

Data Warehousing and Business Intelligence



Assignment 02

Batch : Year 3 Semester 1 Weekend Malabe (Y3S1.04)

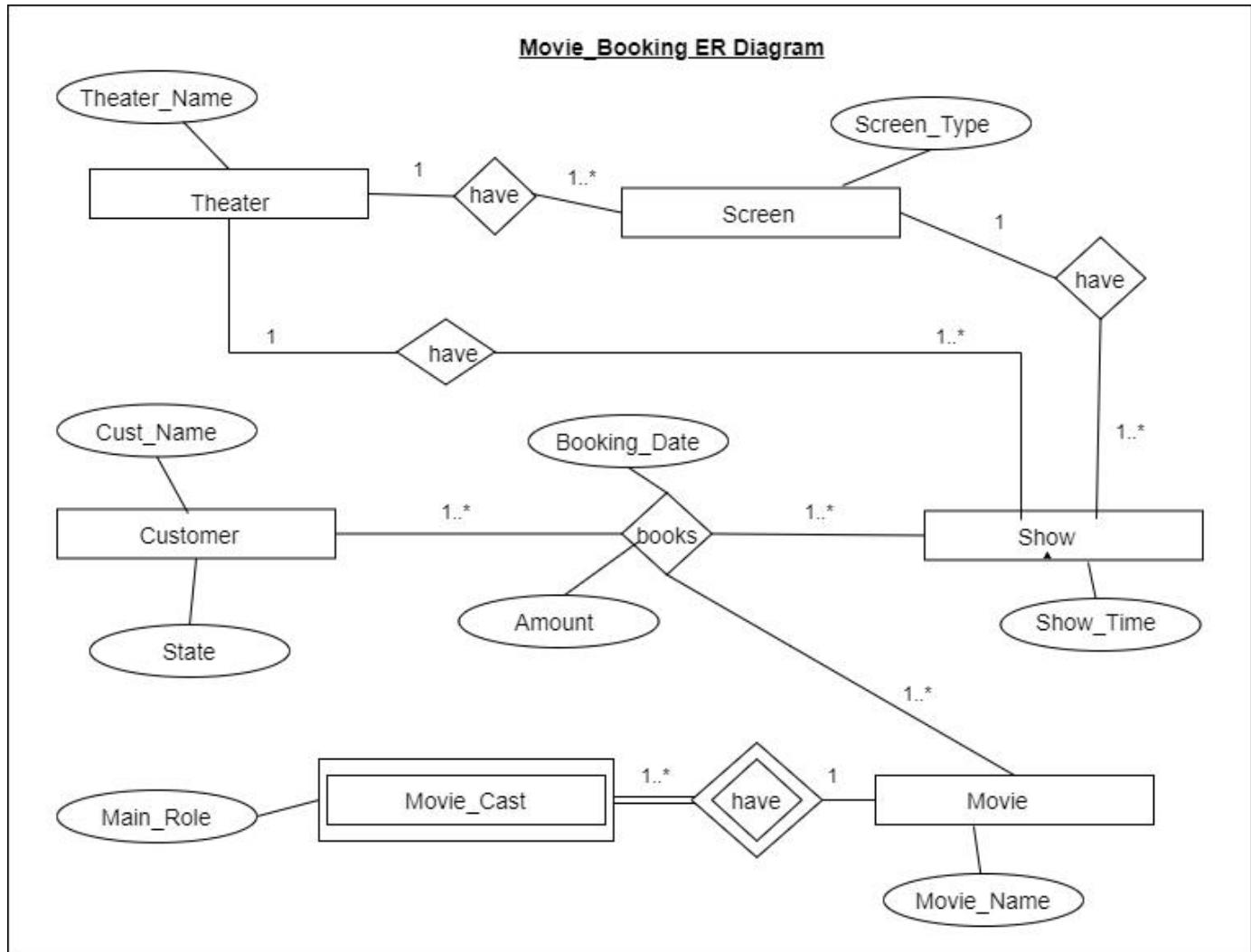
	Student Registration Number	Student Name
1	IT19109886	N.K.GALAPPATHTHI

1) Data Sources :

Dataset :

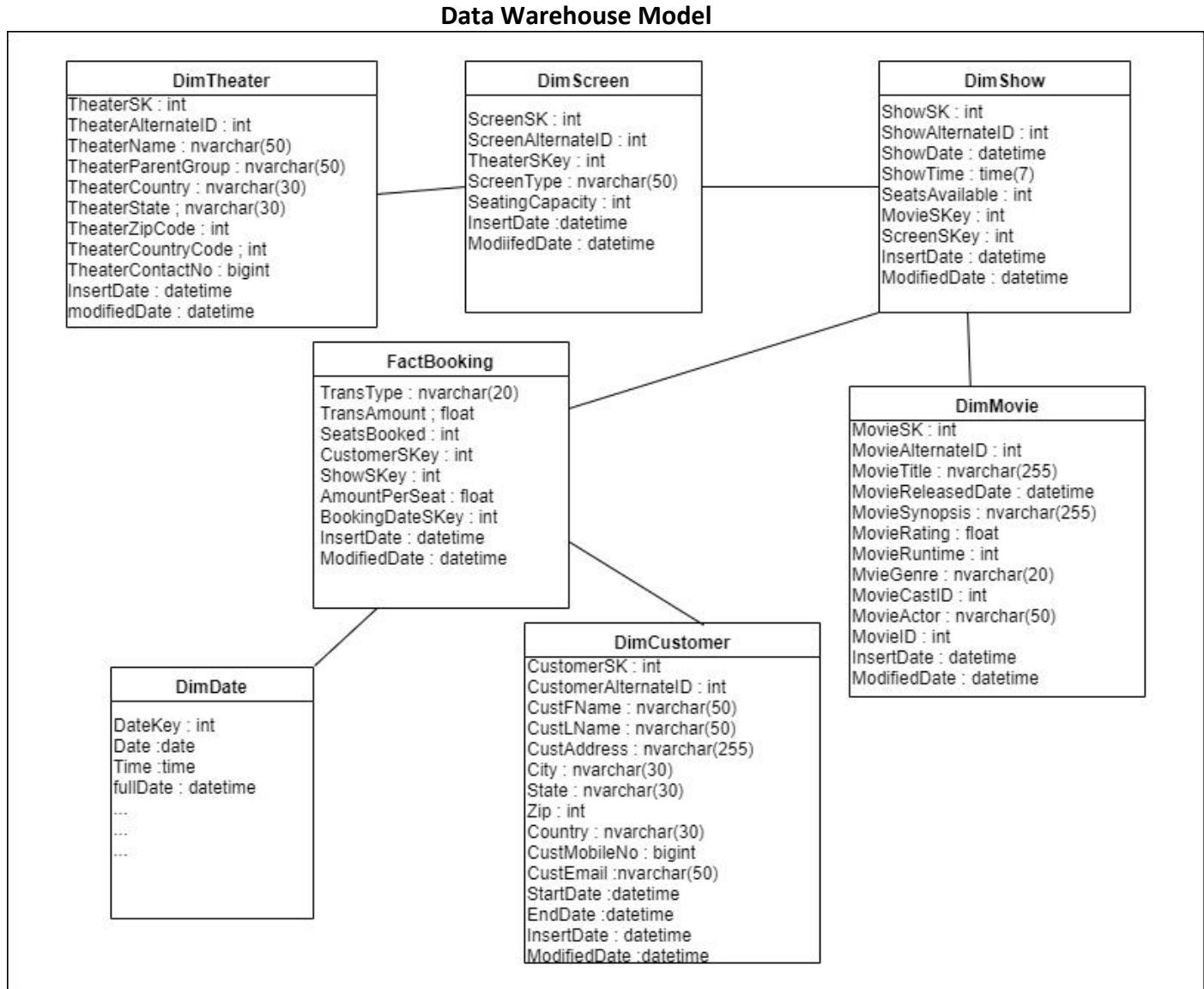
- ❖ Movie_Booking is a data set that includes booking details about customers for seats in movie theaters from 2019 in US. This data has been taken out from an online movie booking platform that provides booking for limited number of theaters in a State. Mainly this data set had 2 CSV files about bookings and related data. For the purpose of this project I have distributed this data along 2 files(CSV and text) and 5 tables.

ER DIAGRAM



* Only few attributes are displayed in above diagram

- Data Source for the SSRS reports is Data warehouse (Movie_Booking_DW) created for the assignment 1.



Snowflake Dimension model.

6 - Dimensions

- Customer Dimension (DimCustomer)
- Movie Dimension (DimMovie)
- Date Dimension (DimDate)
- Show Dimension (DimShow)
- Screen Dimension (DimScreen)
- Theater Dimension (DimTheater)

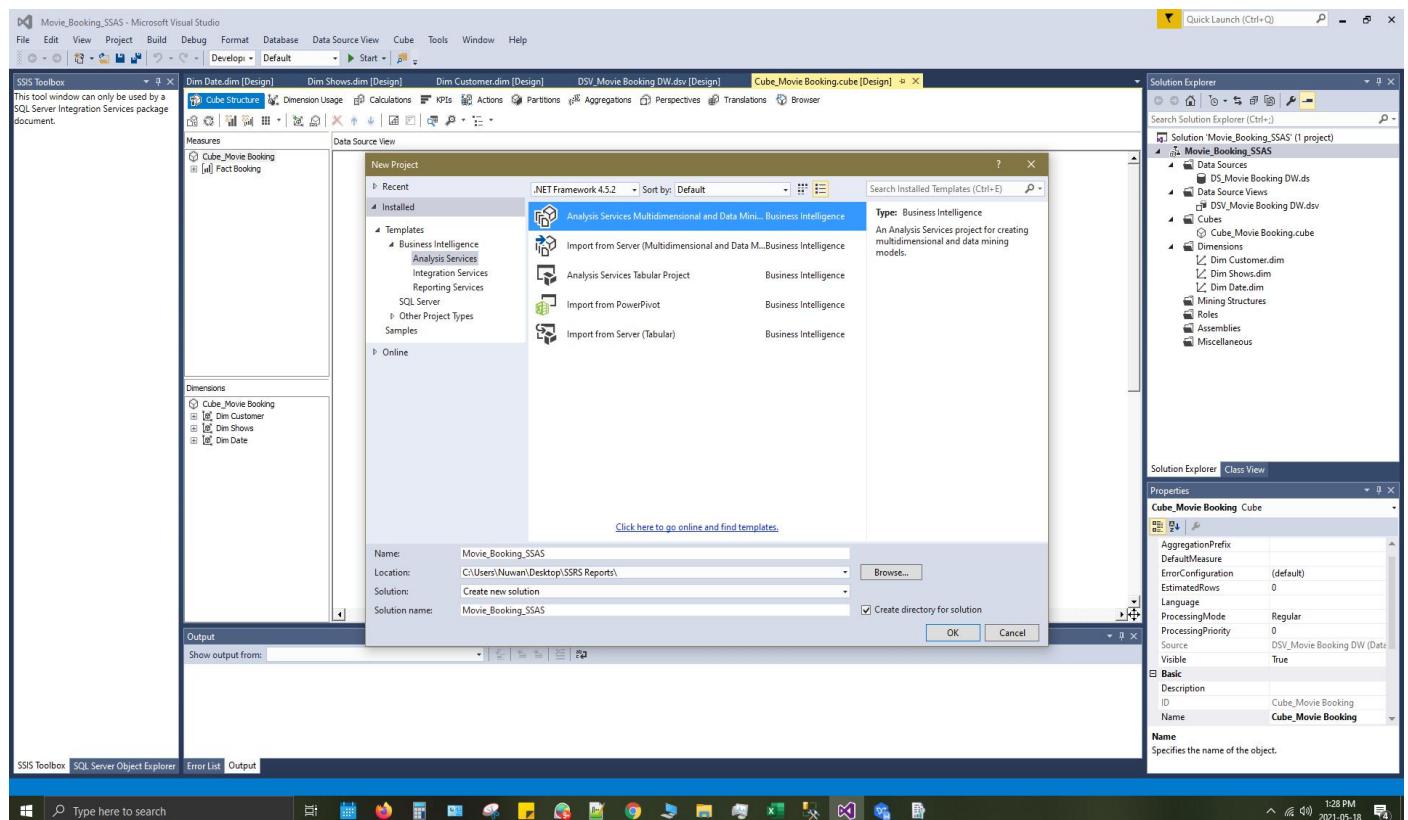
1 - Fact table

- FactBooking Fact table

2) SSAS Cube Implementation :

I. Create a SSAS project :

A) Open SQL Server Data Tools and **File -> New -> Project -> Analysis Services -> Analysis Services Multi Dimensional and Data Mining Project**



II. Create Data Source :

A) Right click on the Data Sources under created Movie_Booking_SSAS project and click on **New Data Source**

B) Click correct data base schema (Data warehouse) and next.

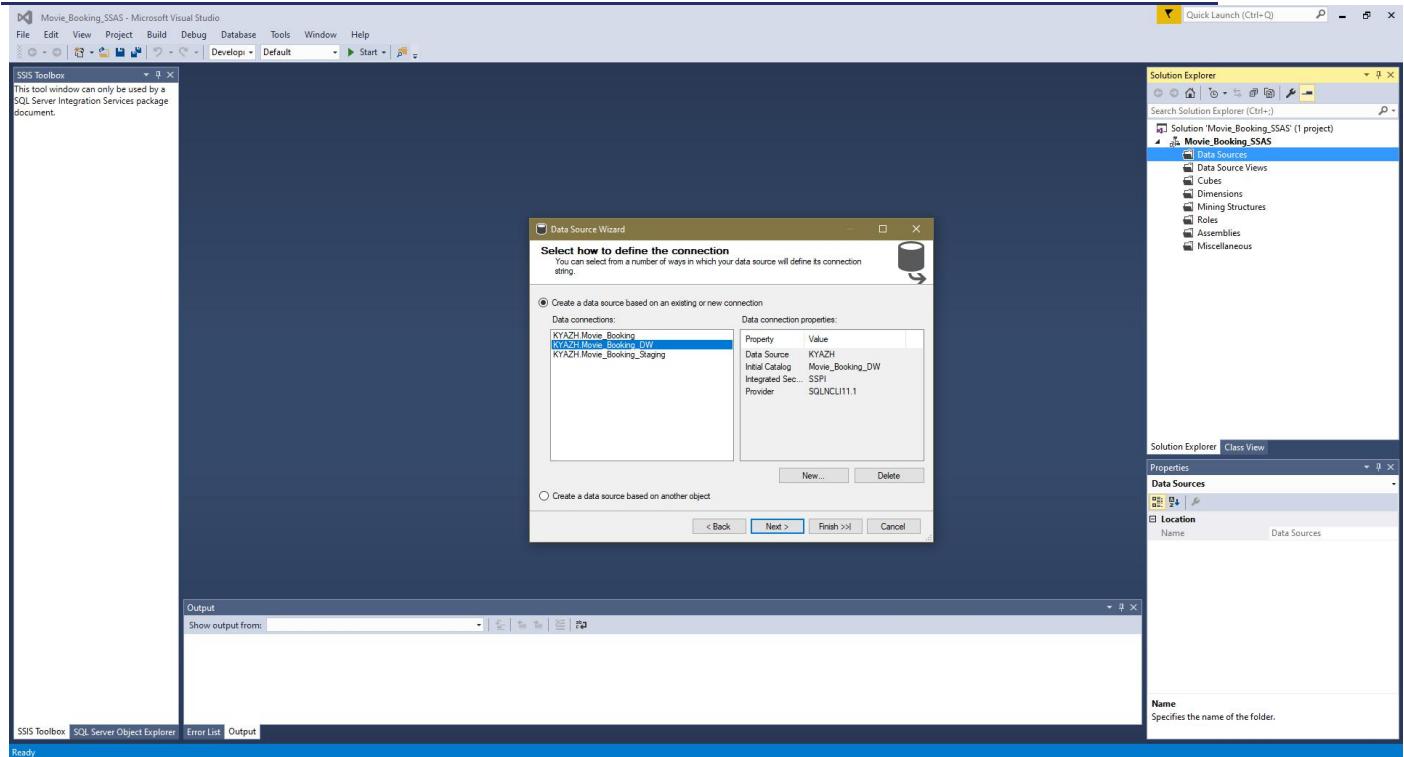
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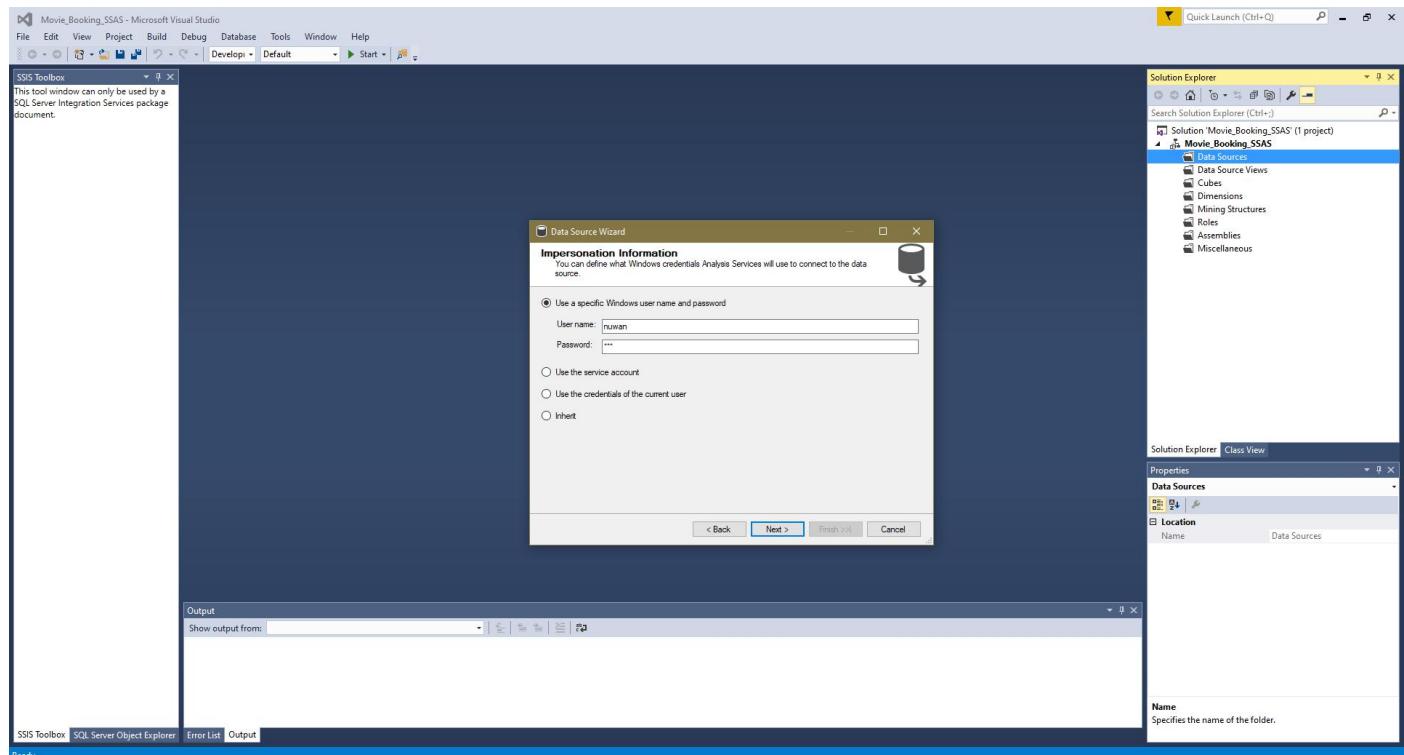
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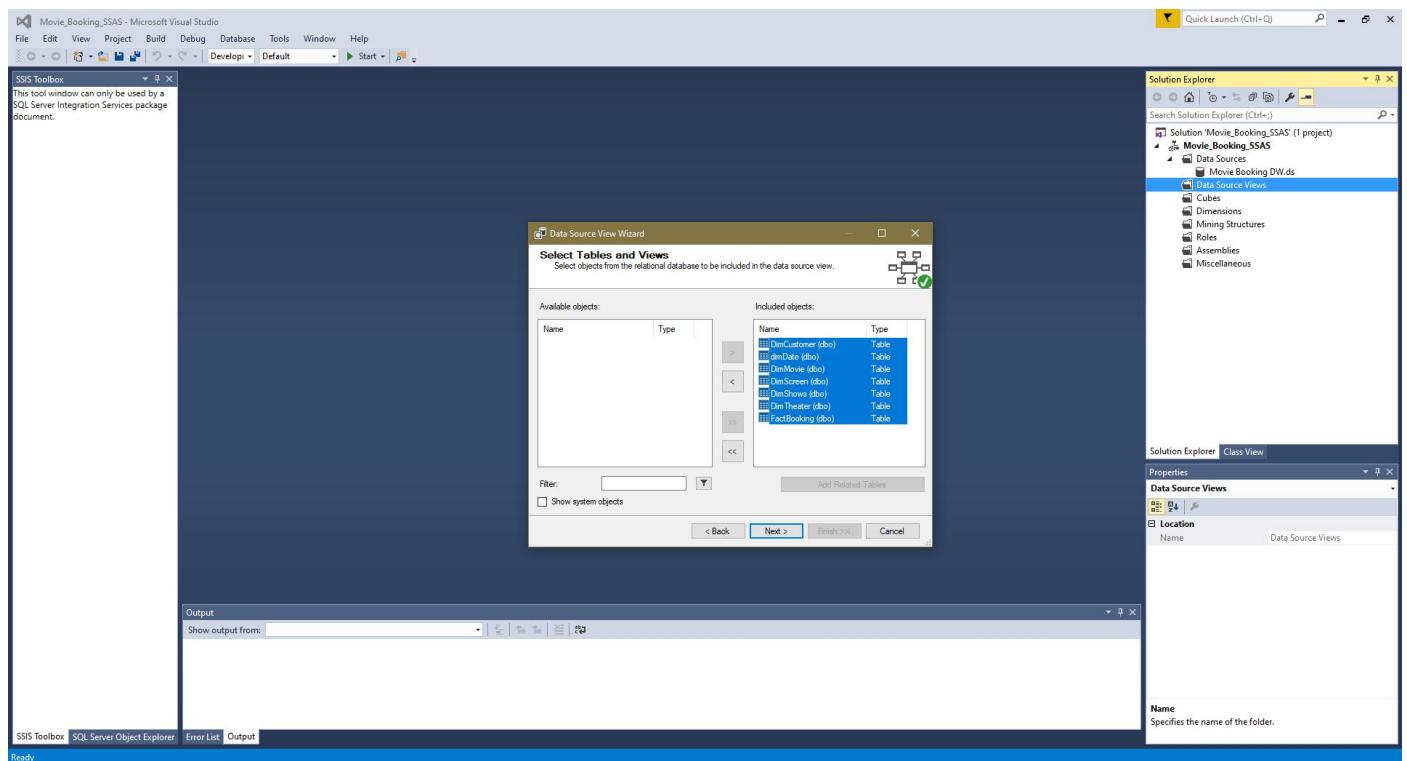
C) Give correct windows user credentials under **Use a specific windows username and password**



D) Click next and Finish.

III. Create Data Source Views :

- A) Right click on the **New Data Source View** under SSAS Project
- B) Give **Next** -> Tick **Create logical relationships by matching columns** and set **Foreign key matches Same name as primary key**
- C) Select All the Available dimension tables into Included Objects and click **Next and Finish.**



IV. Drag and match Foreign keys :

- A) Click and hold foreign key attribute from dimension table and drop it on the correct source dimension table attribute(key).
- B) Do this for all foreign keys.

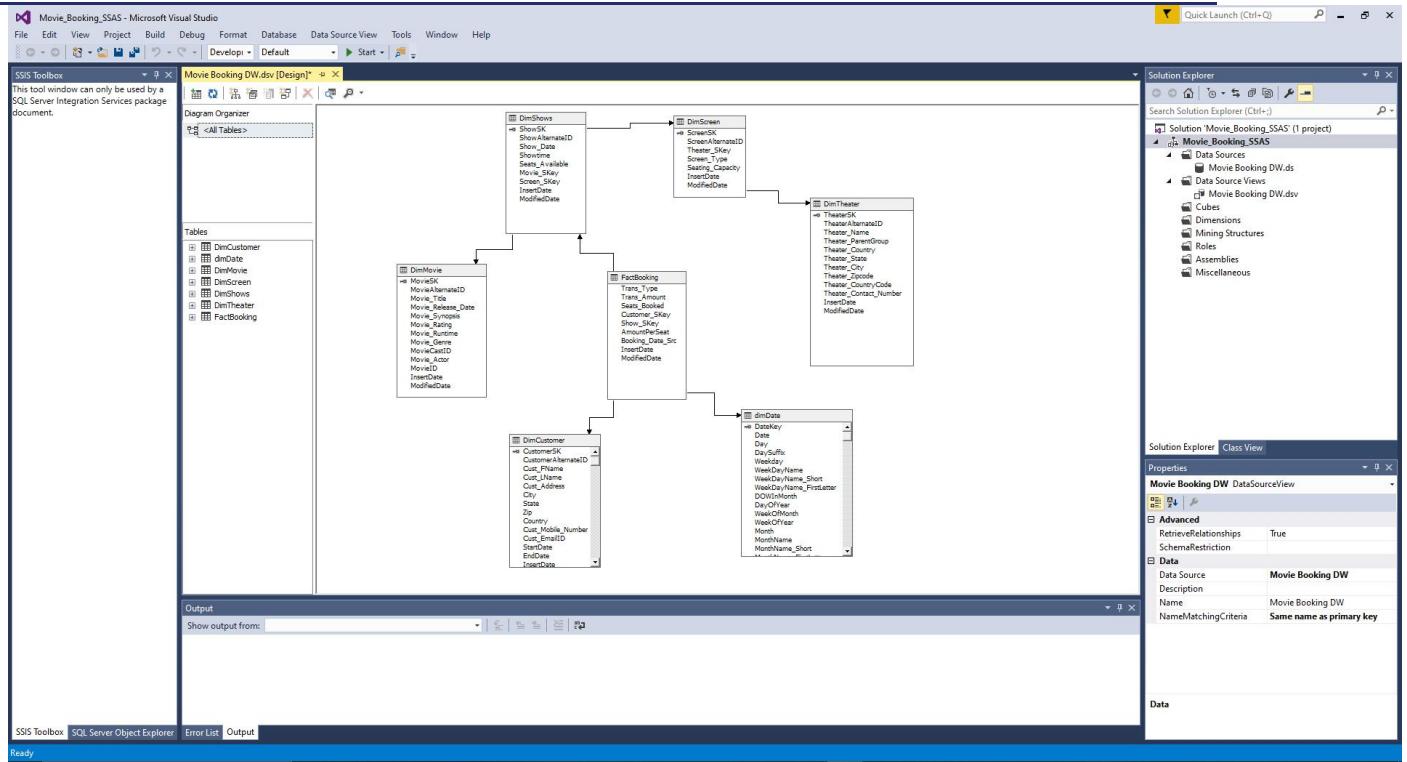
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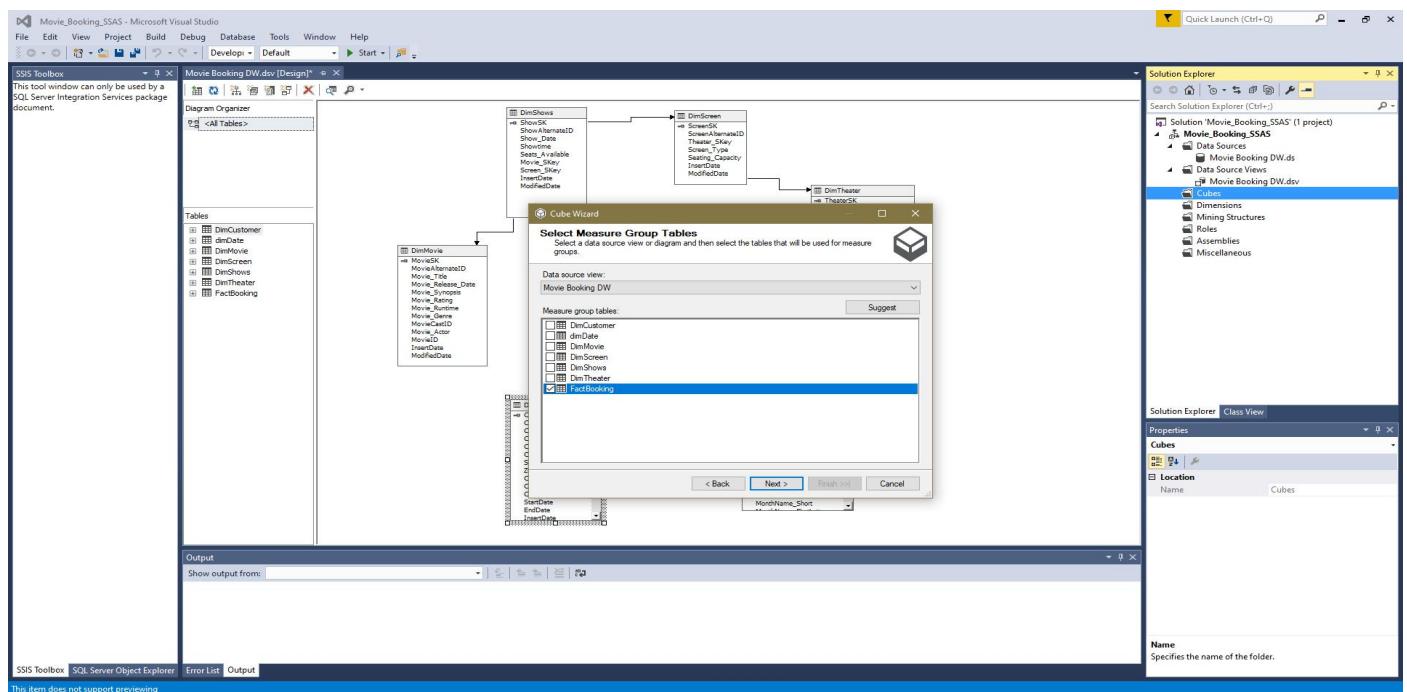
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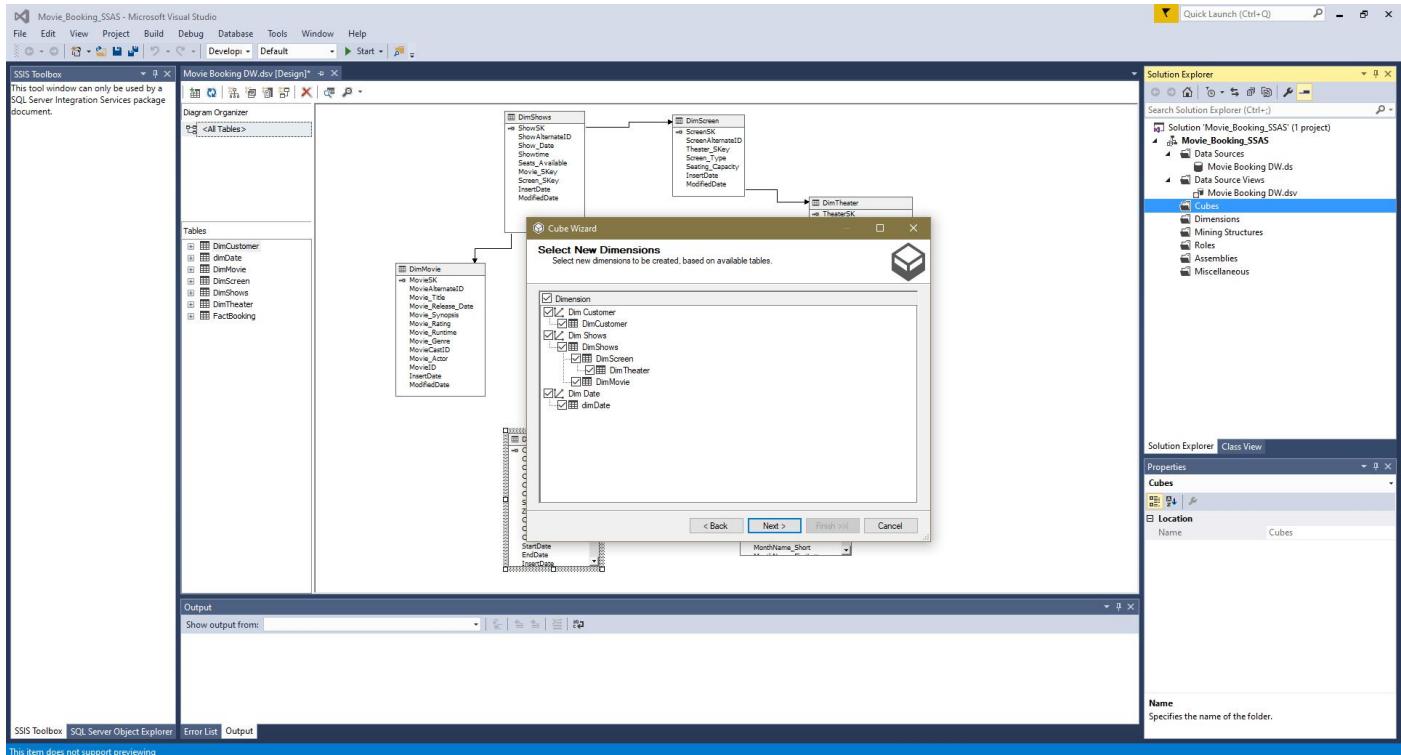
V. Cube Implementation :

- Under SSAS project right click on the cube and **New Cube**
- Use Existing table -> Next**
- Select the All Fact tables and **Next**

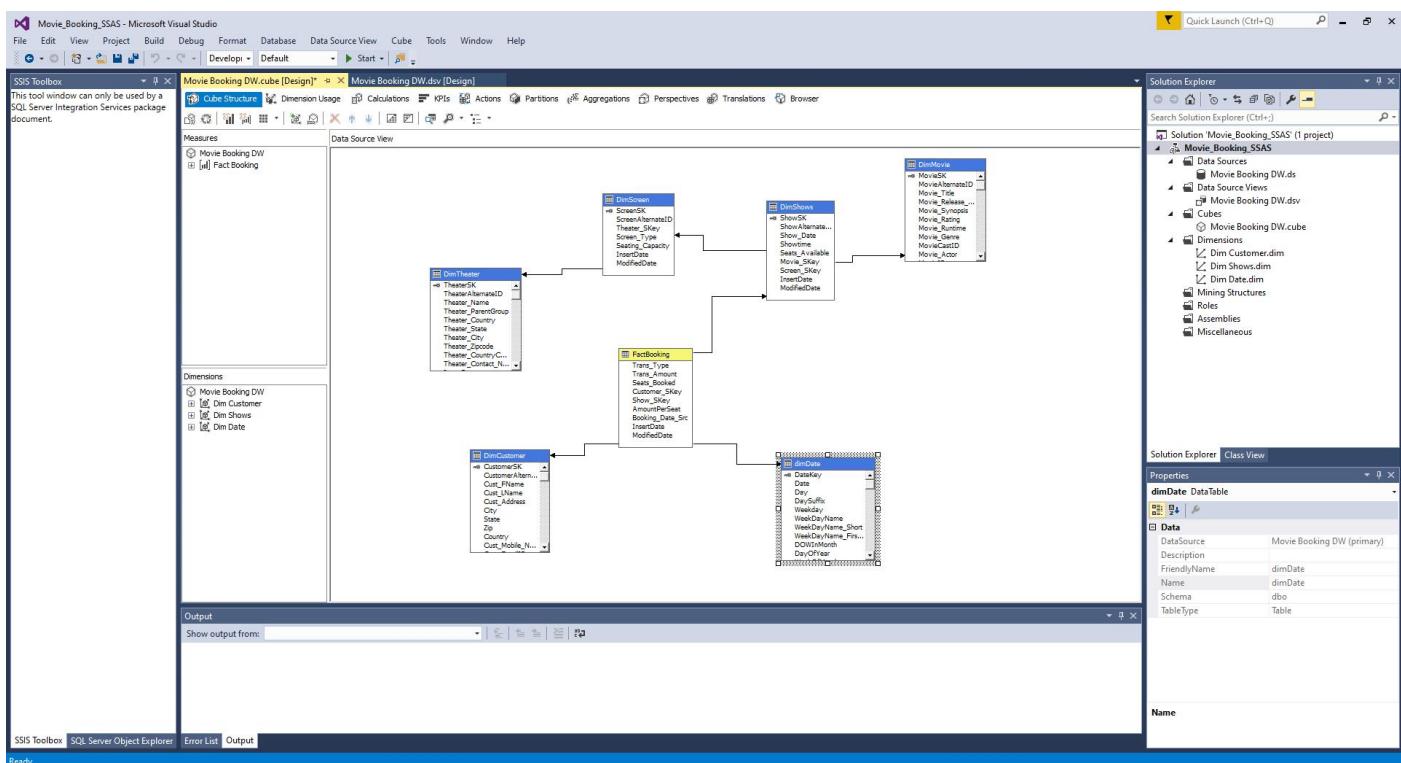


D) Select all the transaction attributes and Next.

E) Select all the dimension tables and Next.



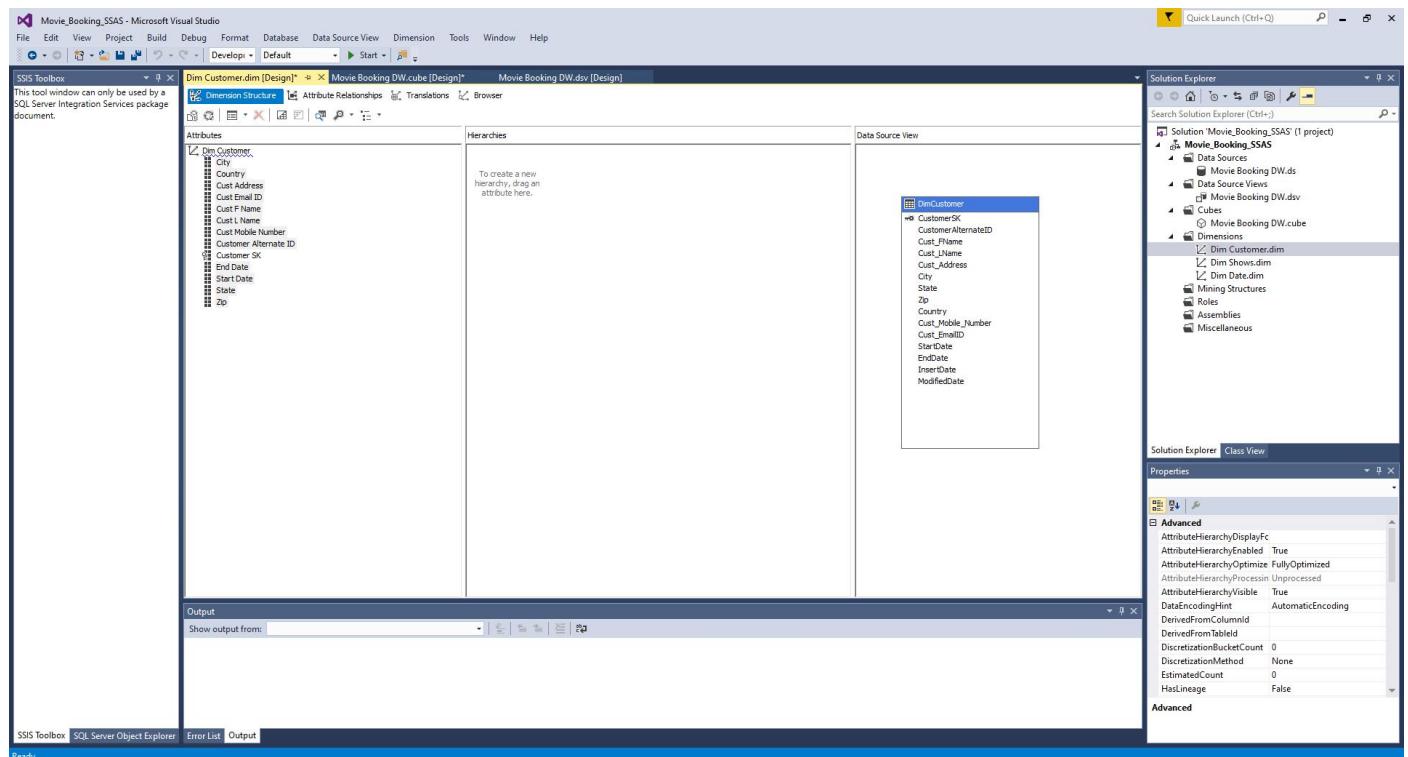
F) Click Next and Finish.



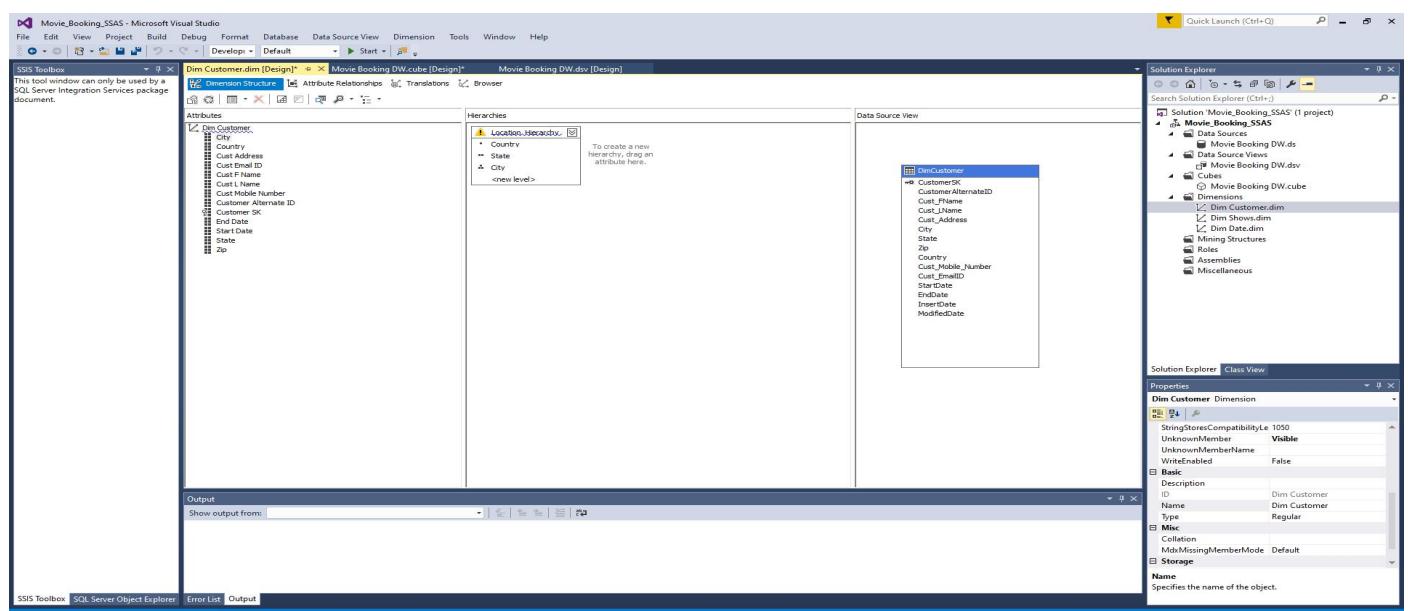
VI. Create Hierarchies :

A) Right click on the Dimension and Click open.

B) Select all the attributes that needs to create reports on the dimension and drag them into the left side of attributes section.



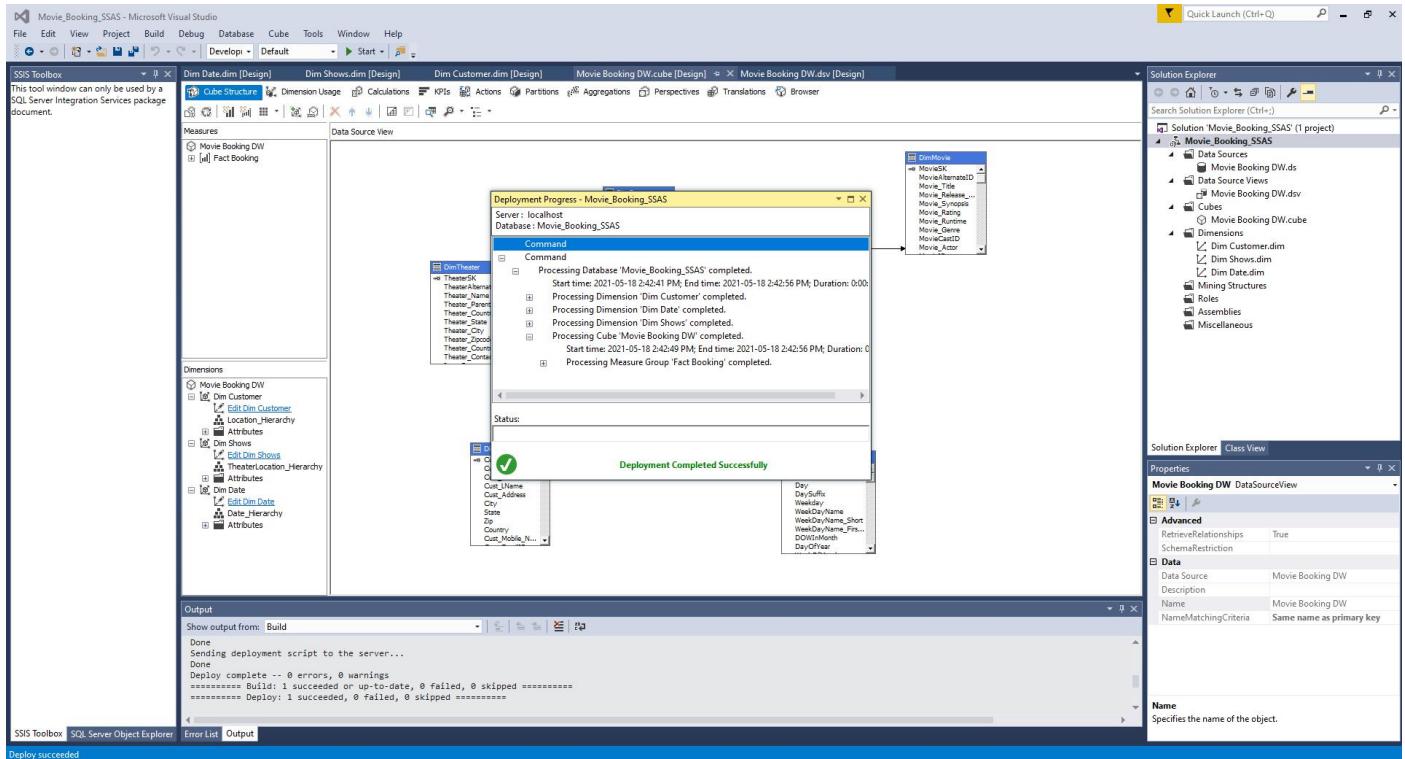
C) Drag and drop Hierarchical attributes into the Hierarchy section and create new Hierarchies.



D) Do above steps for all the dimension tables and create hierarchies .

VII. Deploy the project :

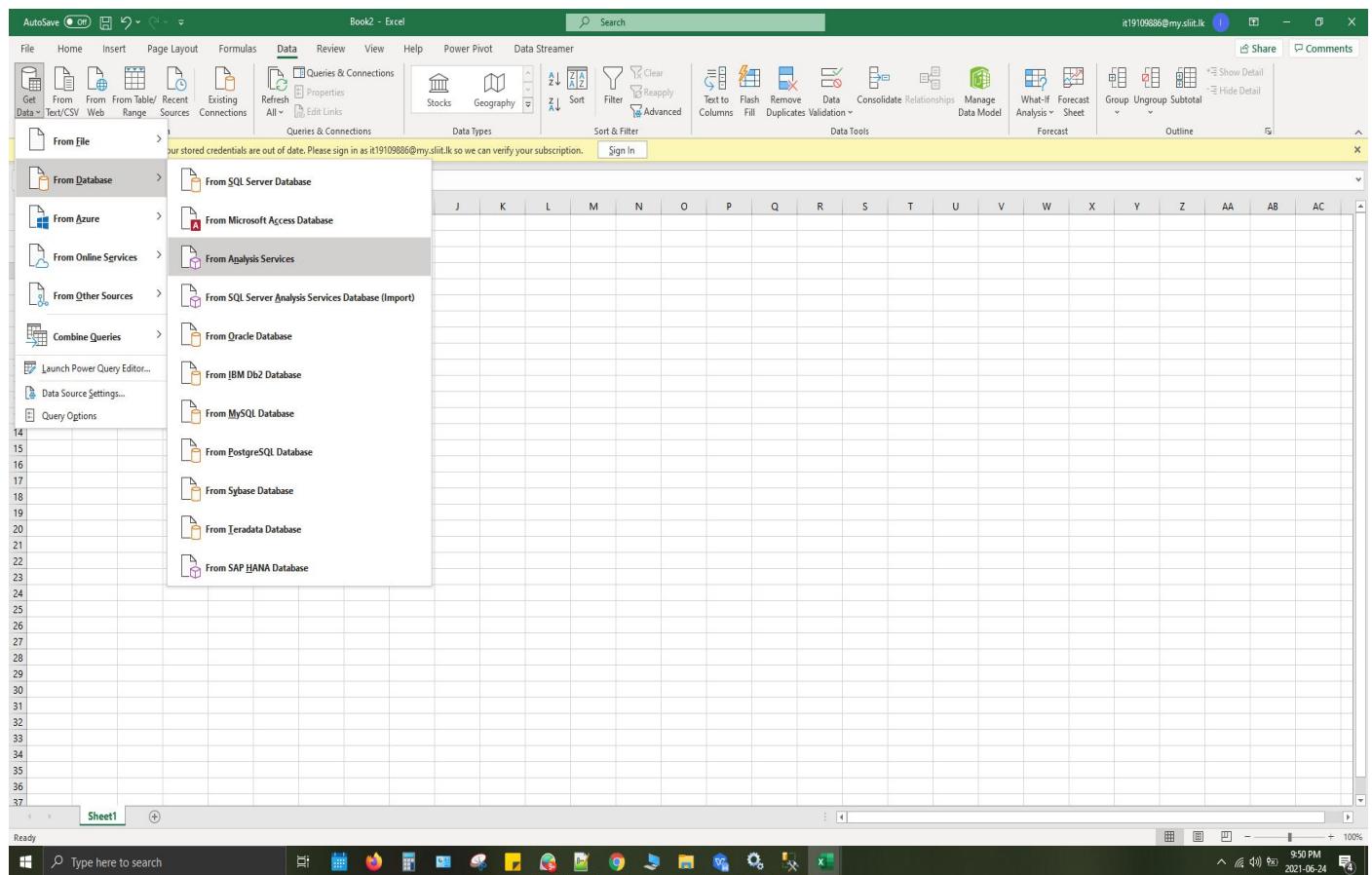
A) Right click on the SSAS project and click Deploy.



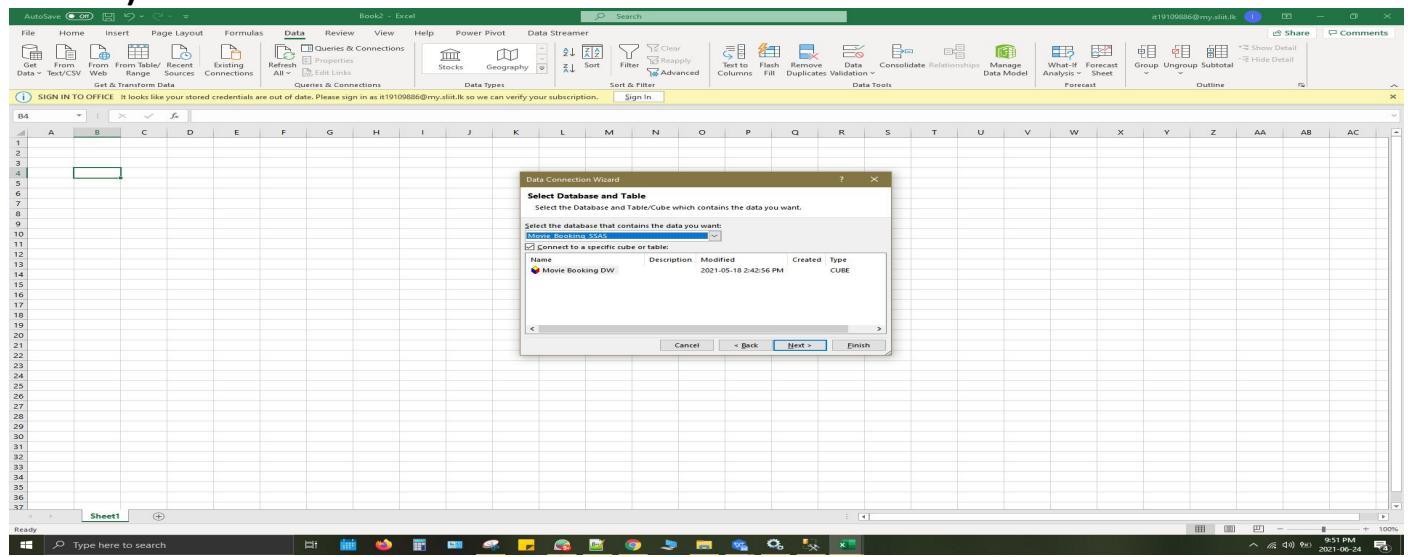
3) Excel Visualization :

I. Create pivot table visualization

A) Data tab and **getData-> From Database ->From Analysis Services**

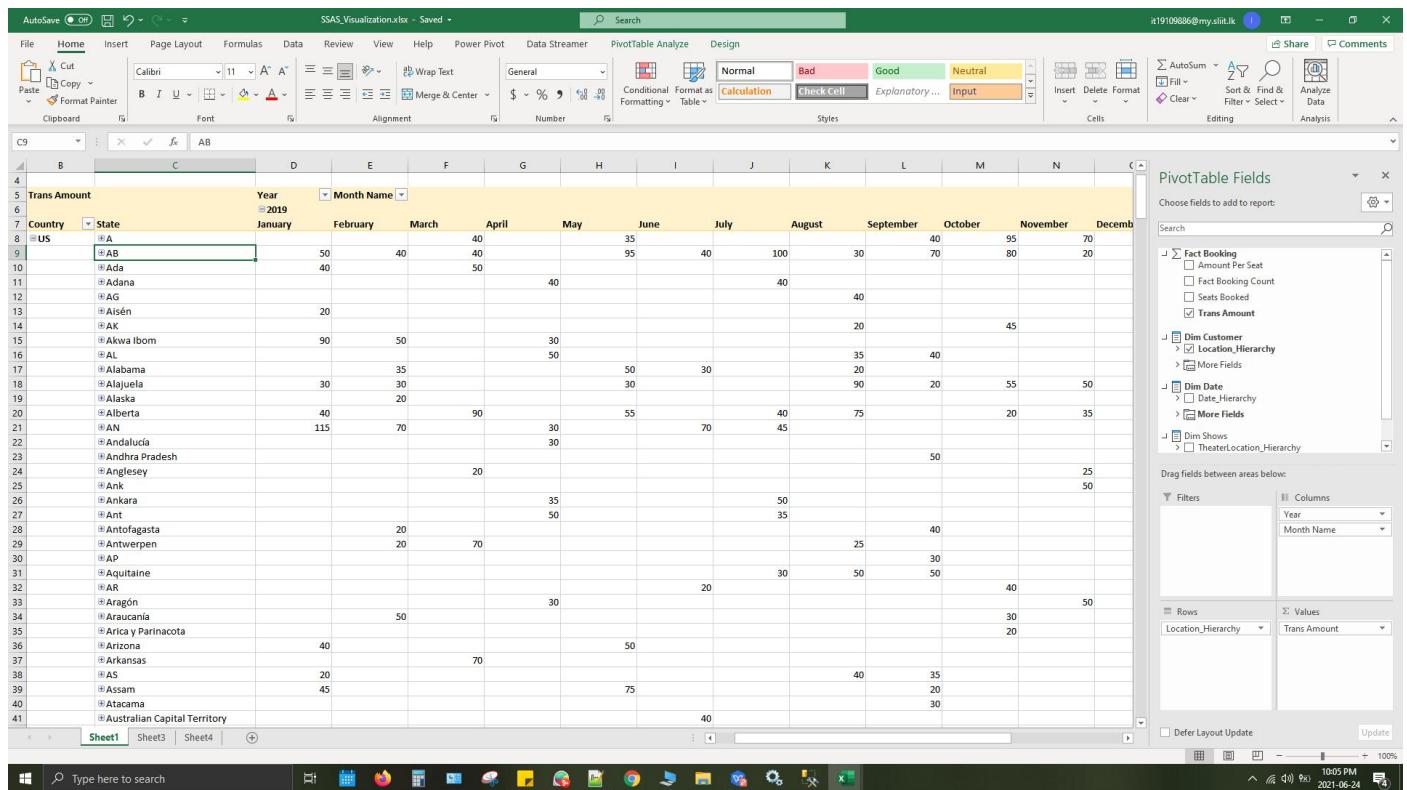


B) Set the credentials for db and select SSAS cube and finish.



II. Create Roll-up and Drill-down OLAP operations in pivot table

A) Drag and drop Year, Month Name into Columns category , Location Hierarchy into Rows category and Trans amount into Values category accordingly.



Country	State	Year											
		January	February	March	April	May	June	July	August	September	October	November	December
US	AB	50	40	40	35	40	100	30	40	95	70	20	
	Ada	40		50			40		40				
	Adana			40									
	AG												
	Aisén	20											
	AK												
	Akwa Ibom	90	50	30									
	AL			50									
	Alabama	35			50	30		20					
	Alajuela	30	30		30			90	20	55	50		
	Alaska	20											
	Alberta	40		90	55		40	75		20	35		
	AN	115	70	30		70	45						
	Andalucía			30									
	Andhra Pradesh												
	Anglesey		20										
	Ank												
	Ankara			35		50							
	Ant			50		35							
	Antofagasta	20							40				
	Antwerpen	20	70					25					
	AP								30				
	Aquitaine							50					
	AR								40				
	Aragón			30						30			
	Araucanía		50							20			
	Arica y Parinacota												
	Arizona	40		50									
	Arkansas			70									
	AS	20							40	35			
	Assam	45			75				20				
	Atacama					40			30				
	Australian Capital Territory												

III. Create Slice and Dice OLAP operations in pivot table

A) Drag and drop Month Name into Columns category , Theater Name into Rows category and Seats Booked into Values category accordingly.

B) Select the table **pivot table Analysis -> Insert Slicer** and select the Slicing category names in the table

C) Add two or more slicers to visualize the Dice OLAP operation.

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Screenshot of Microsoft Excel showing a PivotTable setup. The PivotTable Fields pane on the right shows fields for Fact Booking, Dim Customer, Dim Date, and Dim Shows. The PivotTable itself displays monthly seat bookings for different theaters.

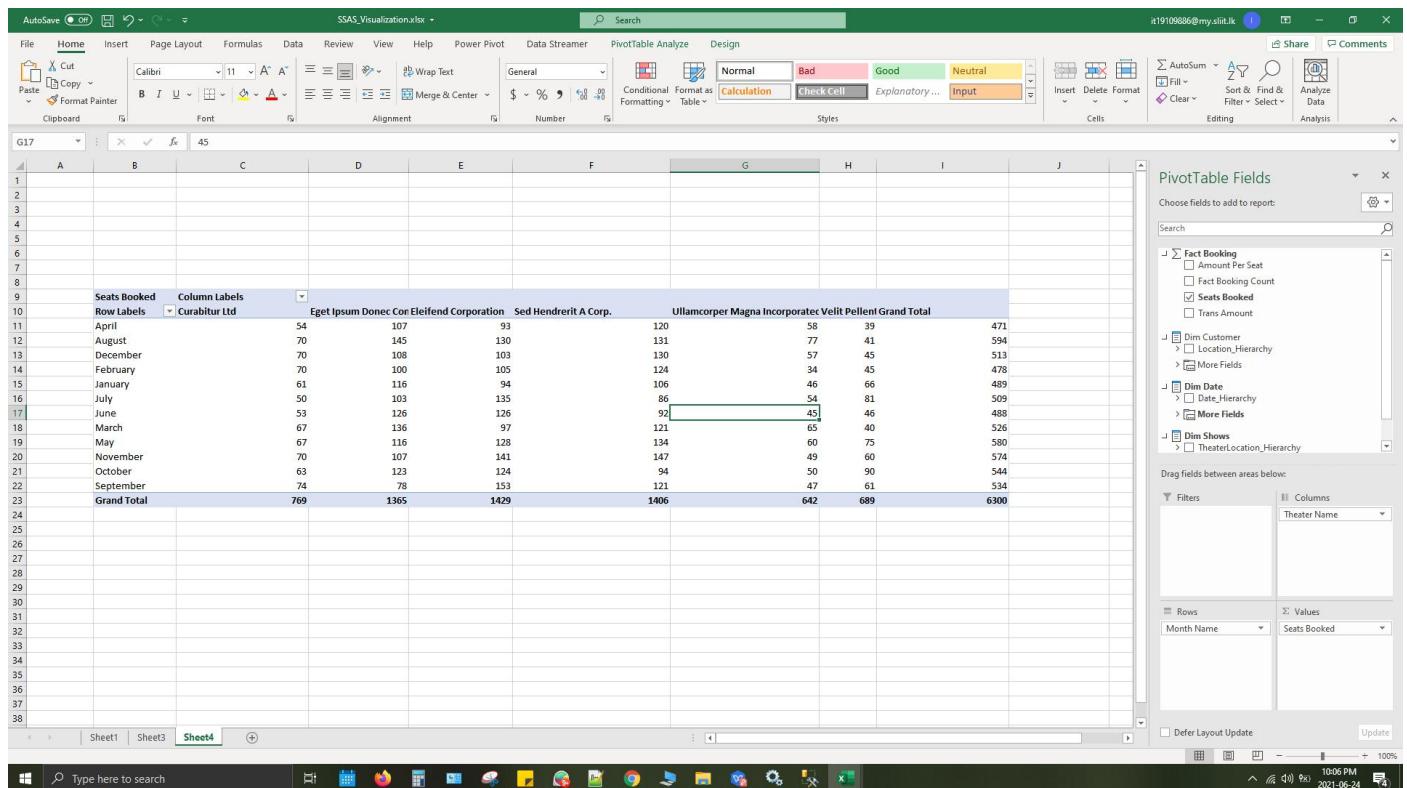
	Month Name	April	August	December	February	January	July	June	March	May	November	October	September	Grand Total
Theater Name	Curabitur Ltd	54	70	70	70	61	50	53	67	67	67	70	63	74
Grand Total		54	70	70	70	61	50	53	67	67	67	70	63	74
														769

Screenshot of Microsoft Excel showing a PivotTable setup. The PivotTable Fields pane on the right shows fields for Fact Booking, Dim Customer, Dim Date, and Dim Shows. The PivotTable itself displays monthly seat bookings for different theaters.

	Month Name	April	February	January	March	Grand Total
Theater Name	Curabitur Ltd	54	70	61	67	252
Eget Ipsum Donec Company	107	100	116	136	459	
Eleifend Corporation	93	105	94	97	389	
Sed Hendrerit A Corp.	120	124	106	121	471	
Grand Total	374	399	377	421	1571	

IV. Create pivot OLAP operation

A) Turn values in columns category into Rows category and Rows category into Columns category.



	Column Labels	Eget	Ipsum Donec	Cor Eleifend	Corporation	Sed Hendrerit	A Corp.	Ullamcorper Magna	Incorporate	Velit	Pellent	Grand Total
Row Labels	Curabitur Ltd	54	107	93	120	58	39	58	39	41	471	
11	April	54	107	93	120	58	39	58	39	41	471	
12	August	70	145	130	131	77	41	77	41	594	594	
13	December	70	108	103	130	57	45	57	45	513	513	
14	February	70	100	105	124	34	45	34	45	478	478	
15	January	61	116	94	106	46	66	46	66	489	489	
16	July	50	103	135	86	54	81	54	81	509	509	
17	June	53	126	126	92	45	46	45	46	488	488	
18	March	67	136	97	121	65	40	65	40	526	526	
19	May	67	116	128	134	60	75	60	75	580	580	
20	November	70	107	141	147	49	60	49	60	574	574	
21	October	63	123	124	94	50	90	50	90	544	544	
22	September	74	78	153	121	47	61	47	61	534	534	
23	Grand Total	769	1365	1429	1406	642	689	642	689	6300	6300	

4) SSRS Visualization :

I) Report 1 : Report with a matrix

A) Using Report Builder tool define the data set (use a data set embedded in my report
-> New -> declare the DW)

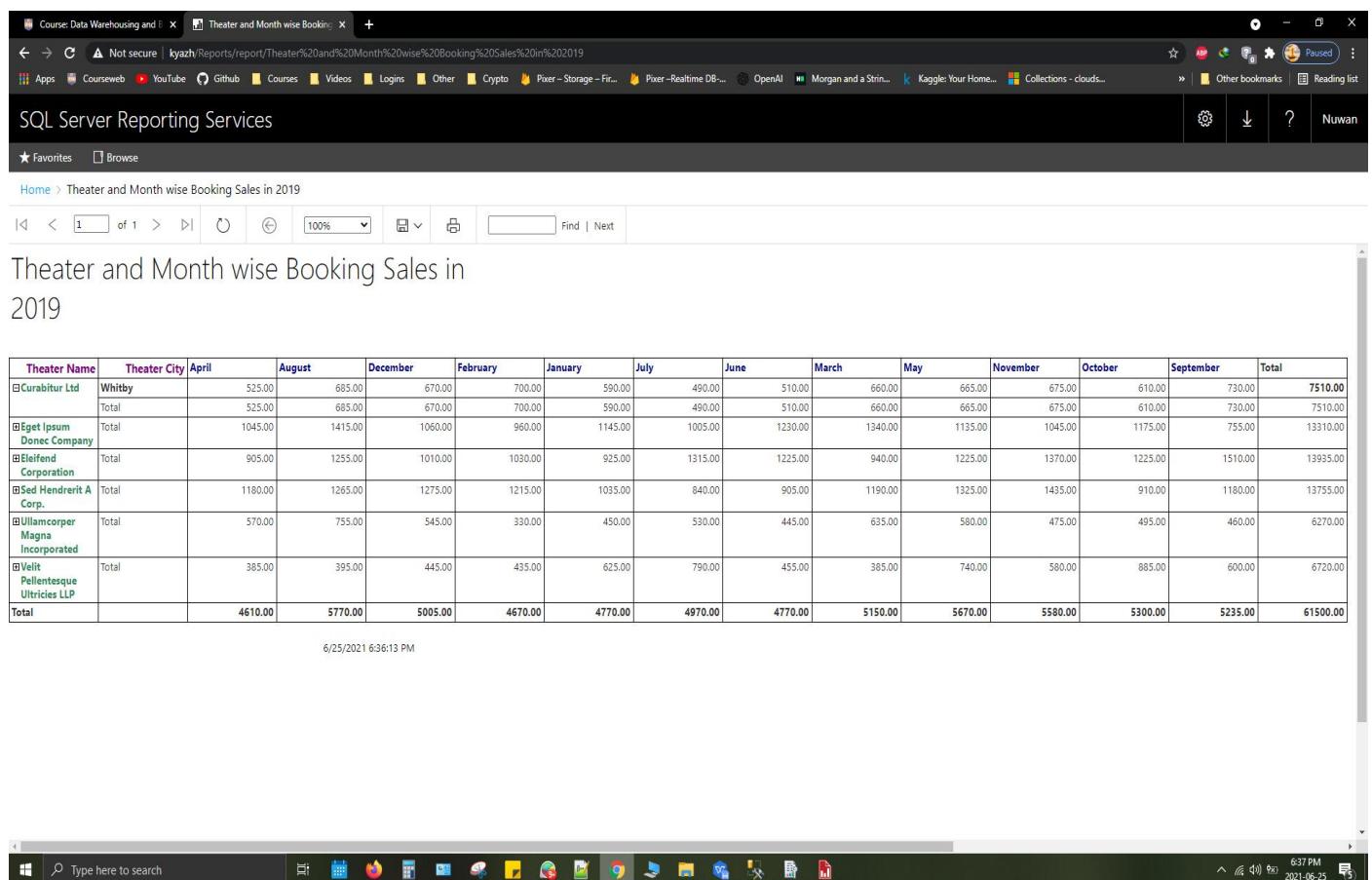
B) In Query Designer define the relationship between fact table and other dimensions.

C) Insert -> Matrix -> Matrix wizard and declare the row groups and column groups and measures.

D) Row group : Theater Name , Theater city

Column group : Month Name

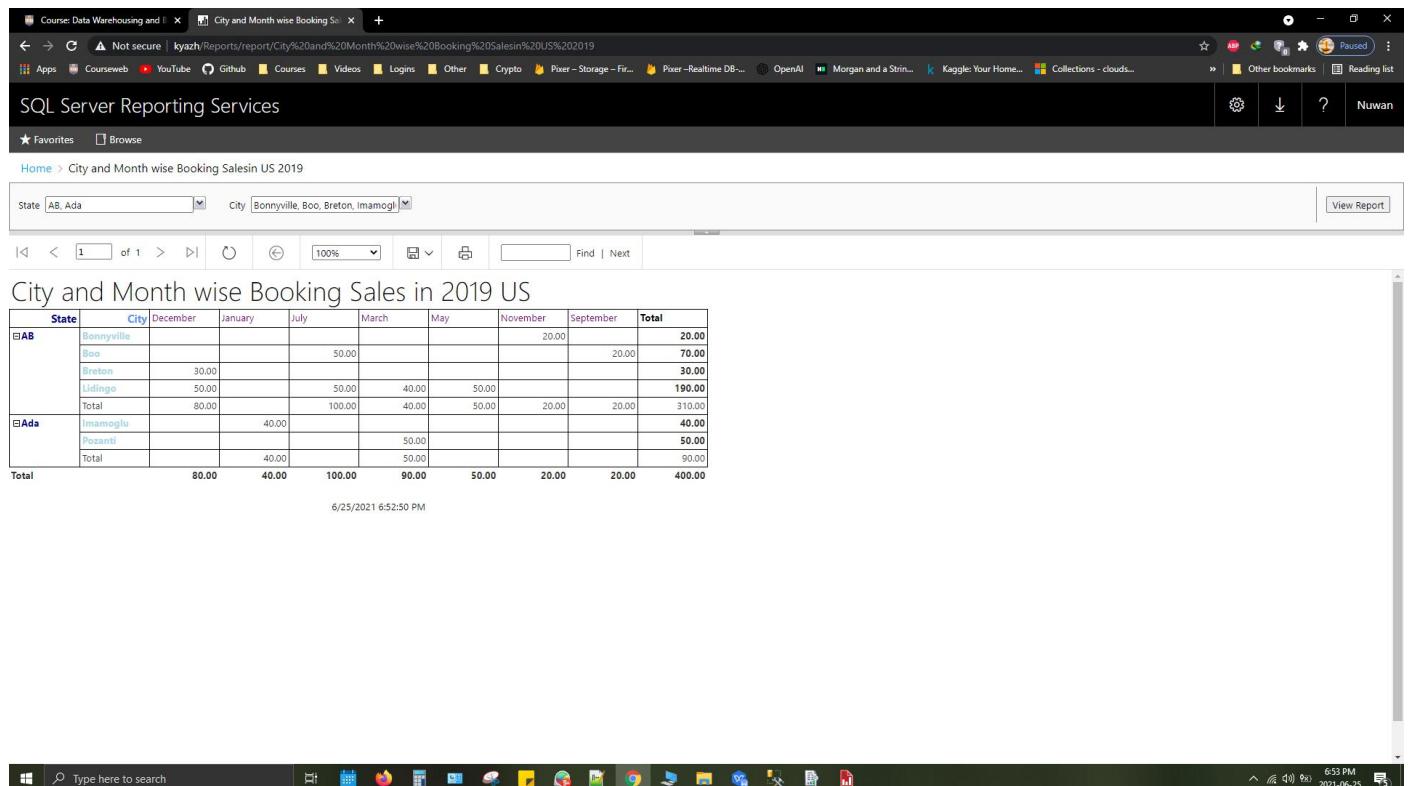
Measures : Trans Amount



Theater Name	Theater City	April	August	December	February	January	July	June	March	May	November	October	September	Total
Curabitur Ltd	Whitby	525.00	685.00	670.00	700.00	590.00	490.00	510.00	660.00	665.00	675.00	610.00	730.00	7510.00
	Total	525.00	685.00	670.00	700.00	590.00	490.00	510.00	660.00	665.00	675.00	610.00	730.00	7510.00
Eget Ipsum Donec Company	Total	1045.00	1415.00	1060.00	960.00	1145.00	1005.00	1230.00	1340.00	1135.00	1045.00	1175.00	755.00	13310.00
Eleifend Corporation	Total	905.00	1255.00	1010.00	1030.00	925.00	1315.00	1225.00	940.00	1225.00	1370.00	1225.00	1510.00	13935.00
Sed Hendrerit A Corp.	Total	1180.00	1265.00	1275.00	1215.00	1035.00	840.00	905.00	1190.00	1325.00	1435.00	910.00	1180.00	13755.00
Ullamcorper Magna Incorporated	Total	570.00	755.00	545.00	330.00	450.00	530.00	445.00	635.00	580.00	475.00	495.00	460.00	6270.00
Velit Pellentesque Ultricies LLP	Total	385.00	395.00	445.00	435.00	625.00	790.00	455.00	385.00	740.00	580.00	885.00	600.00	6720.00
	Total	4610.00	5770.00	5005.00	4670.00	4770.00	4970.00	4770.00	5150.00	5670.00	5580.00	5300.00	5235.00	61500.00

II) Report 2 : Report with more than one parameter

- A) Define the data set (use a data set embedded in my report -> New -> declare the DW)
- B) In Query Designer write a query to get all the customer states
- C) Declare a parameter and set “available values” to “Get values from a query” and set previous declared data set into it.
- D) Again define another data set to get customer city according to state(pass the state parameter value into where clause)
- E) Then declare a new parameter and set correct data set(2nd data set)
- F) After that as the first report follow the steps and set the column values , Row values and measures.
- G) Row group : State , City
- Column group : Month Name
- Measures : Trans Amount

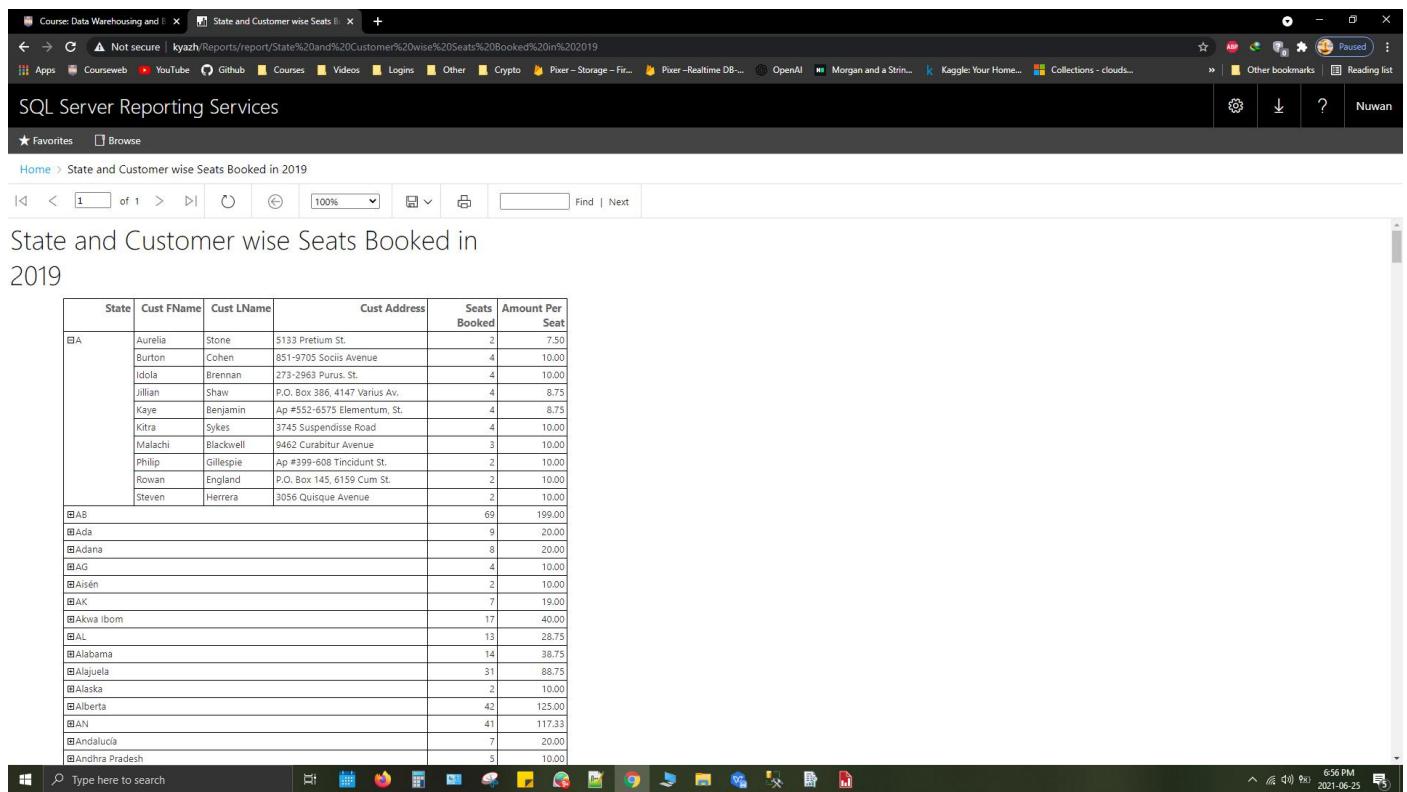


State	City	December	January	February	March	April	May	June	July	August	September	October	Total
AB	Bonnyville							20.00					20.00
	Boo				50.00						20.00		70.00
	Breton	30.00											30.00
	Lidings	50.00		50.00	40.00	50.00							
Total	80.00		100.00	40.00	50.00	20.00	20.00						310.00
Ada	imamoglu		40.00										40.00
	Pozzetti				50.00								50.00
	Total		40.00		50.00		50.00						90.00
Total		80.00	40.00	100.00	90.00	50.00	20.00	20.00					400.00

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III) Report 3 : SSRS Drill-down Report

- A) As the Report 1 define the data set and follow the steps
- B) In Column and Row groups set multiple categories into Row group
- C) Row group : State , CustomerFName , CustomerLName , CustomerAddress
- Measures : SeatsBooked , AmountPerSeat



State	Cust FName	Cust LName	Cust Address	Seats Booked	Amount Per Seat
CA	Aurelia	Stone	5133 Pretium St.	2	7.50
	Burton	Cohen	851-9705 Sociis Avenue	4	10.00
	Idola	Brennan	273-2963 Purus St.	4	10.00
	Jillian	Shaw	P.O. Box 386, 4147 Varus Av.	4	8.75
	Kaye	Benjamin	Ap #552-6575 Elementum, St.	4	8.75
	Kitra	Sykes	3745 Suspendisse Road	4	10.00
	Malachi	Blackwell	9462 Curabitur Avenue	3	10.00
	Philip	Gillespie	Ap #399-608 Tincidunt St.	2	10.00
	Rowan	English	P.O. Box 145, 6159 Cum St.	2	10.00
	Steven	Herrera	3056 Quisque Avenue	2	10.00
AB				69	199.00
AD				9	20.00
ADANA				8	20.00
AG				4	10.00
AISÉN				2	10.00
AK				7	19.00
AKWA IBOM				17	40.00
AL				13	28.75
ALABAMA				14	38.75
ALAJUELA				31	88.75
ALASKA				2	10.00
ALBERTA				42	125.00
AN				41	117.33
ANDALUCÍA				7	20.00
ANDHRA PRADESH				5	10.00

IV) Report 4 : SSRS Drill-Through Report

- A) As before create 2 reports with charts
- B) In 1st report visualize the Theater -wise Bookings
- C) Categories : Theater Name
- Values : Trans Amount
- D) 2nd Report visualize the Quarter-wise Theater Bookings
- E) Categories : Quarter Name
- Values : Trans Amount
- F) In here declare a parameter to get Theater Name as a input and set its value to Theater Name in where clause (inside the data set query)
- G) In 1st chart right click on a bar and go to series properties and set its action to 'Go to

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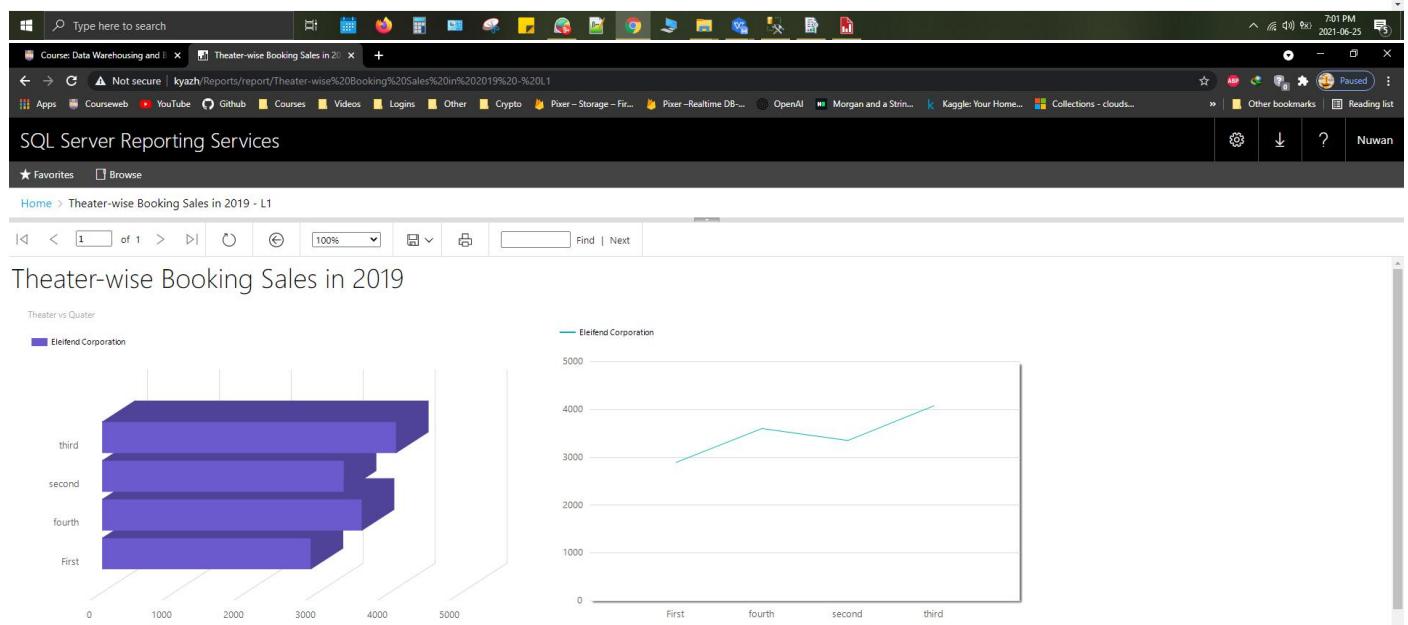
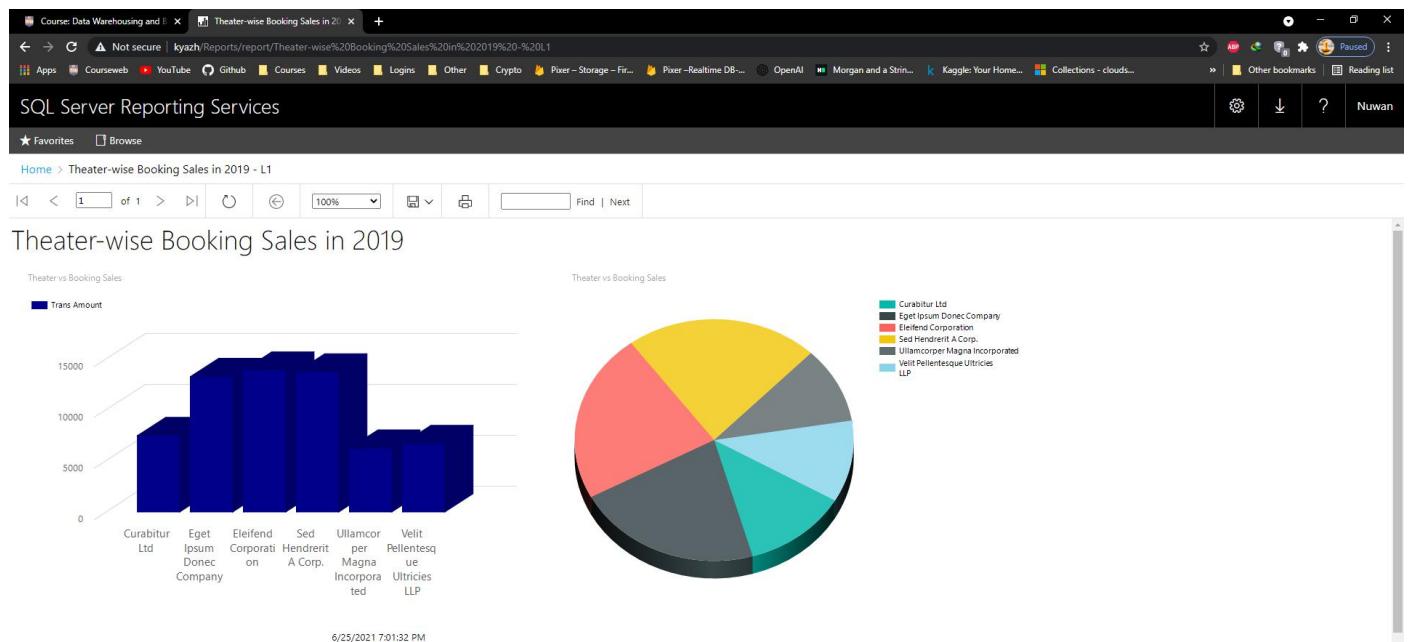
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report' and set its values.

H) Now by clicking on the 1st report bars it automatically sends to relevant Quarter-wise Theater Bookings report.



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**** All the reports are published in web portal by using correct portal link.**