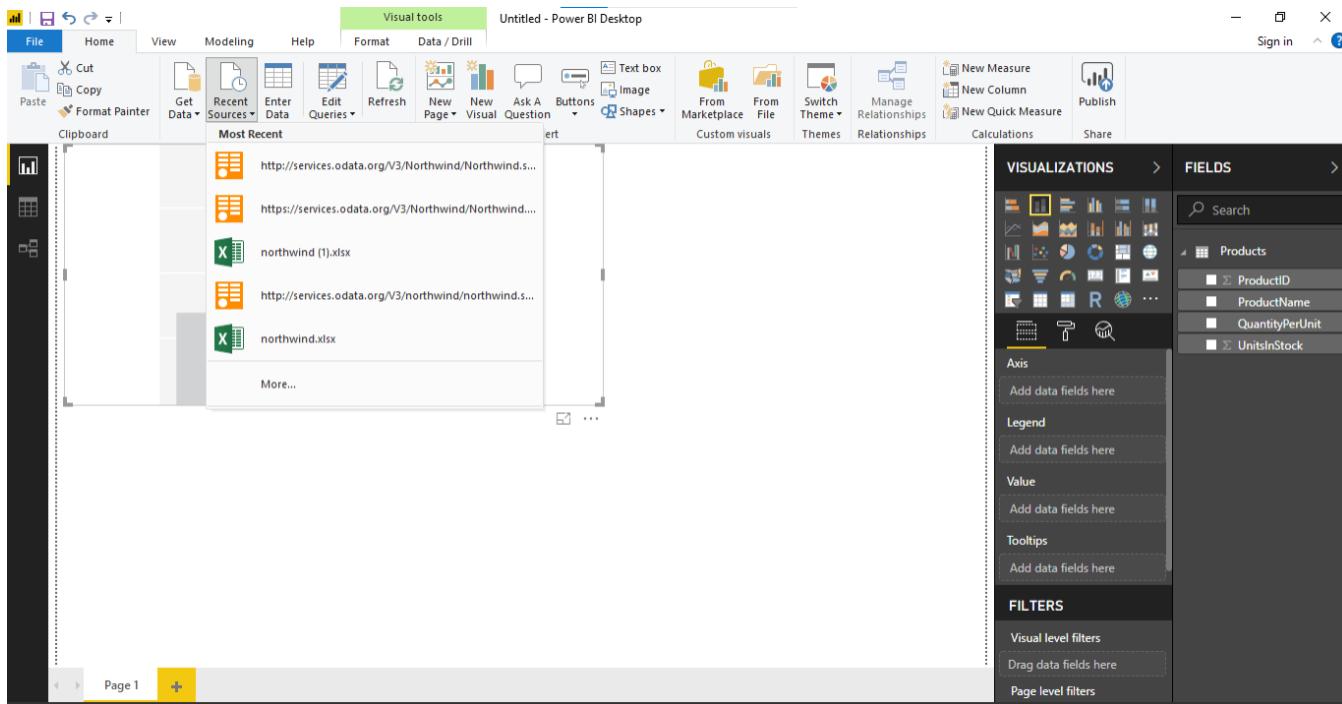
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3. Expand the Orders table Once You have loaded a data source, you can click on Recent Sources to select desired table (Orders).



After selecting the URL, Navigator window will appear from which you can select Orders table.  
Click on Edit

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The screenshot shows the Microsoft Power BI interface. On the left, the 'Navigator' pane displays a hierarchical list of tables from the Northwind ODATA service. The 'Orders' table is selected, indicated by a checked checkbox next to its name. Other tables listed include Alphabetical\_list\_of\_products, Categories, Category\_Sales\_for\_1997, Current\_Product\_Lists, Customer\_and\_Suppliers\_by\_Cities, CustomerDemographics, Customers, Employees, Invoices, Order\_Details, Order\_Details\_Extended, Order\_Subtotals, and Regions. Below the Navigator is a 'Select Related Tables' button. To the right, the 'Orders' preview window is open, showing a table with columns: OrderID, CustomerID, EmployeeID, OrderDate, RequiredDate, ShippedDate, and ShipVia. The data consists of 28 rows of order information from July 1996. At the bottom of the preview window are 'Load', 'Edit', and 'Cancel' buttons.

Query Editor Window will appear

1. In the Query View, scroll to the Order\_Details column.
2. In the Order\_Details column, select the expand icon .
3. In the Expand drop-down:
  - a. Select (Select All Columns) to clear all columns.
  - b. Select ProductID, UnitPrice, and Quantity.
  - c. Click OK.

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Queries [2]

**Order\_Details**

ShipRegion	ShipPostalCode	ShipCountry	Customer	Employee	OrderID	Shipper
null	51100	France				
null	44087	Germany				
RJ	05454-876	Brazil				
null	69004	France				
null	B-6000	Belgium				
RJ	05454-876	Brazil				
null	3012	Switzerland				
null	1204	Switzerland				
SP	08737-363	Brazil				
Tâchira	5022	Venezuela				
null	8010	Austria				
null	05022	Mexico				
null	50739	Germany				
RJ	02389-673	Brazil				
NM	87110	USA	Record	Table		
null	8010	Austria	Record	Table		
null	5-844 67	Sweden	Record	Table		
null	67000	France	Record	Table		
null	90110	Finland	Record	Table		
null	80805	Germany	Record	Table		
DF	1081	Venezuela	Record	Table		
WA	98124	USA	Record	Table		
null	90110	Finland	Record	Table		

SEARCH COLUMNS TO EXPAND

Expand Aggregate (Select All Columns) OrderID ProductID UnitPrice Quantity Discount Order Product

OK Cancel Use original column name as prefix

PREVIEW DOWNLOADED ON 01 JULY 2024

After clicking on OK following screen appears with combined columns.

This preview may be up to 9 days old. Refresh

Queries [2]

**Order\_Details**

Customer	Employee	OrderID	UnitPrice	Quantity	Shipper
rd	Record	11	14	12	Record
rd	Record	42	9.8	10	Record
rd	Record	72	34.8	5	Record
rd	Record	14	18.6	9	Record
rd	Record	51	42.4	40	Record
rd	Record	41	7.7	10	Record
rd	Record	51	42.4	35	Record
rd	Record	65	16.8	15	Record
rd	Record	22	16.8	6	Record
rd	Record	57	15.6	15	Record
rd	Record	65	16.8	20	Record
rd	Record	20	64.8	40	Record
rd	Record	33	2	25	Record
rd	Record	60	27.2	40	Record
rd	Record	31	10	20	Record
rd	Record	39	14.4	42	Record
rd	Record	49	16	40	Record
rd	Record	24	3.6	15	Record
rd	Record	55	19.2	21	Record
rd	Record	74	8	21	Record
rd	Record	2	15.2	20	Record
rd	Record	16	13.9	35	Record
rd	Record	36	15.2	25	Record
rd	Record	59	44	30	Record

QUERY SETTINGS

PROPERTIES

APPLIED STEPS

Source Navigation Expanded Order\_Details

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4. Calculate the line total for each Order\_Details row Power BI Desktop lets you to create calculations based on

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## PRACTICAL JOURNAL

Class :SYIT (NEP)      Sem: III      Roll No.: SYIT40

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the columns you are importing, so you can enrich the data that you connect to. In this step, you create a Custom Column to calculate the line total for each Order\_Details row.

Calculate the line total for each Order\_Details row:

- In the Add Column ribbon tab, click Add Custom Column.

The screenshot shows the Microsoft Power Query Editor interface. The 'File' tab is selected. The ribbon has tabs for 'Home', 'Transform', 'Add Column', 'View', and 'Help'. Under the 'Add Column' tab, there are buttons for 'Conditional Column', 'Merge Columns', 'Index Column', 'Format', 'Parse', 'From Text', 'From Number', 'Statistics', 'Standard', 'Scientific', 'Rounding', 'Information', 'Date', 'Time', 'Duration', and 'From Date & Time'. On the left, the 'Queries [2]' pane shows 'Products' and 'Orders'. The main area displays a table with columns: Customer, Employee, Order\_Details.ProductID, Order\_Details.UnitPrice, and Order\_Details.Quantity. The 'Order\_Details' column contains values like 11, 42, 72, etc. The 'Quantity' column contains values like 14, 9.8, 34.8, etc. The 'UnitPrice' column contains values like 16.8, 16.8, 15.6, etc. The 'ProductID' column contains values like 1, 2, 3, etc. The 'Record' column contains values like Record, Record, Record, etc. The 'Shipper' column contains values like Record, Record, Record, etc. The 'Properties' pane on the right shows the query name 'Orders' and the applied step 'Expanded Order\_Details'. The status bar at the bottom right says 'PREVIEW DOWNLOADED ON 01 JULY 2024'.

- In the Custom Column dialog box, in the Custom Column Formula textbox, enter [Order\_Details.UnitPrice] \* [Order\_Details.Quantity] by selecting from available columns and click on insert for each column.
- In the New column name textbox, enter LineTotal.
- Click OK.

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# BHAVAN'S COLLEGE AUTONOMOUS, ANDHERI-WEST

## PRACTICAL JOURNAL

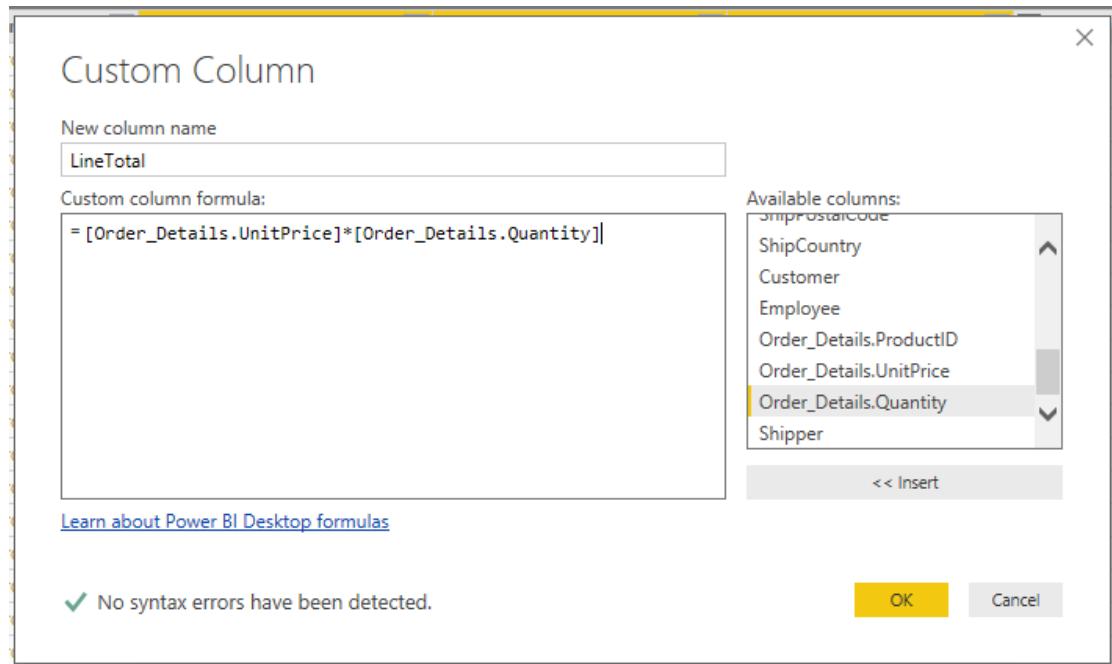
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Untitled - Power Query Editor

File Home Transform Add Column View Help

Column Examples From Custom Invoke Custom Function General Conditional Column Index Column Duplicate Column Format From Text From Number Statistics Standard Scientific Trigonometry Rounding Date Time Duration From Date & Time

Queries [2] Orders

	Employee	Order_Details.ProductID	Order_Details.UnitPrice	Order_Details.Quantity	Shipper	LineTotal
1	1	11	14	12	Record	168
2	3	42	9.8	10	Record	98
3	1	72	34.8	5	Record	174
4	1	14	18.6	9	Record	167.4
5	3	51	42.4	40	Record	1696
6	3	41	7.7	10	Record	77
7	3	51	42.4	35	Record	1484
8	1	65	16.8	15	Record	252
9	3	22	16.8	6	Record	100.8
10	1	57	15.6	15	Record	234
11	3	65	16.8	20	Record	336
12	3	20	64.8	40	Record	2592
13	3	33	2	25	Record	50
14	3	60	27.2	40	Record	1088
15	3	31	10	20	Record	200
16	3	39	14.4	42	Record	604.8
17	3	49	16	40	Record	640
18	3	24	3.6	15	Record	54
19	3	55	19.2	21	Record	403.2
20	3	74	8	21	Record	168
21	3	2	15.2	20	Record	304
22	3	16	13.9	35	Record	486.5
23	3	36	15.2	25	Record	380
24	3	59	44	30	Record	1320
25	3	29	24.2	15	Record	363

21 COLUMNS, 999+ ROWS

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QUERY SETTINGS

Properties  
Name: Orders  
All Properties

Applied Steps  
Source, Navigation, Expanded Order\_Details, Added Custom

5. Rename and reorder columns in the query In this step you finish making the model easy to work with when creating reports, by renaming the final columns and changing their order.

a) In Query Editor, drag the LineTotal column to the left, after ShipCountry.

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21 COLUMNS, 999+ ROWS

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- c) Remove the Order\_Details. prefix from the Order\_Details.ProductID, Order\_Details.UnitPrice and Order\_Details.Quantity columns, by double-clicking on each column header, and then deleting that text from the column name.

21 COLUMNS, 999+ ROWS

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6. Combine the Products and Total Sales queries Power BI Desktop does not require you to combine queries to report on them. Instead, you can create relationships between datasets. These relationships can be created on any column that is common to your datasets. We have Orders and Products data that share a common 'ProductID' field, so we need to ensure there's a relationship between them in the model we're using with Power BI Desktop. Simply specify in Power BI Desktop that the columns from each table are related (i.e. columns that have the same values). Power BI Desktop works out the direction and cardinality of the relationship for you. In some cases, it will even detect the relationships automatically. In this task, you confirm that a relationship is established in Power BI Desktop between the Products and Total Sales queries Step 1: Confirm the relationship between Products and Total Sales 1. First, we need to load the model that we created in Query Editor into Power BI Desktop. From the Home ribbon of Query Editor, select Close & Apply.

The screenshot shows the Power BI Query Editor interface. On the left, there are two tables: 'Products' and 'Orders'. The 'Products' table is currently selected. The main area displays the 'Products' table with columns: Country, ABC 123 LineTotal, Customer, Employee, ProductID, UnitPrice, and Quantity. The 'Quantity' column is highlighted in yellow. The 'QUERY SETTINGS' pane on the right shows the 'Name' is set to 'Orders'. Under 'APPLIED STEPS', the steps listed are: Source, Navigation, Expanded Order\_Details, Added Custom, and Reordered Columns. The step 'Renamed Columns' is expanded, showing the original column names and the renamed ones. The status bar at the bottom indicates '21 COLUMNS, 999+ ROWS' and 'PREVIEW DOWNLOADED ON 01 JULY 2024'.

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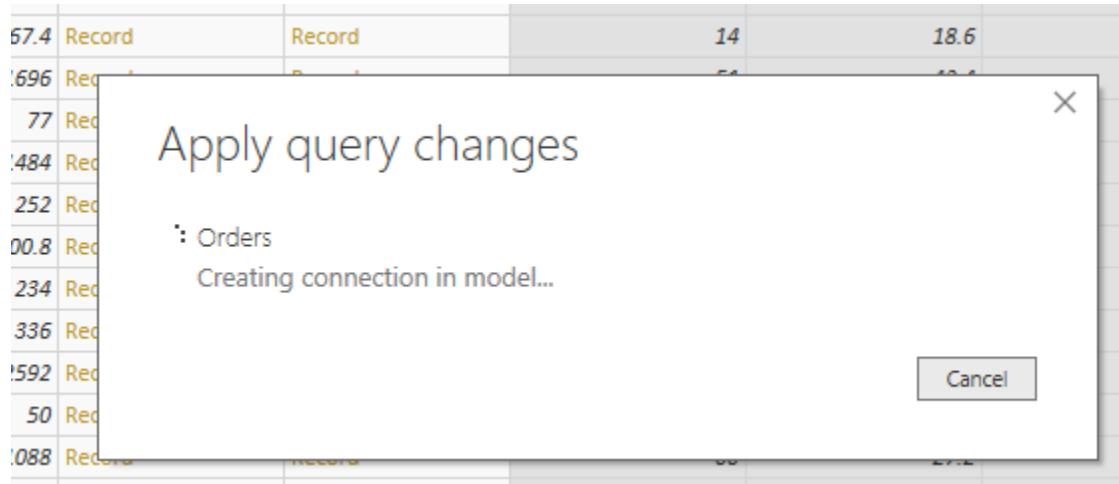
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A screenshot of the Power BI Desktop interface. The ribbon is visible at the top with tabs like File, Home, View, Modeling, Help, Format, and Data / Drill. The "Format" tab is currently selected. On the right side, the "FIELDS" pane is open, showing a tree view of data sources: Orders and Products. Under Products, four fields are listed: ProductID, ProductName, QuantityPerUnit, and UnitsInStock. Below the Fields pane, there are sections for Axis, Legend, Value, Tooltips, and Filters, each with placeholder text "Add data fields here". The status bar at the bottom shows "PAGE 1 OF 1" and "UPDATE AVAILABLE (CLICK TO DOWNLOAD)".

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Manage relationships

Active	From: Table (Column)	To: Table (Column)
<input checked="" type="checkbox"/>	Orders (ProductID)	Products (ProductID)

New... Autodetect... Edit... Delete Close

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### Edit relationship

Select tables and columns that are related.

Products

ProductID	ProductName	QuantityPerUnit	UnitsInStock
1	Chai	10 boxes x 20 bags	39
2	Chang	24 - 12 oz bottles	17
3	Aniseed Syrup	12 - 550 ml bottles	13

Orders

Name	ShipAddress	ShipCity	ShipRegion	ShipPostalCode	ShipCountry	LineTotal	ProductID	Un
K-Stop	Taucherstraße 10	Cunewalde	null	01307	Germany	595.2	10	
K-Stop	Taucherstraße 10	Cunewalde	null	01307	Germany	150	31	
K-Stop	Taucherstraße 10	Cunewalde	null	01307	Germany	40	33	

Cardinality

Cross filter direction

One to many (1:\*)

Single

Make this relationship active

Apply security filter in both directions

Assume referential integrity

OK

Cancel

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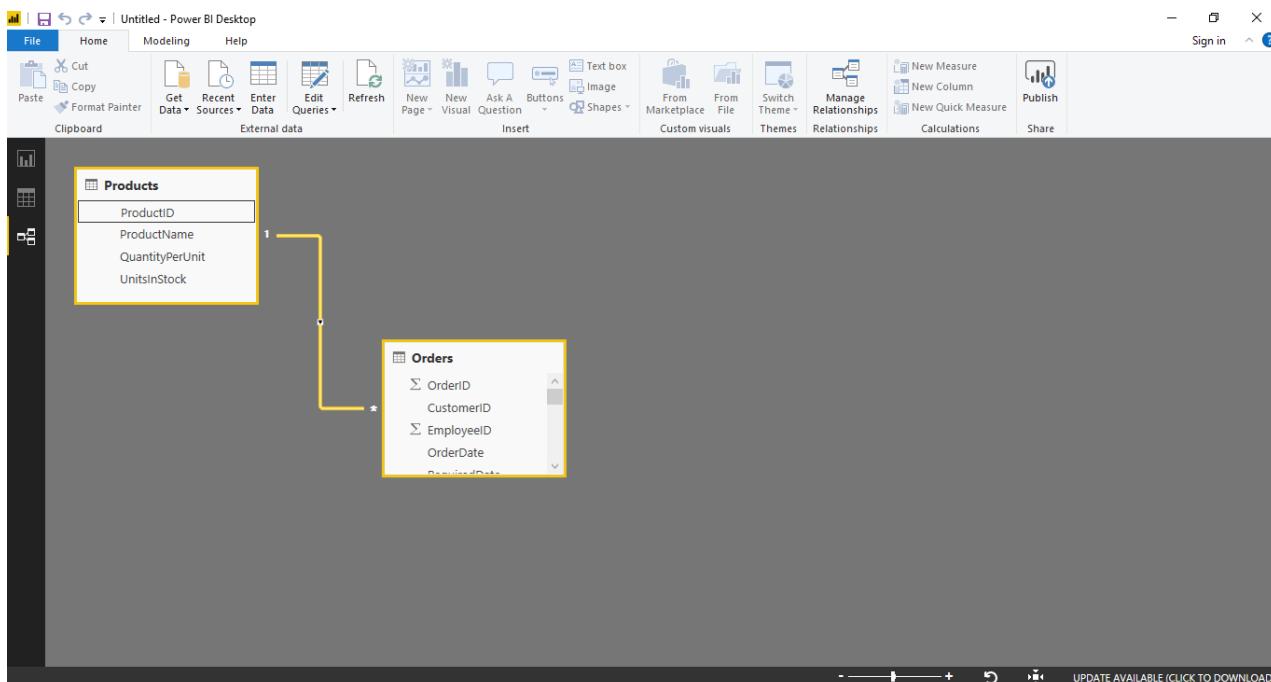
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The screenshot shows the Power BI Desktop interface with the 'Home' tab selected. A 'Stacked column chart' visual is open in the workspace. The 'FIELDS' pane on the right is expanded, showing the 'Products' table with fields: ProductID, ProductName, QuantityPerUnit, and UnitsInStock. The 'ZATIONS' pane is also visible.



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### Edit relationship

Select tables and columns that are related.

Orders

OrderID	CustomerID	EmployeeID	OrderDate	RequiredDate	ShippedDate	ShipVia
10273	QUICK	3	05/08/1996 00:00:00	02/09/1996 00:00:00	12/08/1996 00:00:00	3
10273	QUICK	3	05/08/1996 00:00:00	02/09/1996 00:00:00	12/08/1996 00:00:00	3
10273	QUICK	3	05/08/1996 00:00:00	02/09/1996 00:00:00	12/08/1996 00:00:00	3

Products

ProductID	ProductName	QuantityPerUnit	UnitsInStock
1	Chai	10 boxes x 20 bags	39
2	Chang	24 - 12 oz bottles	17
3	Aniseed Syrup	12 - 550 ml bottles	13

Cardinality

Cross filter direction

Many to one (\*:1)

Single

Make this relationship active

Apply security filter in both directions

Assume referential integrity

OK

Cancel

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# BHAVAN'S COLLEGE AUTONOMOUS, ANDHERI-WEST

## PRACTICAL JOURNAL

Class: **SYIT** Sem: III Roll No.: **SYIT-27**

Date : **25-07-25**

Course Name : **Business Analytics**

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

**Step 1:- Open SQL SERVER MANAGEMNET STUDIO and copy server name**

Now click on connect



Delete the Sales\_DW

**Step 2:-** Go to file manager and import **Data\_Warehouse\_SQL Script** code in SQL SERVER MANAGEMNET STUDIO and execute, close, SQL SERVER MANAGEMNET STUDIO and re-open it than you will able to see Sales\_DW.

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## PRACTICAL JOURNAL

**Class: SYIT**    **Sem: III**    **Roll No.: SYIT-27**

Date : 25-07-25

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Data Warehouse SQLScript.sql - [ReadOnly]DESKTOP-6RNQ21\master (sa (56)) - Microsoft SQL Server Management Studio

File Edit View Query Project Debug Tools Window Help

master Data Warehouse SQL\_11.master (sa) a

```
--DROP DATABASE Sales_DW
GO
Create database Sales_DW
Go

Use Sales_DW
Go

--Create Customer dimension table in Data Warehouse which will hold customer personal details.

Create table DimCustomer
(
    CustomerID int primary key identity,
    CustomerAltID varchar(10) not null,
    CustomerName varchar(50),
    Gender varchar(20)
)
go

--Fill the Customer dimension with sample Values

Insert into DimCustomer(CustomerAltID,CustomerName,Gender)values
('IMI-001','Henry Ford','M'),
('IMI-002','Bill Gates','M'),
('IMI-003','Muskun Shaikh','F'),
('IMI-004','Richard Thribin','M'),
('IMI-005','Emma Wattson','F');
Go

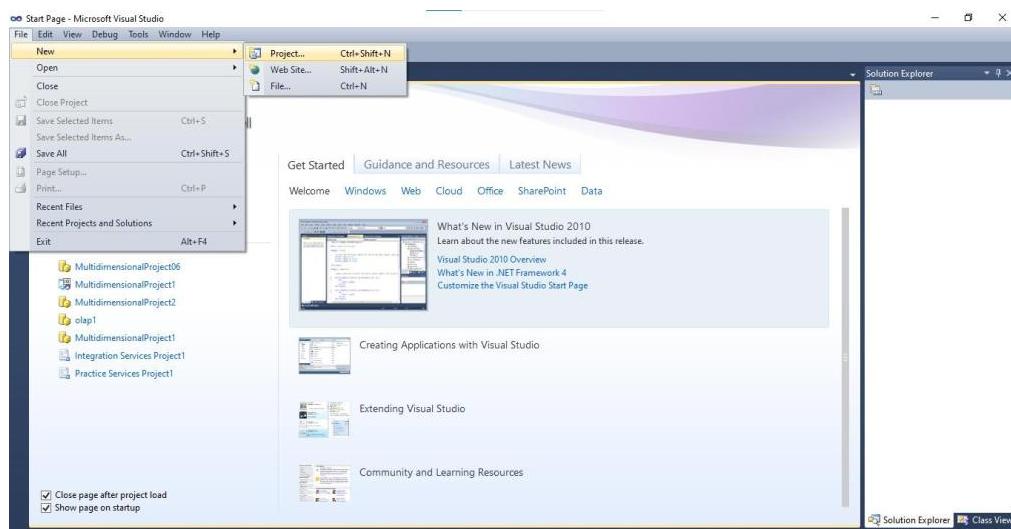
--Create basic level of Product Dimension table without considering any Category or Subcategory.

Create table DimProduct
(
)
```

Calendar Data													
	DateKey	Date	FullDateUK	FullDateUSA	DayOfMonth	DaySuffix	DayName	DayOfWeekUSA	DayOfWeekUK	DayOfWeekInMonth	DayOfWeekInYear	DayOfQuarter	DayOfYear
1	20130101	2013-01-01 00:00:00.000	01/01/2013	01/01/2013	1	1st	Tuesday	3	2	1	1	1	1
2	20130102	2013-01-02 00:00:00.000	02/01/2013	01/02/2013	2	2nd	Wednesday	4	3	1	1	1	1
3	20130103	2013-01-03 00:00:00.000	03/01/2013	01/03/2013	3	3rd	Thursday	5	4	1	1	1	1
4	20130104	2013-01-04 00:00:00.000	04/01/2013	01/04/2013	4	4th	Friday	6	5	1	1	1	1
5	20130105	2013-01-05 00:00:00.000	05/01/2013	01/05/2013	5	5th	Saturday	7	6	1	1	1	1
6	20130106	2013-01-06 00:00:00.000	06/01/2013	01/06/2013	6	6th	Sunday	1	7	1	1	1	1
7	20130107	2013-01-07 00:00:00.000	07/01/2013	01/07/2013	7	7th	Monday	2	1	1	1	1	1
8	20130108	2013-01-08 00:00:00.000	08/01/2013	01/08/2013	8	8th	Tuesday	3	2	2	2	2	2
9	20130109	2013-01-09 00:00:00.000	09/01/2013	01/09/2013	9	9th	Wednesday	4	3	2	2	2	2
10	20130110	2013-01-10 00:00:00.000	10/01/2013	01/10/2013	10	10th	Thursday	5	4	2	2	2	2

### **Step 3:- Open SQL SERVER DATA TOOLS .**

Click on File → New → Project



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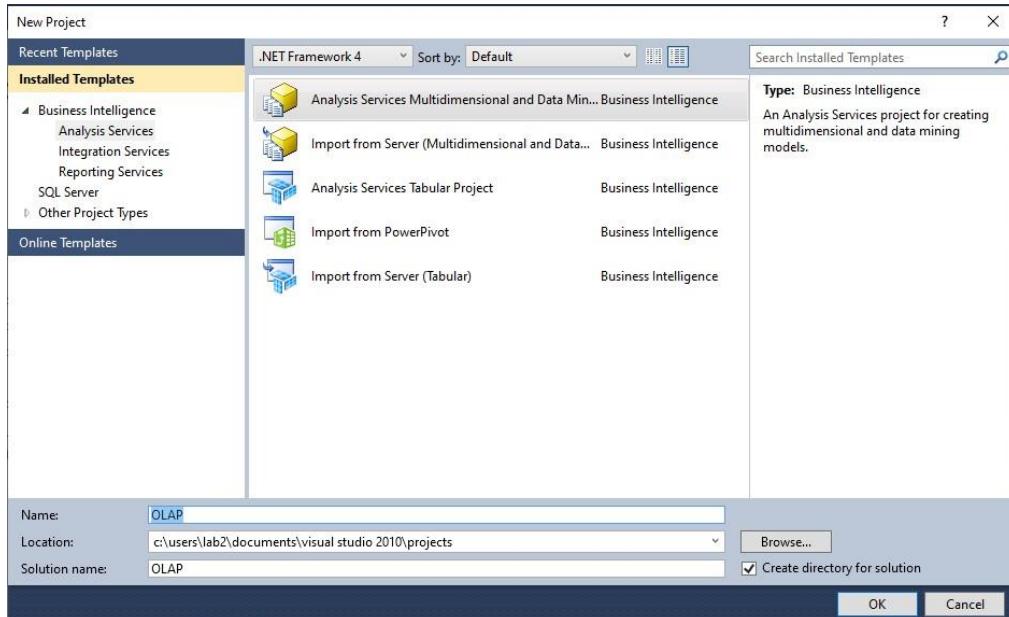
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Course Name : Business Analytics

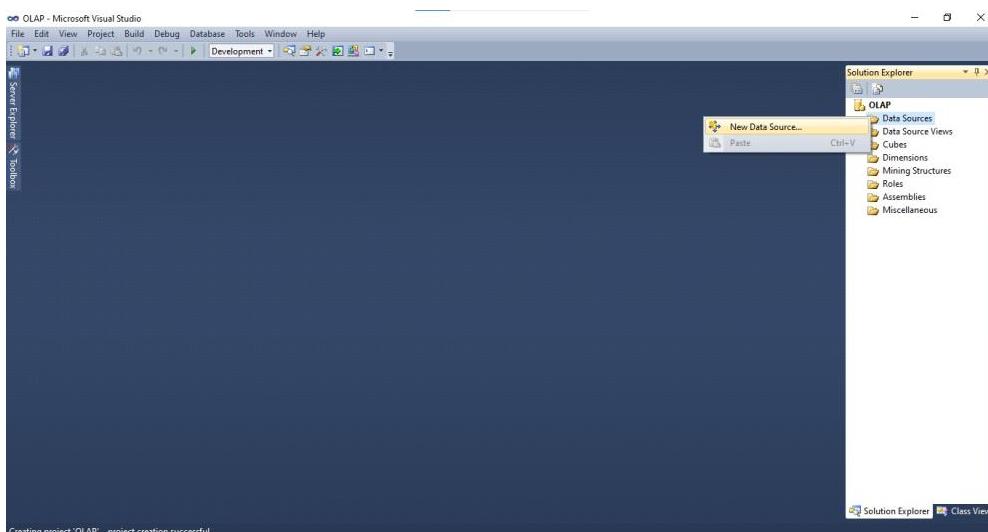
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In Business Intelligence → Analysis Services Multidimensional and Data Mining models → appropriate project name → click OK



Right click on Data Sources in solution explorer → New Data Source.



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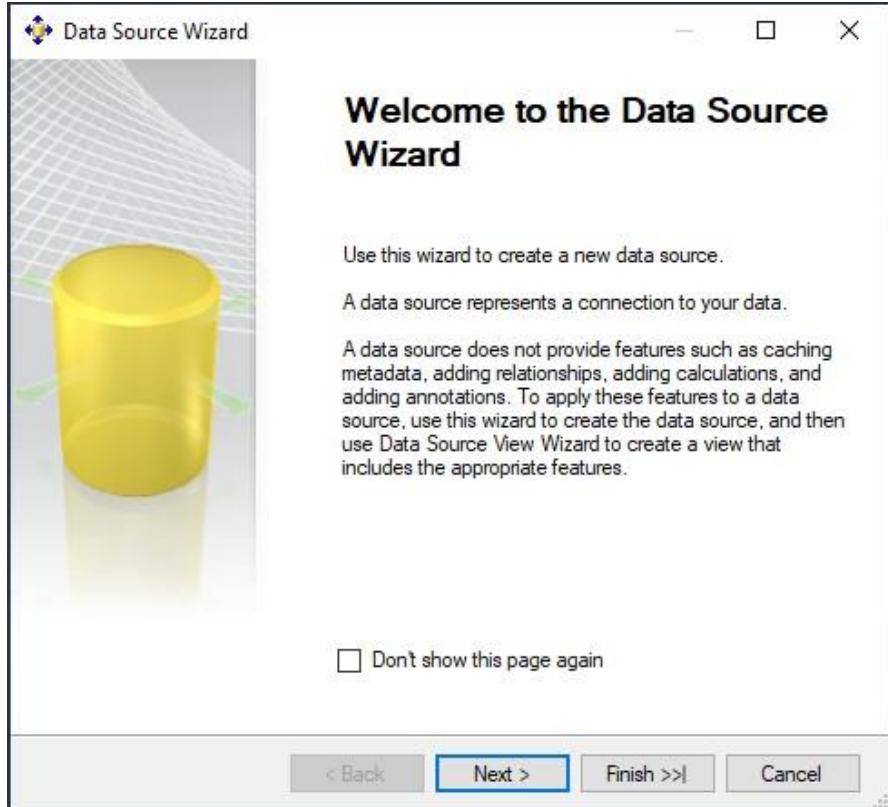
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Click on New

Select Server Name → select Use SQL Server Authentication → Select or enter a database name (Sales\_DW) Note : Password for sa : bhavans

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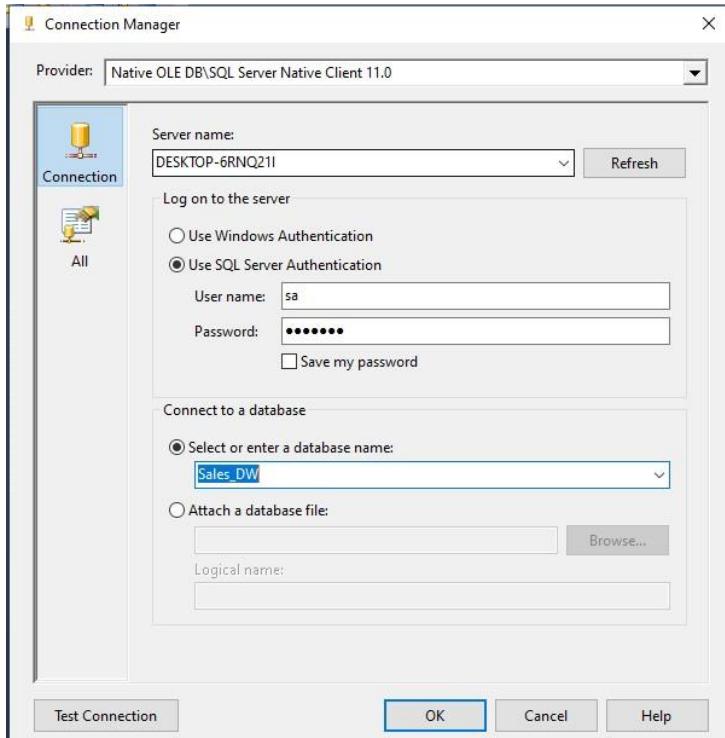
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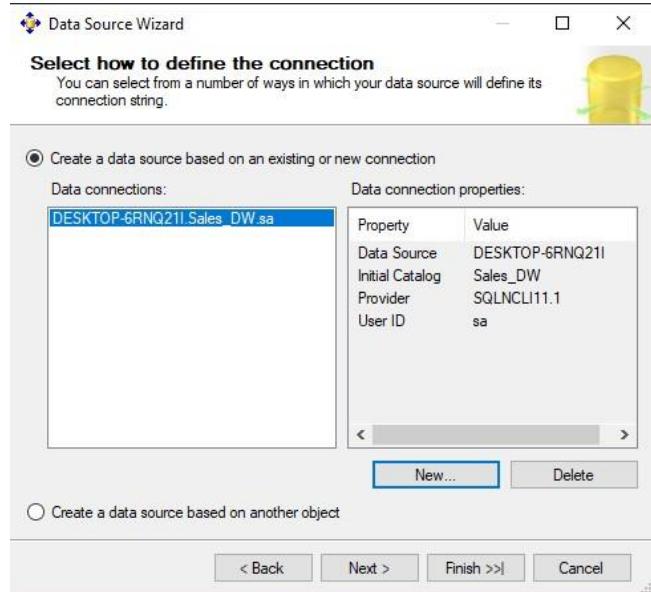
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### Click Next



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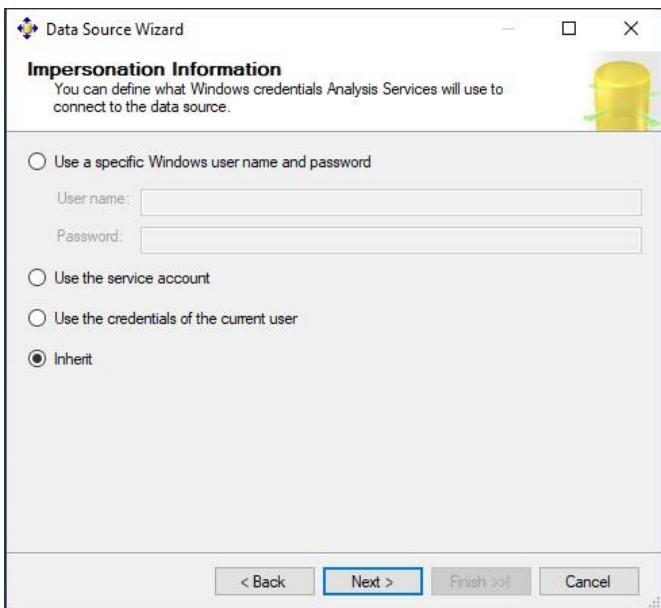
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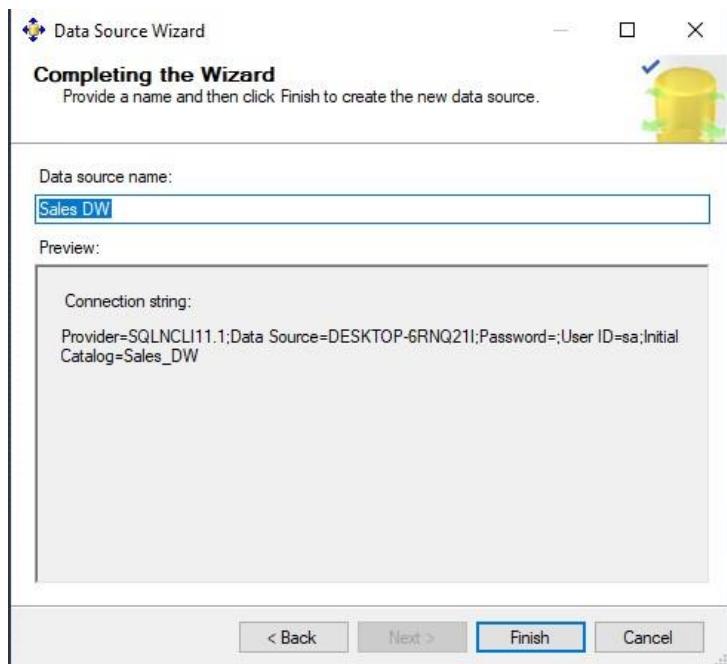
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Select Inherit → Next



Click Finish

Sales\_DW.ds gets created under Data Sources in Solution Explorer.



Step 3: Creating New Data Source View In Solution explorer right click on Data Source View → Select New Data Source View

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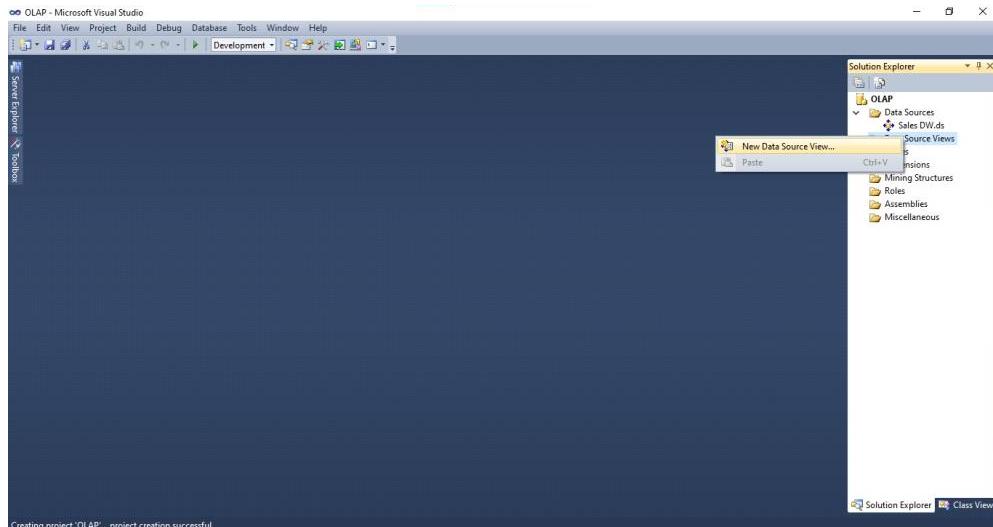
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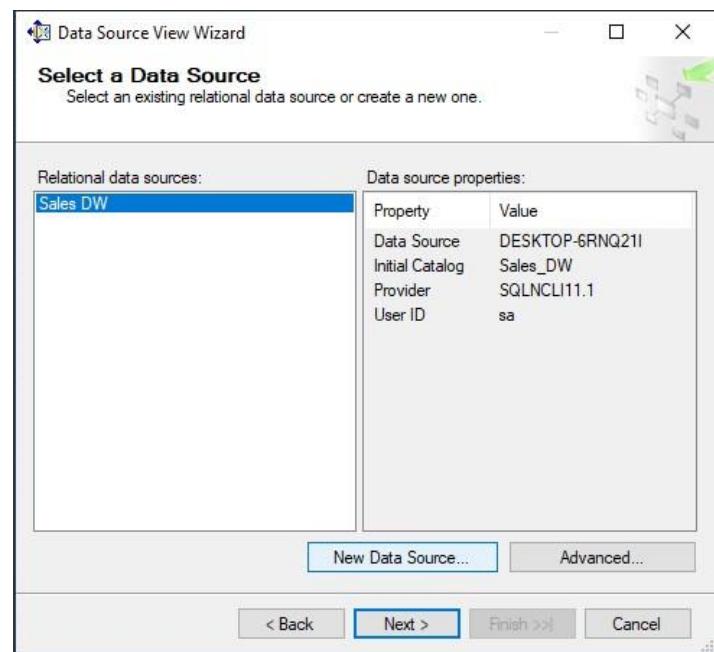
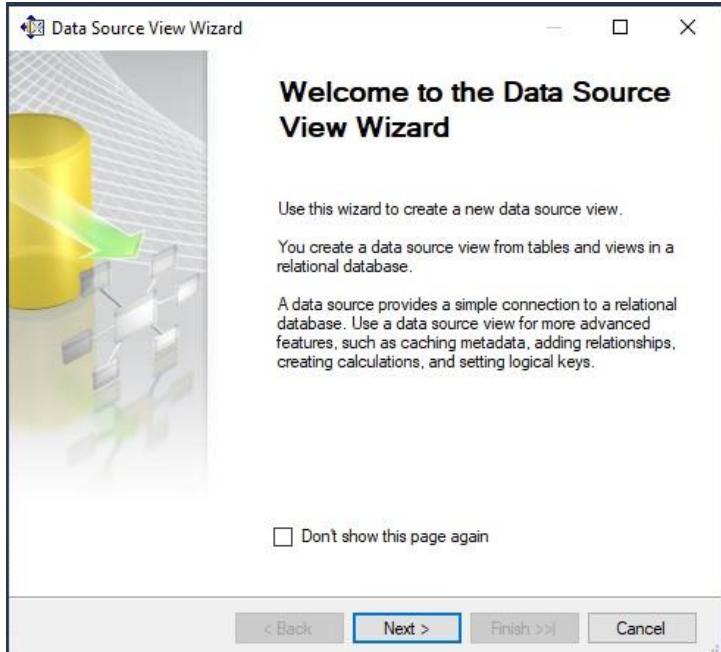
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Creating project 'OLAP'... project creation successful.

Click Next



Select FactProductSales(dbo) from Available objects and put in Includes Objects by clicking on, Click on Add Related Tables, Click Next

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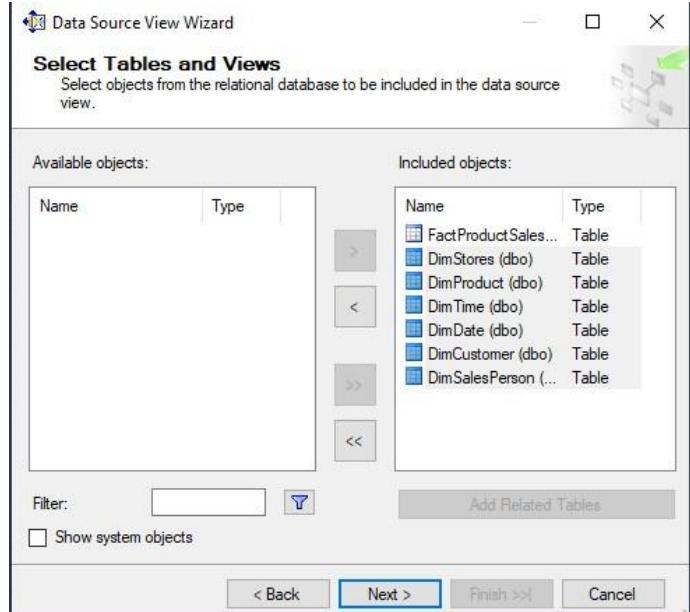
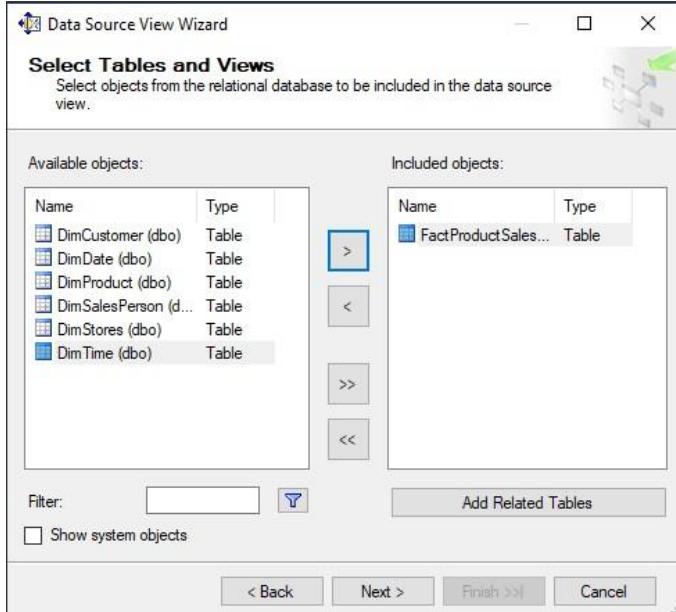
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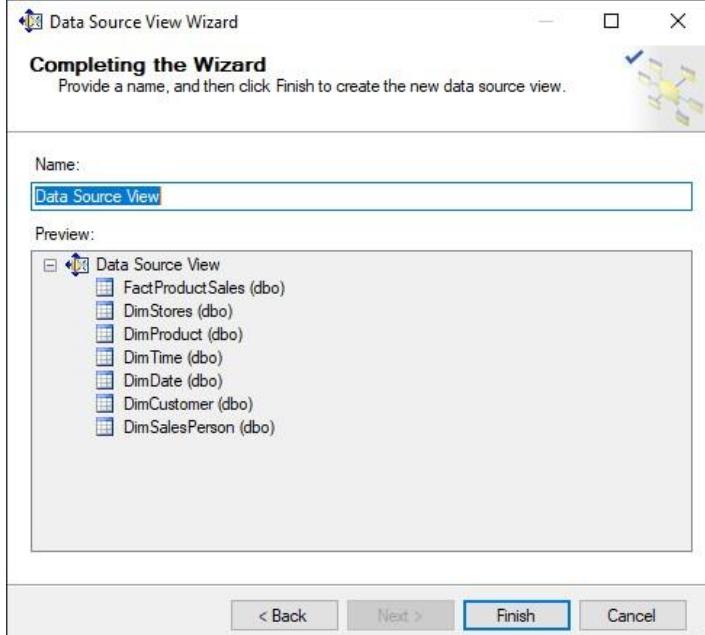
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Click Finish



Sales DW.dsv appears in Data Source Views in Solution Explorer.

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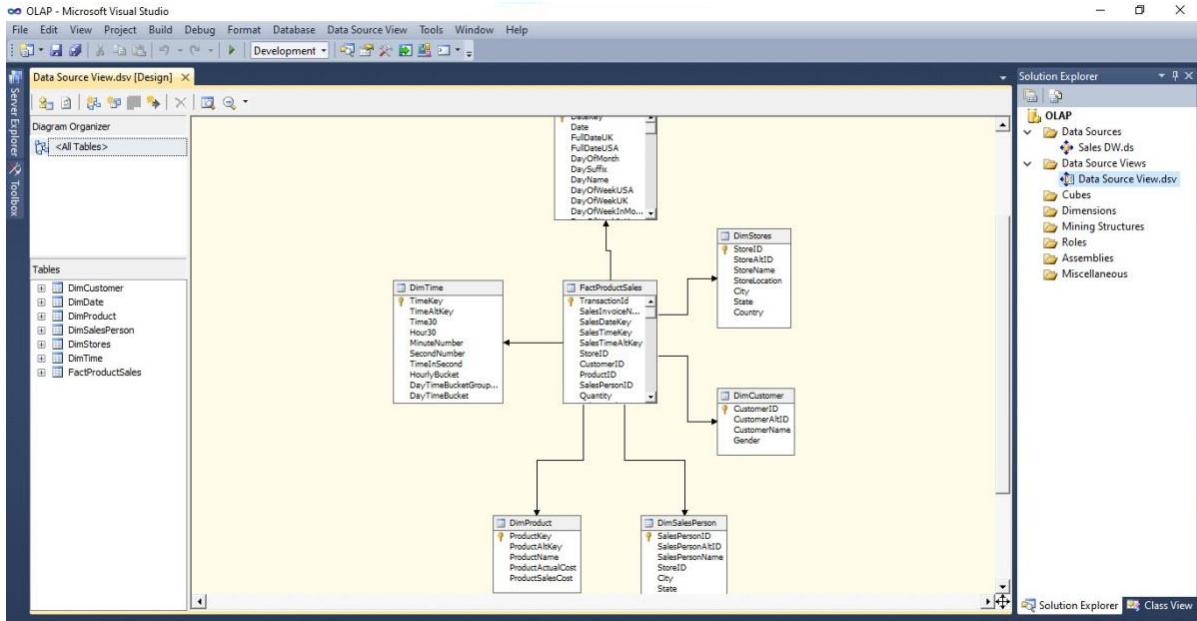
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Date : 25-07-25

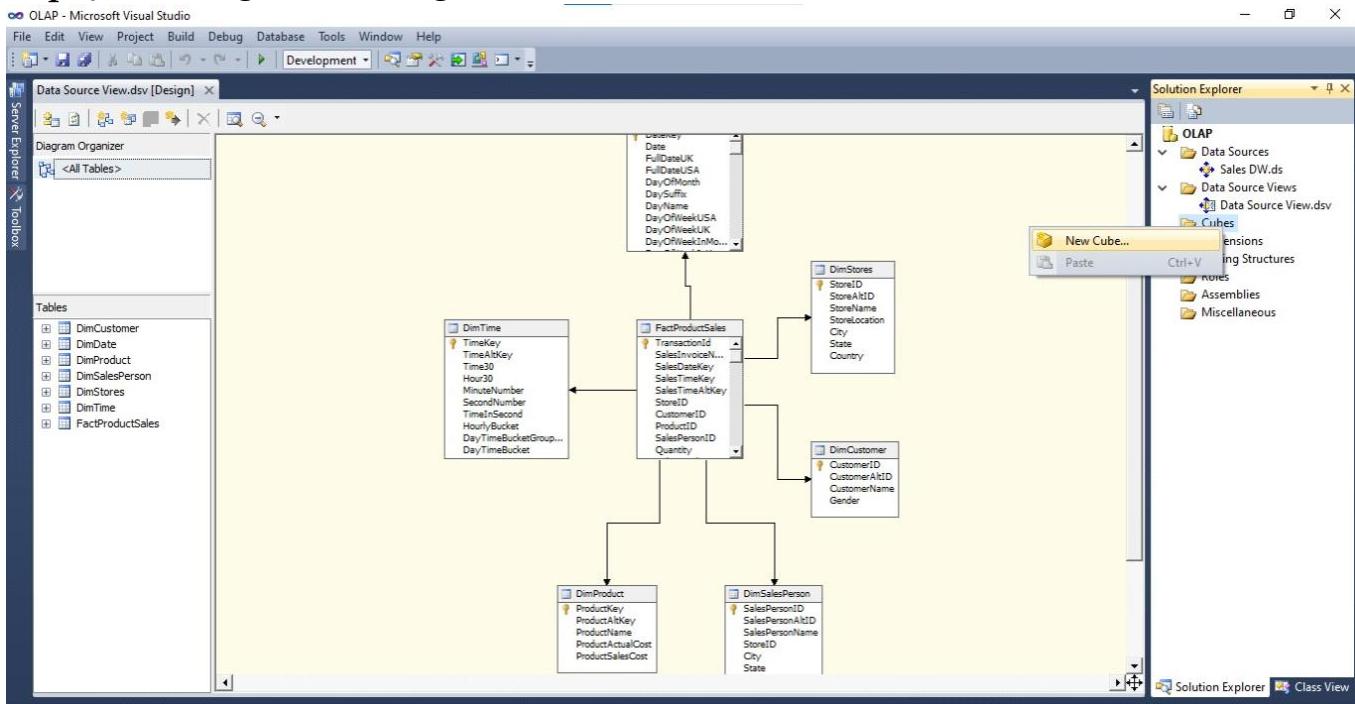
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Step 4:- Creating new cube Right click on Cubes → New Cube



Select Use existing tables in Select Creation Method → Next

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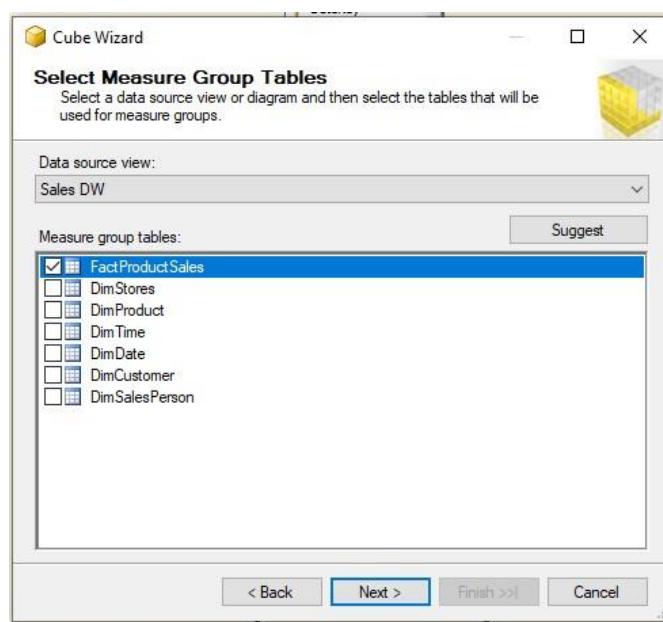
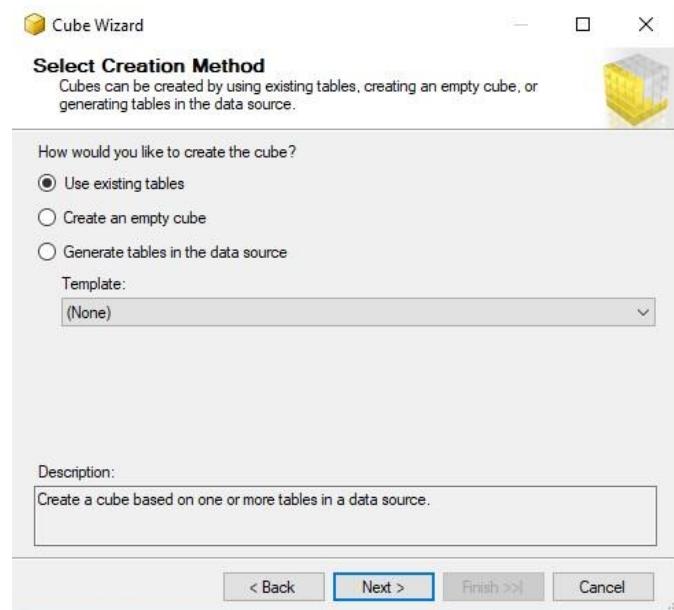
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In Select Measure Group Tables → Select FactProductSales → Click Next

In Select Measures → check all measures → Next



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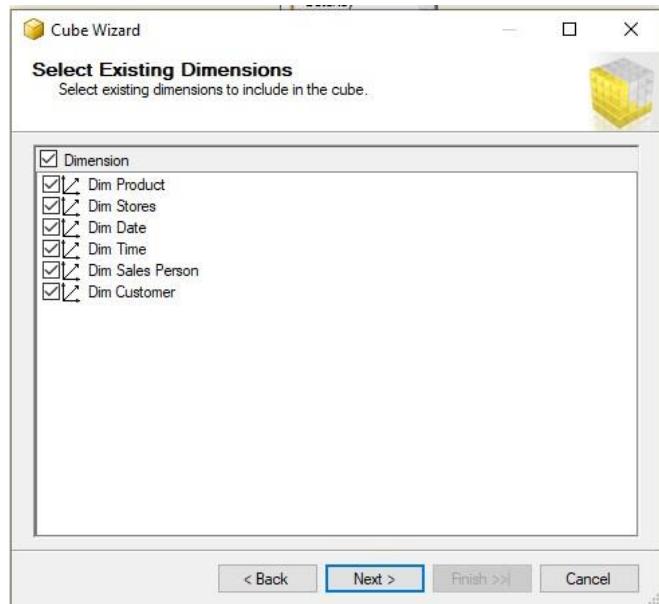
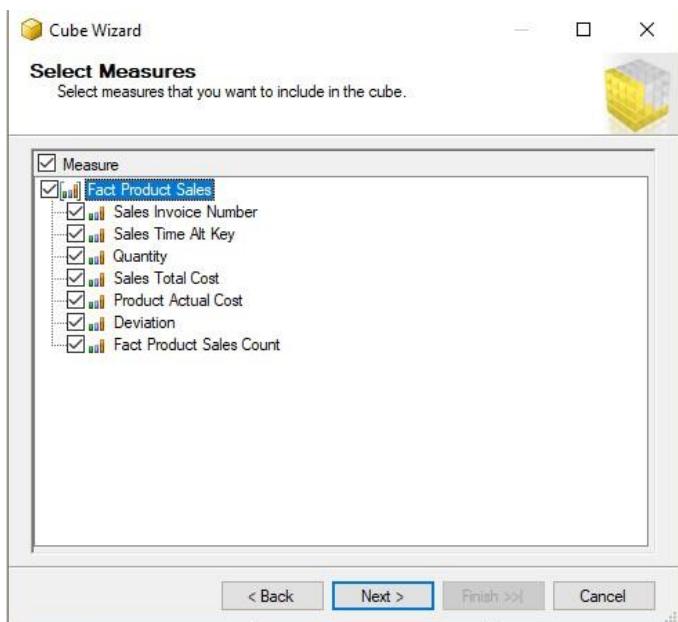
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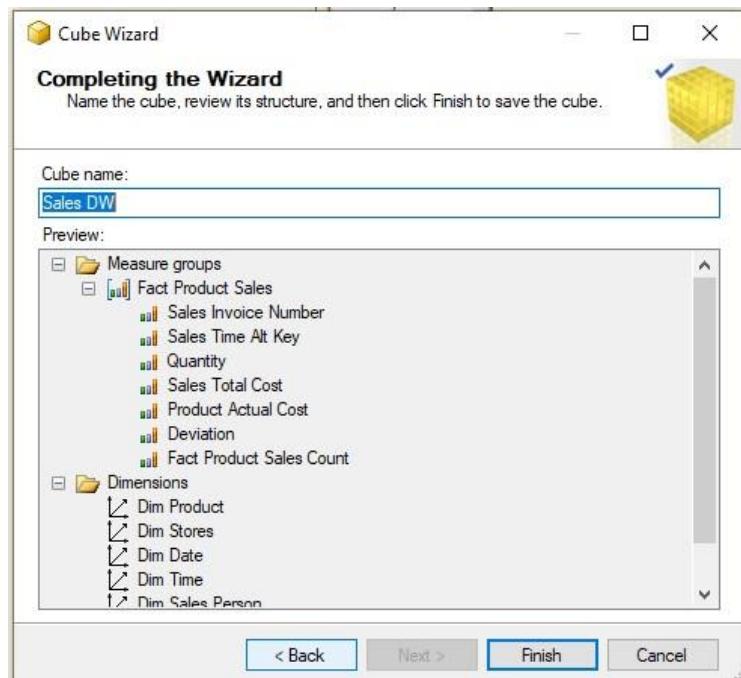
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In Select Measures → check all measures → Next

In Select New Dimensions → Check all Dimensions → Next



Click on Finish



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# BHAVAN'S COLLEGE AUTONOMOUS, ANDHERI-WEST

## PRACTICAL JOURNAL

Class: SYIT Sem: III Roll No.: SYIT-27

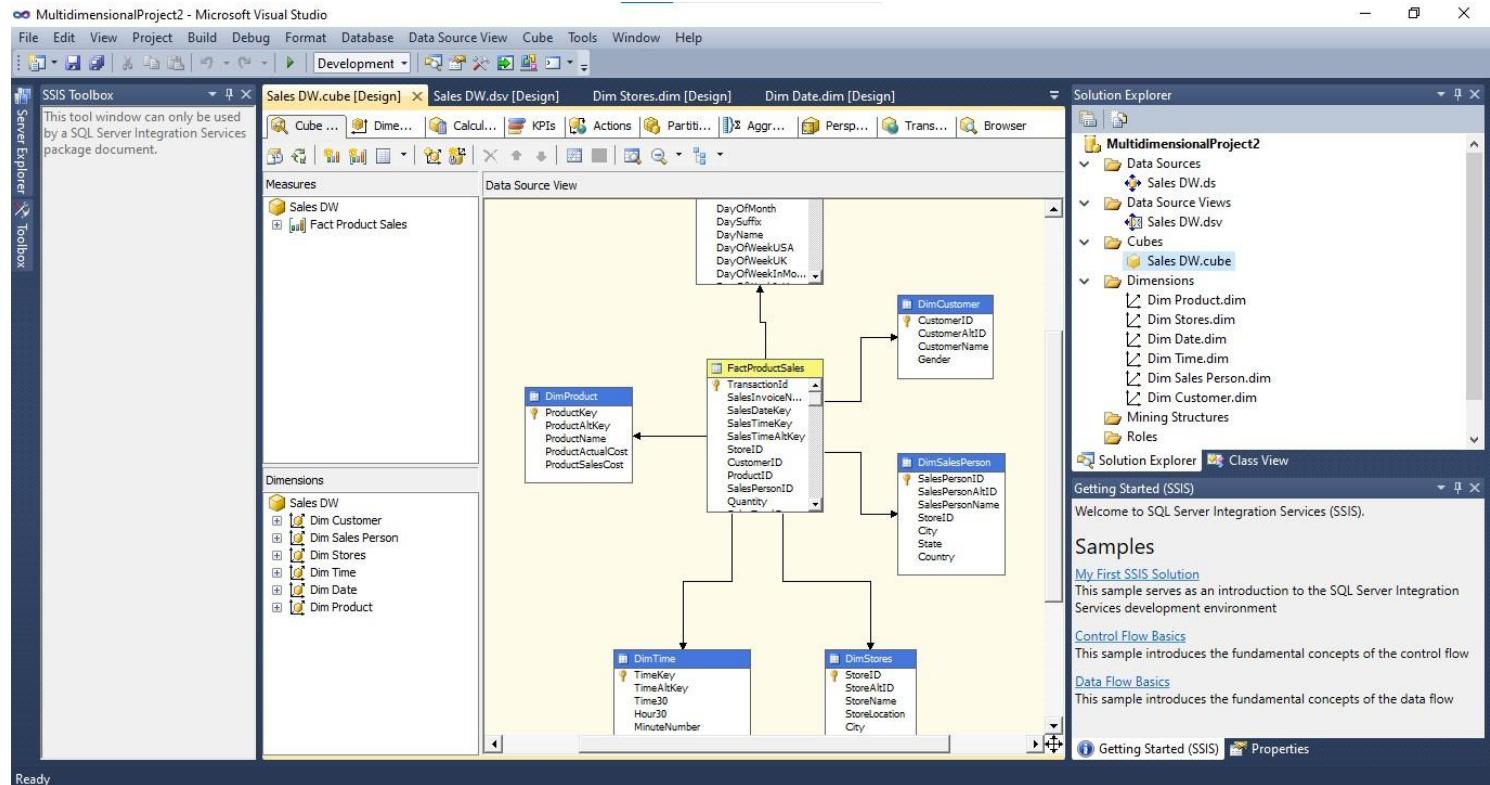
Date : 25-07-25

Course Name : Business Analytics

Page no:

Practical Number:-

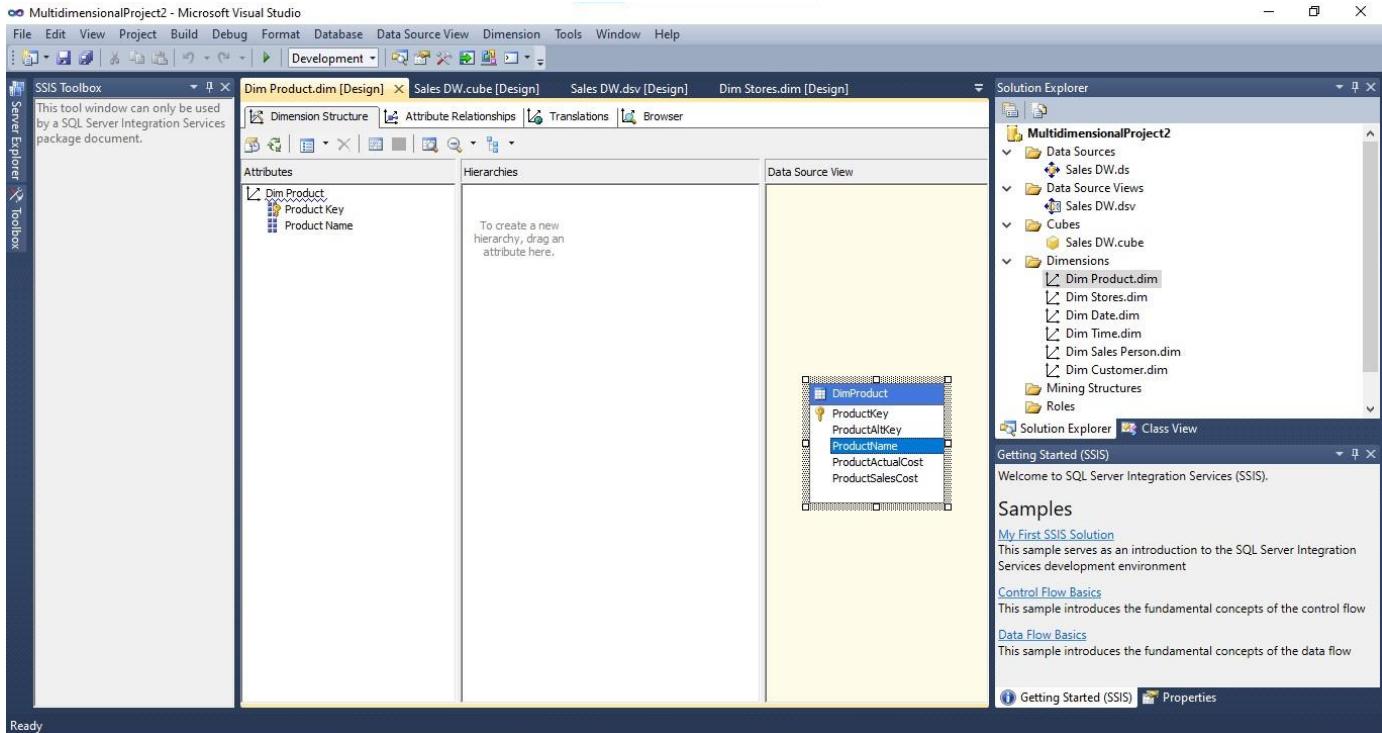
Sales\_DW.cube is created.



**Step 5:- Dimension Modification In dimension tab → Double Click Dim Product.dim**

Drag and Drop Product Name from Table in Data Source View and Add in Attribute Pane at left side

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**Class: SYIT    Sem: III    Roll No.: SYIT-27****Date : 25-07-25****Course Name : Business Analytics****Page no:****Practical Number:-****Step 6:- Creating Attribute Hierarchy in Date Dimension**

Double click On Dim Date dimension -> Drag and Drop Fields from Table shown in Data Source View to Attributes-> Drag and Drop attributes from leftmost pane of attributes to middle pane of Hierarchy.

Drag fields in sequence from Attributes to Hierarchy window (Year, Quarter Name, Month Name, Week of the Month, Full Date UK)

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# BHAVAN'S COLLEGE AUTONOMOUS, ANDHERI-WEST

## PRACTICAL JOURNAL

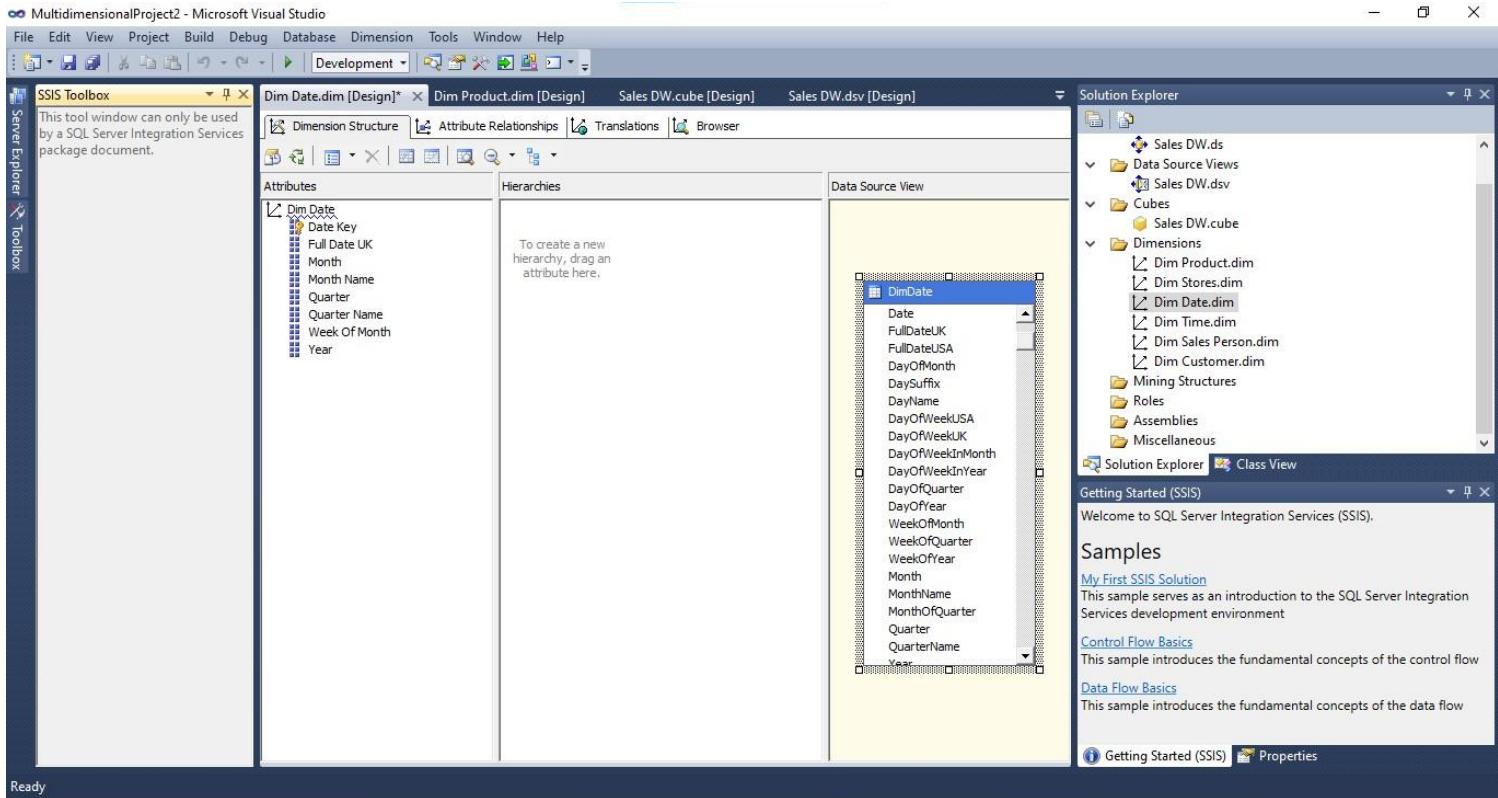
Class: SYIT Sem: III Roll No.: SYIT-27

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### Step 7:- Deploy Cube

Right click on Project name → Properties

This window appears

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# BHAVAN'S COLLEGE AUTONOMOUS, ANDHERI-WEST

## PRACTICAL JOURNAL

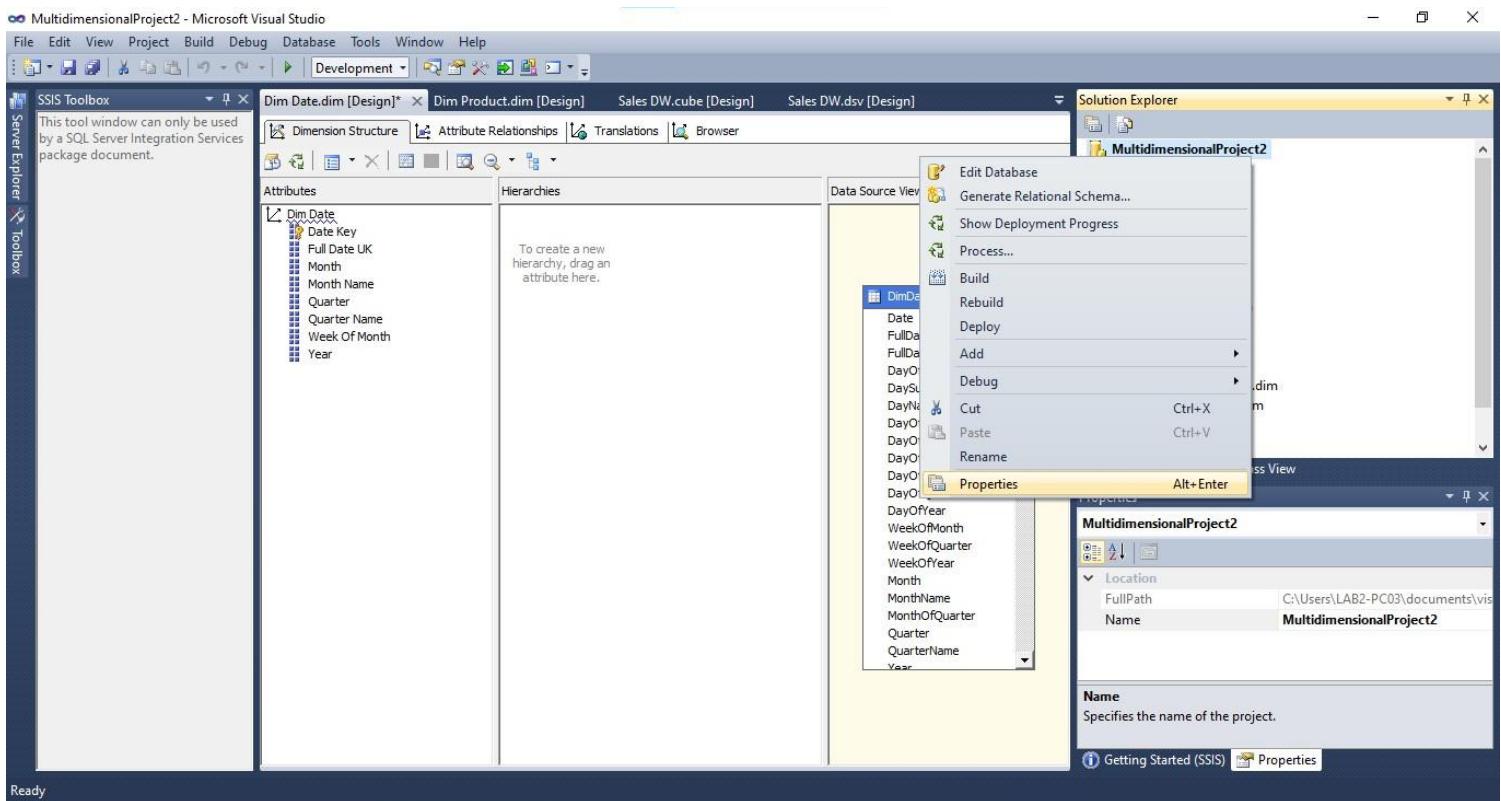
Class: SYIT Sem: III Roll No.: SYIT-27

Date : 25-07-25

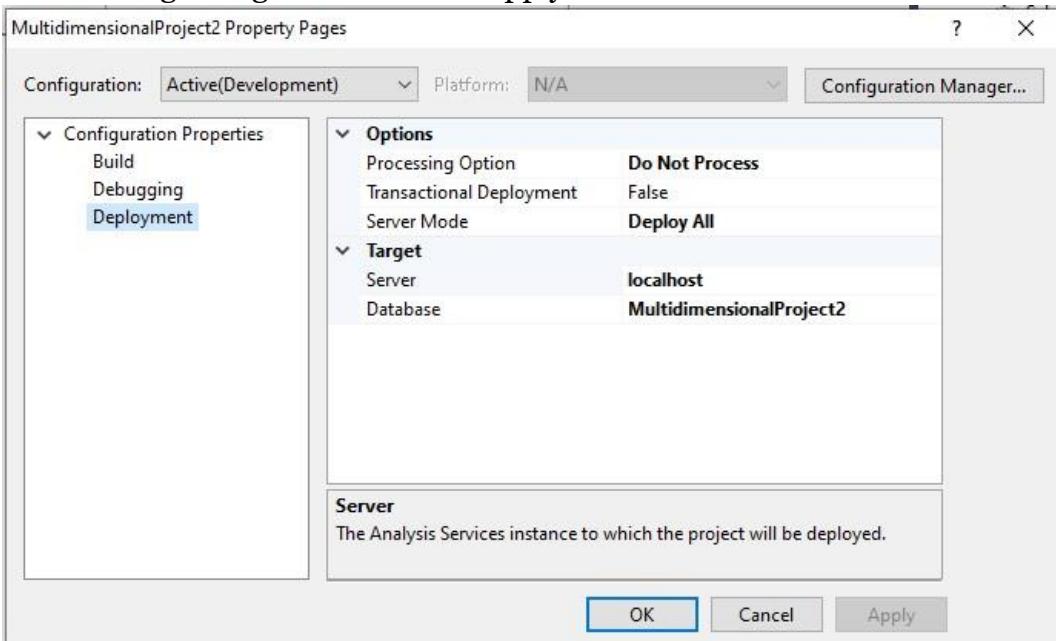
Course Name : Business Analytics

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Do following changes and click on Apply & ok



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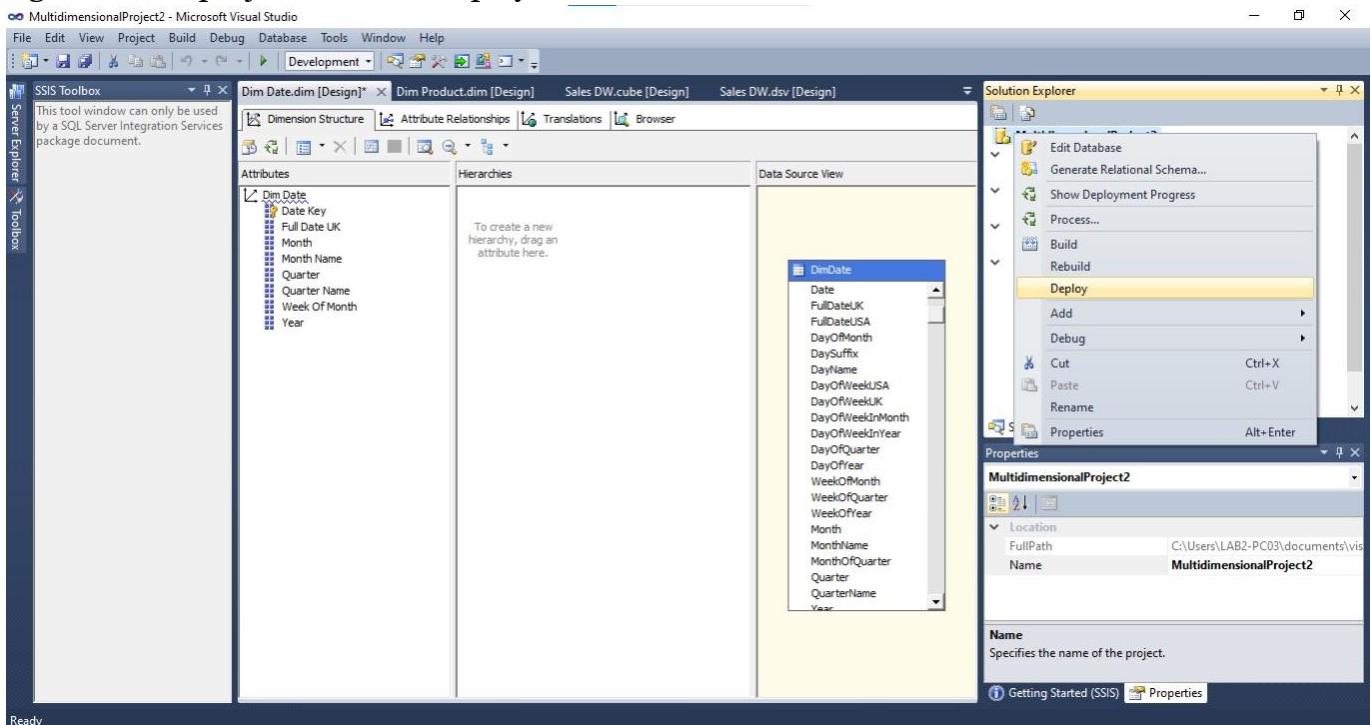
Date : 25-07-25

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Right click on project name → Deploy



Deployment successful

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# BHAVAN'S COLLEGE AUTONOMOUS, ANDHERI-WEST

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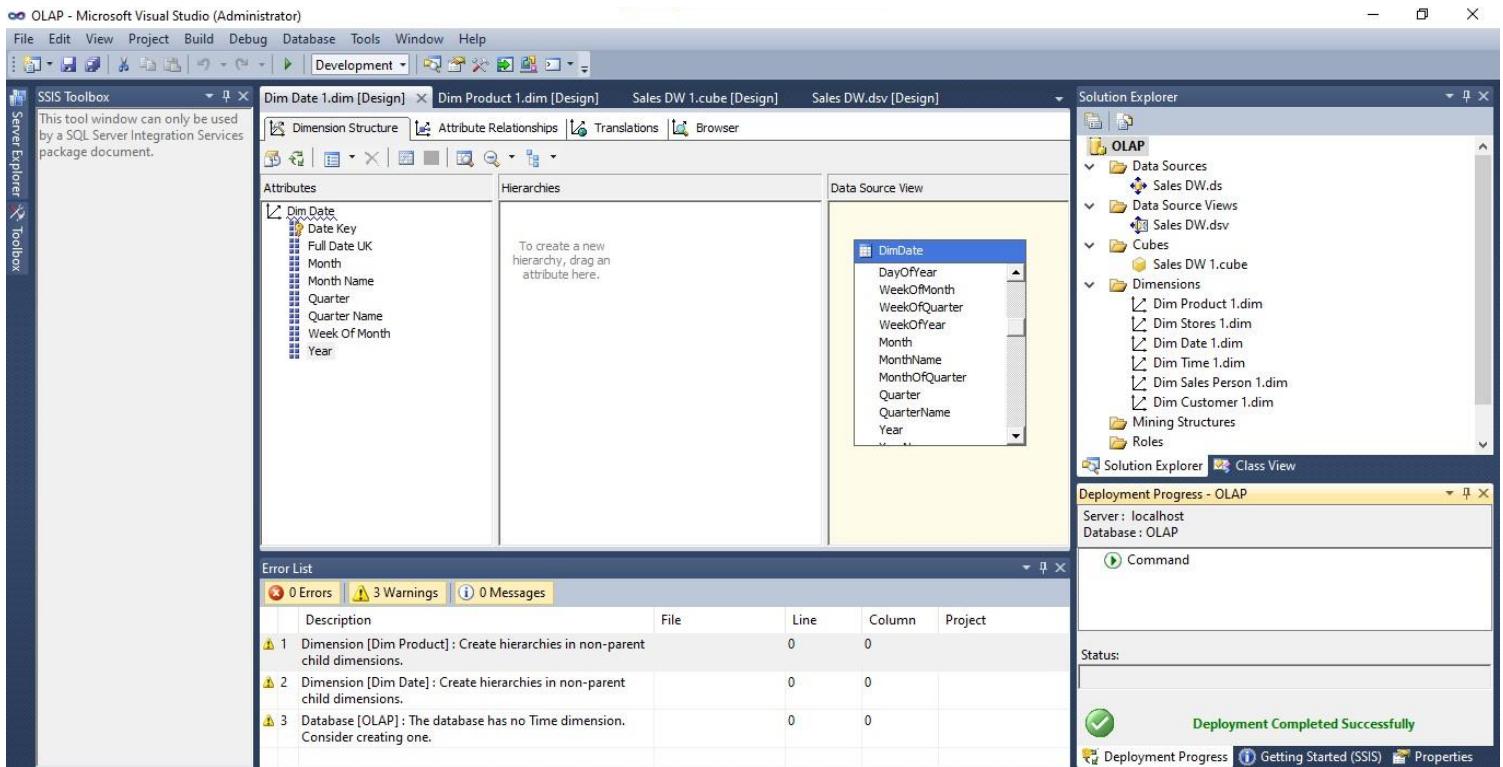
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To process cube right click on Sales\_DW.cube → Process Click run

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# BHAVAN'S COLLEGE AUTONOMOUS, ANDHERI-WEST

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SSIS Toolbox

Solution Explorer

Error List

Process Cube - Sales DW

Object list:

Object Name	Type	Process Options	Settings
Sales DW	Cube	Process Full	

Batch Settings Summary

Processing order: Parallel

Transaction mode: (Default)

Dimension errors: (Default)

Dimension key error log path: (Default)

Process affected objects: Do not process

Run... Close

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## PRACTICAL JOURNAL

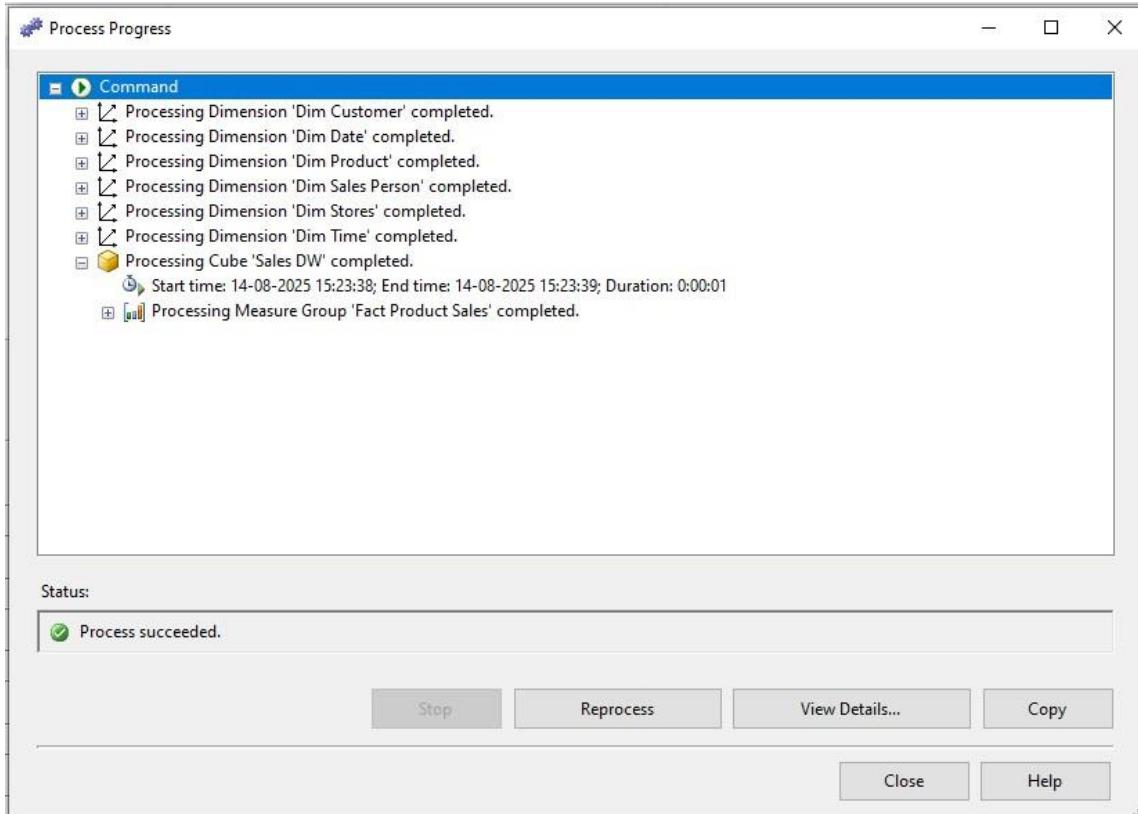
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Browse the cube for analysis in solution explorer

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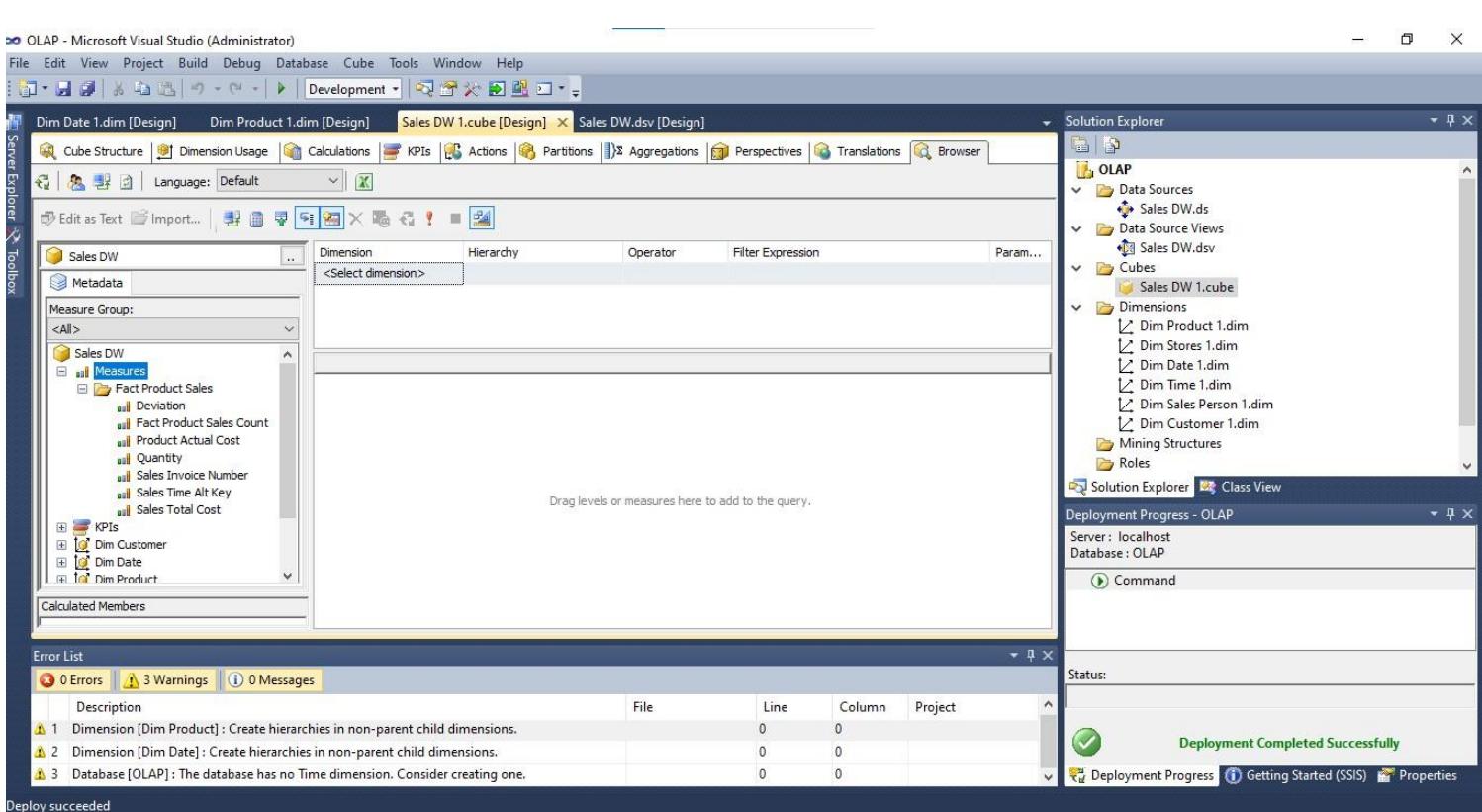
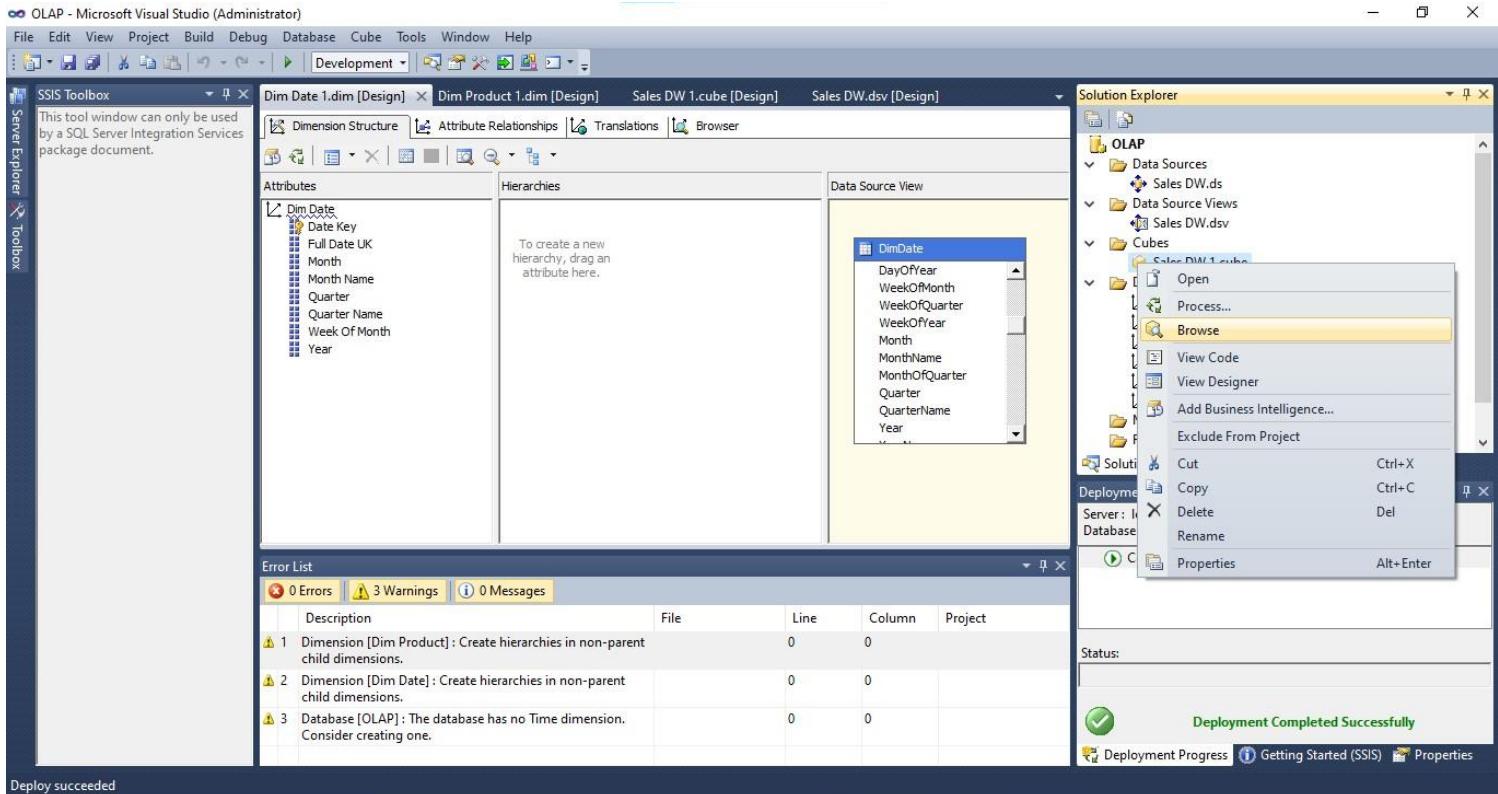
Class: SYIT Sem: III Roll No.: SYIT-27

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# BHAVAN'S COLLEGE AUTONOMOUS, ANDHERI-WEST

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**Practical Number:- 5**

**Aim :- a. Create the Data staging area for the selected database.**

**b. Create the cube with suitable dimension and fact tables based on ROLAP, MOLAP and HOLAP model.**

**Steps:-**

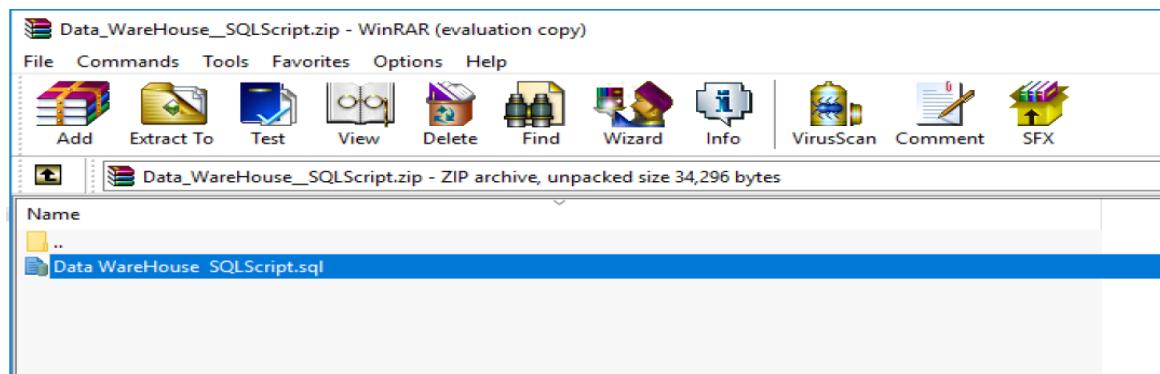
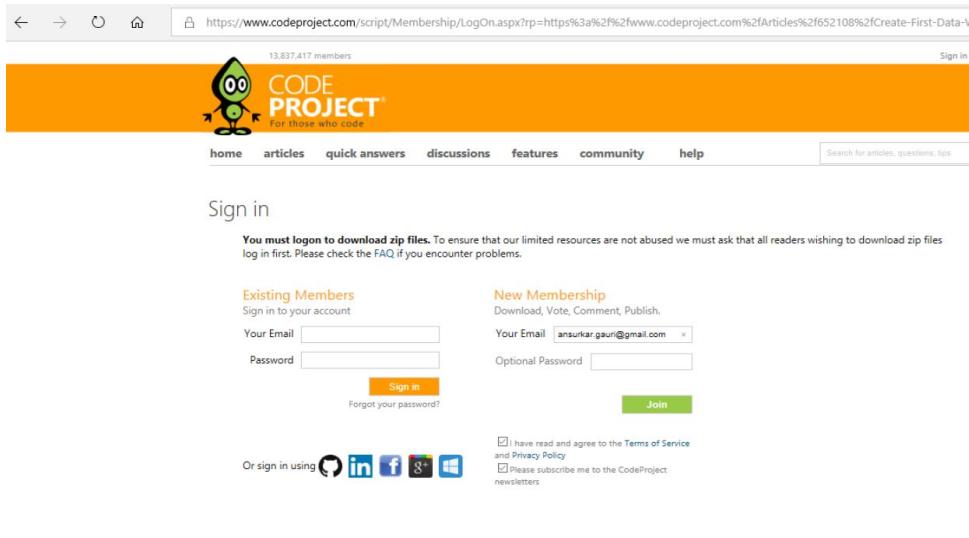
Step 1: Creating Data Warehouse

Let us execute our T-SQL Script to create data warehouse with fact tables, dimensions and populate them with appropriate test values.

Download T-SQL script attached with this article for creation of Sales Data Warehouse or download from this article "Create First Data Warehouse" and run it in your SQL Server.

Downloading "Data\_Warehouse\_SQLScript.zip" from the article

<https://www.codeproject.com/Articles/652108/Create-First-Data-WareHouse>



After downloading extract file in folder.

Follow the given steps to run the query in SSMS (SQL Server Management Studio).

1. Open SQL Server Management Studio 2012

2. Connect Database Engine

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Class: **SYIT**

Sem: **III**

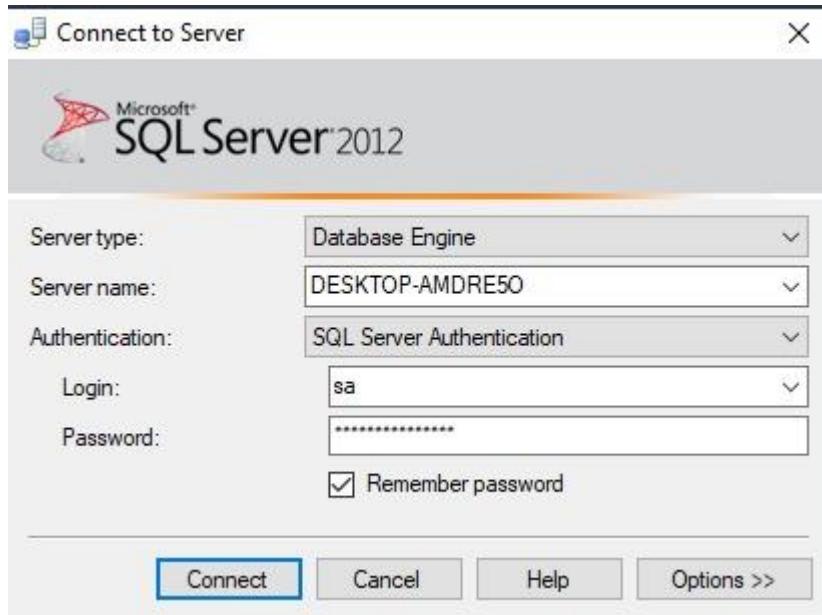
Roll No.: **SYIT-11**

Date : / /2025

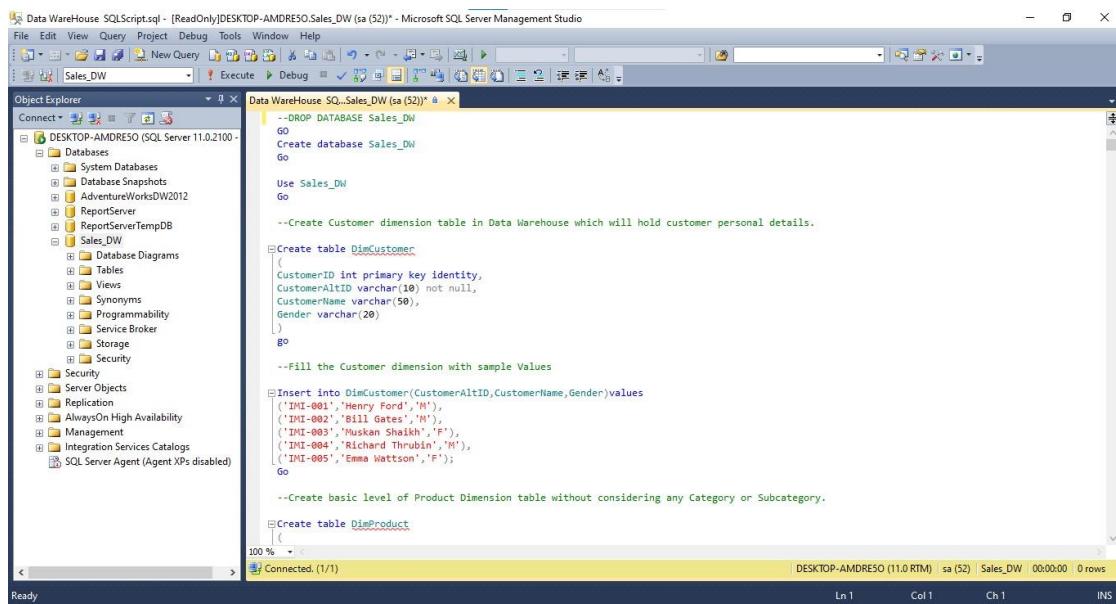
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1. Go to the extracted sql file and double click on it.
2. New Sql Query Editor will be opened containing Sales\_DW Database.



3. Click on execute or press F5 by selecting query one by one or directly click on Execute.
4. After completing execution save and close SQL Server Management studio & Reopen to see Sales\_DW in Databases Tab.

Step 2: Start SSDT environment and create New Data Source

Go to Sql Server Data Tools --> Right click and run as administrator

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## PRACTICAL JOURNAL

**Class: SYIT**

**Sem: III**

**Roll No.: SYIT-11**

**Date : / /2025**

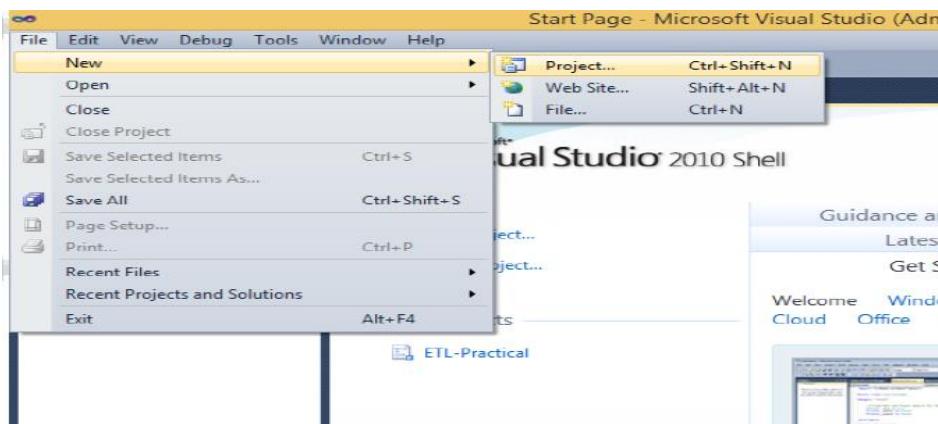
**Course Name: Business Analytics.**

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Click on File → New → Project



In Business Intelligence → Analysis Services Multidimensional and Data Mining models → appropriate project name → click OK

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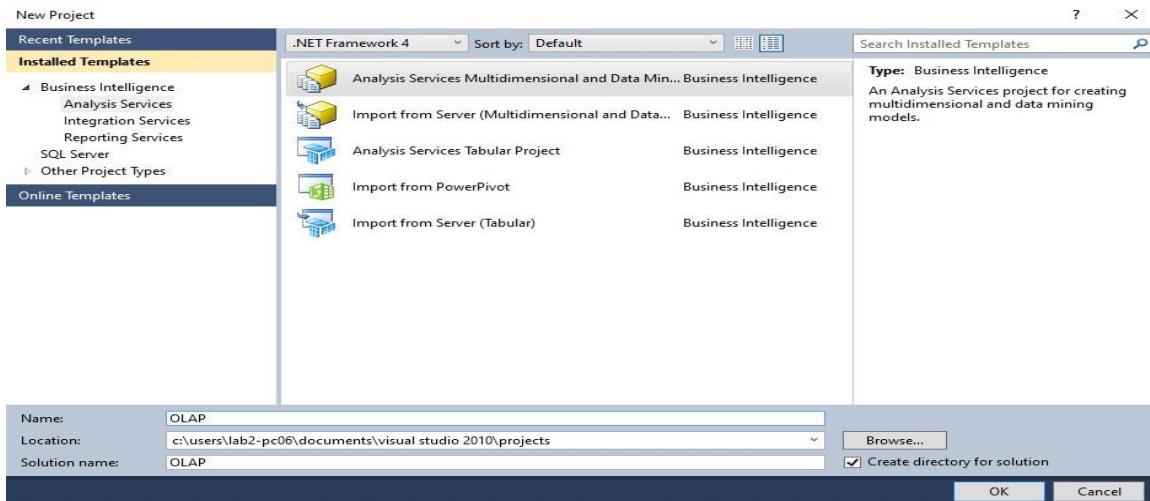
Roll No.: **SYIT-11**

Date : / /2025

Course Name: **Business Analytics.**

Page no:

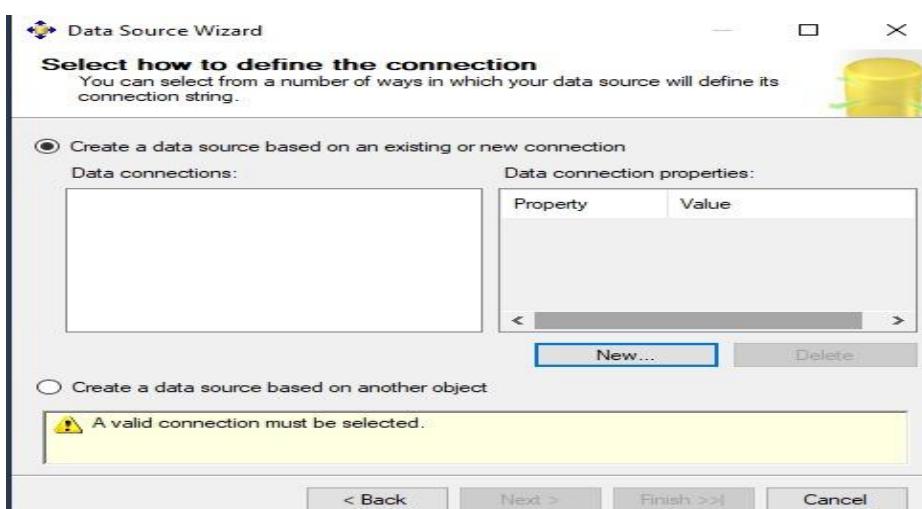
Practical Number:- **5**



Right click on Data Sources in solution explorer → New Data Source

Data Source Wizard appears

Click on new



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Roll No.: **SYIT-11**

Date : / /2025

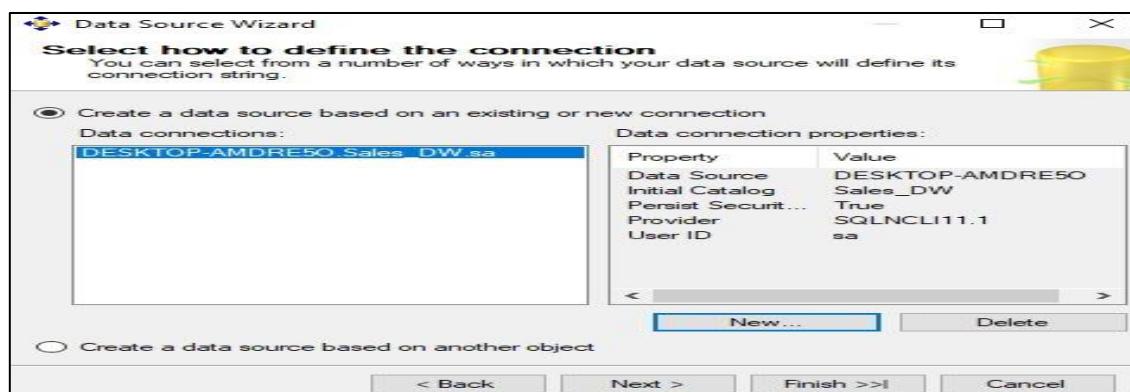
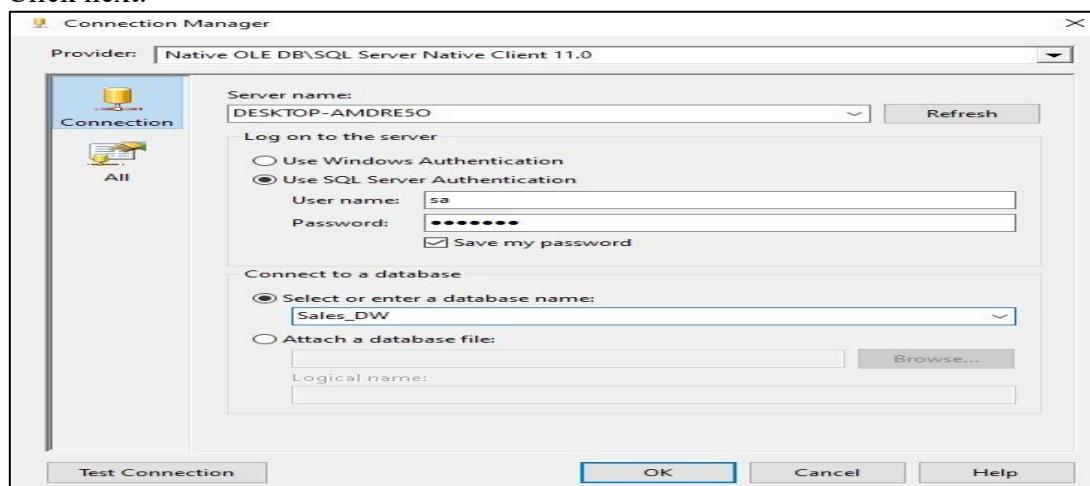
Course Name: **Business Analytics.**

Page no:

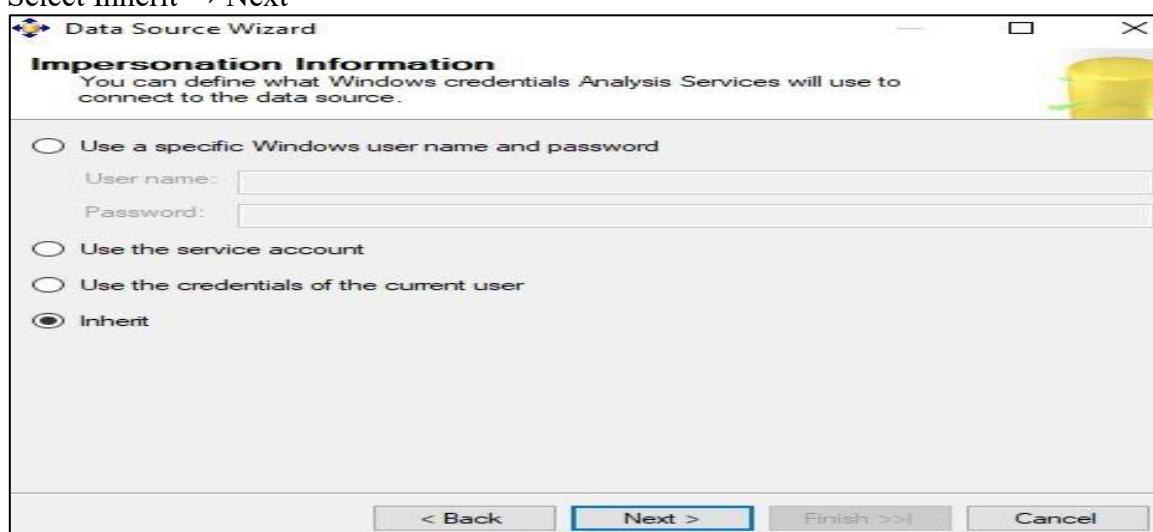
**Practical Number:- 5**

Select Server Name → select Use SQL Server Authentication → Select or enter a database name (Sales\_DW)

Click next.



Select Inherit → Next



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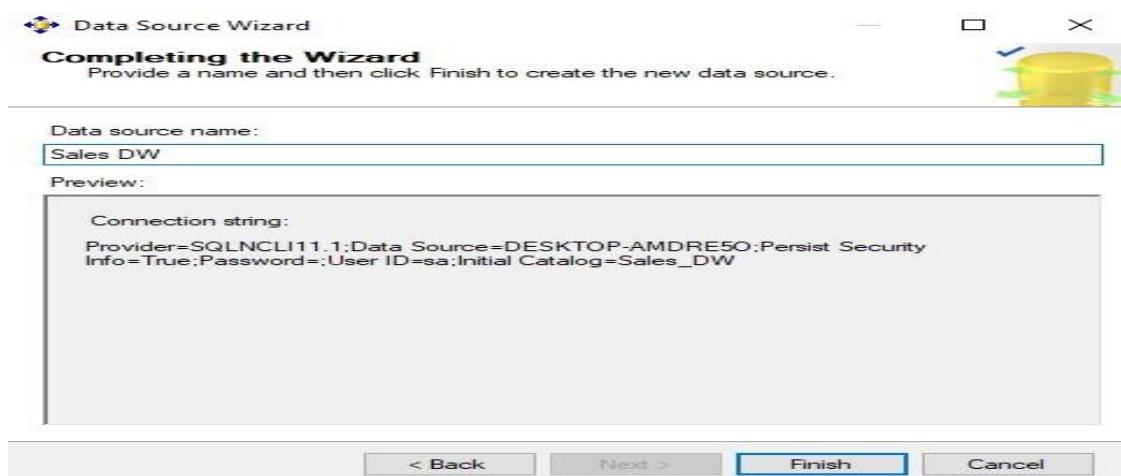
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Click on finish.

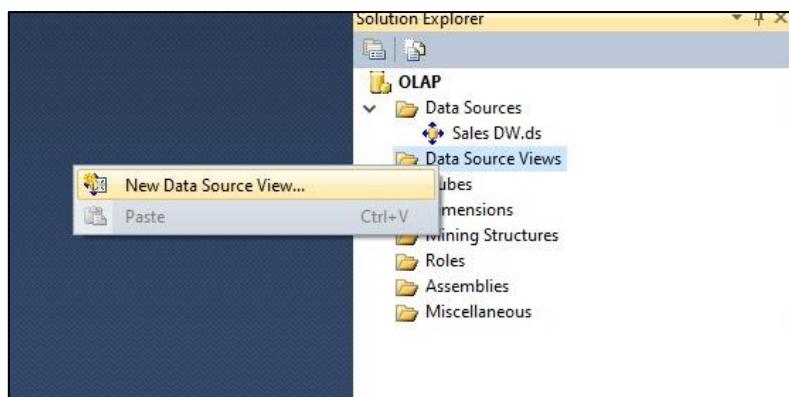


Sales\_DW.ds gets created under Data Sources in Solution Explorer.

Step 3: Creating New Data Source View

In Solution explorer right click on Data Source View → Select New Data Source View

Click Next



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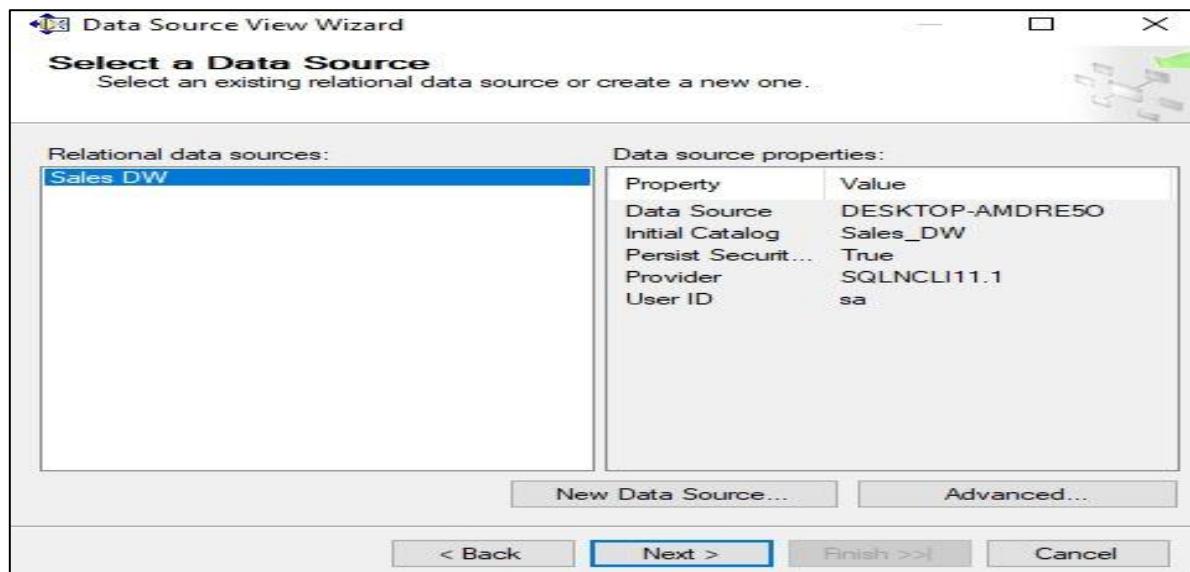
Date : / /2025

Course Name: **Business Analytics.**

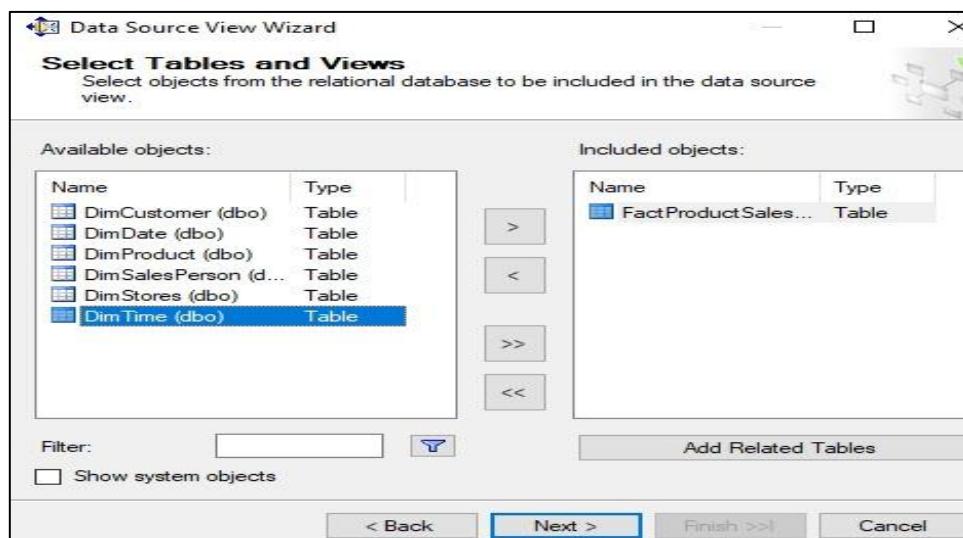
Page no:

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Click on next



Select FactProductSales(dbo) from Available objects and put in Includes Objects by clicking on >



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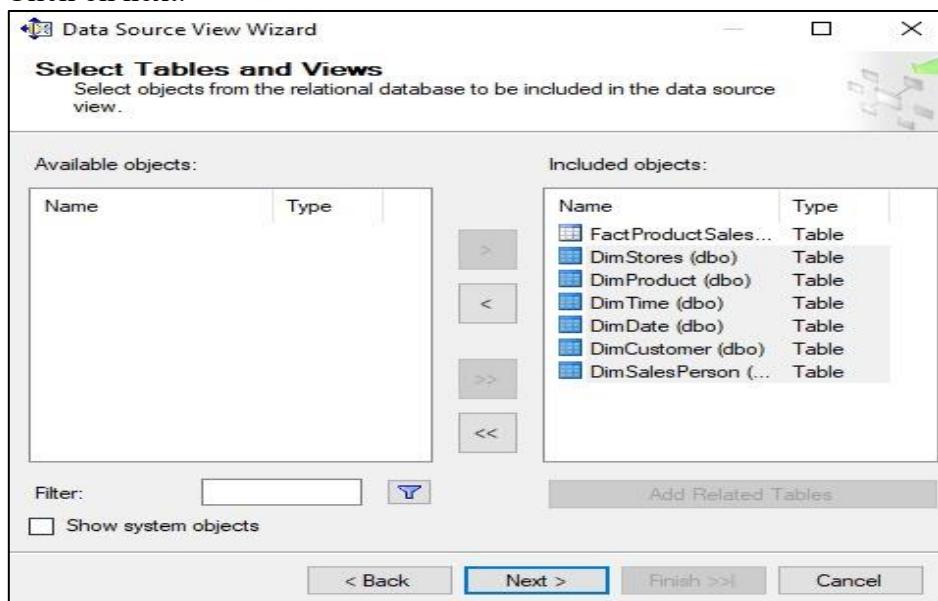
Course Name: **Business Analytics.**

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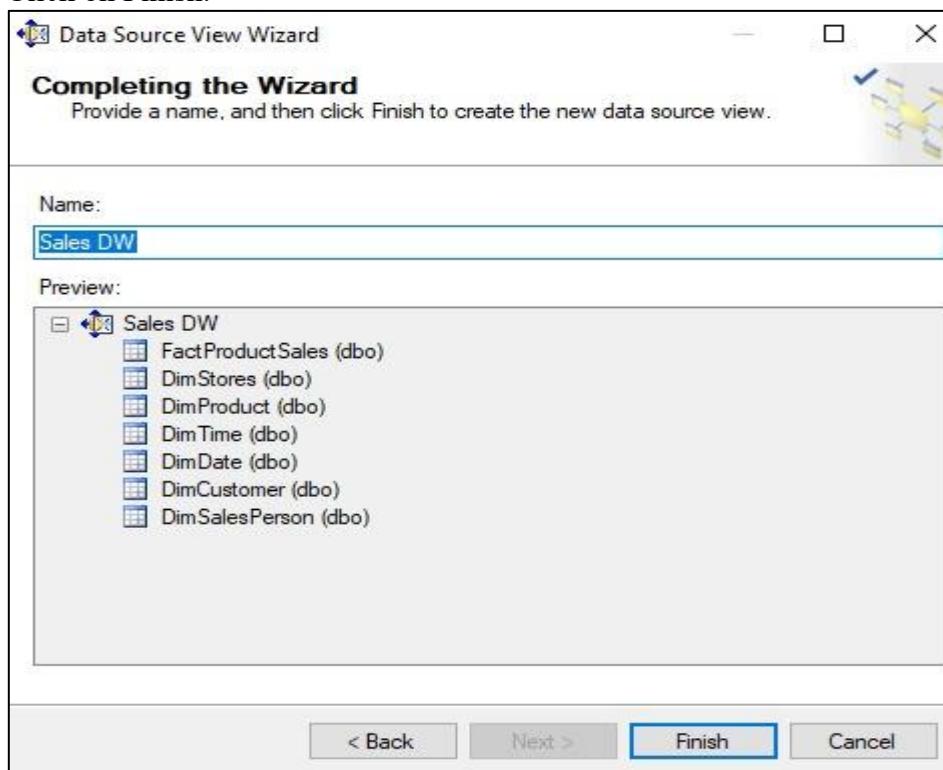
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Click on Add Related Tables

Click on next.



Click on Finish.



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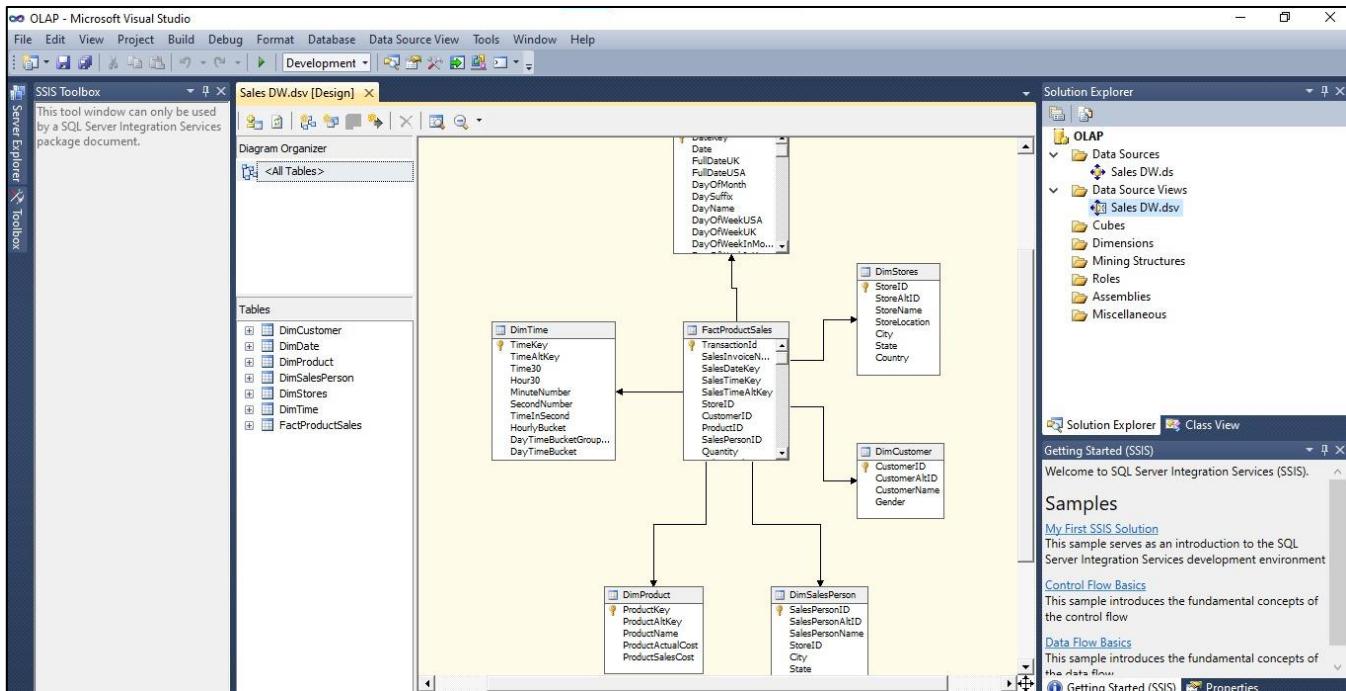
Date : / /2025

Course Name: **Business Analytics.**

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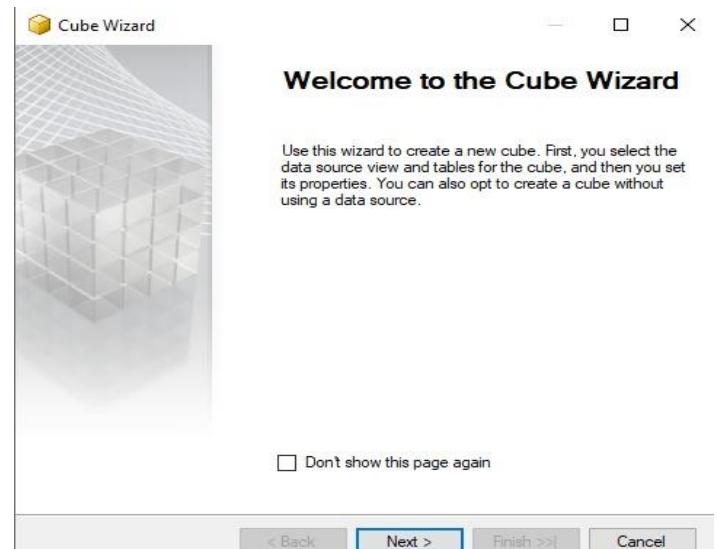
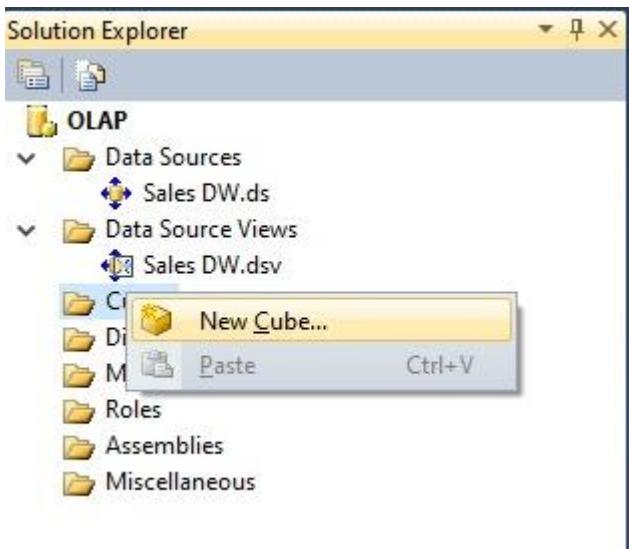
**Practical Number:- 5**

Sales DW.dsv appears in Data Source Views in Solution Explorer.



Creating new cube

Right click on Cubes → New Cube



Select Use existing tables in Select Creation Method → Next

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Sem: III

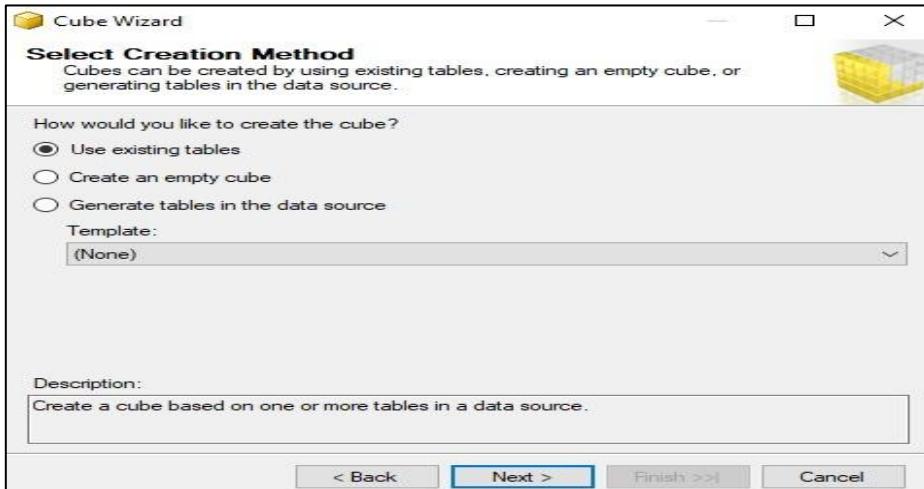
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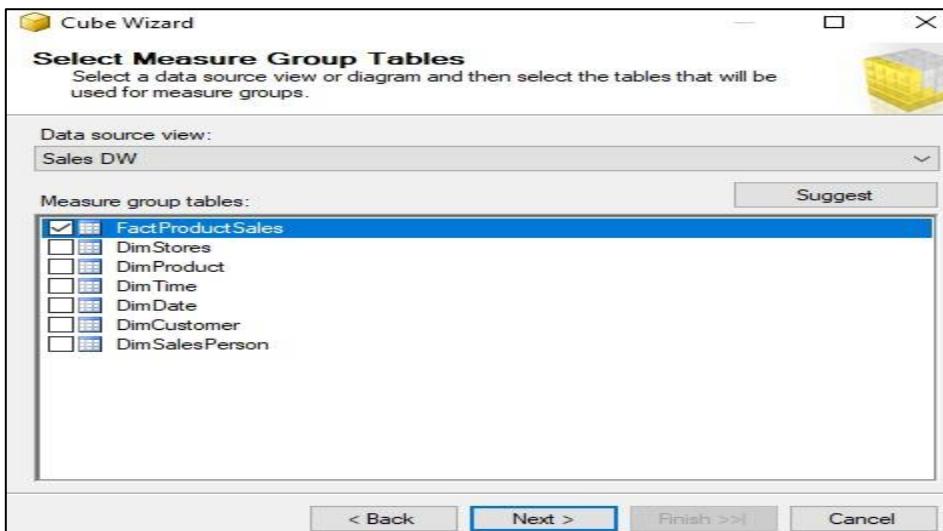
Course Name: Business Analytics.

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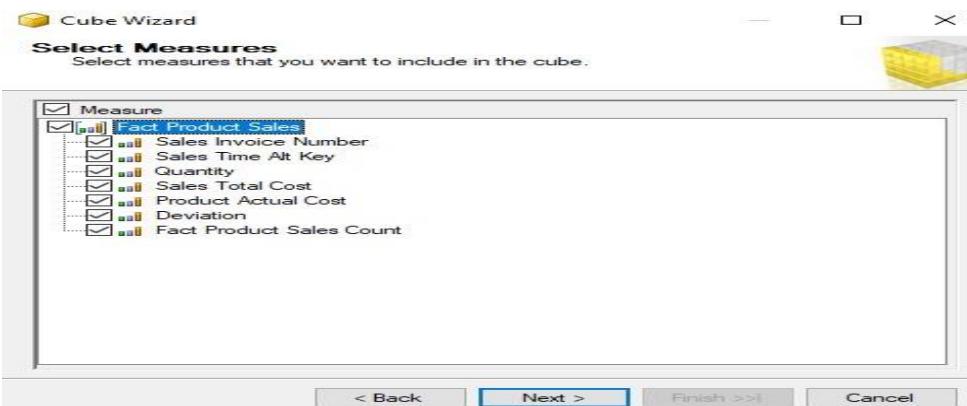
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In Select Measure Group Tables → Select FactProductSales → Click Next



In Select Measures → check all measures → Next



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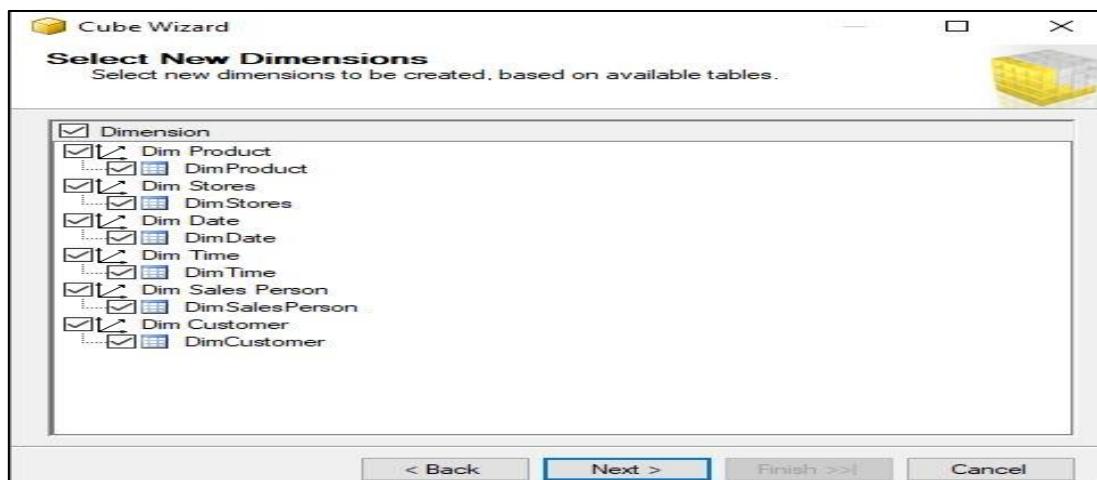
Date : / /2025

Course Name: **Business Analytics.**

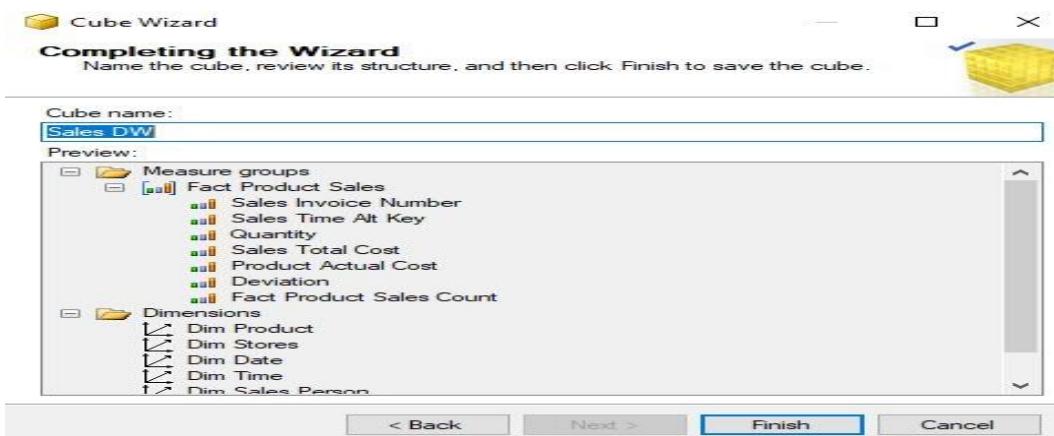
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In Select New Dimensions → Check all Dimensions → Next



Click on Finish



Sales\_DW.cube is created

---

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# BHAVAN'S COLLEGE AUTONOMOUS, ANDHERI-WEST

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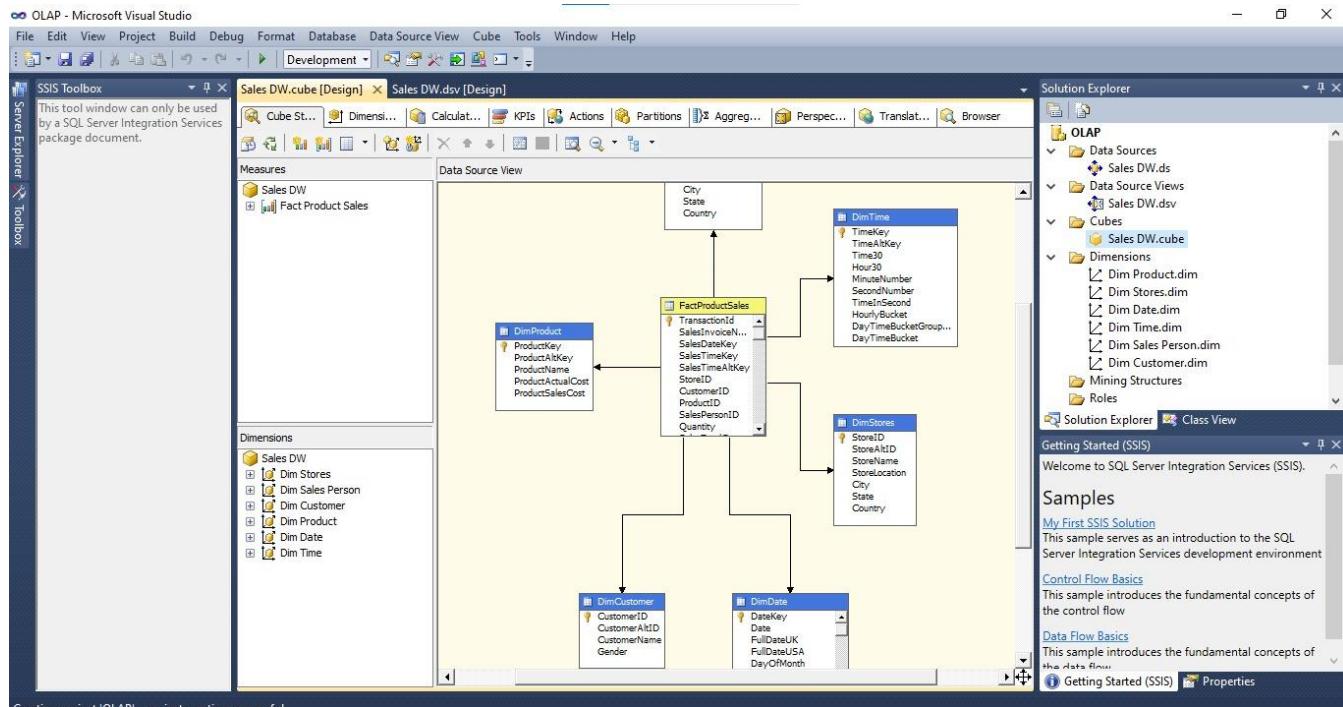
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Roll No.: **SYIT-11**

Date : / /2025

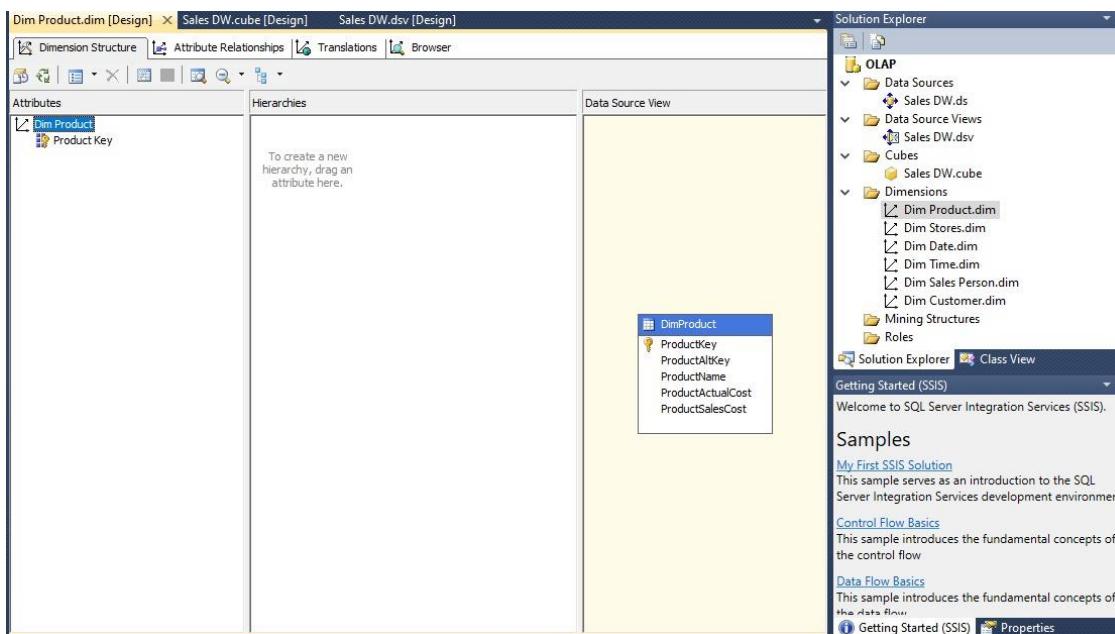
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### Dimension Modification

In dimension tab → Double Click Dim Product.dim



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Drag and Drop Product Name from Table in Data Source View and Add in Attribute Pane at left side

The screenshot shows the SSAS Dimension Designer interface. The top menu bar has tabs for "Dim Product.dim [Design]"\*, "Sales DW.cube [Design]\*", and "Sales DW.dsv [Design]". The ribbon bar includes "Dimension Structure", "Attribute Relationships", "Translations", and "Browser". The left pane, titled "Attributes", contains a tree view with "Dim Product" expanded, showing "Product Key" and "Product Name". The middle pane, titled "Hierarchies", has a message: "To create a new hierarchy, drag an attribute here." The right pane, titled "Data Source View", shows a table with columns for "DimProduct" and its attributes: "ProductKey", "ProductAltKey", "ProductName", "ProductActualCost", and "ProductSalesCost".

### *Creating Attribute Hierarchy in Date Dimension*

Double click On Dim Date dimension -> Drag and Drop Fields from Table shown in Data Source View to Attributes-> Drag and Drop attributes from leftmost pane of attributes to middle pane of Hierarchy.

Drag fields in sequence from Attributes to Hierarchy window (Year, Quarter Name, Month Name, Week of the Month, Full Date UK)

The screenshot shows the SSAS Dimension Designer interface. The top menu bar has tabs for "Dim Date.dim [Design]\*", "Dim Product.dim [Design]\*", "Sales DW.cube [Design]\*", and "Sales DW.dsv [Design]". The ribbon bar includes "Dimension Structure", "Attribute Relationships", "Translations", and "Browser". The left pane, titled "Attributes", contains a tree view with "Dim Date" expanded, showing "Date Key", "Full Date UK", "Month", "Month Name", "Quarter", "Quarter Name", "Week Of Year", and "Year". The middle pane, titled "Hierarchies", shows a hierarchy structure with levels: "Year", "Quarter Name", "Month Name", "Week Of Year", and "Full Date UK". The right pane, titled "Data Source View", shows a table with columns for "DimDate" and its attributes: "QuarterName", "Year", "YearName", "MonthYear", "MMYYYY", "FirstDayOfMonth", "LastDayOfMonth", "FirstDayOfQuarter", "LastDayOfQuarter", and "FirstDayOfYear".

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# BHAVAN'S COLLEGE AUTONOMOUS, ANDHERI-WEST

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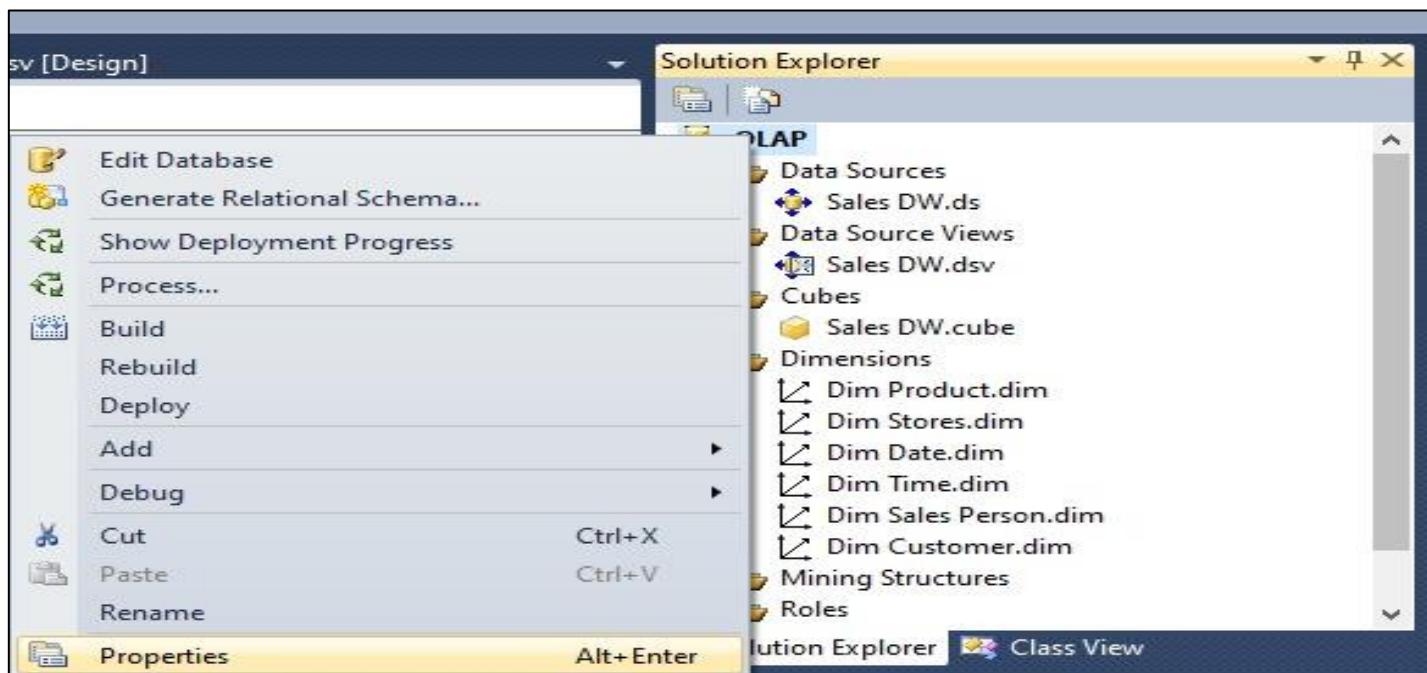
Course Name: Business Analytics.

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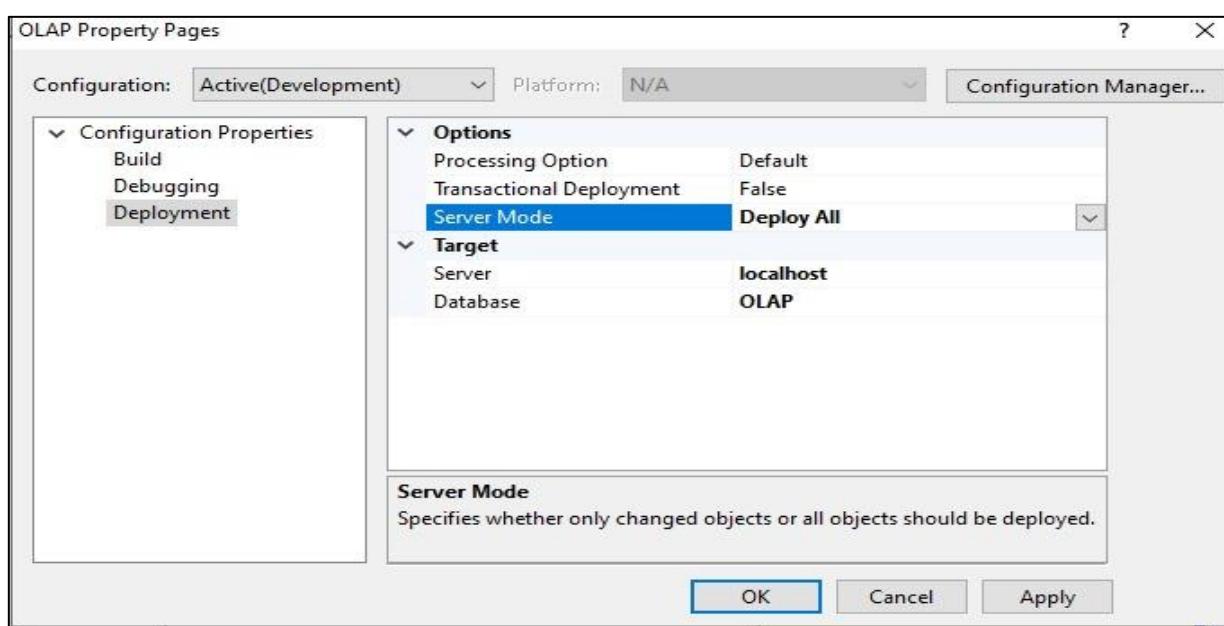
### Deploy Cube

Right click on Project name → Properties



This window appears

Do following changes and click on Apply & ok



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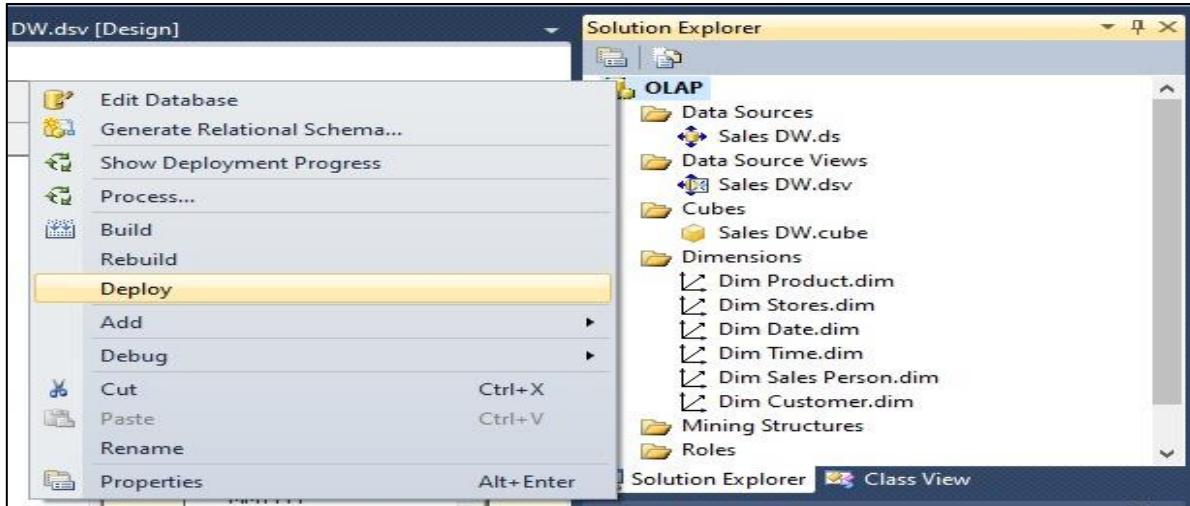
Date : / /2025

Course Name: Business Analytics.

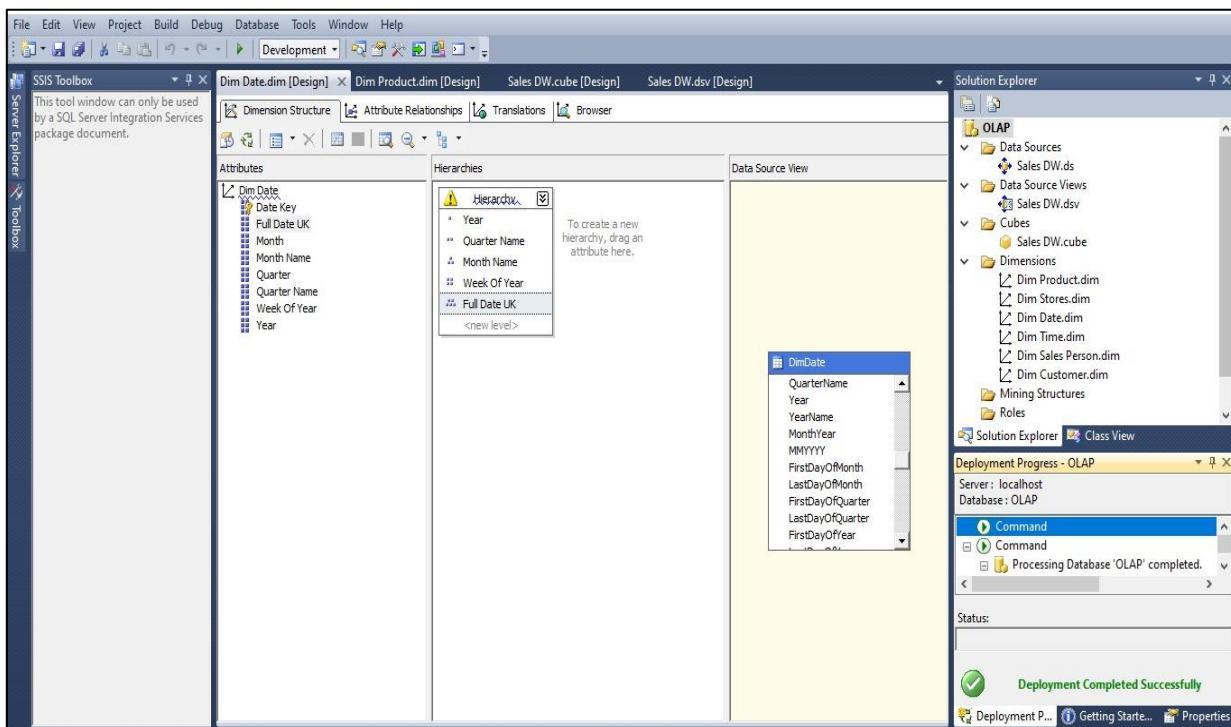
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Right click on project Name → Deploy



Deployment Successful



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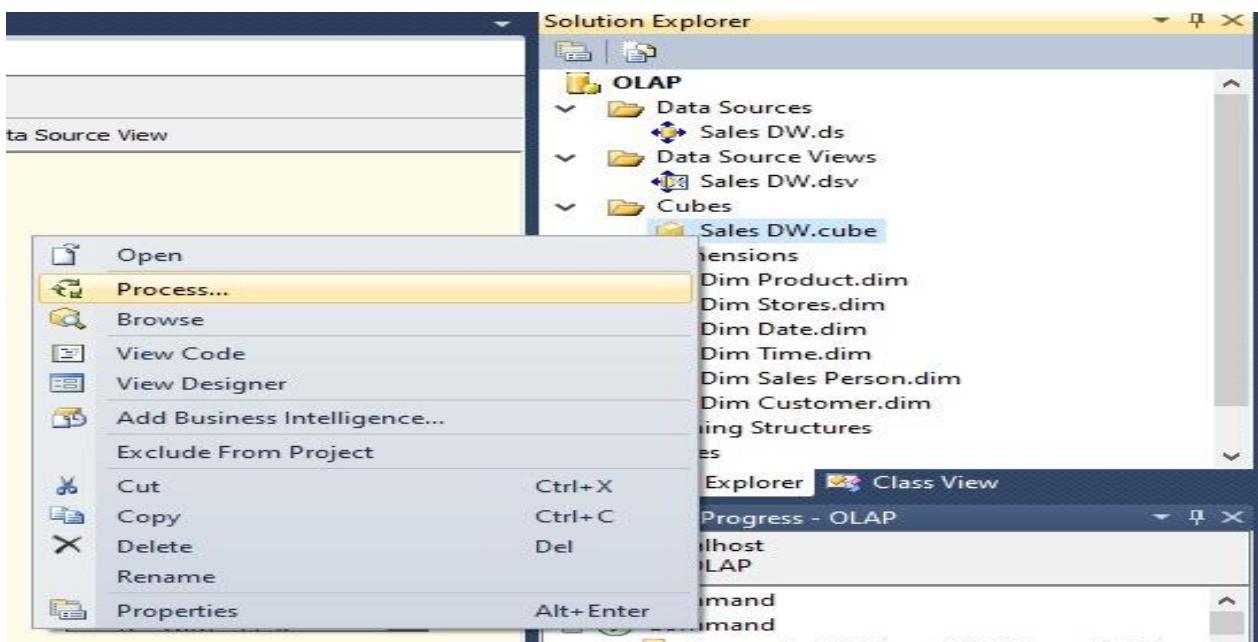
Date : / /2025

Course Name: Business Analytics.

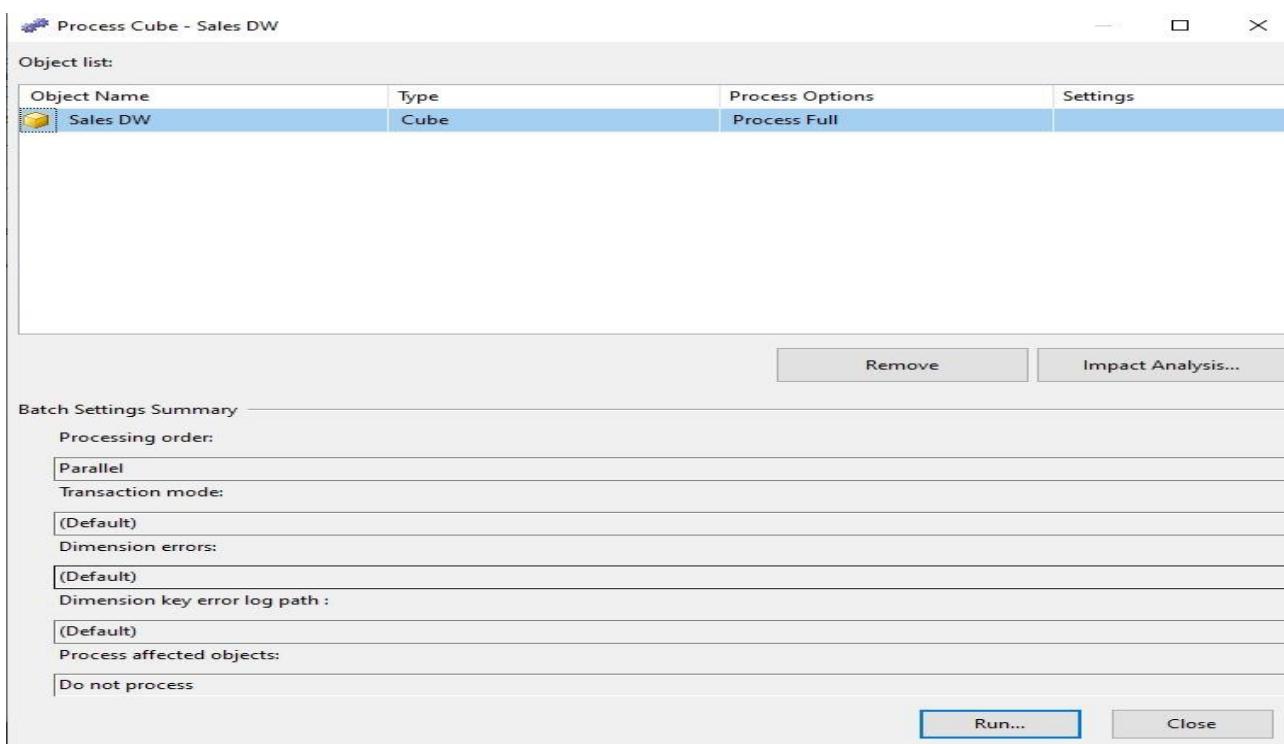
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To process cube right click on Sales\_DW.cube → Process



Click Run



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Sem: **III**

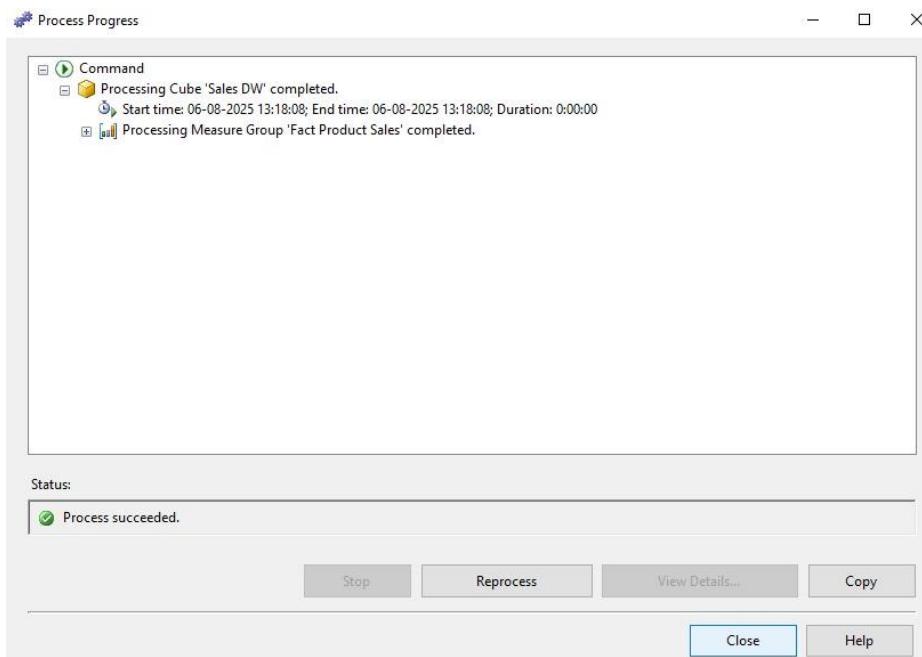
Roll No.: **SYIT-11**

Date : / /2025

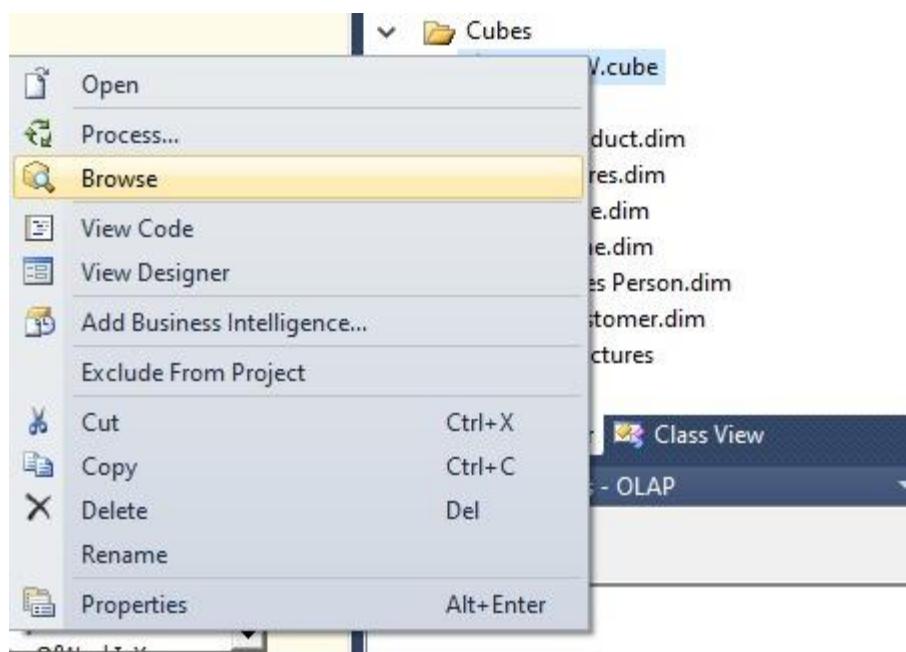
Course Name: **Business Analytics.**

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Browse the cube for analysis in solution explorer



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**BHAVAN'S COLLEGE AUTONOMOUS, ANDHERI-WEST  
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**Class: SYIT**

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**Date : / /2025**

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The screenshot shows the Microsoft Analysis Services (AS) Management Studio interface. The top bar has tabs: Sales DW.cube [Design] (selected), Dim Date.dim [Design], and Dim Product.dim [Design]. Below the tabs is a toolbar with icons for Cube St..., Dimension..., Calculat..., KPIs, Actions, Partitions, Aggreg..., Perspectives, Translat..., and Browser. A language dropdown is set to Default. The main area is divided into two panes. The left pane, titled 'Sales DW', contains a tree view of the cube structure under 'Measure Group': <All>, Sales DW, Measures, Fact Product Sales, KPIs, Dim Customer, Customer ID, Dim Date, Date Key, Full Date UK, Month, Month Name, Quarter, Quarter Name, Week Of Year, Year, and Hierarchy. It also includes sections for 'Calculated Members' and 'Calculated Measures'. The right pane is a query builder with a table header: Dimension, Hierarchy, Operator, Filter Expression. A row is selected with the text '<Select dimension>'. Below the table is a message: 'Drag levels or measures here to add to the query.'

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# BHAVAN'S COLLEGE AUTONOMOUS, ANDHERI-WEST

## PRACTICAL JOURNAL

Class: **SYIT(NEP)**

Sem: III

Roll No.: **SYIT-45**

Date : **13/08/25**

Course Name: **BA**

Page no:

**Practical Number:- 06**

**Practical aim(a):-** Create the ETL map and setup the schedule for execution.

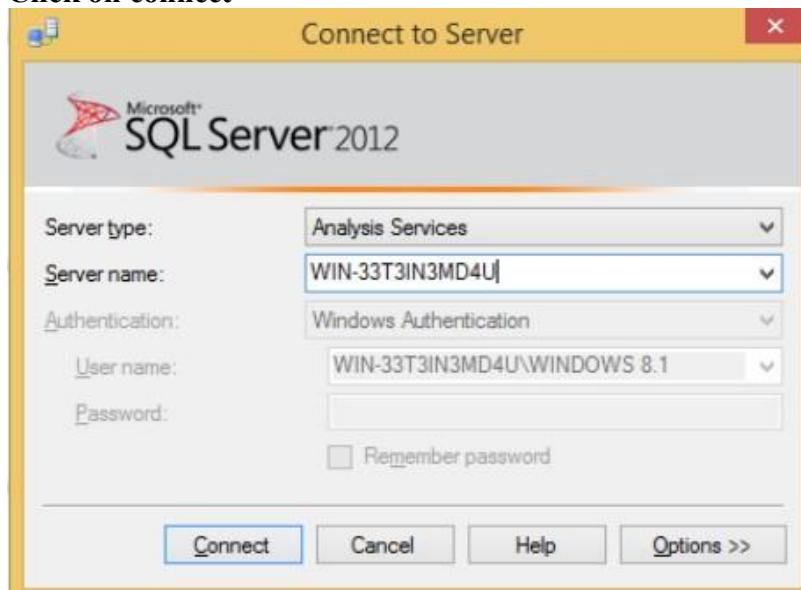
**Aim(b):-** Execute the MDX queries to extract the data from the Datawarehouse.

**Step1:-** Open SQL Server Management Studio and connect to Analysis Services.

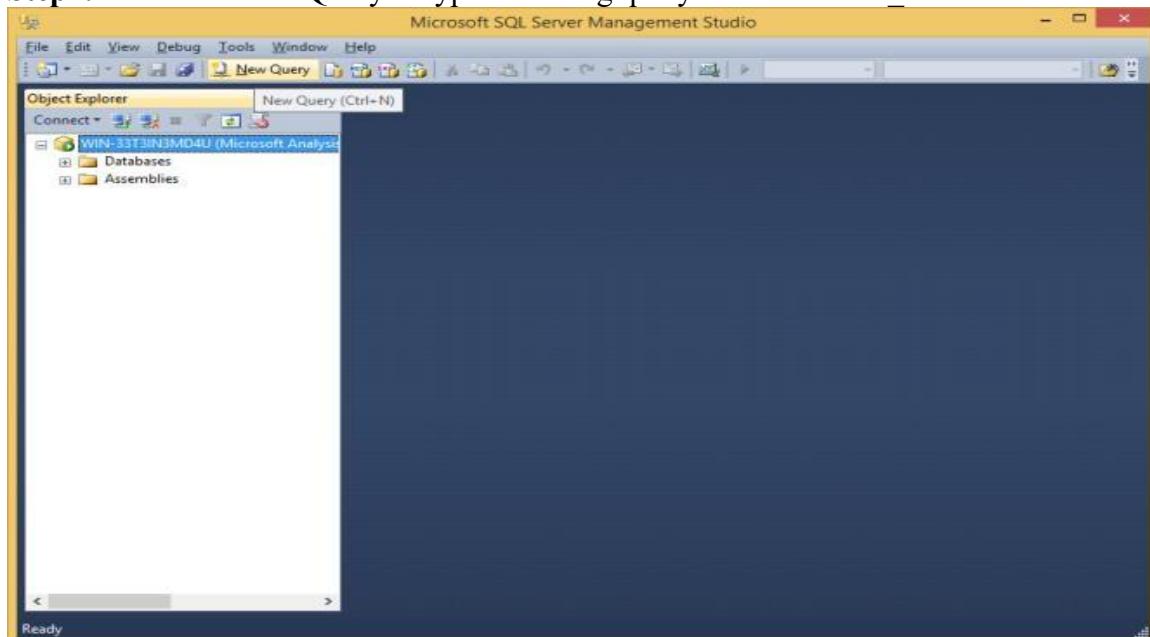
**Server type:-** Analysis Services

**Server name:-** (according to base machine)

**Click on connect**



**Step2:-** Click on New Query & type following query based on Sales\_DW



---

**Teacher's Signature**

# BHAVAN'S COLLEGE AUTONOMOUS, ANDHERI-WEST

## PRACTICAL JOURNAL

Class: **SYIT(NEP)**

Sem: III

Roll No.: **SYIT-45**

Date : **13/08/25**

Course Name: **BA**

Page no:

**Practical Number:- 06**

1. select [Measures].[Sales Time Alt Key] on columns  
from [Sales DW]

Click on execute

The screenshot shows the Microsoft SQL Server Management Studio interface. A query window titled 'MDXQuery1.mdx - WIN-33T3IN3MD4U.OLAP (WIN-33T3IN3MD4U\WINDOWS 8.1)\*' is open. The query is:

```
select [Measures].[Sales Time Alt Key] on columns
from [Sales DW]
```

The Object Explorer on the left shows the cube 'Sales DW' with its measures and dimensions. The Results pane at the bottom shows the output:

Sales Time Alt Key
3631639

A message at the bottom of the results pane says 'Query executed successfully.'

2. select [Measures].[Quantity] on columns  
from [Sales DW]

The screenshot shows the Microsoft SQL Server Management Studio interface. A query window titled 'MDXQuery1.mdx - WIN-33T3IN3MD4U.OLAP (WIN-33T3IN3MD4U\WINDOWS 8.1)\*' is open. The query is:

```
select [Measures].[Quantity] on columns
from [Sales DW]
```

The Object Explorer on the left shows the cube 'Sales DW' with its measures and dimensions. The Results pane at the bottom shows the output:

Quantity
43

A message at the bottom of the results pane says 'Query executed successfully.'

---

**Teacher's Signature**

# BHAVAN'S COLLEGE AUTONOMOUS, ANDHERI-WEST

## PRACTICAL JOURNAL

Class: **SYIT(NEP)**

Sem: III

Roll No.: **SYIT-45**

Date : **13/08/25**

Course Name: **BA**

Page no:

Practical Number:- **06**

3. select [Measures].[Sales Invoice Number] on columns  
from [Sales DW]

```
MDXQuery1.mdx - WIN-33T3IN3MD4U.OLAP (WIN-33T3IN3MD4U\WINDOWS 8.1)* - Microsoft SQL Server Management Studio
```

File Edit View Query Project Debug Tools Window Help

New Query Execute

Object Explorer

Cube: Sales DW

Measure Group: <All>

Measures

- Fact Product Sales
  - Deviation
  - Fact Product Sales Count
  - Product Actual Cost
  - Quantity
  - Sales Invoice Number
  - Sales Time Alt Key
  - Sales Total Cost
- KPIs
- Dim Customer
- Dim Date
- Dim Product
- Dim Sales Person
- Dim Stores
- Dim Time

select [Measures].[Sales Invoice Number] on columns  
from [Sales DW]

Results

Sales Invoice Number
139

Query executed successfully.

Ready

WIN-33T3IN3MD4U | WIN-33T3IN3MD4U\WINDOW... | OLAP | 00:00:01

Ln 1 Col 42 Ch 42 INS .all

4. select [Measures].[Sales Total Cost] on columns  
from [Sales DW]

```
MDXQuery1.mdx - WIN-33T3IN3MD4U.OLAP (WIN-33T3IN3MD4U\WINDOWS 8.1)* - Microsoft SQL Server Management Studio
```

File Edit View Query Project Debug Tools Window Help

New Query Execute

Object Explorer

Cube: Sales DW

Measure Group: <All>

Measures

- Fact Product Sales
  - Deviation
  - Fact Product Sales Count
  - Product Actual Cost
  - Quantity
  - Sales Invoice Number
  - Sales Time Alt Key
  - Sales Total Cost
- KPIs
- Dim Customer
- Dim Date
- Dim Product
- Dim Sales Person
- Dim Stores
- Dim Time

select [Measures].[Sales Total Cost] on columns  
from [Sales DW]

Results

Sales Total Cost
1231.5

Query executed successfully.

Ready

WIN-33T3IN3MD4U | WIN-33T3IN3MD4U\WINDOW... | OLAP | 00:00:01

Ln 1 Col 37 Ch 37 INS .all

Teacher's Signature

# BHAVAN'S COLLEGE AUTONOMOUS, ANDHERI-WEST

## PRACTICAL JOURNAL

Class: **SYIT(NEP)**

Sem: III

Roll No.: **SYIT-45**

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5. select [Measures].[Sales Total Cost] on columns  
, [Dim Date].[Year].[Year] on rows  
from [Sales DW]

```
MDXQuery1.mdx - WIN-33T3IN3MD4U.OLAP (WIN-33T3IN3MD4U\WINDOWS 8.1)* - Microsoft SQL Server Management Studio
```

Object Explorer

Cube: Sales DW

Measure Group: <All>

```
select [Measures].[Sales Total Cost] on columns
, [Dim Date].[Year].[Year] on rows
from [Sales DW]
```

Results

	Sales Total Cost
2013	1231.5
2014	(null)
Unknown	(null)

Query executed successfully.

6. select [Measures].[Sales Total Cost] on columns  
, NONEMPTY({[Dim Date].[Year].[Year]}) on rows  
from [Sales DW]

```
MDXQuery1.mdx - WIN-33T3IN3MD4U.OLAP (WIN-33T3IN3MD4U\WINDOWS 8.1)* - Microsoft SQL Server Management Studio
```

Object Explorer

Cube: Sales DW

Measure Group: <All>

```
select [Measures].[Sales Total Cost] on columns
, NONEMPTY({[Dim Date].[Year].[Year]}) on rows
from [Sales DW]
```

Results

	Sales Total Cost
2013	1231.5

Query executed successfully.

Teacher's Signature

# BHAVAN'S COLLEGE AUTONOMOUS, ANDHERI-WEST

## PRACTICAL JOURNAL

Class: **SYIT(NEP)**

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Roll No.: **SYIT-45**

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Course Name: **BA**

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7. select [Measures].[Sales Total Cost] on columns

from [Sales DW]

Where [Dim Date].[Year].[Year].&[2013]

The screenshot shows the Microsoft SQL Server Management Studio interface with an MDX query window titled "MDXQuery1.mdx - WIN-33T3IN3MD4U.OLAP (WIN-33T3IN3MD4U\WINDOWS 8.1)\* - Microsoft SQL Server Management Studio". The query is:

```
select [Measures].[Sales Total Cost] on columns
from [Sales DW]
Where [Dim Date].[Year].[Year].&[2013]
```

The Object Explorer on the left shows the cube "Sales DW" with dimensions like Dim Date, Dim Customer, and measures like Sales Total Cost. The Results pane shows the output:

Sales Total Cost
1231.5

8. select [Measures].[Sales Invoice Number] on columns

, [Dim Date].[Month Name].[Month Name] on rows

from [Sales DW]

The screenshot shows the Microsoft SQL Server Management Studio interface with an MDX query window titled "MDXQuery1.mdx - DESKTOP-3KBM08B.olap1 (DESKTOP-3KBM08B\LAB2-PC03)\* - Microsoft SQL Server Management Studio". The query is:

```
select [Measures].[Sales Invoice Number] on columns
,[Dim Date].[Month Name].[Month Name] on rows
from [Sales DW]
```

The Object Explorer on the left shows the cube "Sales DW" with dimensions like Dim Date, Dim Customer, and measures like Sales Invoice Number. The Results pane shows the output:

Sales Invoice Number
April (null)
August (null)
December (null)
February (null)
January 139
July (null)
June (null)
March (null)
May (null)
November (null)
October (null)

**Teacher's Signature**

# BHAVAN'S COLLEGE AUTONOMOUS, ANDHERI-WEST

## PRACTICAL JOURNAL

Class: **SYIT(NEP)**

Sem: III

Roll No.: **SYIT-45**

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9. select [Measures].[Sales Total Cost] on columns  
, [Dim Date].[Month Name].[Month Name] on rows  
from [Sales DW]

```
MDXQuery1.mdx - DESKTOP-3KBM08B.olap1 (DESKTOP-3KBM08B\LAB2-PC03)* - Microsoft SQL Server Management Studio
File Edit View Query Project Debug Tools Window Help
File Edit View Query Project Debug Tools Window Help
olap1 Execute
Object Explorer MDXQuery1.mdx -...MOBB(LAB2-PC03)* Cube: Sales DW
Connect Databases MultidimensionalProject2
Databases
MultidimensionalProject2
Data Sources
Data Source Views
Cubes
Dimensions
Mining Structures
Roles
Assemblies
olap1
Assemblies
Metadata Functions
Measure Group: <All>
Fact Product Sales
Deviation
Fact Product Sales Count
Product Actual Cost
Quantity
Sales Invoice Number
Sales Time All Key
Sales Total Cost
KPIs
Dim Customer
Dim Date
Date Key
Full Date UK
Month
Month Name
Quarter
Quarter Name
Week Of Month
Year
Members
Year
Member Properties
2013
2014
Unknown
Hierarchy
select[Measures].[Sales Total Cost] on columns
,[Dim Date].[Month Name].[Month Name] on rows
from[Sales DW]
Messages Results
Sales Total Cost
April (null)
August (null)
December (null)
February (null)
January 1231.5
July (null)
June (null)
March (null)
May (null)
November (null)
October (null)
Query executed successfully.
DESKTOP-3KBM08B | DESKTOP-3KBM08B\LAB2-PC03 | olap1 | 00:00:01
Ln 3 Col 5 Ch 5 INS
```

10. select [Measures].[Product Actual Cost] on columns  
, [Dim Date].[Month Name].[Month Name] on rows  
from [Sales DW]

```
MDXQuery1.mdx - DESKTOP-3KBM08B.olap1 (DESKTOP-3KBM08B\LAB2-PC03)* - Microsoft SQL Server Management Studio
File Edit View Query Project Debug Tools Window Help
File Edit View Query Project Debug Tools Window Help
olap1 Execute
Object Explorer MDXQuery1.mdx -...MOBB(LAB2-PC03)* Cube: Sales DW
Connect Databases MultidimensionalProject2
Databases
MultidimensionalProject2
Data Sources
Data Source Views
Cubes
Dimensions
Mining Structures
Roles
Assemblies
olap1
Assemblies
Metadata Functions
Measure Group: <All>
Fact Product Sales
Deviation
Fact Product Sales Count
Product Actual Cost
Quantity
Sales Invoice Number
Sales Time All Key
Sales Total Cost
KPIs
Dim Customer
Dim Date
Date Key
Full Date UK
Month
Month Name
Quarter
Quarter Name
Week Of Month
Year
Members
Year
Member Properties
2013
2014
Unknown
Hierarchy
select[Measures].[Product Actual Cost] on columns
,[Dim Date].[Month Name].[Month Name] on rows
from[Sales DW]
Messages Results
Product Actual Cost
April (null)
August (null)
December (null)
February (null)
January 1156.5
July (null)
June (null)
March (null)
May (null)
November (null)
October (null)
Query executed successfully.
DESKTOP-3KBM08B | DESKTOP-3KBM08B\LAB2-PC03 | olap1 | 00:00:01
Ln 3 Col 6 Ch 6 INS
```

Teacher's Signature

# BHAVAN'S COLLEGE AUTONOMOUS, ANDHERI-WEST

## PRACTICAL JOURNAL

Class: **SYIT(NEP)**

Sem: III

Roll No.: **SYIT-45**

Date : **13/08/25**

Course Name: **BA**

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**11. select [Measures].[Sales Total Cost] on columns**

**from [Sales DW]**

**Where [Dim Date].[Year].[Year].&[2014]**

The screenshot shows the Microsoft SQL Server Management Studio interface. The left pane displays the Object Explorer with the 'DESKTOP-3KBM08B' database selected, showing 'MultidimensionalProject2' and its components like 'Fact Product Sales' and 'Dim Date'. The right pane contains the results of an MDX query:

```
select [Measures].[Sales Total Cost] on columns
from [Sales DW]
where [Dim Date].[Year].[Year].&[2014]
```

The results pane shows a single row with the value '(null)' under the heading 'Sales Total Cost'. At the bottom of the interface, a message says 'Query executed successfully.'

---

**Teacher's Signature**

**BHAVAN'S COLLEGE AUTONOMOUS, ANDHERI-WEST  
PRACTICAL JOURNAL**

**Class SYIT(NEP)**

**Sem: III**

**Roll No.: SYIT45**

**Date :22/08/2025**

**Course Name: BA**

**Page no:**

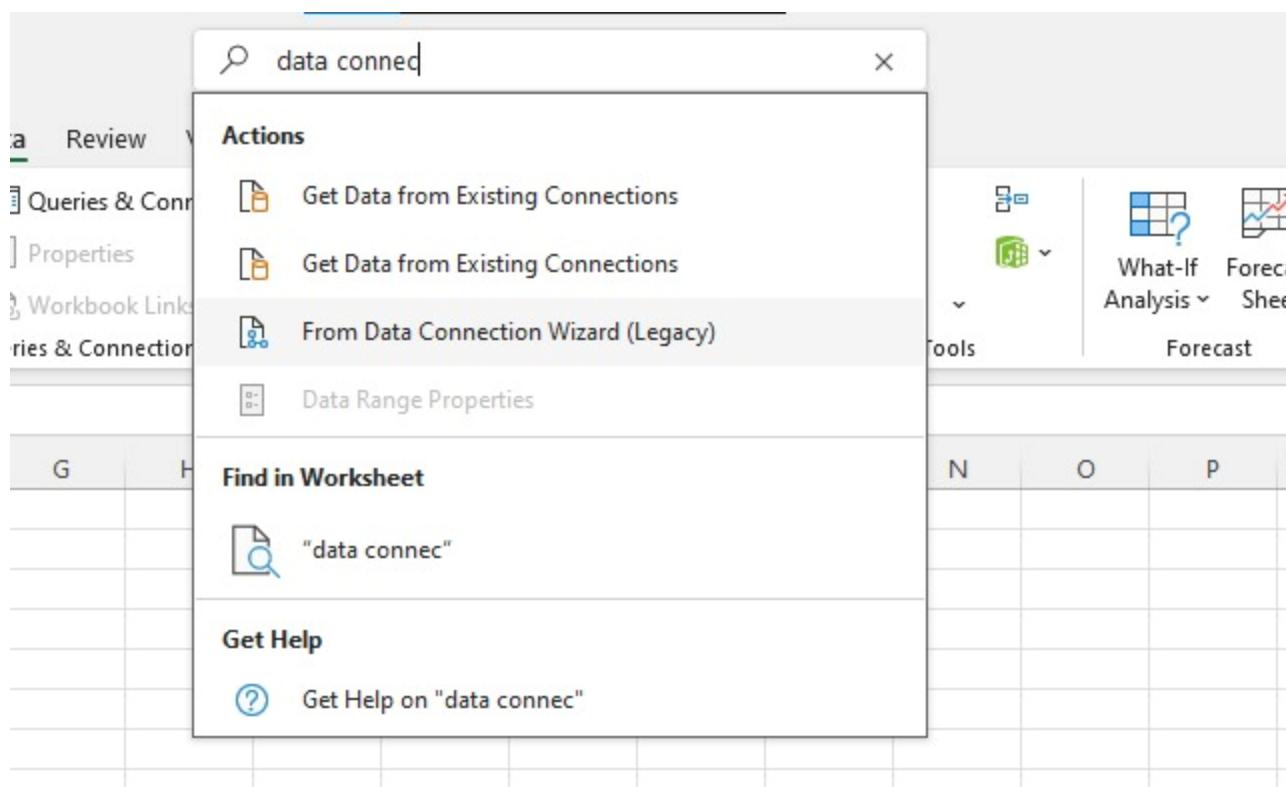
**Practical Number:- 7**

**Practical aim(a):** - Import the Datawarehouse data in Microsoft Excel and create the Pivot Table and Pivot Chart.

**Aim(b):** - Import the cube in Microsoft Excel and create the Pivot Table and Pivot Chart to perform data analysis.

**Step 1: Open Excel**

Go to Search bar → write Data Connection Wizard



**Step2:** Select Microsoft SQL Server and then click on Next.

**Teacher's Signature**

**BHAVAN'S COLLEGE AUTONOMOUS, ANDHERI-WEST  
PRACTICAL JOURNAL**

**Class SYIT(NEP)      Sem: III**

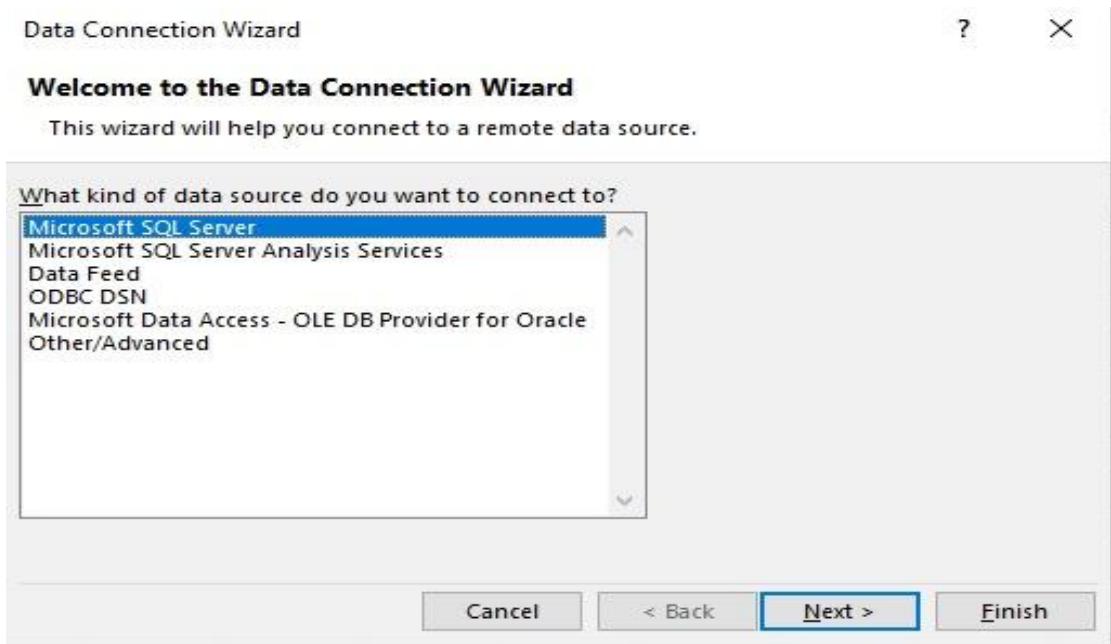
**Roll No.: SYIT45**

**Date :22/08/2025**

**Course Name: BA**

**Page no:**

**Practical Number:- 7**



**Step3:** - Copy the name of the server form SQL server and authentication should be Windows Authentication.



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**BHAVAN'S COLLEGE AUTONOMOUS, ANDHERI-WEST  
PRACTICAL JOURNAL**

**Class SYIT(NEP)**

**Sem: III**

**Roll No.: SYIT45**

**Date :22/08/2025**

**Course Name: BA**

**Page no:**

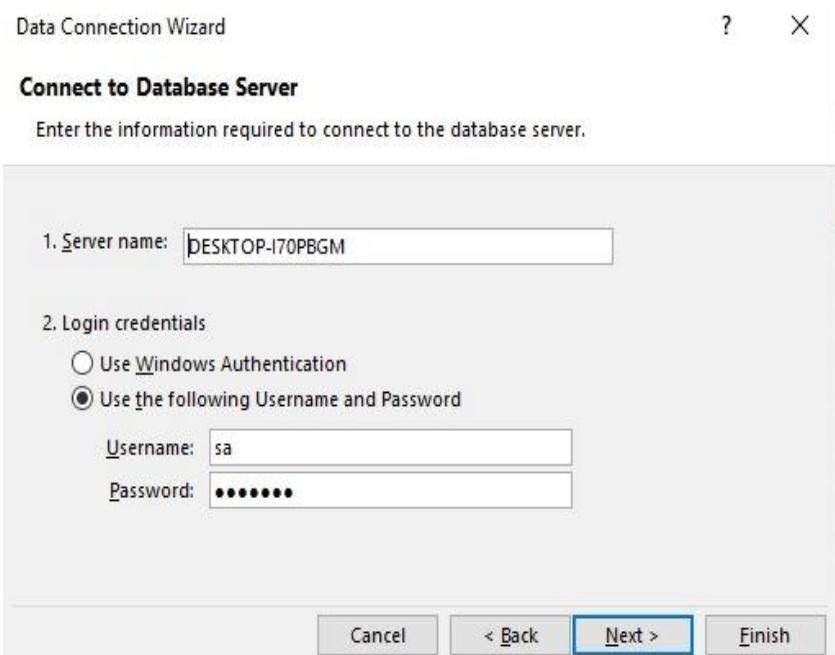
**Practical Number:- 7**

Write the username and password

**Username: - sa**

**Password: - bhavans**

Click on Next



**Step4:- Select Sales\_DW and click all the columns of the table.**

---

**Teacher's Signature**

# BHAVAN'S COLLEGE AUTONOMOUS, ANDHERI-WEST

## PRACTICAL JOURNAL

Class **SYIT(NEP)**

Sem: III

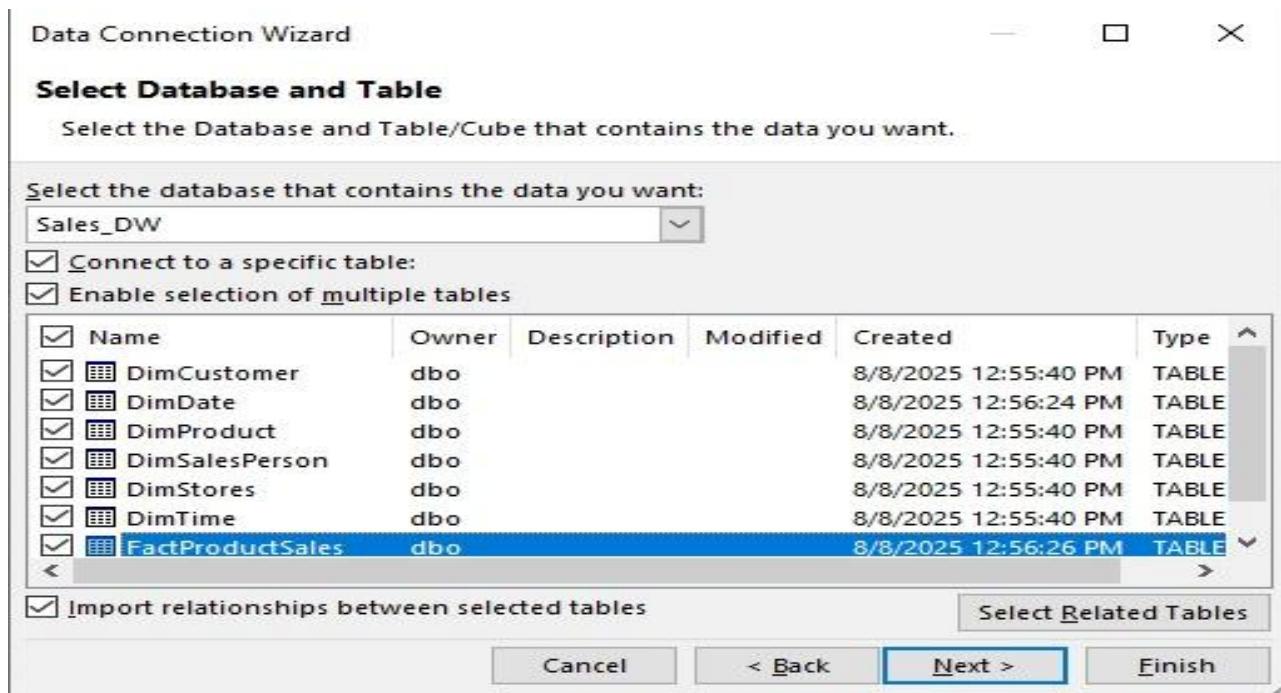
Roll No.: SYIT45

Date :22/08/2025

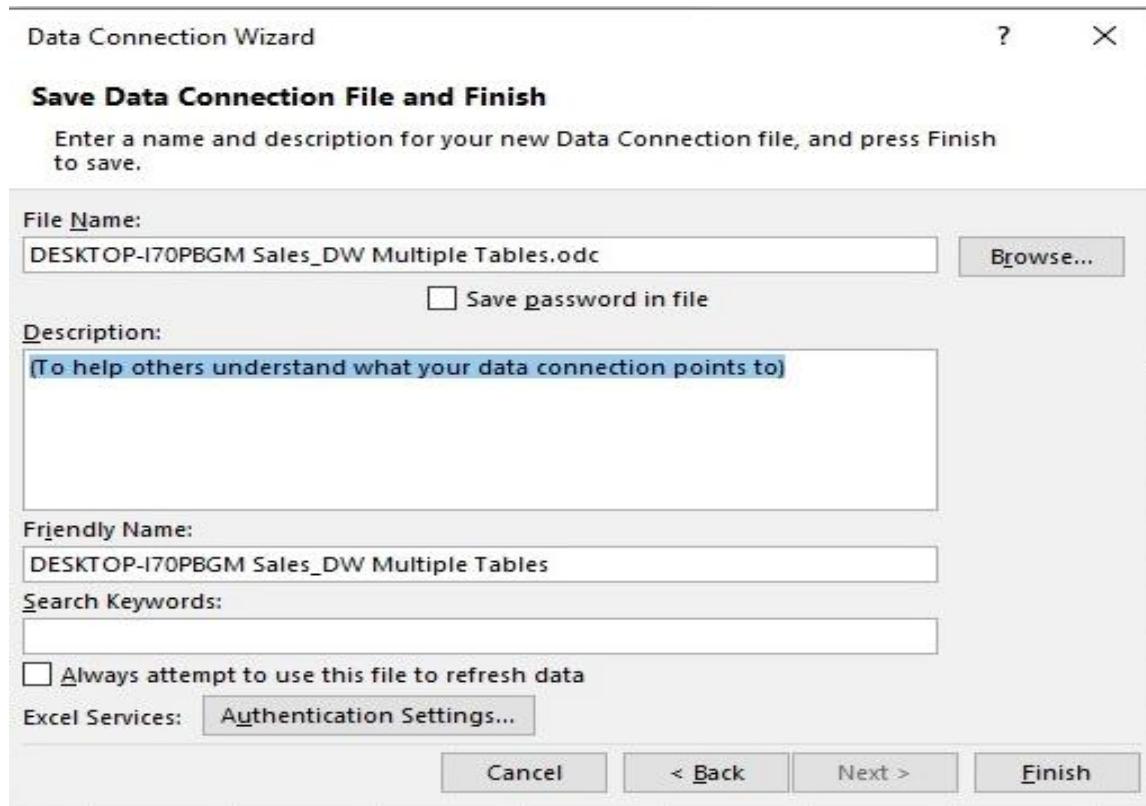
Course Name: BA

Page no:

Practical Number:- 7



Click on Next



Teacher's Signature

# BHAVAN'S COLLEGE AUTONOMOUS, ANDHERI-WEST

## PRACTICAL JOURNAL

Class **SYIT(NEP)**

Sem: III

Roll No.: SYIT45

Date :22/08/2025

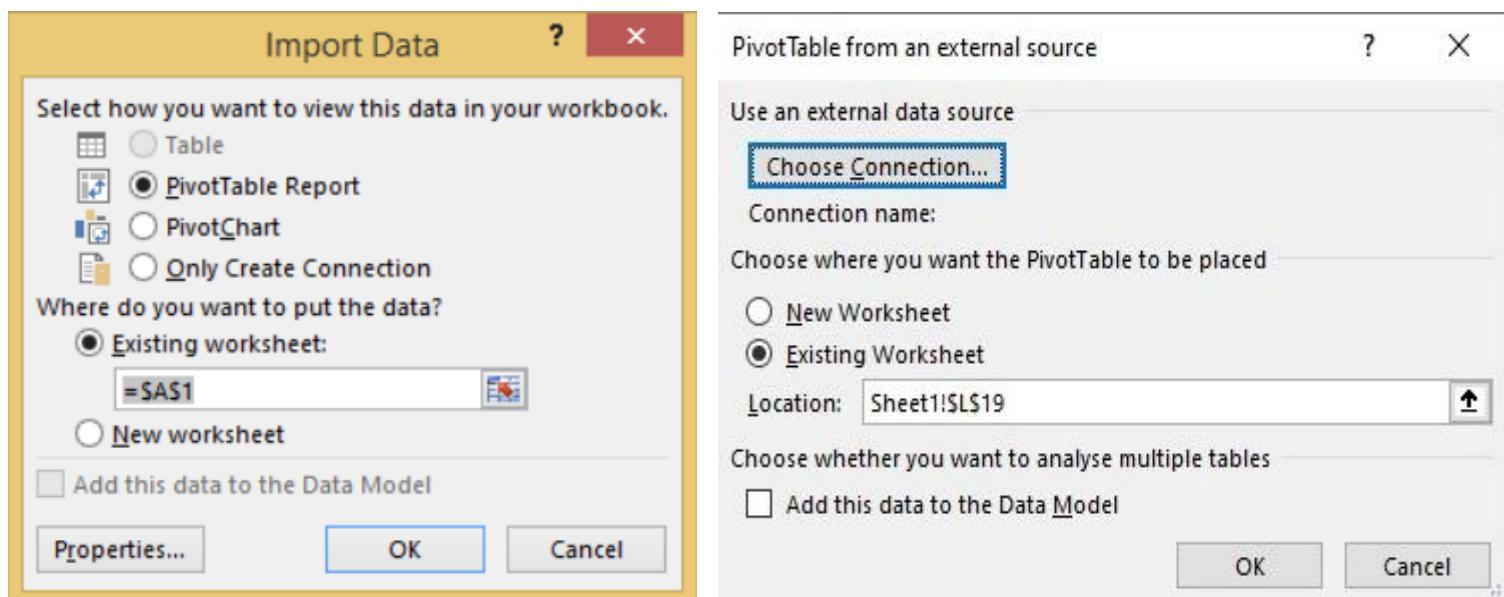
Course Name: BA

Page no:

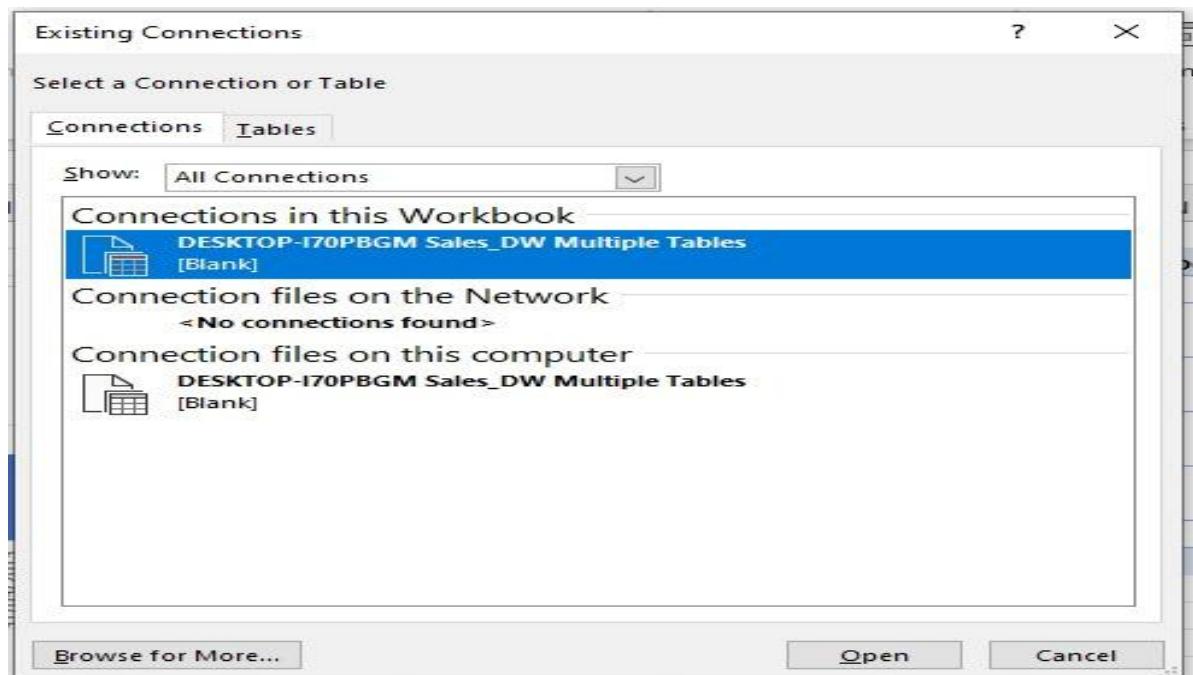
Practical Number:- 7

**Click on finish**

**Step 5:** Click on Pivot table from the insert tab and then select Existing worksheet.



After selecting the existing worksheet click on choose connection in that click on Sales\_DW multiple tables



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# BHAVAN'S COLLEGE AUTONOMOUS, ANDHERI-WEST

## PRACTICAL JOURNAL

Class **SYIT(NEP)**      Sem: III

Roll No.: **SYIT45**

Date :**22/08/2025**

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**Step 6 :** Drag and Drop Fields in rows column and values.

	A	B	C	D	E	F	G	H	I	J
1	<b>Quantity</b>	Column Labels								
2	Row Labels	44347	44519	52415	59326	59349	67390	74877	Grand Total	
3		11			5		2		18	
4	Arial Washing Powder 1kg	1							1	
5	Nirma Soap	3			3				6	
6	Rice Grains 1kg	2					1		3	
7	SunFlower Oil 1 ltr	1			2		1		4	
8	Wheat Floor 1kg	4							4	
9		8			2				10	
10	Nirma Soap		6						6	
11	Rice Grains 1kg			1					1	
12	SunFlower Oil 1 ltr		2						2	
13	Wheat Floor 1kg				1				1	
14		10			5				15	
15	Arial Washing Powder 1kg		2						2	
16	Nirma Soap		3			3			6	
17	Rice Grains 1kg		4						4	
18	SunFlower Oil 1 ltr		1						1	
19	Wheat Floor 1kg				2				2	
20	<b>Grand Total</b>	11	8	10	5	2	5	2	<b>43</b>	

**Step 7:** Go to Insert tab → pivot chart and select Pivot Chart from drop down

	A	B	C	D	E	F	G		
2	Row Labels	44347	44519	52415	59326	59349	67390	74877 Grand Total	
3		11			5		2	18	
4	Arial Washing Powder 1kg	1						1	
5	Nirma Soap	3			3			6	
6	Rice Grains 1kg	2				1		3	
7	SunFlower Oil 1 ltr	1			2		1	4	
8	Wheat Floor 1kg	4						4	
9		8			2			10	
10	Nirma Soap		6					6	
11	Rice Grains 1kg			1				1	
12	SunFlower Oil 1 ltr		2					2	
13	Wheat Floor 1kg				1			1	
14		10			5			15	
15	Arial Washing Powder 1kg		2					2	
16	Nirma Soap		3			3		6	
17	Rice Grains 1kg		4					4	
18	SunFlower Oil 1 ltr		1					1	
19	Wheat Floor 1kg				2			2	
20	<b>Grand Total</b>	11	8	10	5	2	5	2	<b>43</b>

**Teacher's Signature**

# BHAVAN'S COLLEGE AUTONOMOUS, ANDHERI-WEST

## PRACTICAL JOURNAL

Class **SYIT(NEP)**      Sem: III

Roll No.: **SYIT45**

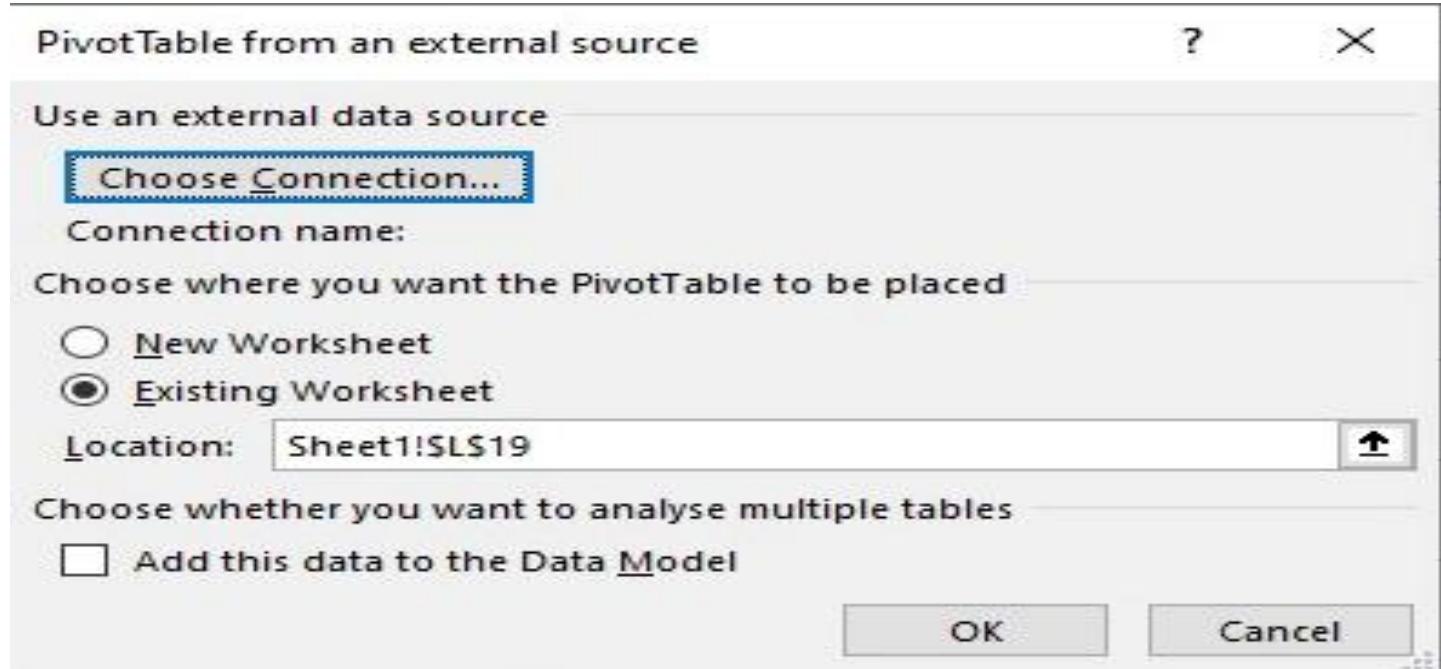
Date :**22/08/2025**

Course Name: **BA**

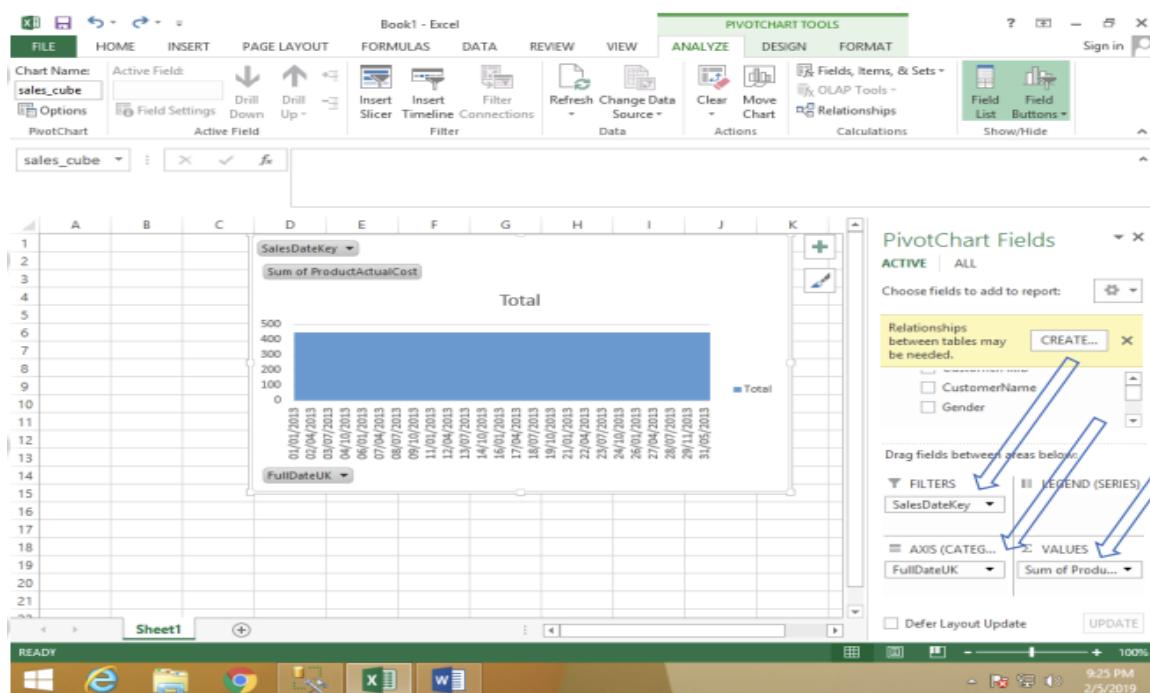
Page no:

Practical Number:- **7**

**Step 8:** Select existing worksheet and click on ok.



**Step 9:** In fields put **SalesDateKey** in filters, **FullDateUK** in axis and **Sum of ProductActualCost** in values.



**Teacher's Signature**

# BHAVAN'S COLLEGE AUTONOMOUS, ANDHERI-WEST

## PRACTICAL JOURNAL

Class **SYIT(NEP)**      Sem: **III**

Roll No.: **SYIT45**

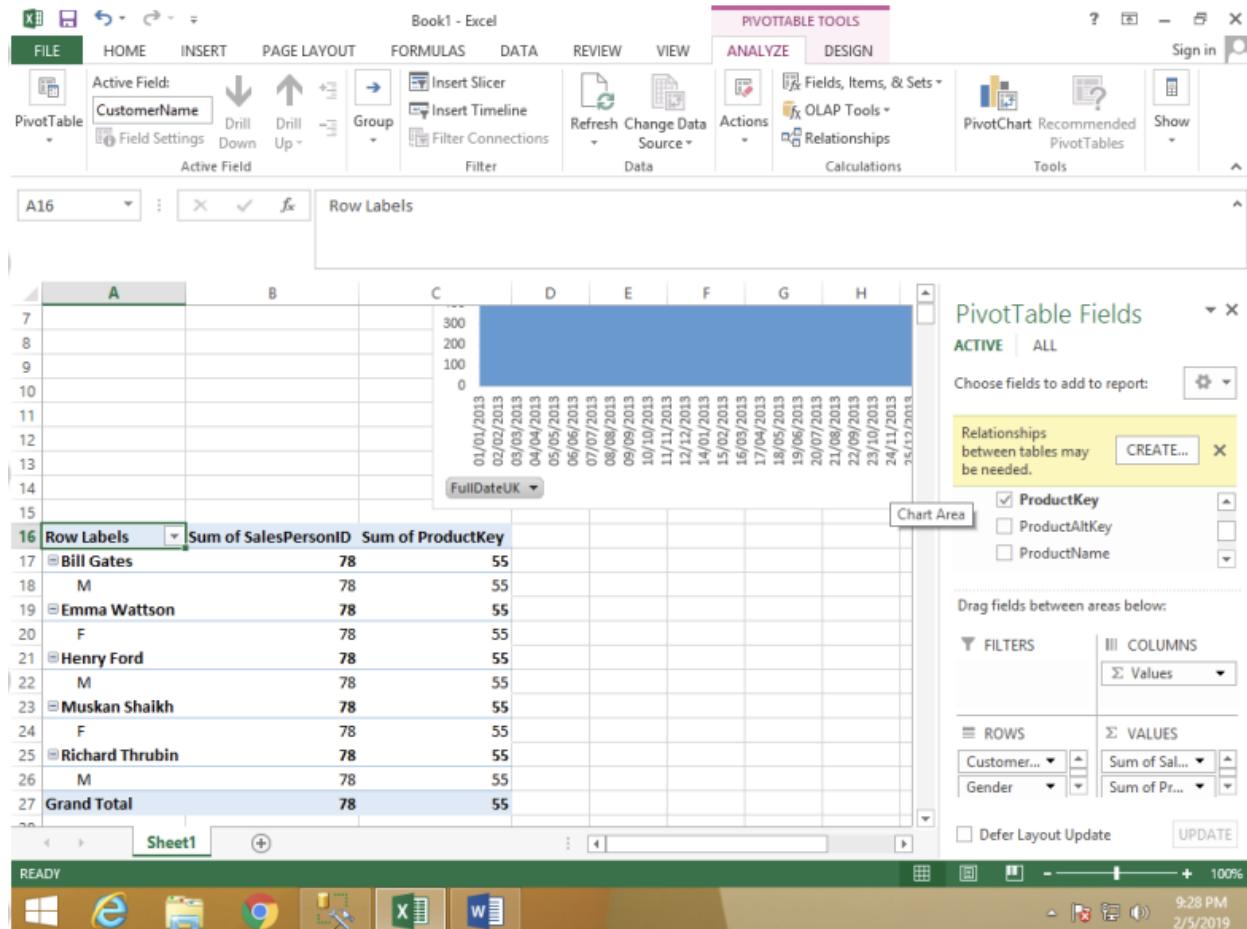
Date :**22/08/2025**

Course Name: **BA**

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Now Pivot table and pivot chart is created.



Teacher's Signature

# BHAVAN'S COLLEGE AUTONOMOUS, ANDHERI-WEST

## PRACTICAL JOURNAL

Class: **SYIT(NEP)** Sem: III  
Course Name: Business Analytics

Roll No.: **SYIT45**

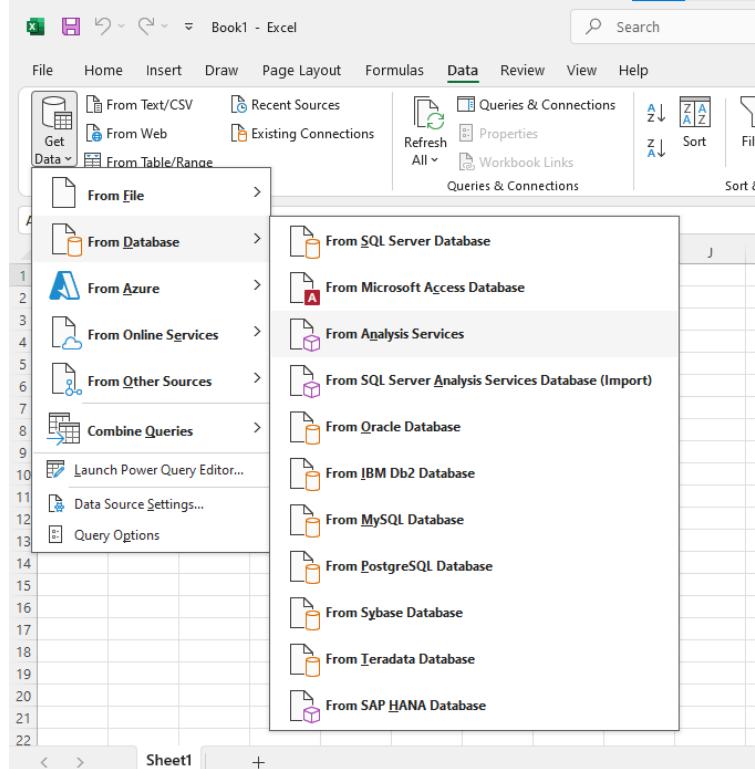
Date: **12/09/25**  
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Practical Number: - 7b

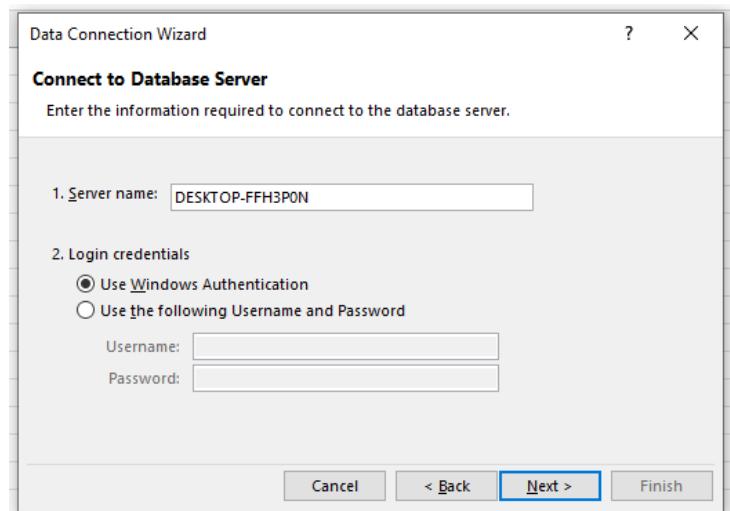
Aim: Import the cube in Microsoft Excel and create the Pivot table and Pivot Chart to perform data analysis.

Step 1: Open Excel 2013 (Professional)

Go to Data tab → From Database → From Analysis Services



Step 2: Select Server name and Windows Authentication and click on Next



Teacher's Signature

# BHAVAN'S COLLEGE AUTONOMOUS, ANDHERI-WEST

## PRACTICAL JOURNAL

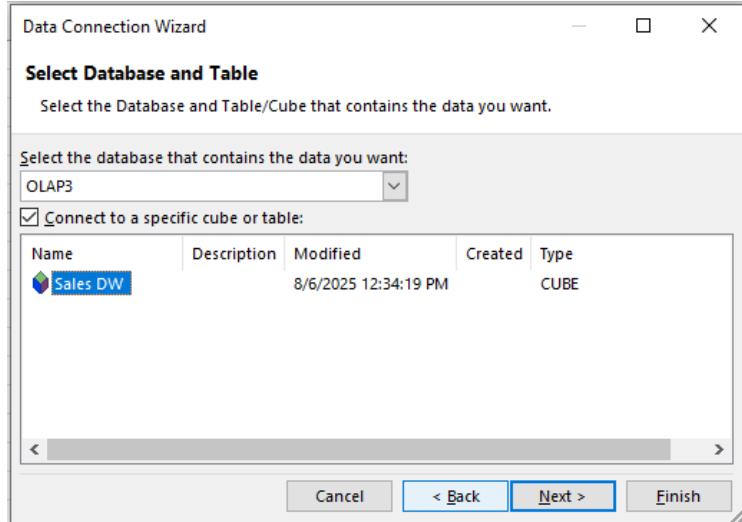
Class: **SYIT(NEP)** Sem: III  
Course Name: Business Analytics

Roll No.: **SYIT45**

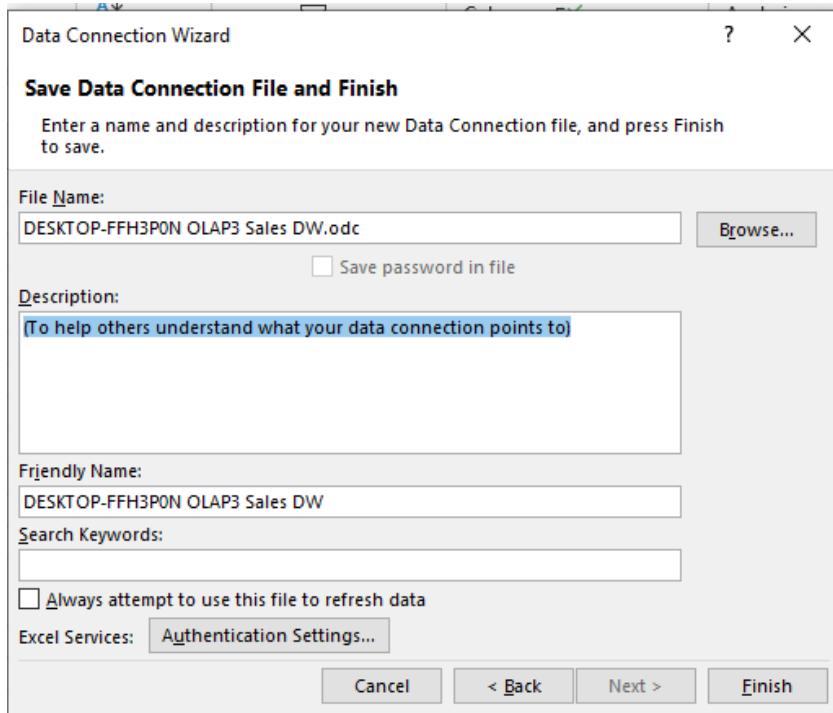
Date: **12/09/25**  
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**Practical Number: - 7b**

Step 3: Select OLAP(as per created before) click on Next



Step 4: Browse and select path name and click on Finish



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**Teacher's Signature**

# BHAVAN'S COLLEGE AUTONOMOUS, ANDHERI-WEST

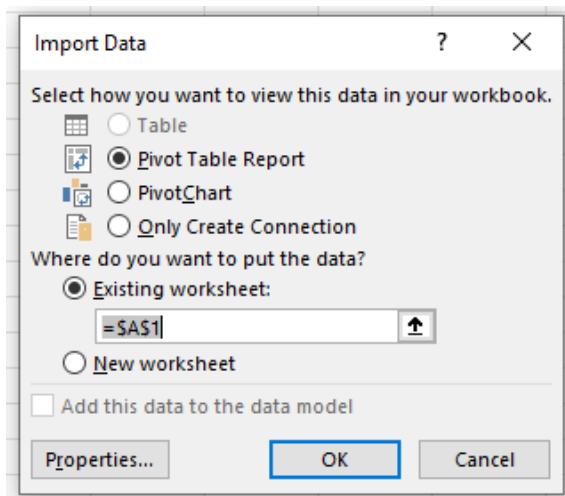
## PRACTICAL JOURNAL

Class: **SYIT(NEP)** Sem: III  
Course Name: Business Analytics  
**Practical Number: - 7b**

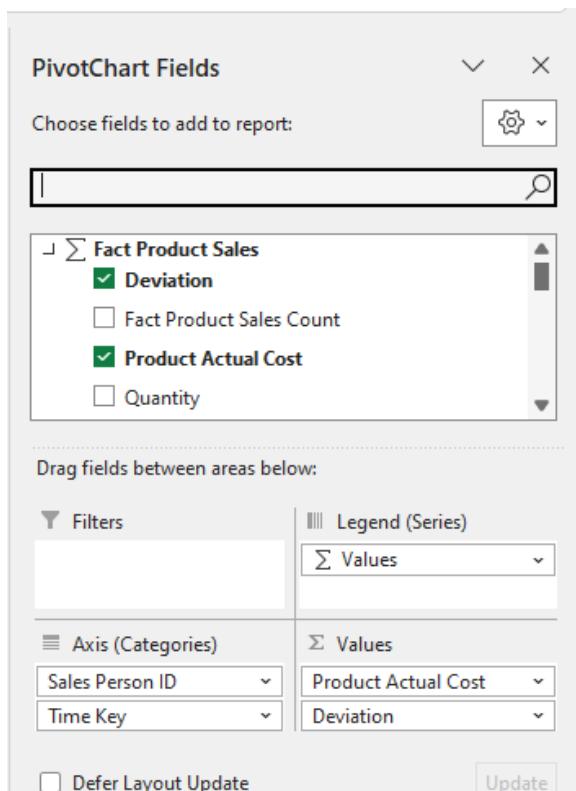
Roll No.: **SYIT45**

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Page no:

Step 5: Select PivotTableReport → OK



Step 6 : Drag and Drop Fields in rows column and values



---

**Teacher's Signature**

# BHAVAN'S COLLEGE AUTONOMOUS, ANDHERI-WEST

## PRACTICAL JOURNAL

Class: **SYIT(NEP)** Sem: **III**  
Course Name: **Business Analytics**

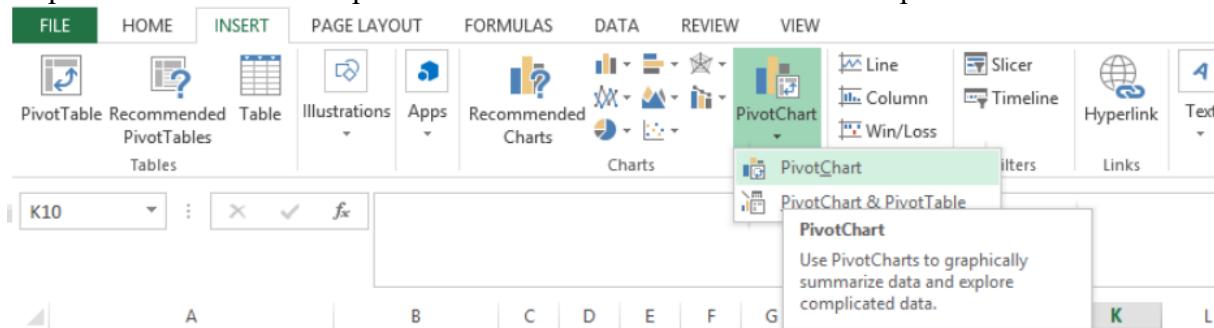
Roll No.: **SYIT45**

Date: **12/09/25**

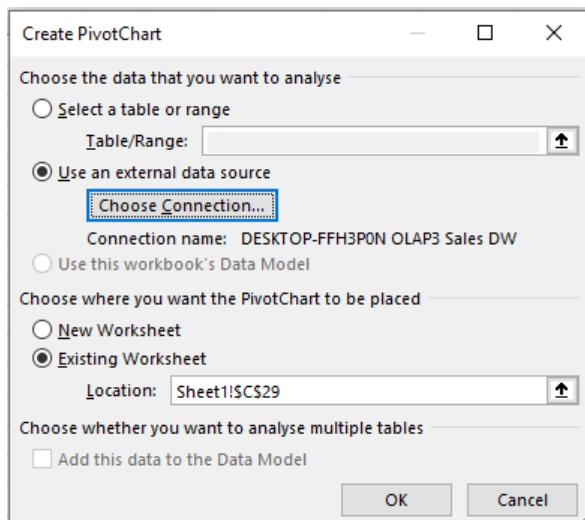
Page no:

**Practical Number: - 7b**

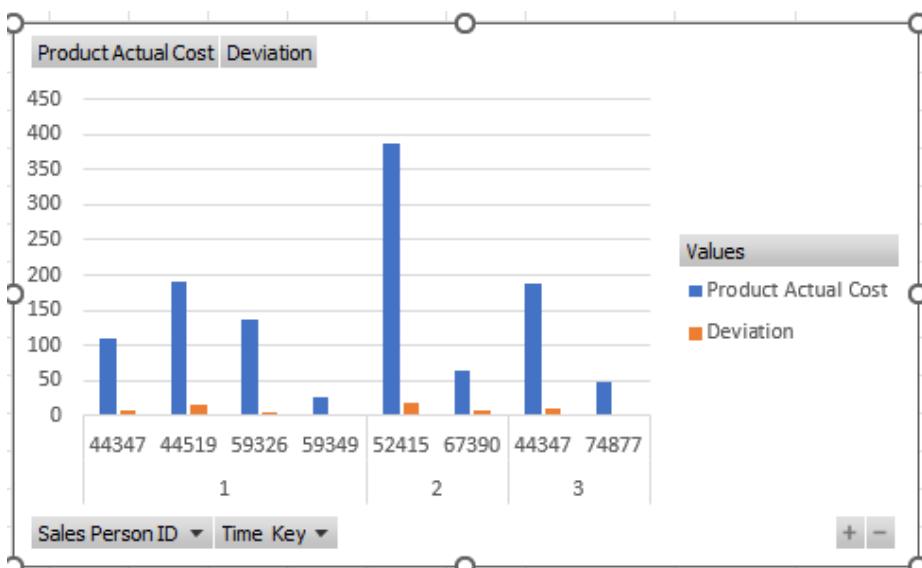
Step 7: Go to Insert tab → pivot chart and select Pivot Chart from drop down



Step 8: Click on Choose connection to select path



Step 9: Click on OK



Teacher's Signature

**BHAVAN'S COLLEGE AUTONOMOUS, ANDHERI-WEST**  
**PRACTICAL JOURNAL**

Class: **SYIT(NEP)** Sem: III  
 Course Name: Business Analytics

Roll No.: **SYIT45**

Date: **12/09/25**  
 Page no:

Practical Number: - 7b

Quantity	Column Labels	44519	52415	59326	59349	67390	74877	Grand Total
Row Labels	44347							
1	Arial Washing Powder 1kg	1						1
	Nirma Soap	3		3				6
	Rice Grains 1kg	2				1		3
	SunFlower Oil 1 ltr	1		2		1		4
	Wheat Floor 1kg	4						4
2	Nirma Soap		6					6
	Rice Grains 1kg				1			1
	SunFlower Oil 1 ltr		2					2
	Wheat Floor 1kg				1			1
3	Arial Washing Powder 1kg			2				2
	Nirma Soap			3				6
	Rice Grains 1kg			4				4
	SunFlower Oil 1 ltr			1				1
	Wheat Floor 1kg				2			2
<b>Grand Total</b>		<b>11</b>	<b>8</b>	<b>10</b>	<b>5</b>	<b>2</b>	<b>5</b>	<b>43</b>

Teacher's Signature

# BHAVAN'S COLLEGE AUTONOMOUS, ANDHERI-WEST

## PRACTICAL JOURNAL

Class: **SYIT(NEP)** Sem: III  
 Course Name: Business Analytics

Roll No.: **SYIT45**

Date: **12/09/25**  
 Page no:

**Practical Number: - 8**

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

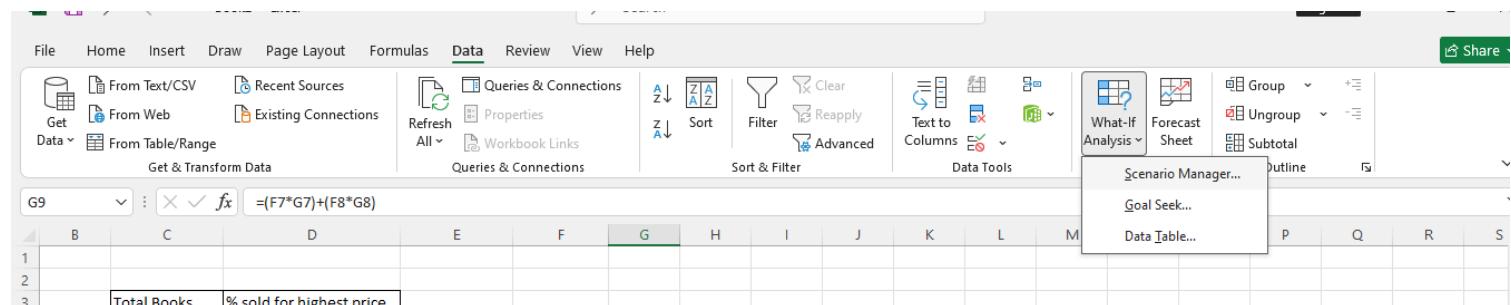
Step 1: In Excel, On the Data tab, in the Data tools group, click What-If Analysis

Total Books	% sold for highest price
100	60

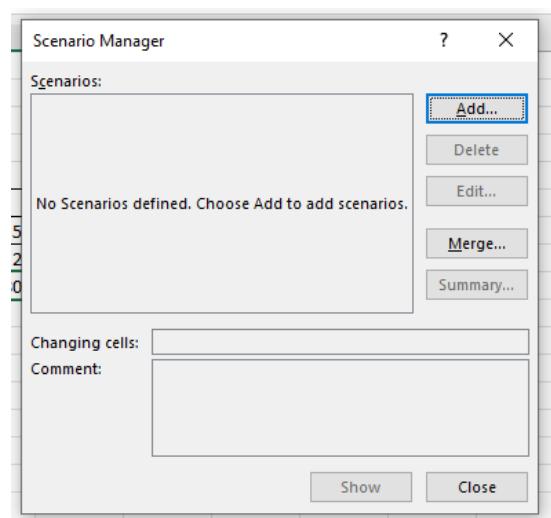
  

No. of book unit profit	
highest	60
lowest	50
total price	3800

Step 2: Click on What –if-Analysis and select scenario manager.



The Scenario Manager Dialog box appears.  
 Step 3: Add a scenario by clicking on Add.



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# BHAVAN'S COLLEGE AUTONOMOUS, ANDHERI-WEST

## PRACTICAL JOURNAL

Class: **SYIT(NEP)** Sem: **III**  
Course Name: **Business Analytics**

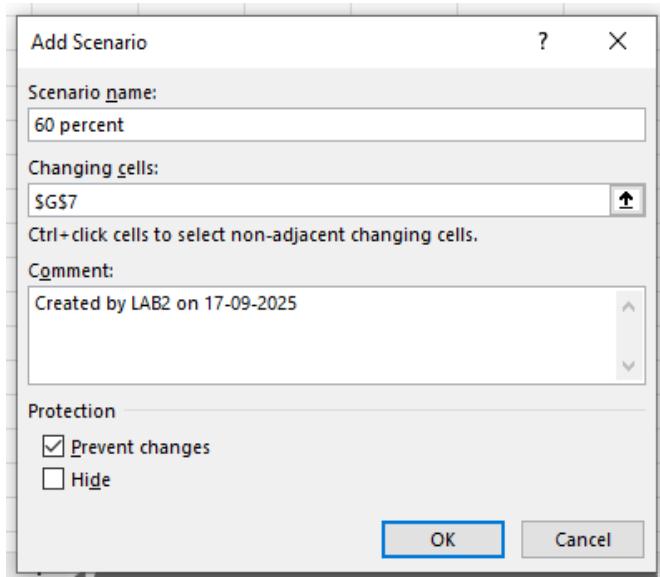
Roll No.: **SYIT45**

Date: **12/09/25**

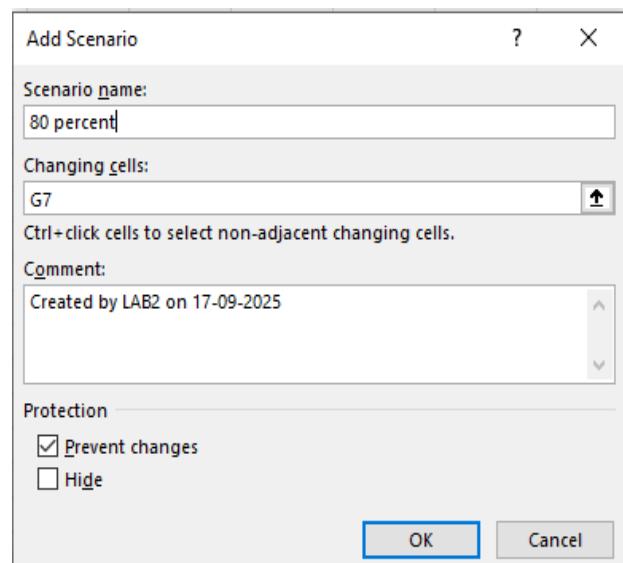
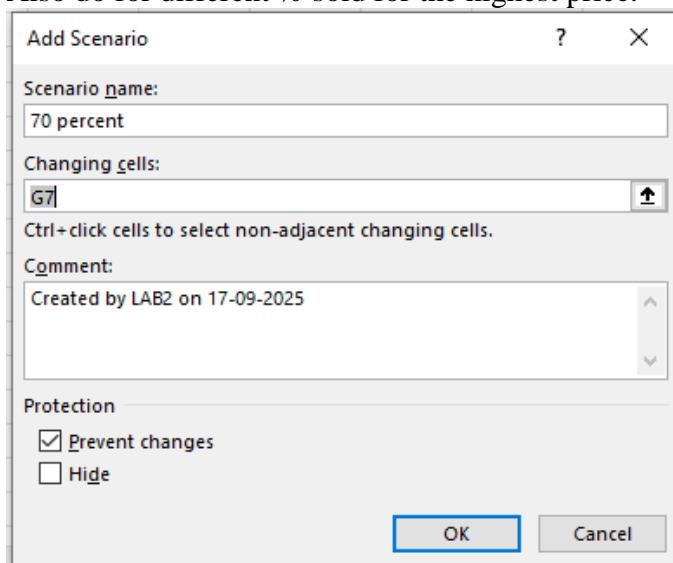
Page no:

### Practical Number: - 8

Step 4: Type a name (60percent), select cell G7 (% sold for the highest price) for the Changing cells and click on OK.



Also do for different % sold for the highest price.



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# BHAVAN'S COLLEGE AUTONOMOUS, ANDHERI-WEST

## PRACTICAL JOURNAL

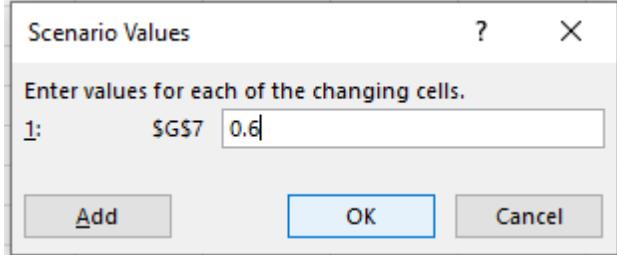
Class: **SYIT(NEP)** Sem: III  
Course Name: Business Analytics

Roll No.: **SYIT45**

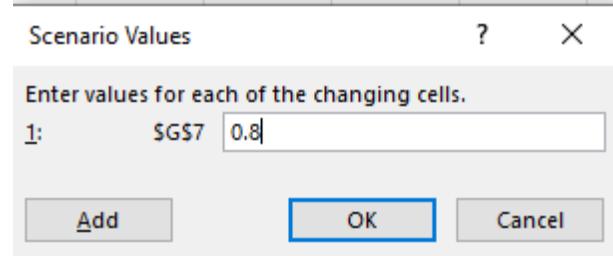
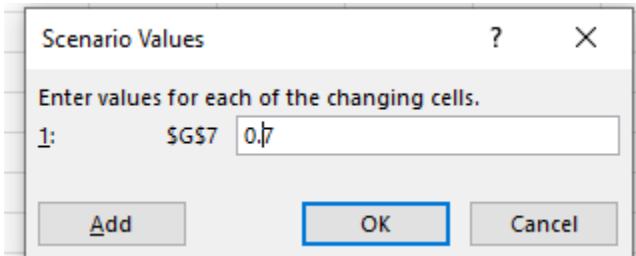
Date: **12/09/25**  
Page no:

**Practical Number: - 8**

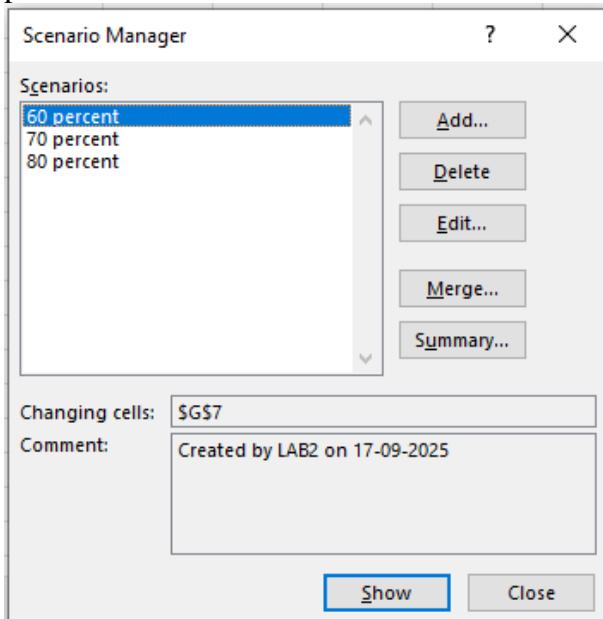
Step 5: Enter the corresponding value 0.6 and click on OK again.



Similarly also change other scenarios like (0.7, 0.8 etc)



Step 6: Next, add other scenarios (70% & 80%) Finally, your Scenario Manager should be consistent with the picture below:



Step 7: To apply scenarios click on Show

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**BHAVAN'S COLLEGE AUTONOMOUS, ANDHERI-WEST  
PRACTICAL JOURNAL**

Class: **SYIT(NEP)** Sem: III  
Course Name: Business Analytics  
**Practical Number: - 8**

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No. of book unit profit		
highest	60	0.6
lowest	40	20
total price		836

No. of book unit profit		
highest	60	0.7
lowest	40	20
total price		842

No. of book unit profit		
highest	60	0.8
lowest	40	20
total price		848

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