Sri Lanka Institute of Information Technology

Data Warehousing & Business Intelligence

New York City Taxi Trips

Assignment 2

Submitted By:

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Submitted To:

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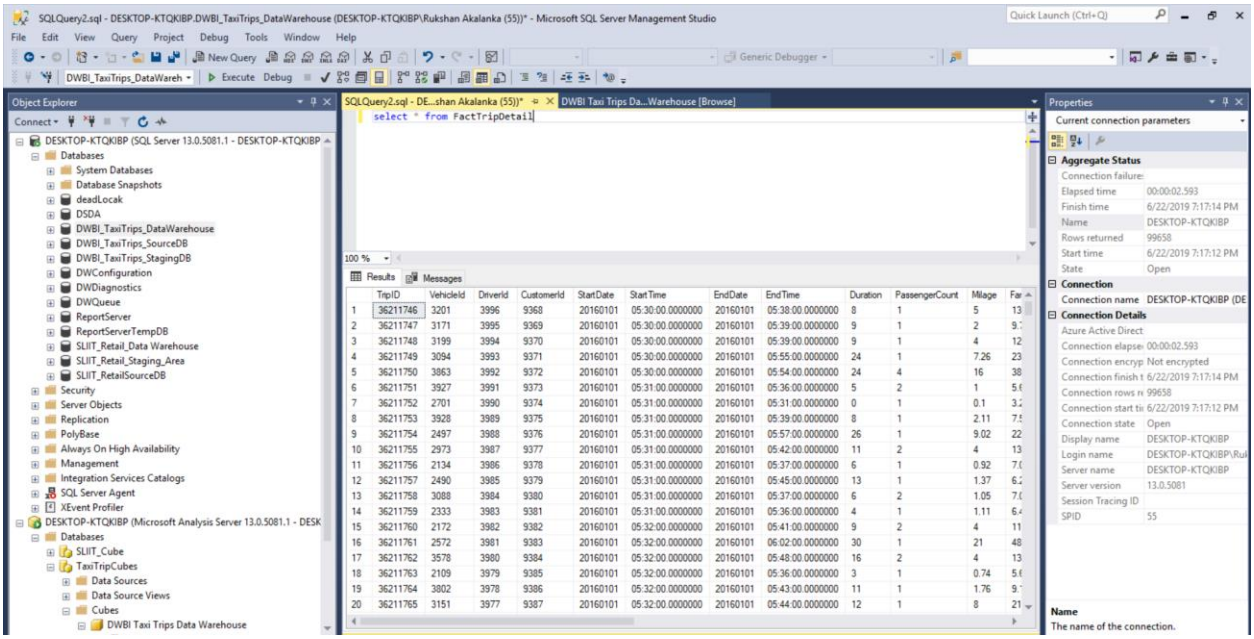
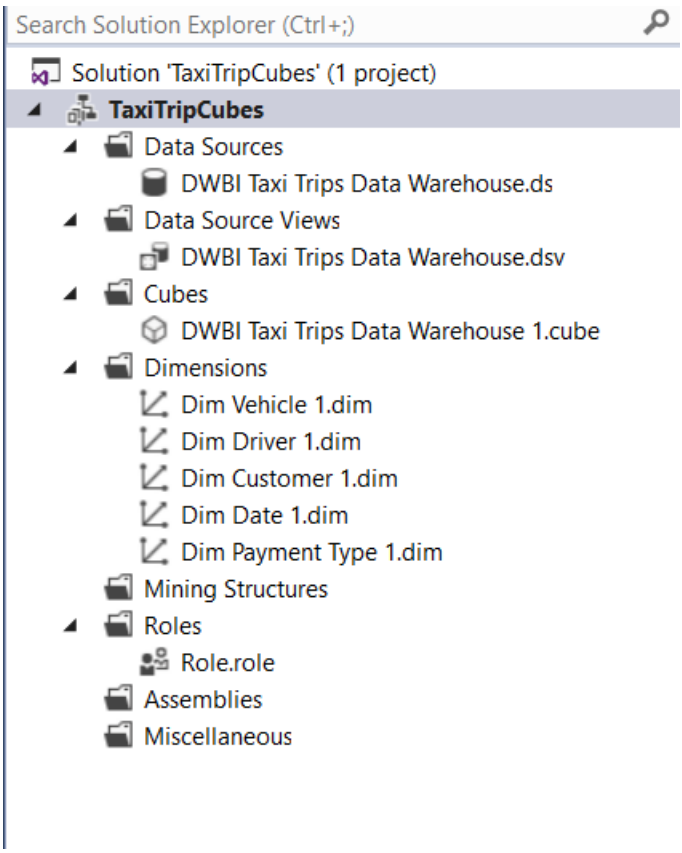
Step 1: Data Source Selection

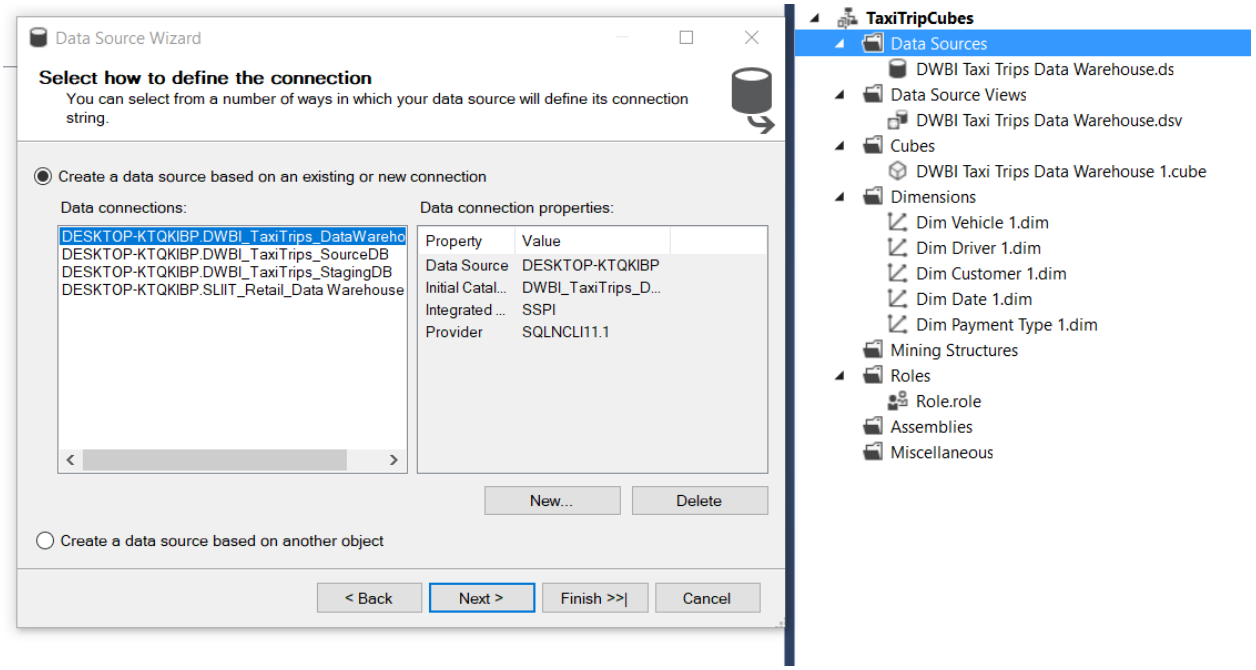


This Data set include records Taxi Trip Details in New York City 2016.

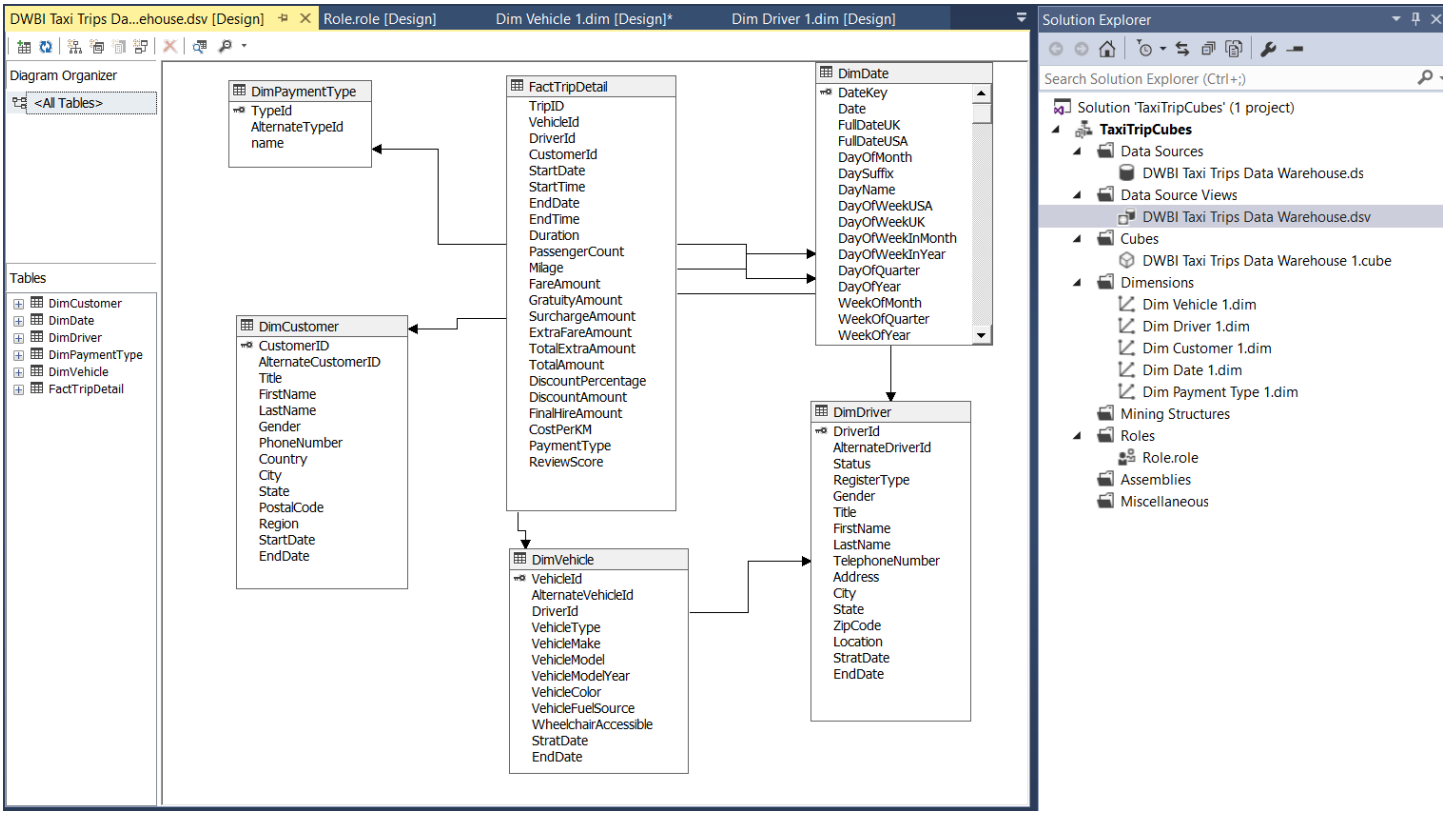
A Data warehouse has been created previously, with a fact table containing Trip details.



Step 2: SSAS Cube Implementation

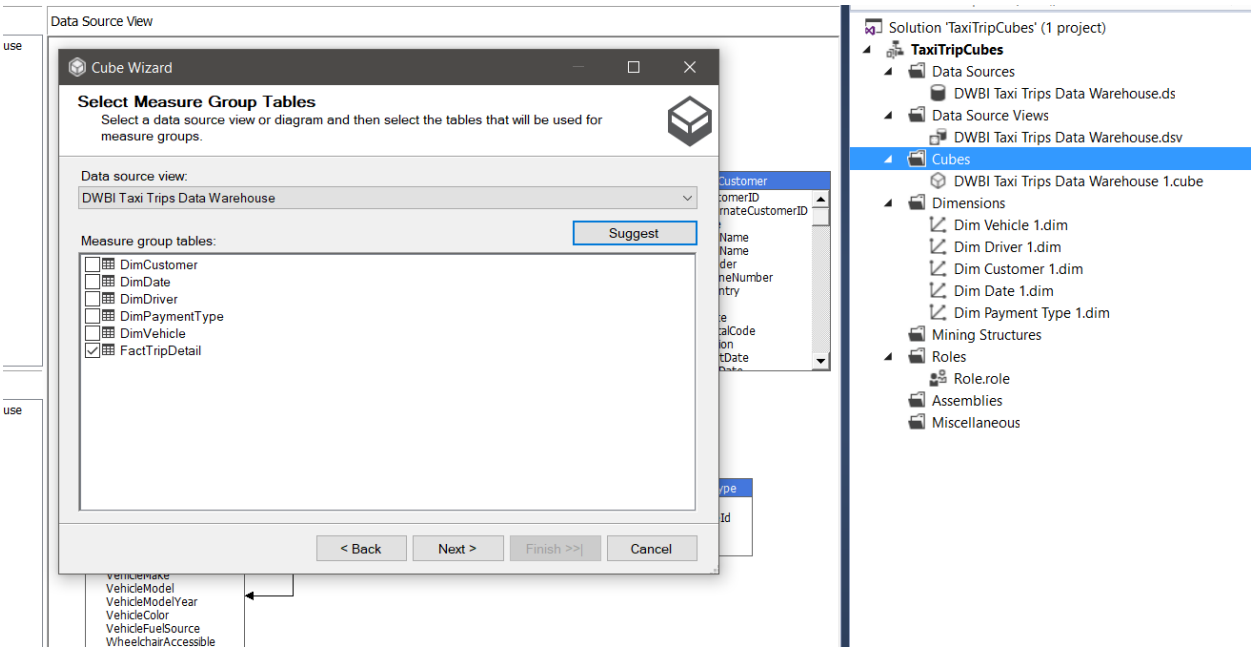


Using the Data Source View Wizard a View has been created for the Selected Data Source.

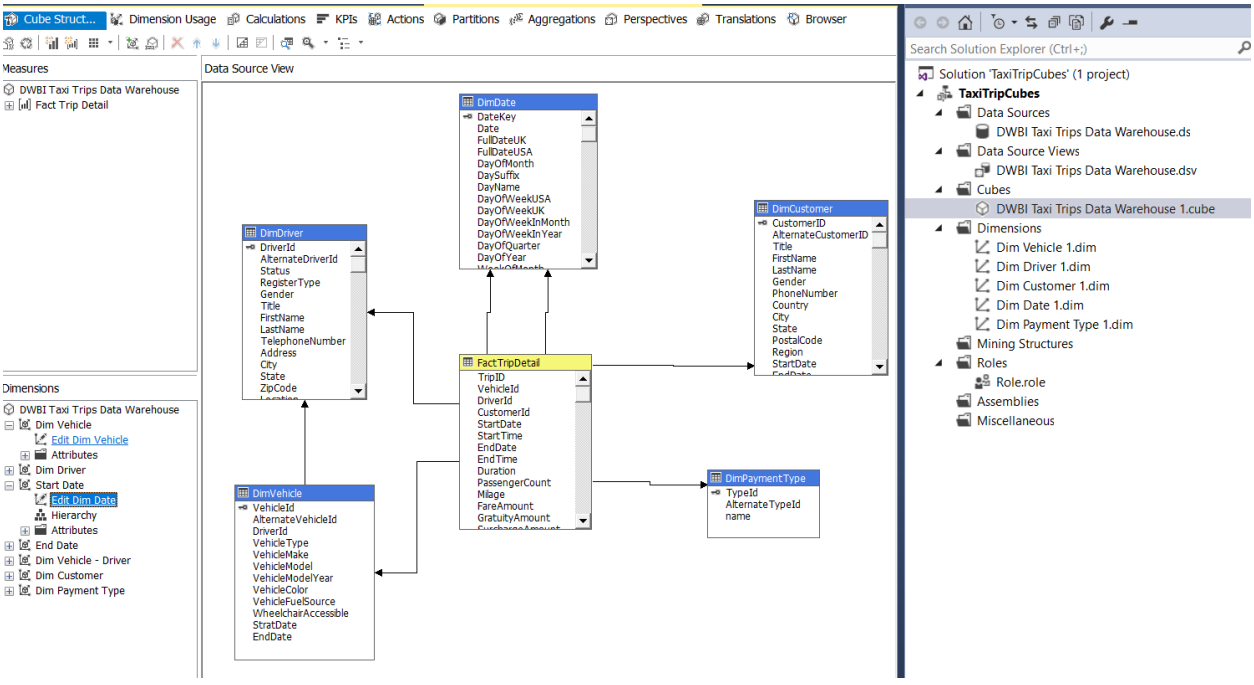


(Data Source View is highlighted)

Using Cube Wizard we select the measure group table that is needed to create the cube.



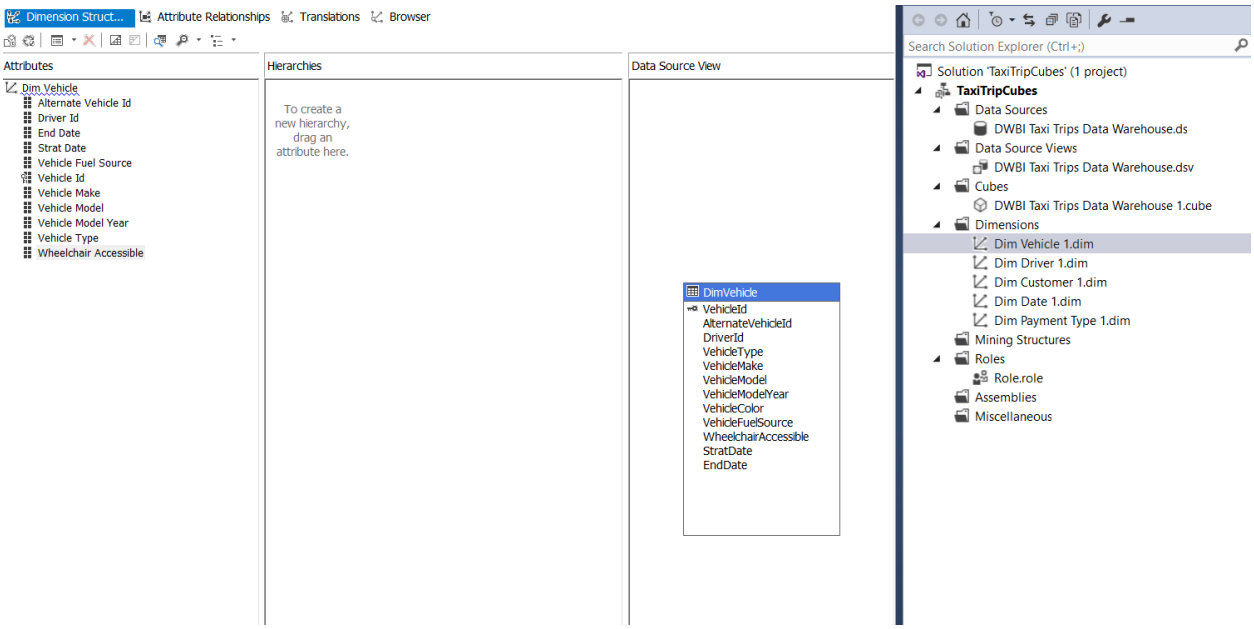
Using the Cube Wizard a new data cube is created.



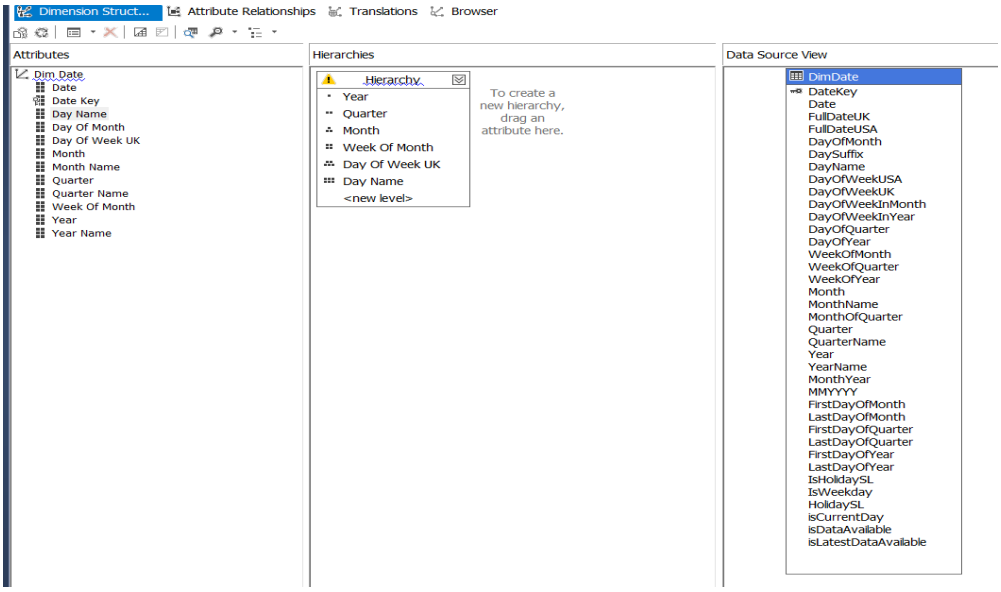
(Cube is highlighted in yellow color)

Even though we created the cube, only Primary Keys of the both Dimensions are selected. Therefore we have to configure them.

Then all the other attributes are dragged and dropped into the ‘Attributes’ to create the cube that we wanted.



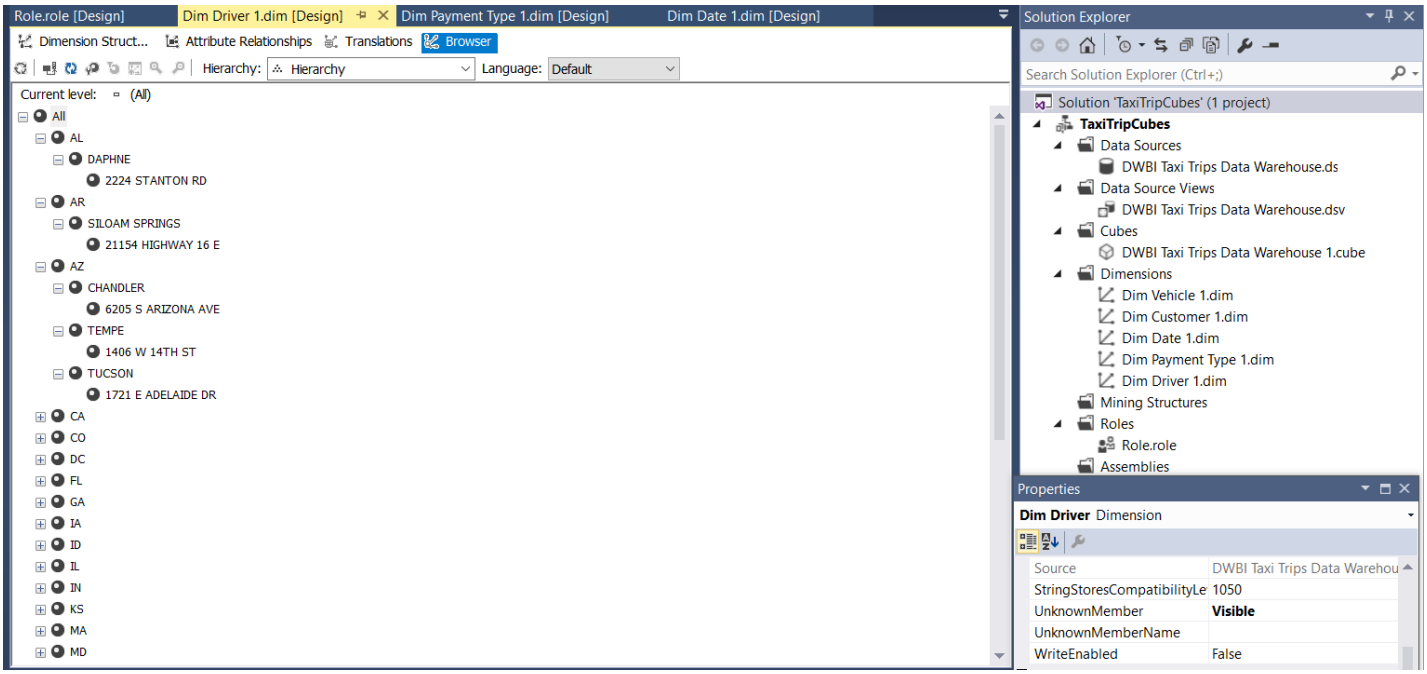
Creating Hierarchies



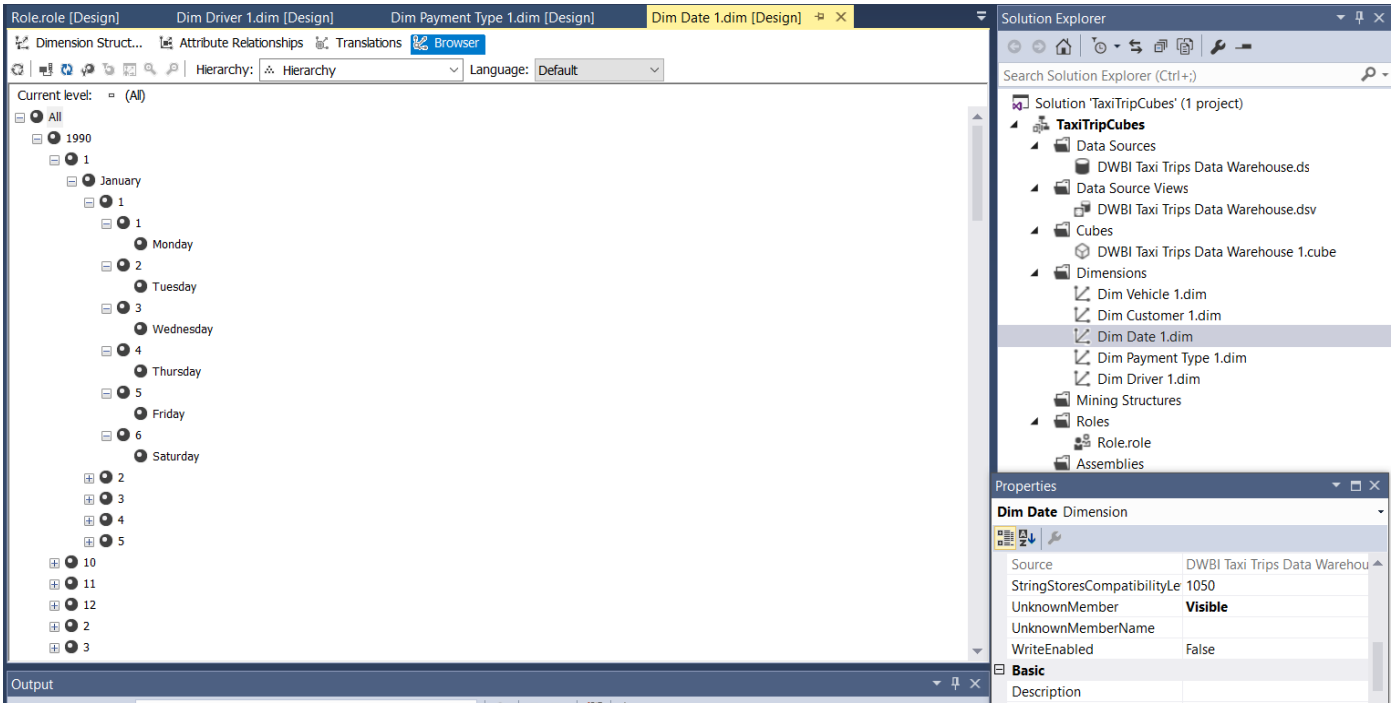
Here a Hierarchy has been created using Region And Date.

After saving, the hierarchy can be deployed and tested as in the below figures.

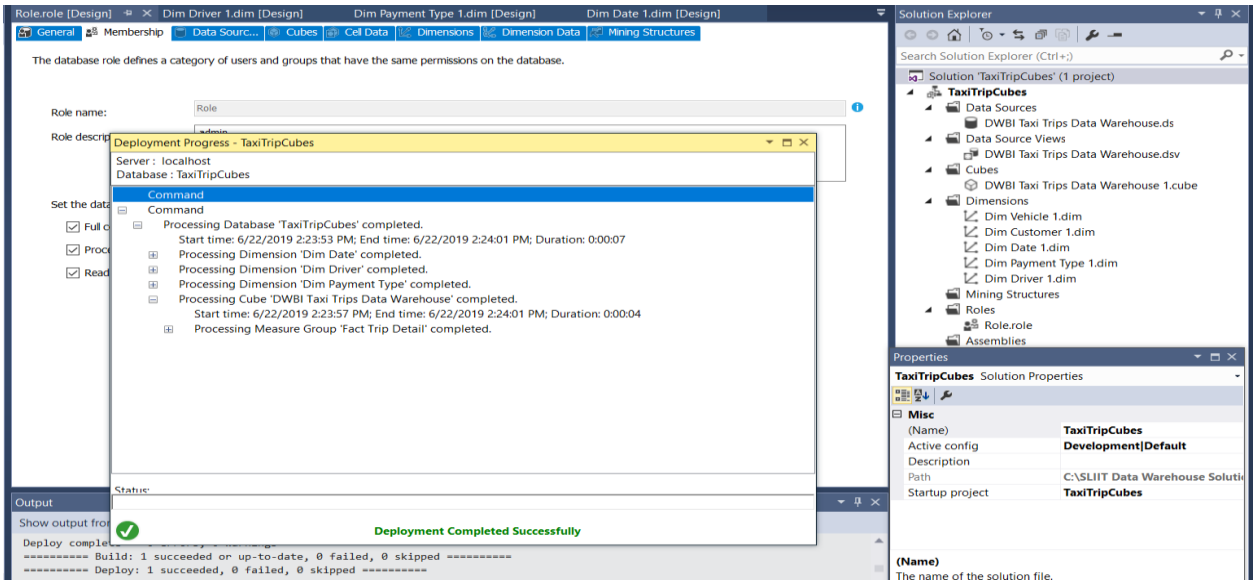
Region Wise



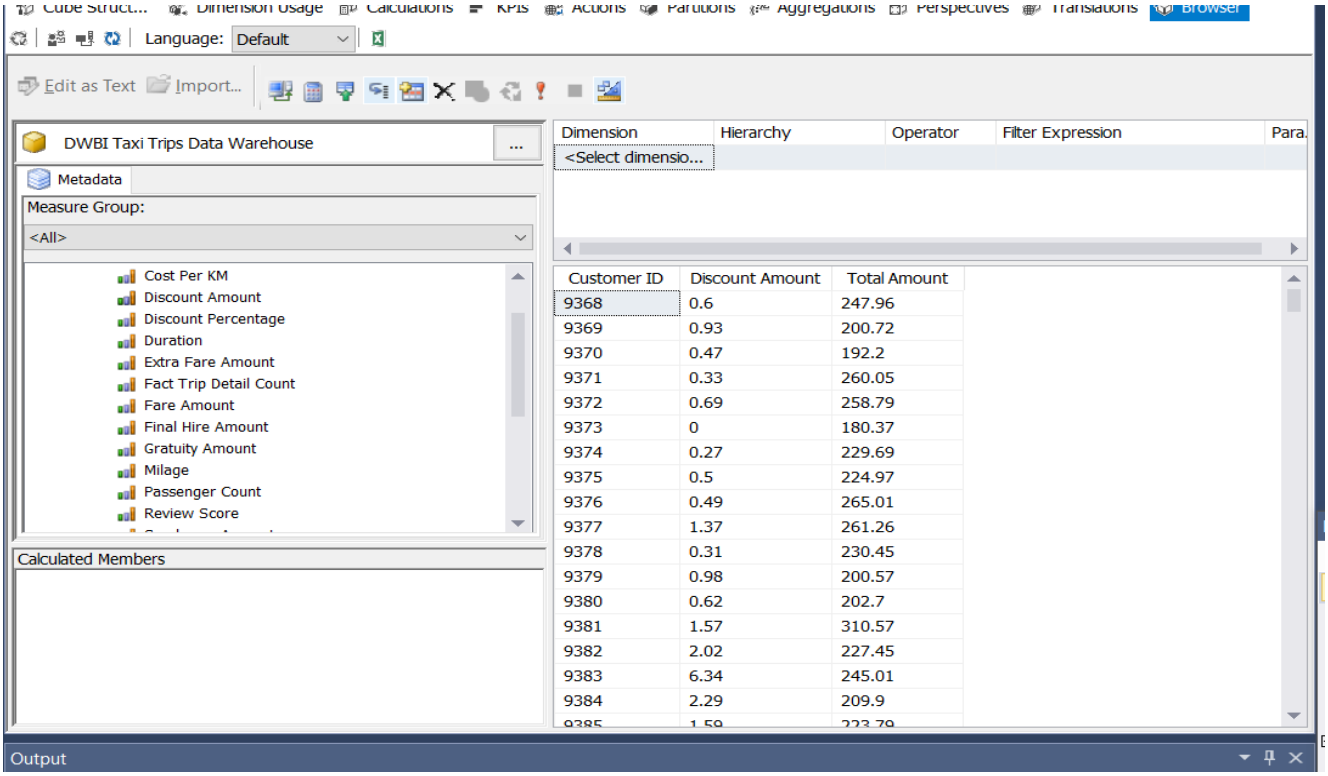
Date Wise



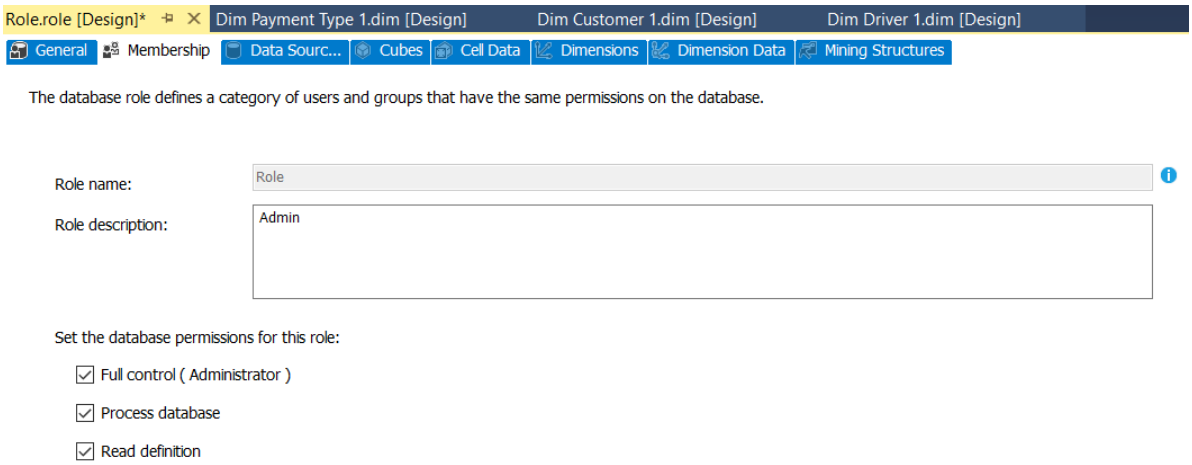
Deploying the Cube



Here after deploying the solution, hierarchy can be checked with the measures.

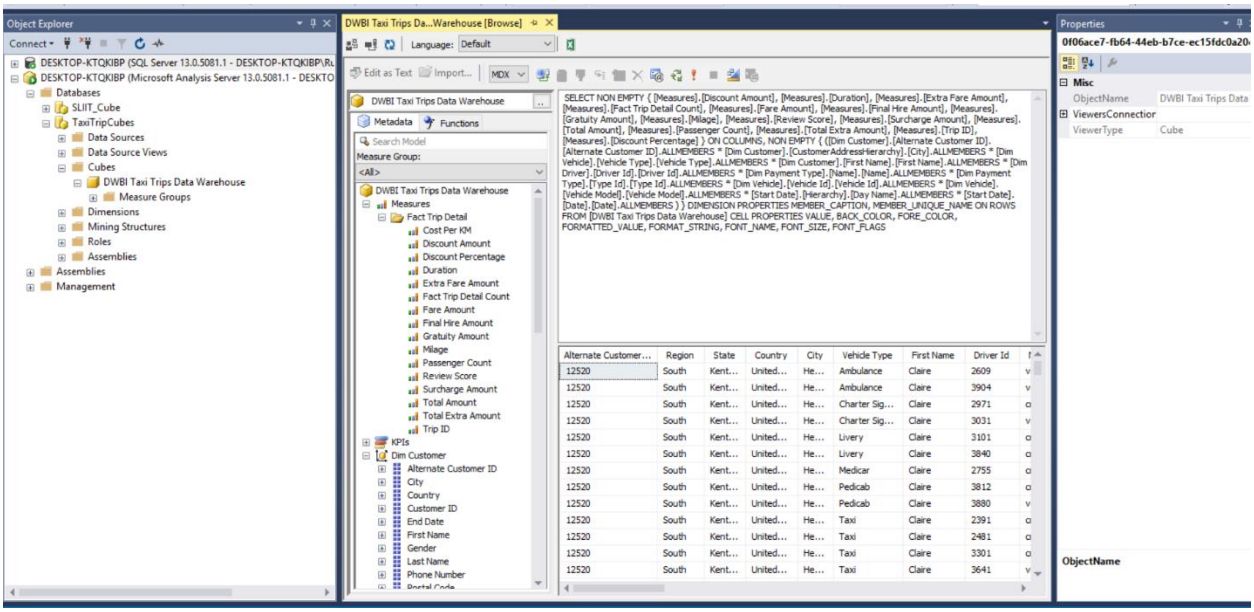


I have created a Role for the Cube

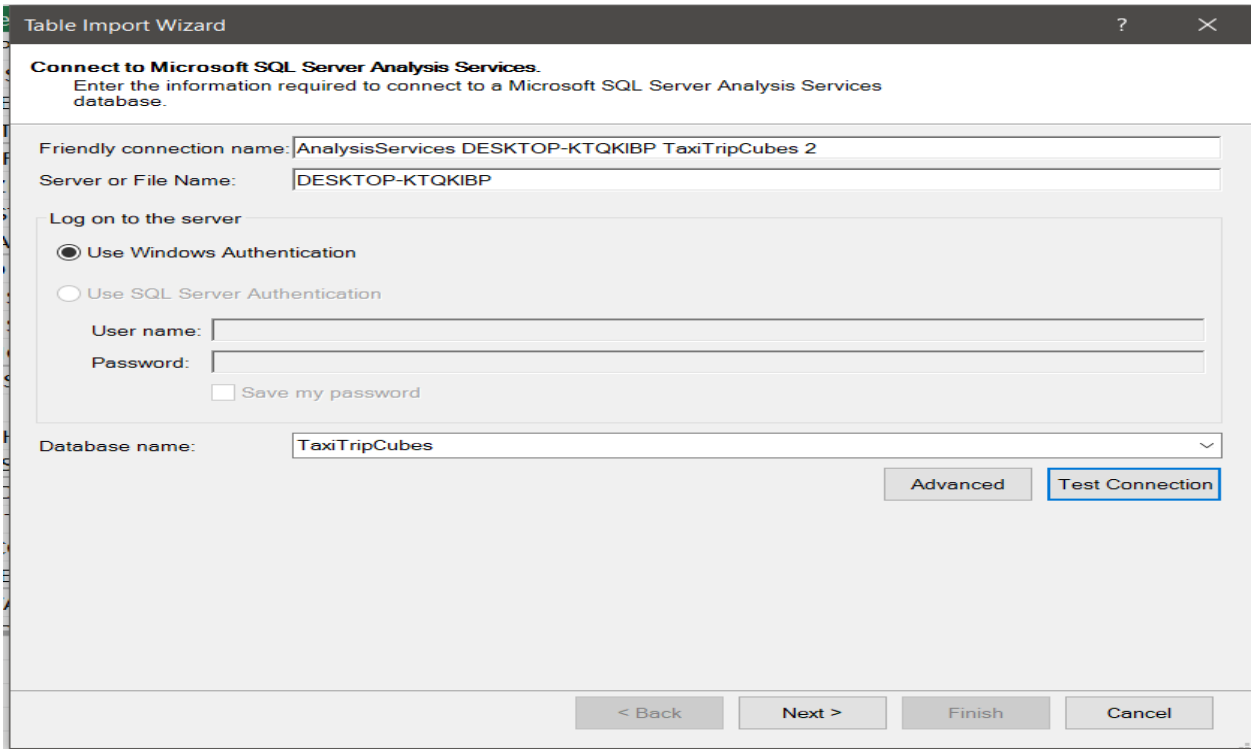


Step 3: OLAP Operations using Powerpivot

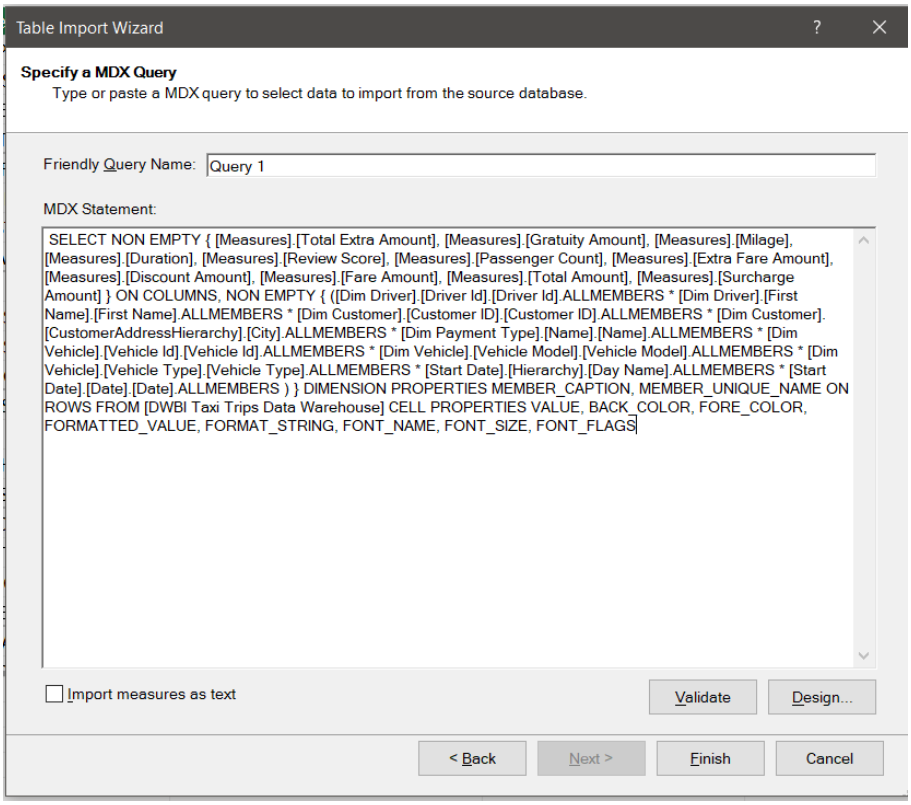
Attributes are selected and a query is generated to use in Powerpivot. Here you have to select the data that you want to extract and display.



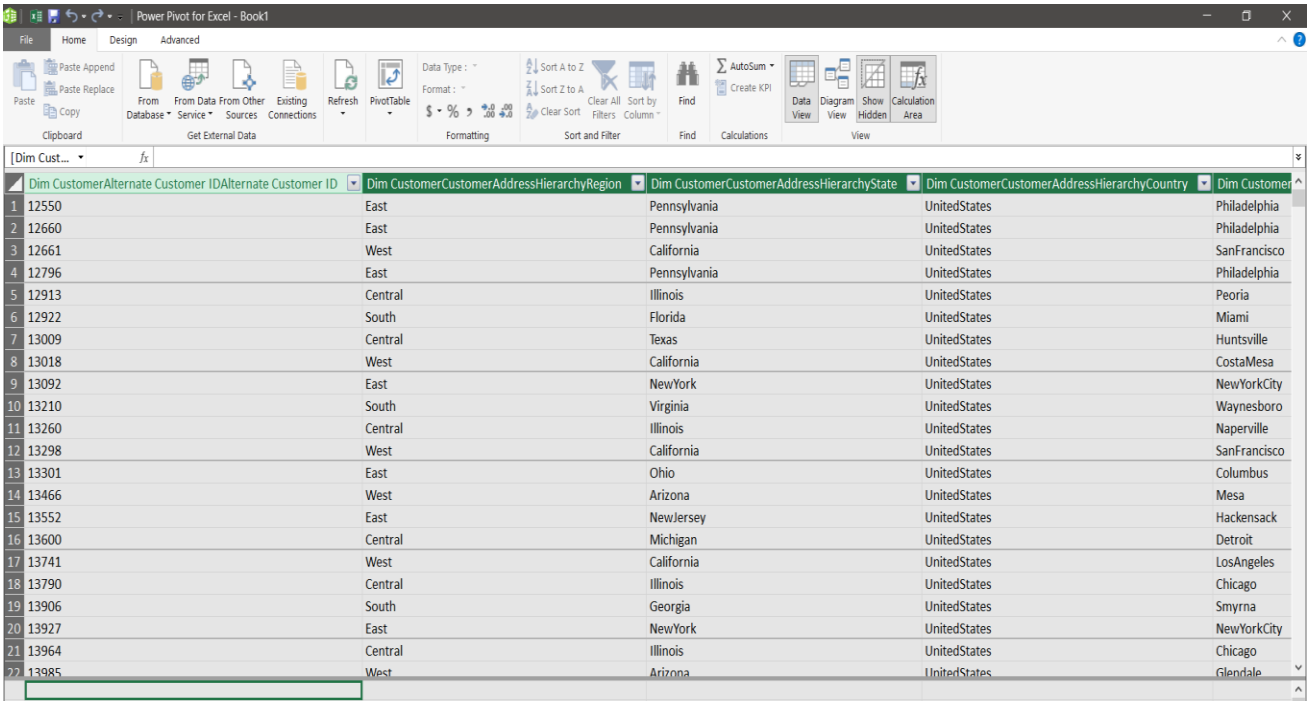
A connection for the Cube that we created is made in using Powerpivot in Excel.

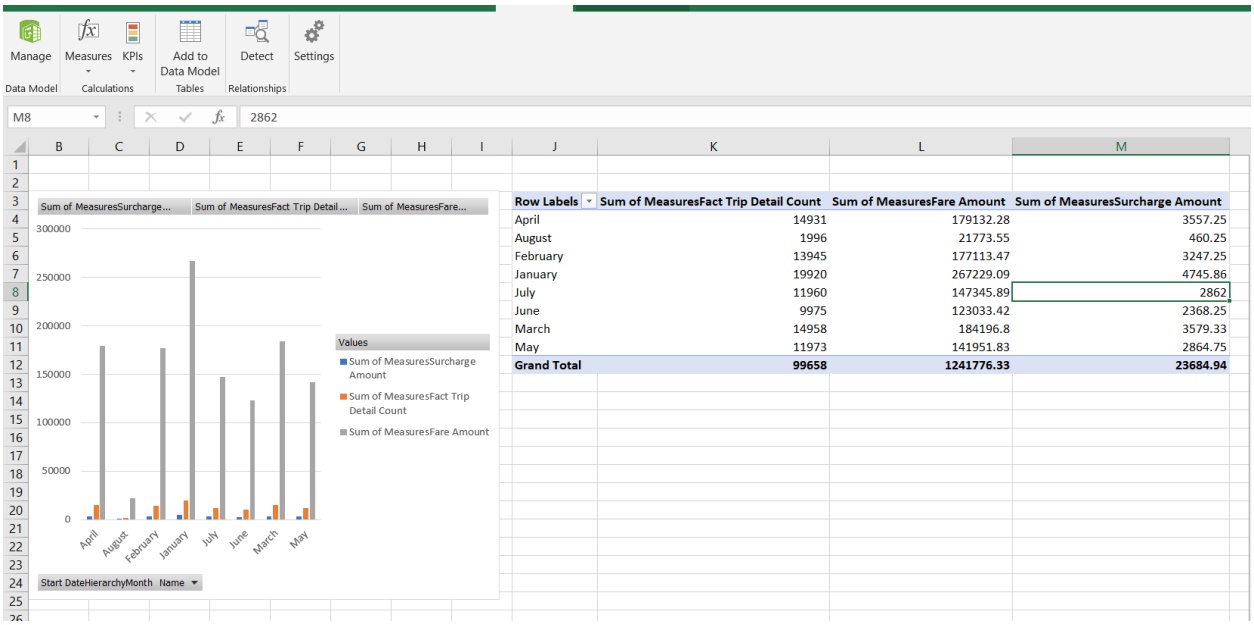


Query that we generated is pasted and validated.



Data is extracted and loaded into the PowerPivot using the query generated before.





Row Labels	Sum of MeasuresFact Trip Detail Count	Sum of MeasuresFare Amount	Sum of MeasuresSurcharge Amount
April	14931	179132.28	3557.25
August	1996	21773.55	460.25
February	13945	177113.47	3247.25
January	19920	267229.09	4745.86
July	11960	147345.89	2862
June	9975	123033.42	2368.25
March	14958	184196.8	3579.33
May	11973	141951.83	2864.75
Grand Total	**99658**	**1241776.33**	**23684.94**

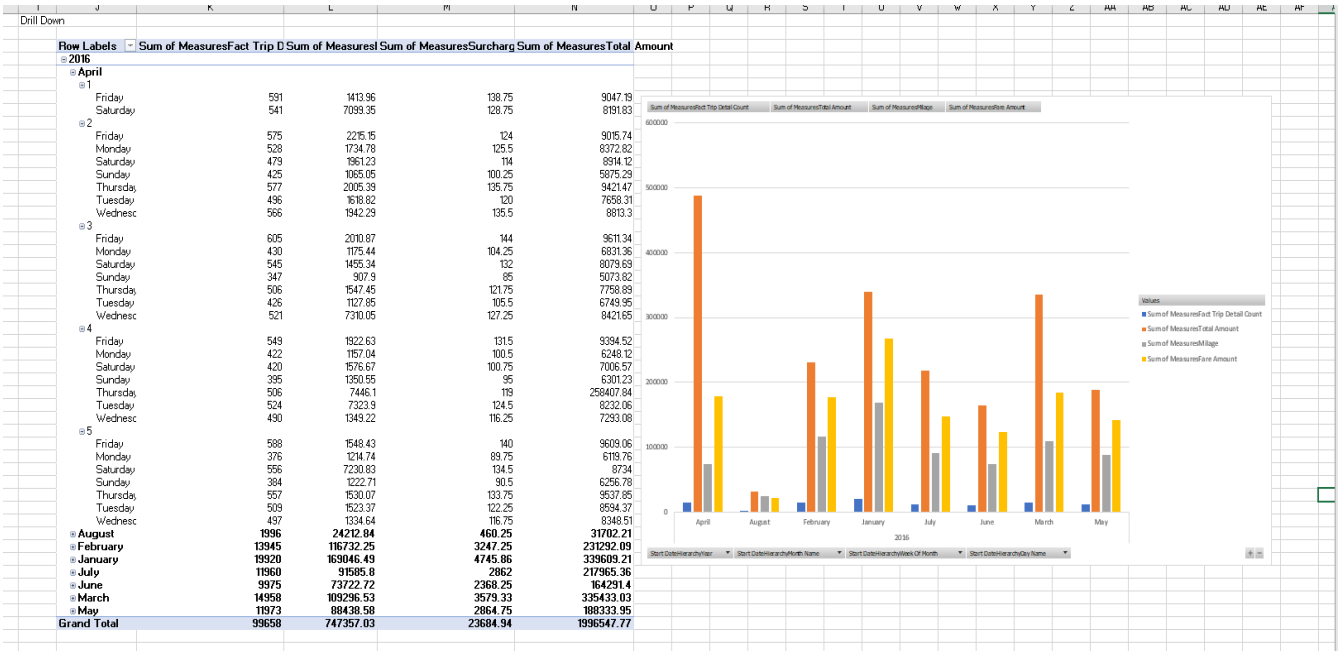
Sum of trip count, Fare amount, Service Amount is displayed in month wise and they are displayed in both chart and pivot table. Here we can select any record we selected and display them the way we want.

OLAP Operations

Drill Down

Here the data is selected according to Date hierarchy (Year->Month->week of month ->Day).

Here it is drilled down in the hierarchy to display the trip count, total mileage, total amount and service chage.

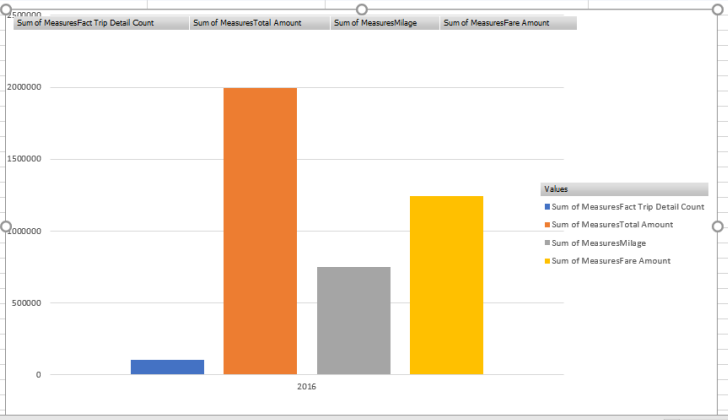


Row Labels	Sum of MeasuresFact Trip D	Sum of MeasuresI	Sum of MeasuresSurcharg	Sum of MeasuresTotal Amount
2016				
April				
1				
Friday	591	1413.96	138.75	9047.19
Saturday	541	7099.35	128.75	8191.83
2				
Friday	575	2215.15	124	9015.74
Monday	528	1734.78	125.5	8372.82
Saturday	479	1961.23	114	8914.12
Sunday	425	1065.05	100.25	5875.29
Thursday	577	2005.39	135.75	9421.47
Tuesday	496	1618.82	120	7658.31
Wednesc	566	1942.29	135.5	8813.3
3				
Friday	605	2010.87	144	9611.34
Monday	430	1175.44	104.25	6831.36
Saturday	545	1455.34	132	8079.69
Sunday	347	907.9	85	5073.82
Thursday	506	1547.45	121.75	7758.89
Tuesday	426	1127.85	105.5	6749.95
Wednesc	521	7310.05	127.25	8421.65
4				
Friday	549	1922.63	131.5	9394.52
Monday	422	1157.04	100.5	6248.12
Saturday	420	1576.67	100.75	7006.57
Sunday	395	1350.55	95	6301.23
Thursday	506	7446.1	119	258407.84
Tuesday	524	7323.9	124.5	8232.06
Wednesc	490	1349.22	116.25	7293.08
5				
Friday	588	1548.43	140	9609.06
Monday	376	1214.74	89.75	6119.76
Saturday	556	7230.83	134.5	8734
Sunday	384	1222.71	90.5	6256.78
Thursday	557	1530.07	133.75	9537.95
Tuesday	509	1523.37	122.25	8594.37
Wednesc	497	1334.64	116.75	8348.51
August	**1996**	**24212.84**	**460.25**	**31702.21**
February	**13945**	**116732.25**	**3247.25**	**231292.09**
January	**19920**	**169046.49**	**4745.86**	**339609.21**
July	**11960**	**91585.8**	**2862**	**217965.36**
June	**9975**	**73722.72**	**2368.25**	**164291.4**
March	**14958**	**109296.53**	**3579.33**	**335433.03**
May	**11973**	**88438.58**	**2864.75**	**188333.95**
Grand Total	**99658**	**747357.03**	**23684.94**	**1996547.77**

Roll Up

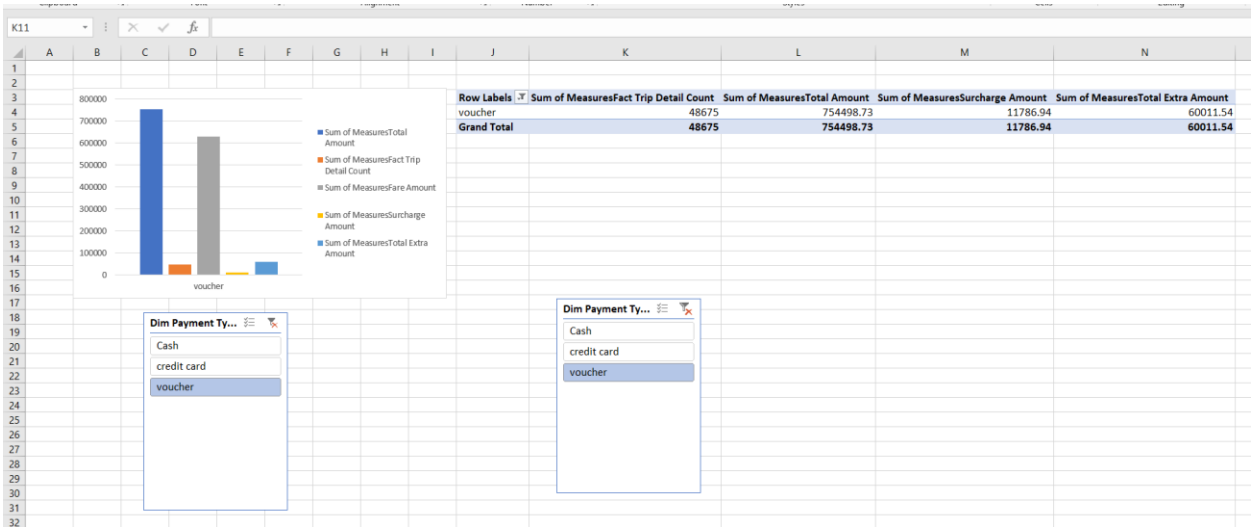
Here the data is Rolled Up in the hierarchy to display the trip count, total mileage, total amount and service chage.

Row Labels	Sum of MeasuresFact Trip Detail Count	Sum of MeasuresMilage	Sum of MeasuresSurcharge Amount	Sum of MeasuresTotal Amount
2016				
April	14931	74321.82	3557.25	487920.52
August	1996	24212.84	460.25	31702.21
February	13945	116732.25	3247.25	231292.09
January	19920	169046.49	4745.86	339609.21
July	11960	91585.8	2862	217965.36
June	9975	73722.72	2368.25	164291.4
March	14958	109296.53	3579.33	335433.03
May	11973	88438.58	2864.75	188333.95
Grand Total	99658	747357.03	23684.94	1996547.77



Slicing

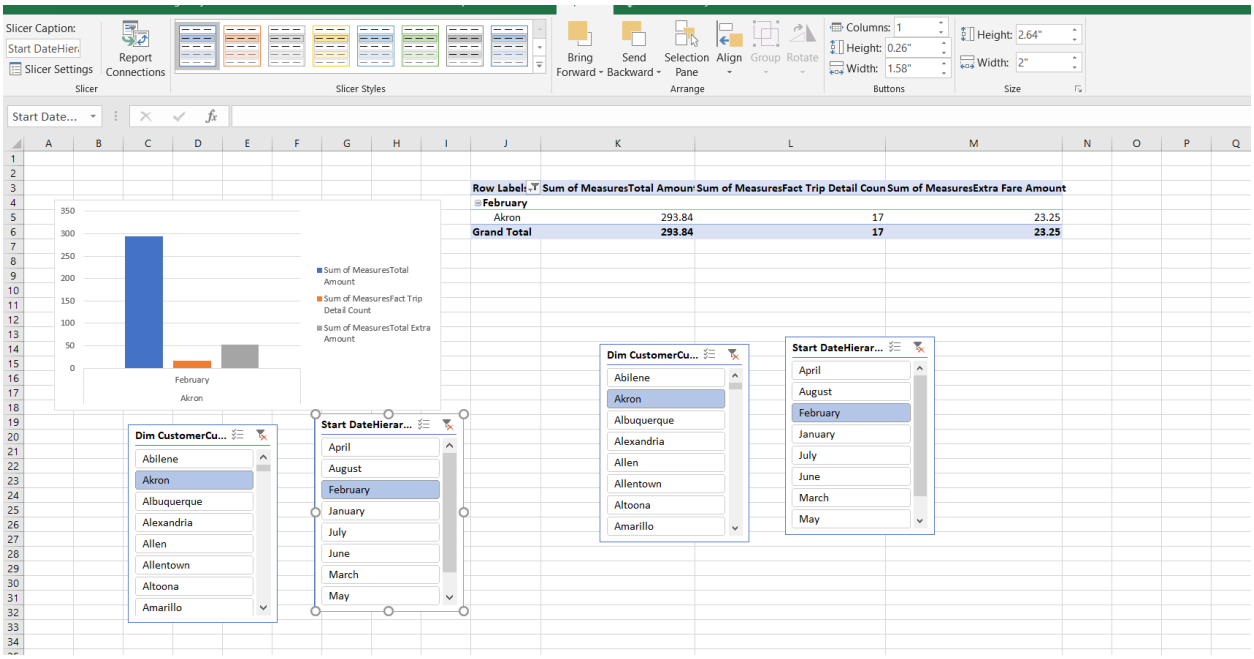
Here Slicing is done Using Payment type for trip count, total Extra amount, total amount and service chage.



Row Labels	Sum of MeasuresFact Trip Detail Count	Sum of MeasuresTotal Amount	Sum of MeasuresSurcharge Amount	Sum of MeasuresTotal Extra Amount
voucher	48675	754498.73	11786.94	60011.54
Grand Total	48675	754498.73	11786.94	60011.54

Dicing

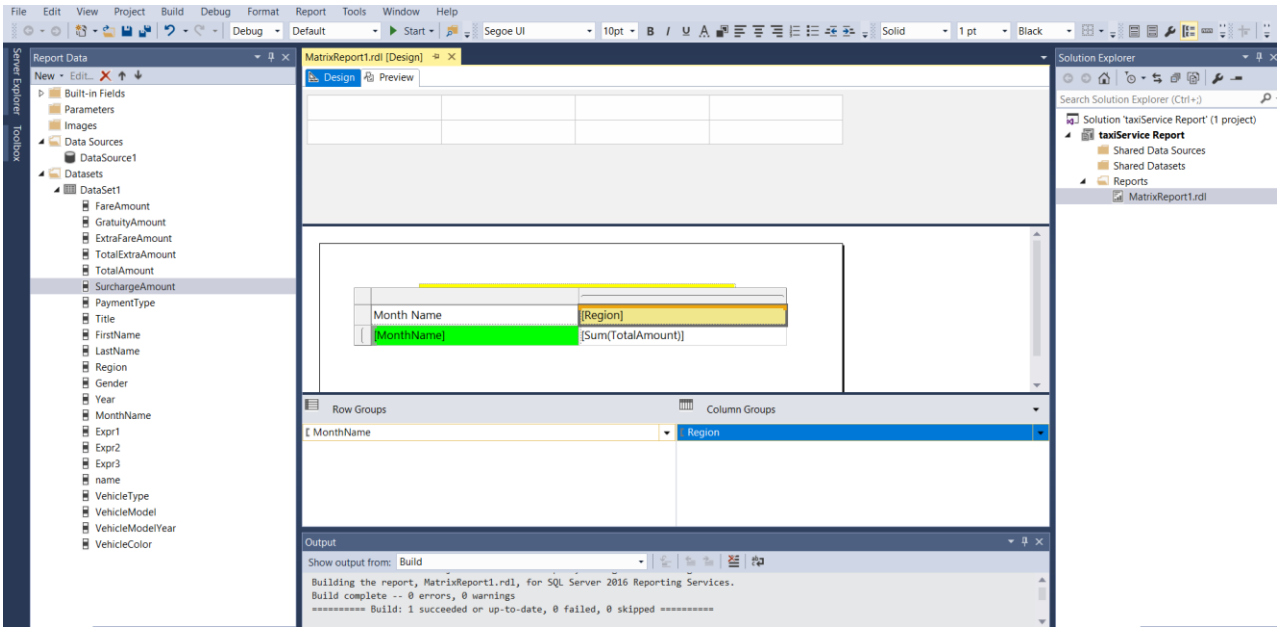
Dicing is done using more than two dimensions. Dicing can be done using as many dimensions as the user want. Here Dicing is done using Region and month Wise total amount , trip count and fare amount.



Step 4: SSRS Report

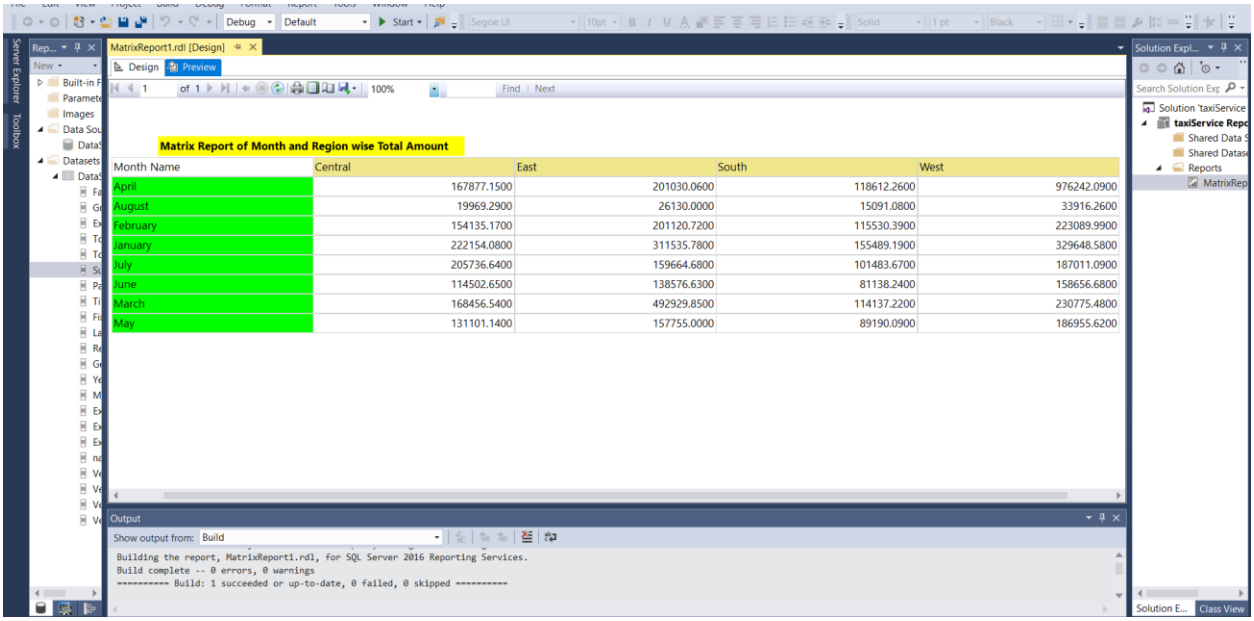
Report 1: Matrix Report

A Matrix is created by using the data that we loaded to the warehouse before.

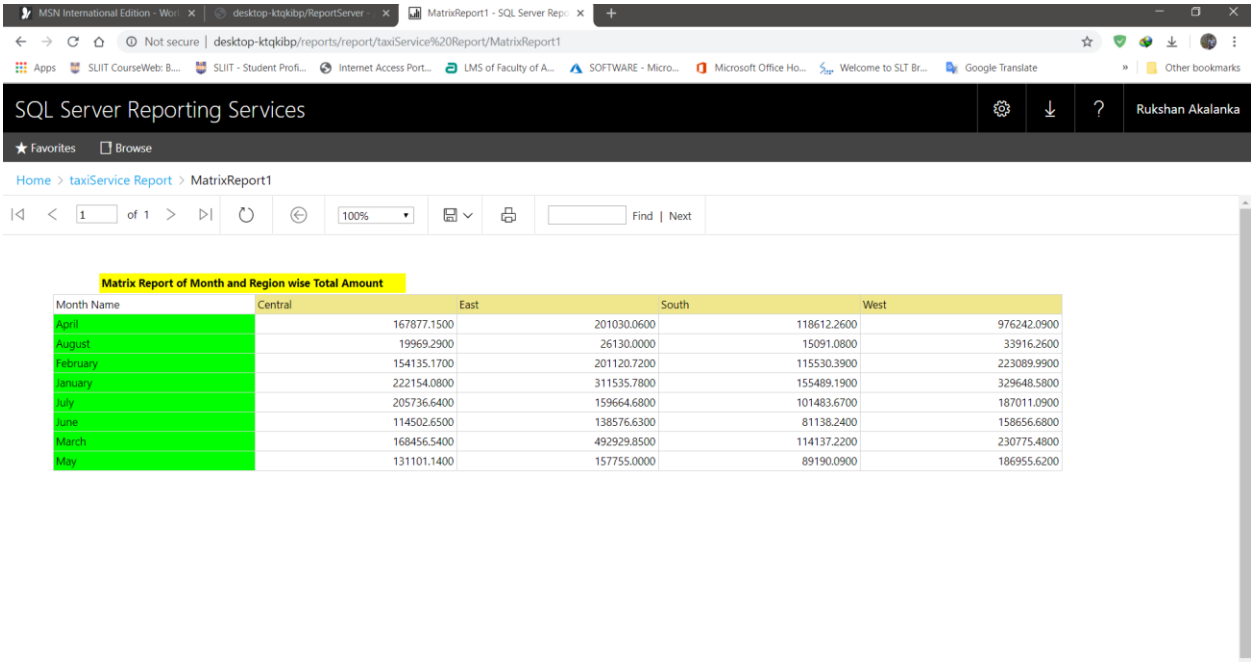


Preview of the Matrix Report

Retrieve the total hire amount according to month vs region



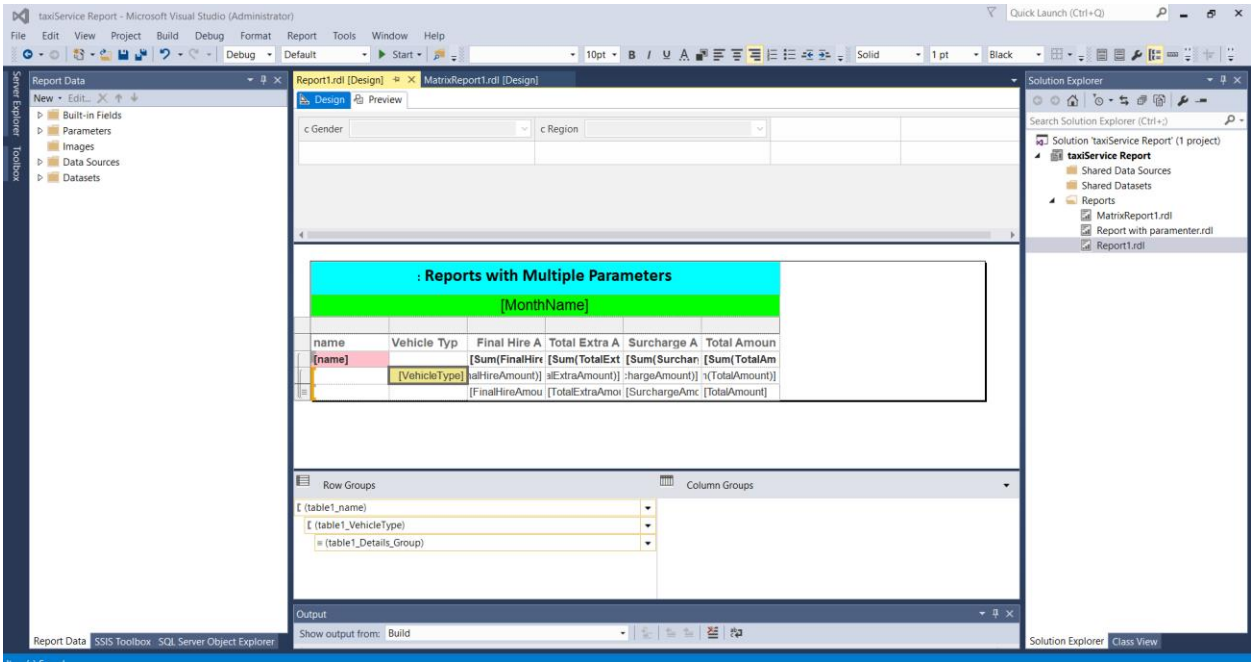
Matrix Report is deployed in Web Portal



Matrix Report of Month and Region wise Total Amount

Month Name	Central	East	South	West
April	167877.1500	201030.0600	118612.2600	976242.0900
August	19969.2900	26130.0000	15091.0800	33916.2600
February	154135.1700	201120.7200	115530.3900	223089.9900
January	222154.0800	311535.7800	155489.1900	329648.5800
July	205736.6400	159664.6800	101483.6700	187011.0900
June	114502.6500	138576.6300	81138.2400	158656.6800
March	168456.5400	492929.8500	114137.2200	230775.4800
May	131101.1400	157755.0000	89190.0900	186955.6200

Report 2: Reports with Multiple Parameters



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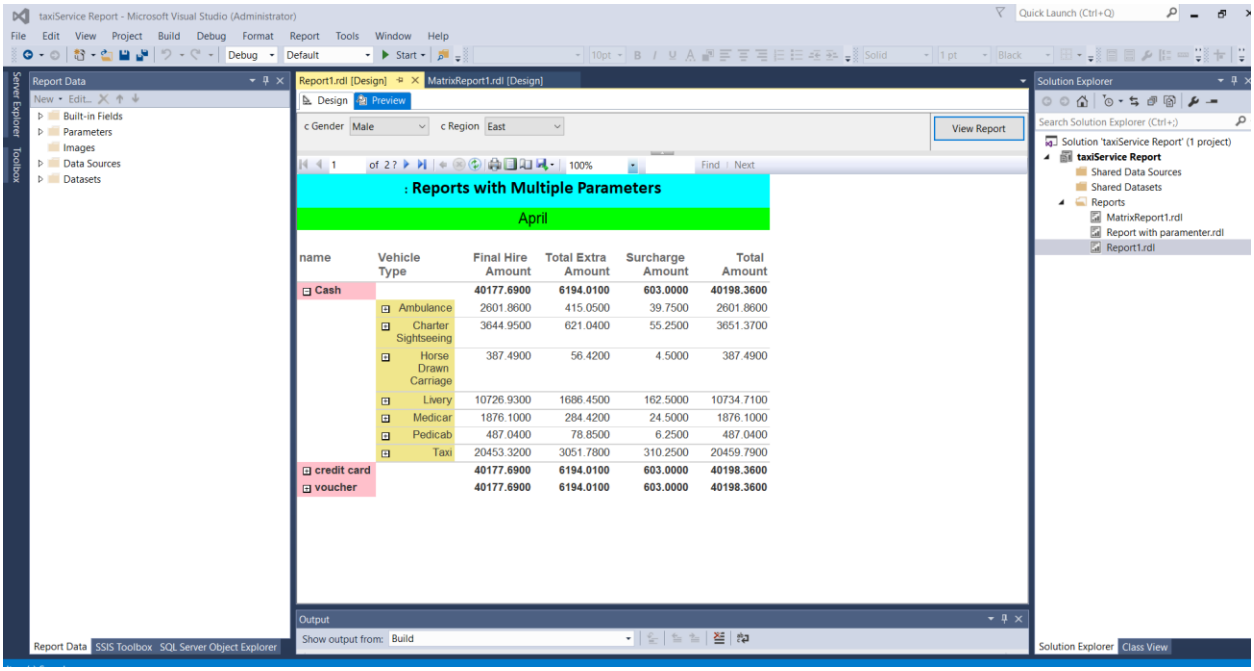
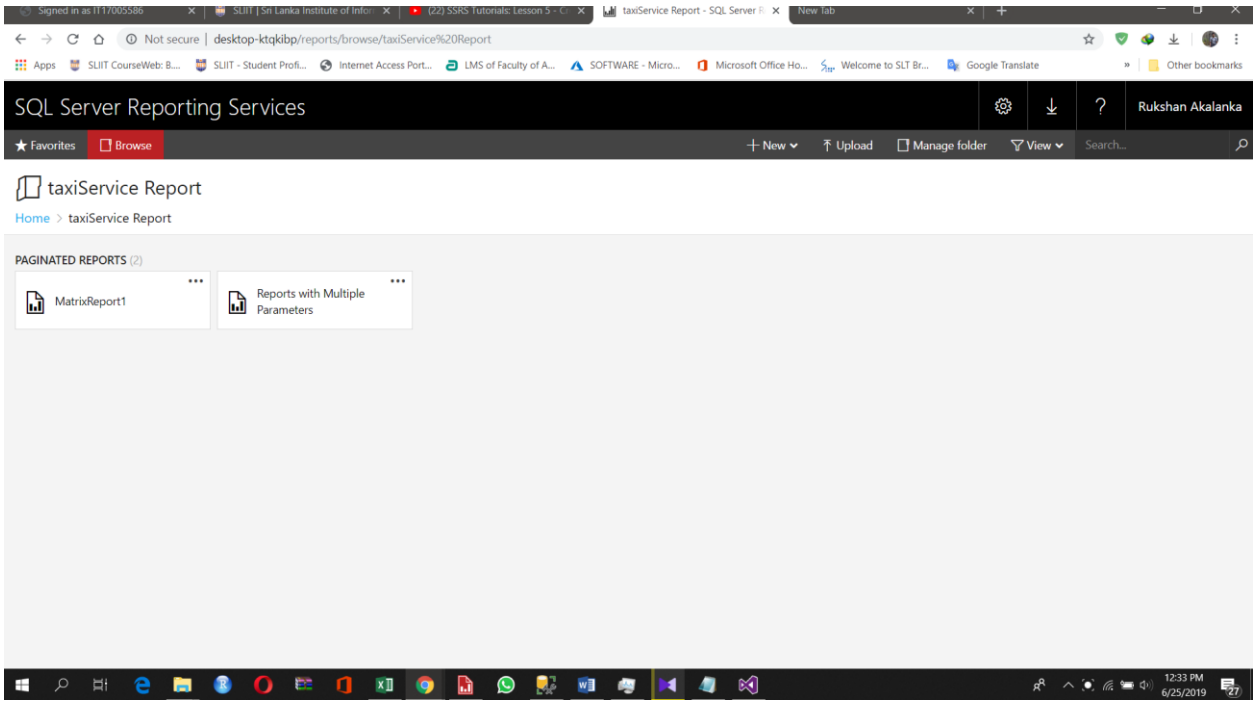
Data Using Two Parameters

All the measures of different payment type are filtered by customer region and customer gender



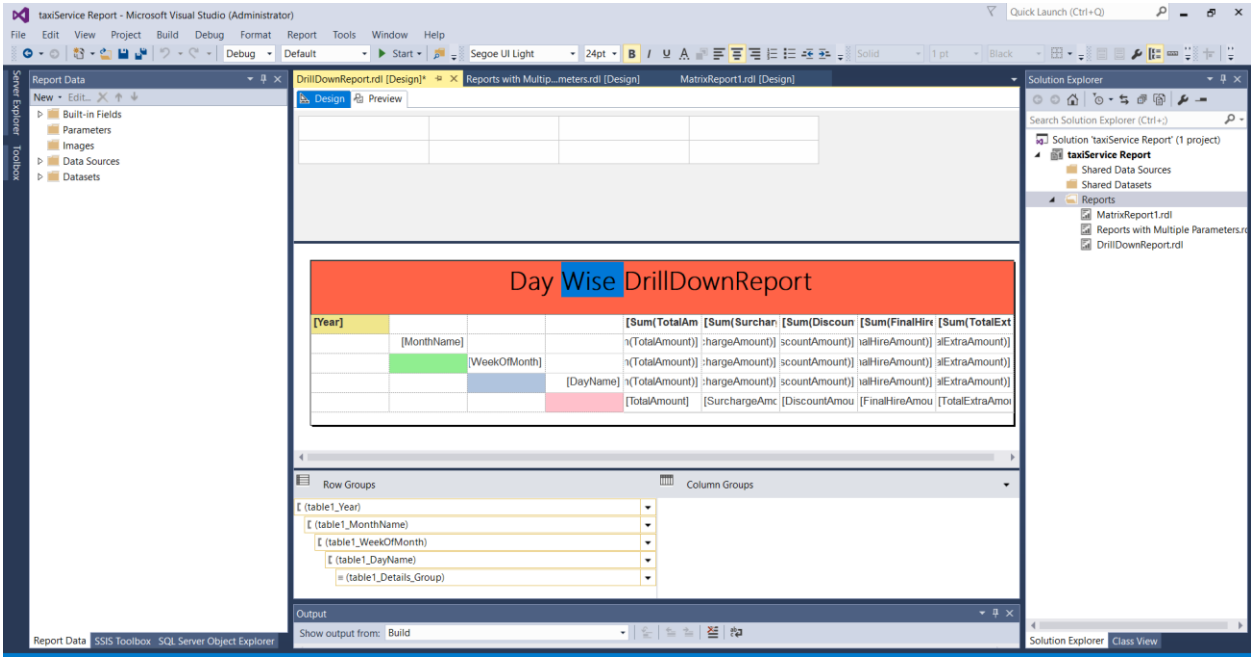
Deployed to Web Portal



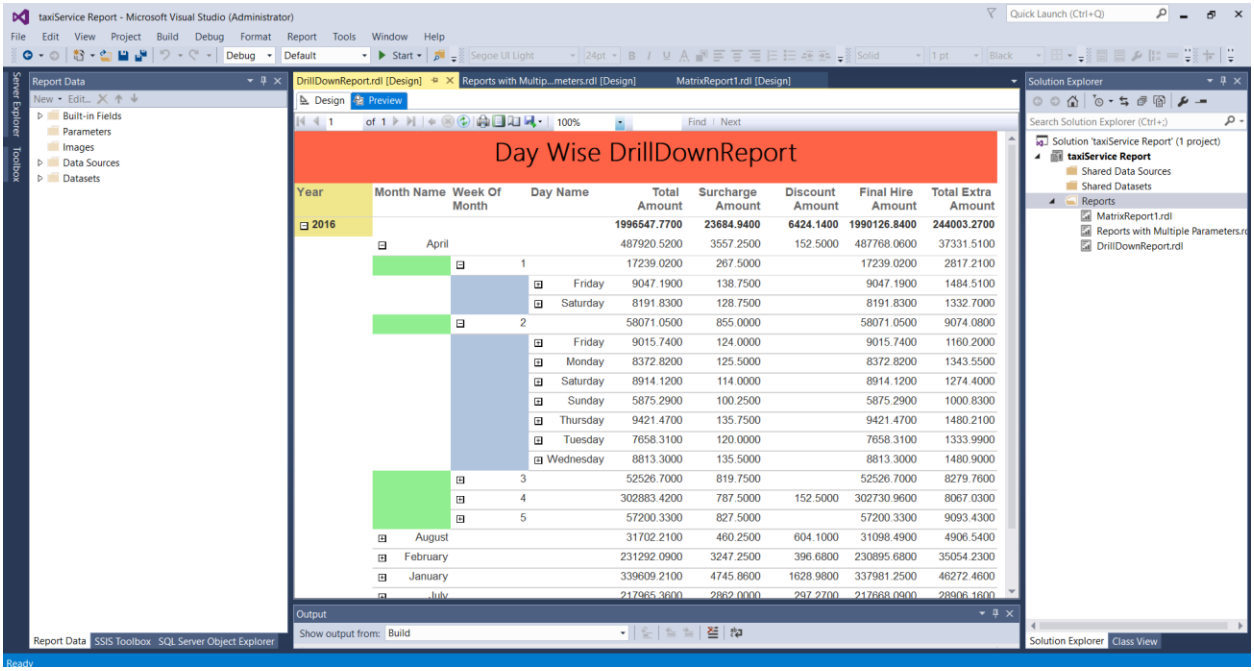
Report 3: Drill-Down Report

Drill Down was done using SSRS

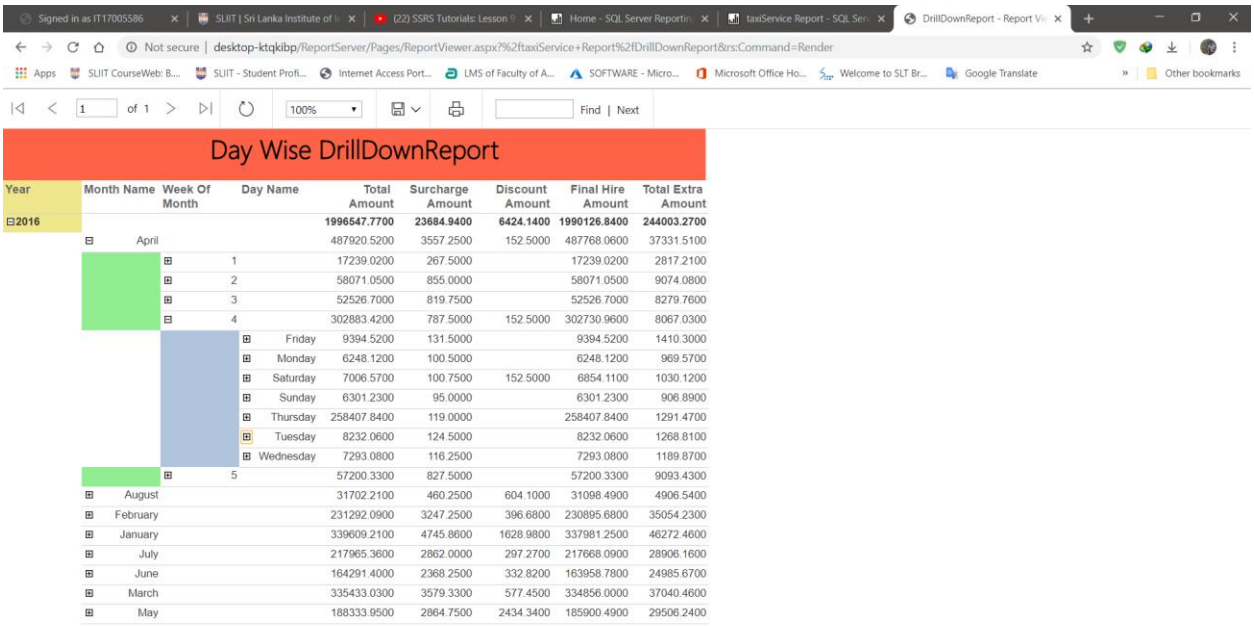
Total hire amount, company service charge, total discount like wise all the measures are drilled down according to YEAR -> MONTH -> WEEK OF MONTH -> DAY OF WEEK



Drill Down data



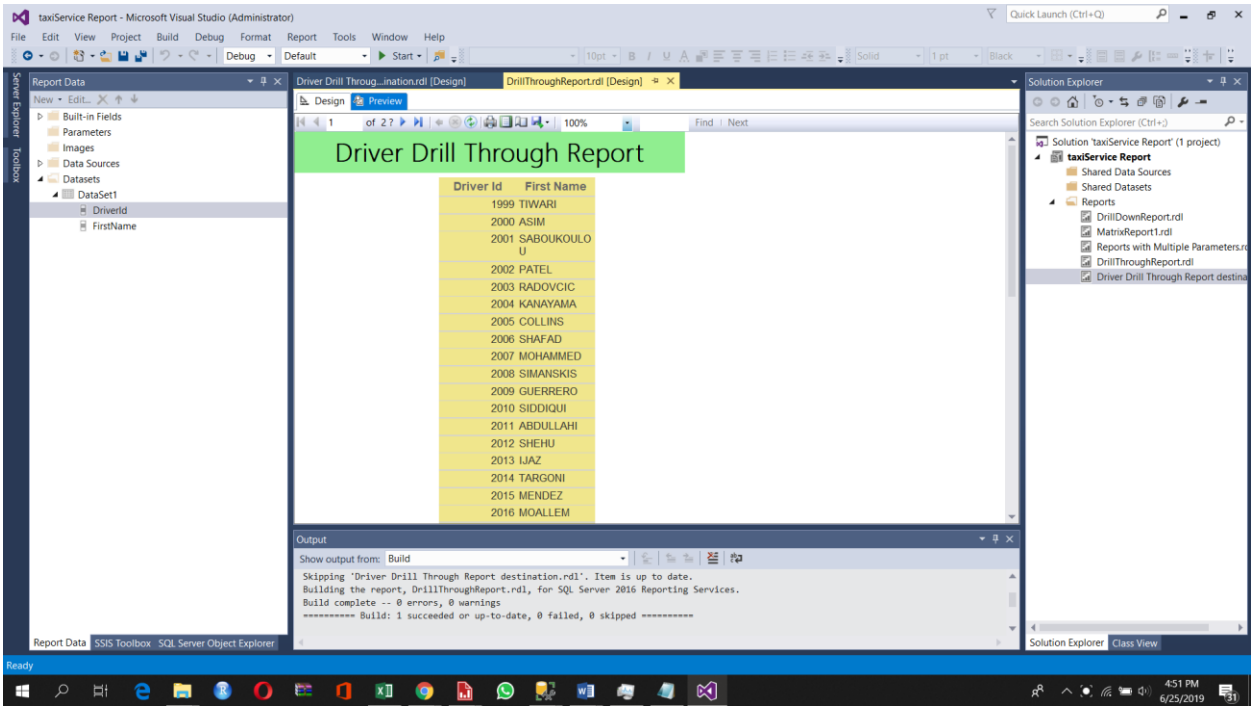
Deployed to Web Portal



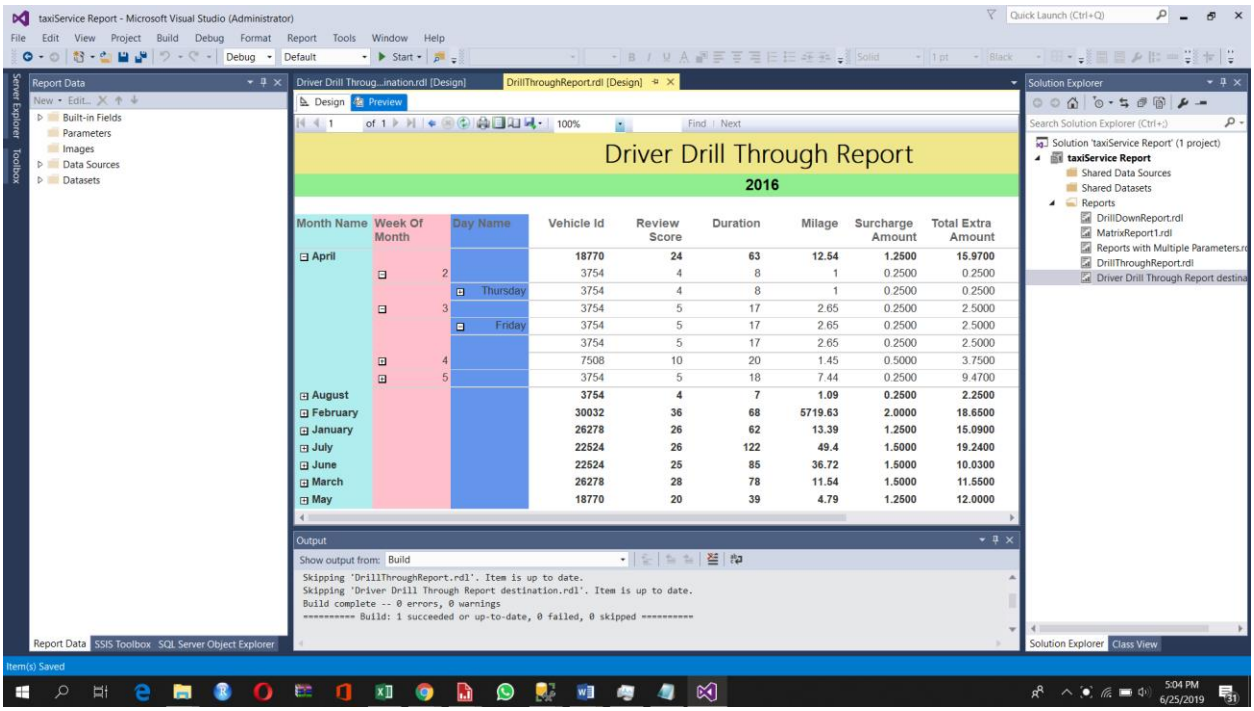
Year	Month Name	Week Of Month	Day Name	Total Amount	Surcharge Amount	Discount Amount	Final Hire Amount	Total Extra Amount
⊟2016				1996547.7700	23684.9400	6424.1400	1990126.8400	244003.2700
	⊟ April			487920.5200	3557.2500	152.5000	487768.0600	37331.5100
		⊞ 1		17239.0200	267.5000		17239.0200	2817.2100
		⊞ 2		58071.0500	855.0000		58071.0500	9074.0800
		⊞ 3		52526.7000	819.7500		52526.7000	8279.7600
		⊟ 4		302883.4200	787.5000	152.5000	302730.9600	8067.0300
			⊞ Friday	9394.5200	131.5000		9394.5200	1410.3000
			⊞ Monday	6248.1200	100.5000		6248.1200	969.5700
			⊞ Saturday	7006.5700	100.7500	152.5000	6854.1100	1030.1200
			⊞ Sunday	6301.2300	95.0000		6301.2300	906.8900
			⊞ Thursday	258407.8400	119.0000		258407.8400	1291.4700
			⊞ Tuesday	8232.0600	124.5000		8232.0600	1268.8100
			⊞ Wednesday	7293.0800	116.2500		7293.0800	1189.8700
		⊞ 5		57200.3300	827.5000		57200.3300	9093.4300
	⊞ August			31702.2100	460.2500	604.1000	31098.4900	4906.5400
	⊞ February			231292.0900	3247.2500	396.6800	230895.6800	35054.2300
	⊞ January			339609.2100	4745.8600	1628.9800	337981.2500	46272.4600
	⊞ July			217965.3600	2862.0000	297.2700	217668.0900	28906.1600
	⊞ June			164291.4000	2368.2500	332.8200	163958.7800	24985.6700
	⊞ March			335433.0300	3579.3300	577.4500	334856.0000	37040.4600
	⊞ May			188333.9500	2864.7500	2434.3400	185900.4900	29506.2400

Report 4: Drill Through

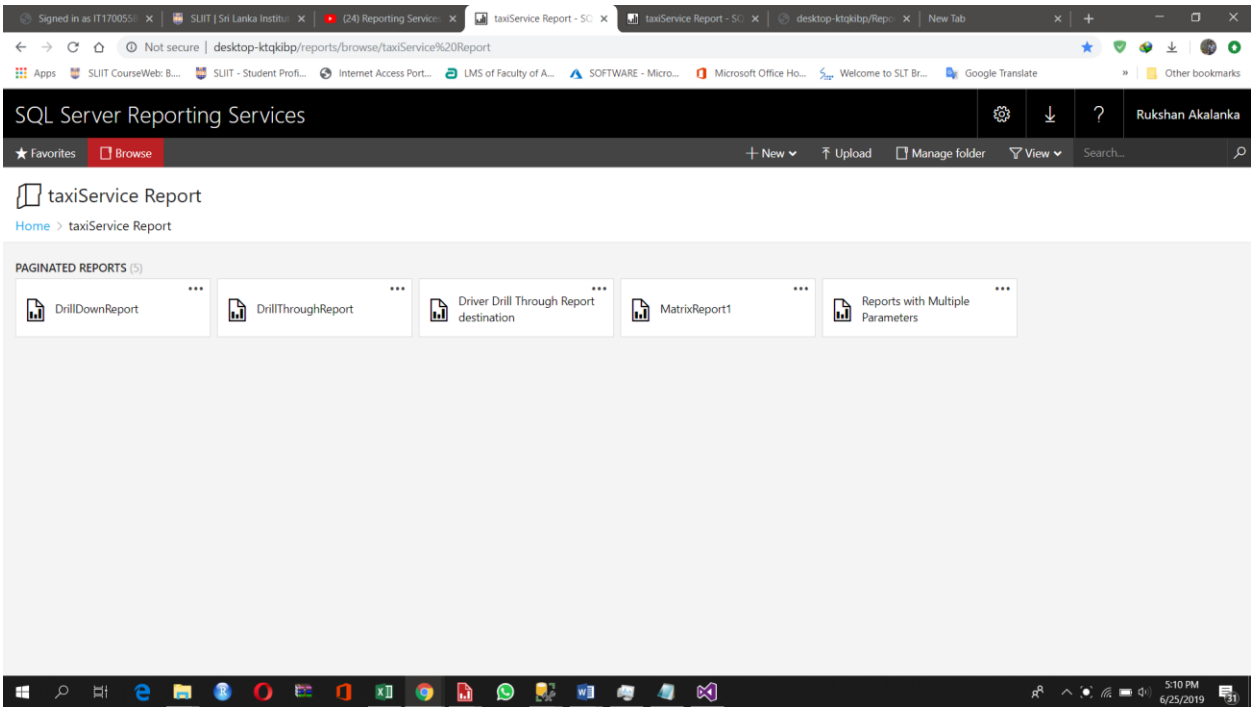
Report provide all the drivers' name and Driver ID. When click on the each driver's name it take you to a another report.

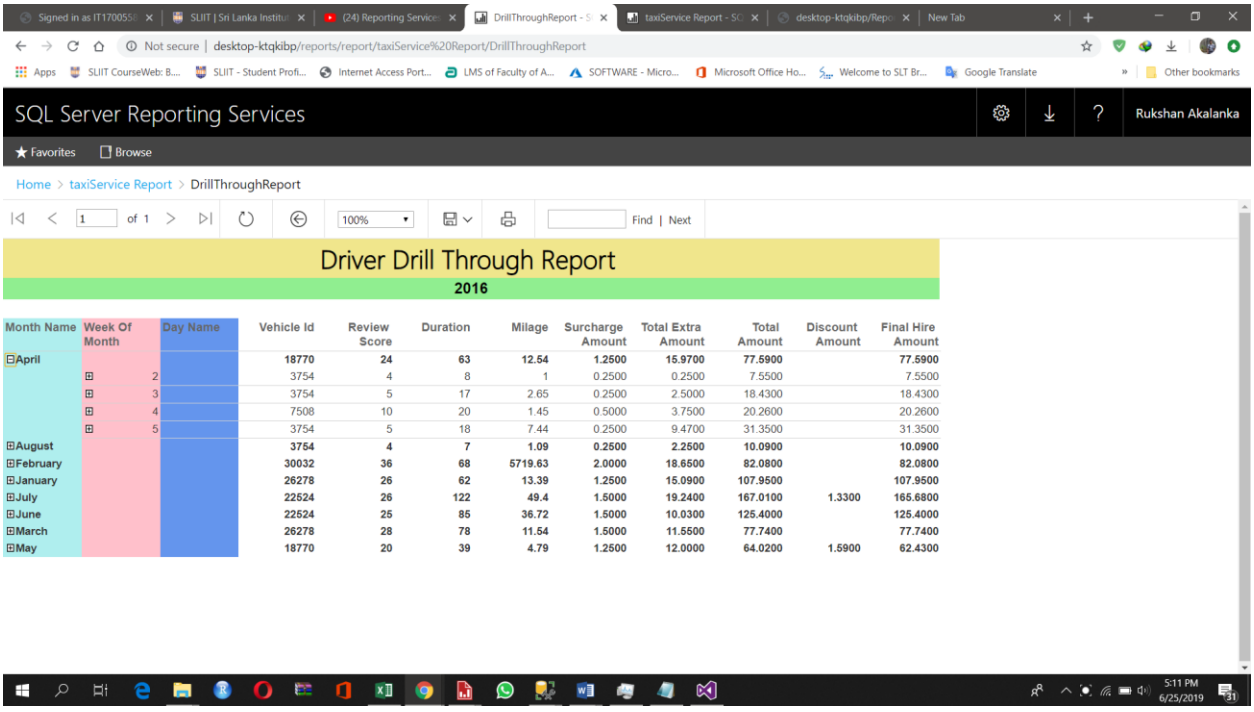


Then Displa clear details about that selected driver's total hire amount, customer review score like wise information and that all information can drill down according to the Year -> Month -> week of month -> Day of week.



Deployed to portal





Month Name	Week Of Month	Day Name	Vehicle Id	Review Score	Duration	Milage	Surcharge Amount	Total Extra Amount	Total Amount	Discount Amount	Final Hire Amount
⊟April			18770	24	63	12.54	1.2500	15.9700	77.5900		77.5900
	⊞ 2		3754	4	8	1	0.2500	0.2500	7.5500		7.5500
	⊞ 3		3754	5	17	2.65	0.2500	2.5000	18.4300		18.4300
	⊞ 4		7508	10	20	1.45	0.5000	3.7500	20.2600		20.2600
	⊞ 5		3754	5	18	7.44	0.2500	9.4700	31.3500		31.3500
⊞August			3754	4	7	1.09	0.2500	2.2500	10.0900		10.0900
⊞February			30032	36	68	5719.63	2.0000	18.6500	82.0800		82.0800
⊞January			26278	26	62	13.39	1.2500	15.0900	107.9500		107.9500
⊞July			22524	26	122	49.4	1.5000	19.2400	167.0100	1.3300	165.6800
⊞June			22524	25	85	36.72	1.5000	10.0300	125.4000		125.4000
⊞March			26278	28	78	11.54	1.5000	11.5500	77.7400		77.7400
⊞May			18770	20	39	4.79	1.2500	12.0000	64.0200	1.5900	62.4300

...END...