Sri Lanka Institute of Information Technology

Assignment 2

IT3021 - Data Warehousing and Business Intelligence

IT22561466

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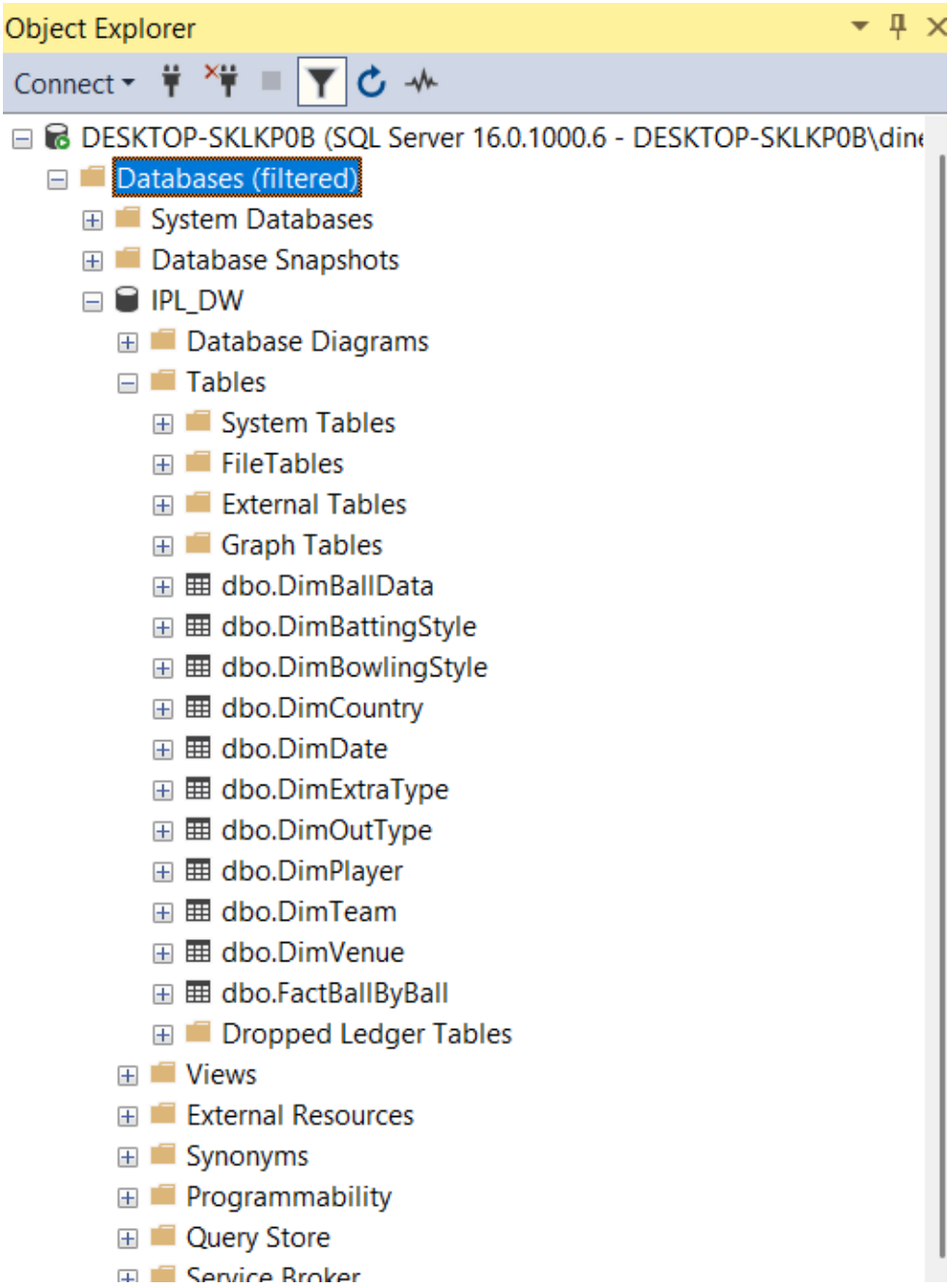
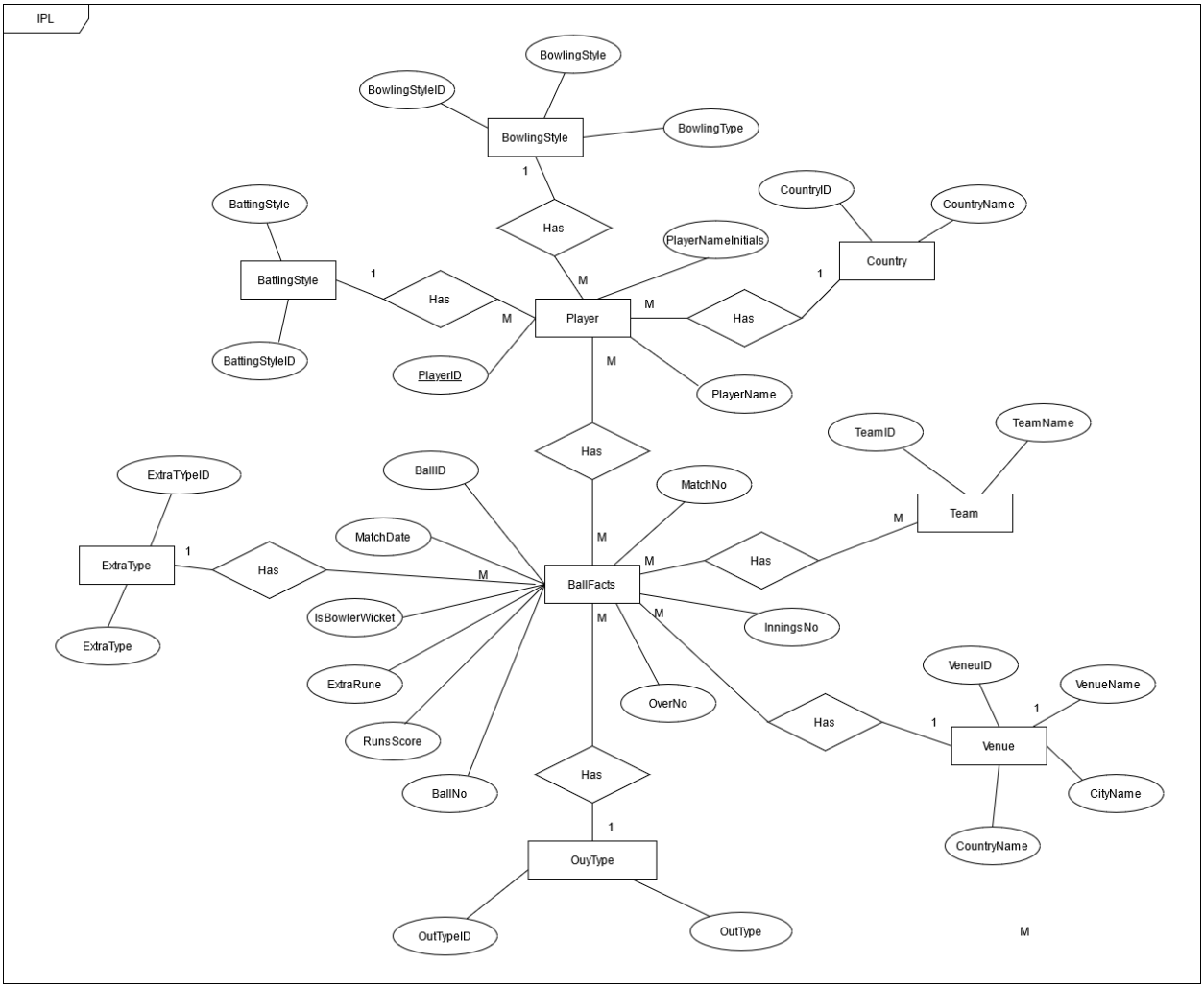
Data source for the assignment

I used data warehouse database (IPL_DW) as the data source which I created in Assignment 1.It consists of a snowflake schema and consists of ten dimensions and fact table.

Given below are the dimensions and facts of the data source;



ER diagram



SSAS Cube implementation

Following tools were used in creating the SSAS cube;

SSAS

SQL Server Management Studio

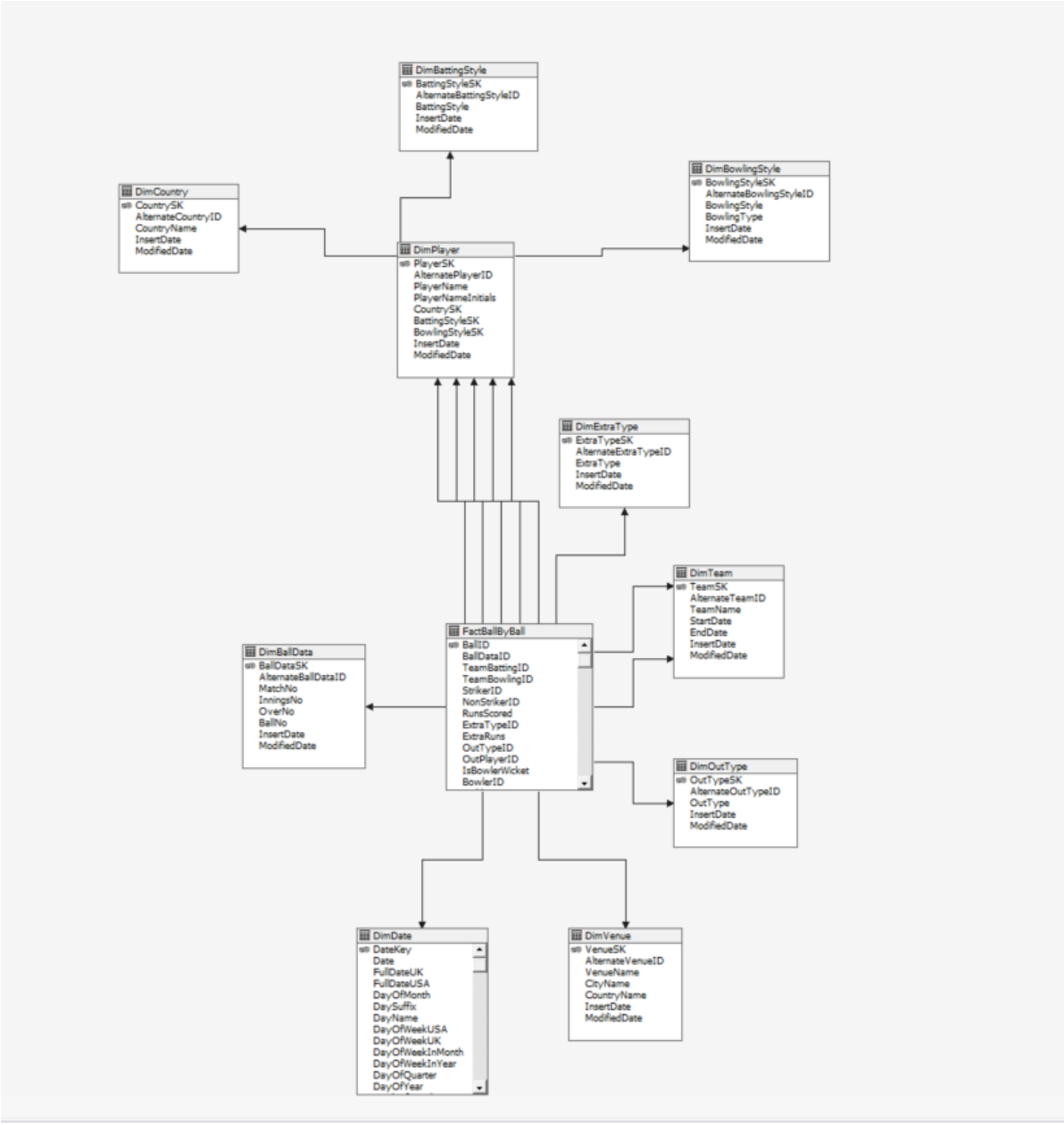
SSDT

Create a Data source

First data source was created in order to get data for the cube

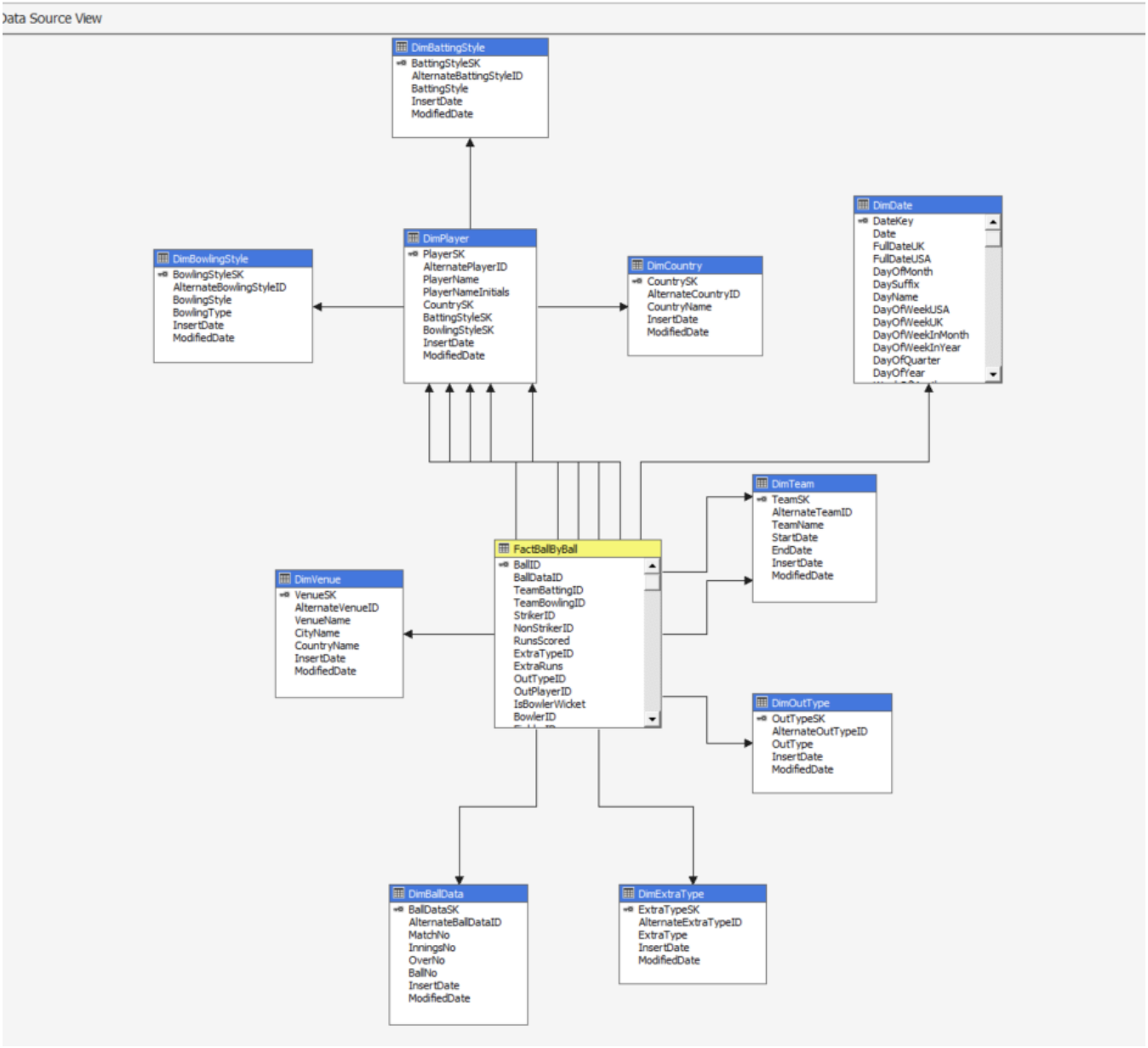
Create a Data Source View

As second step data source view was created as DSV_IPL_DW



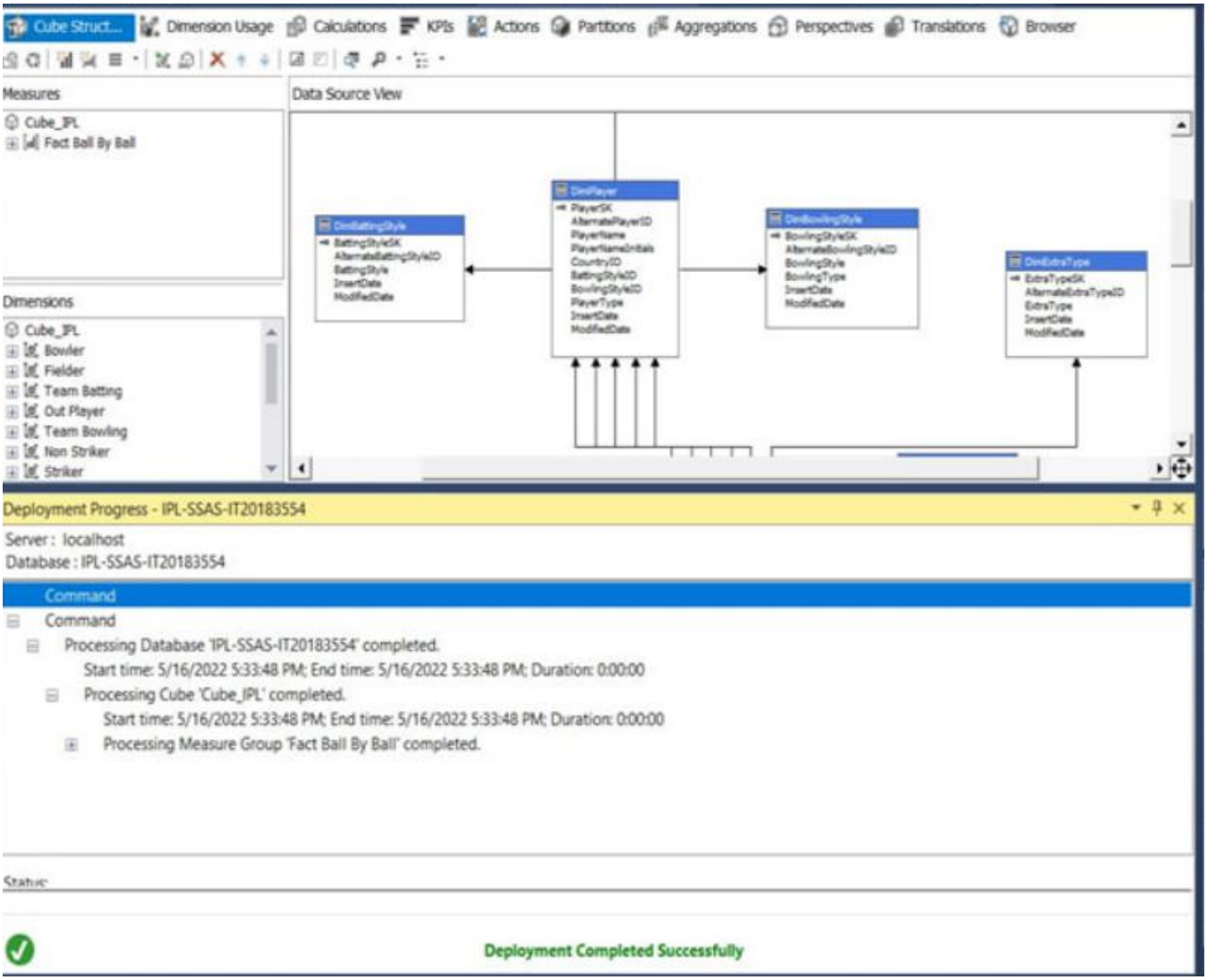
Create the Cube

As the third step SSAS cube was created



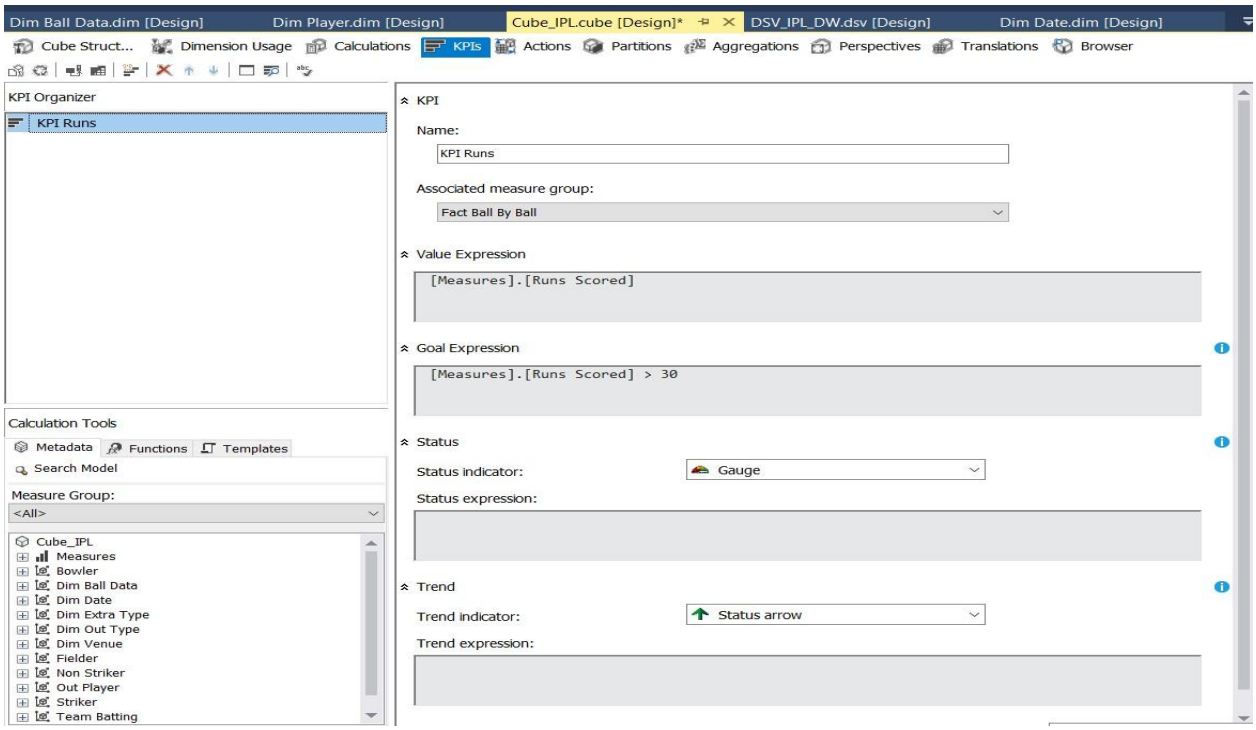
Deploy the Cube

Next the attributes were added to the dimensions and deployed the cube.

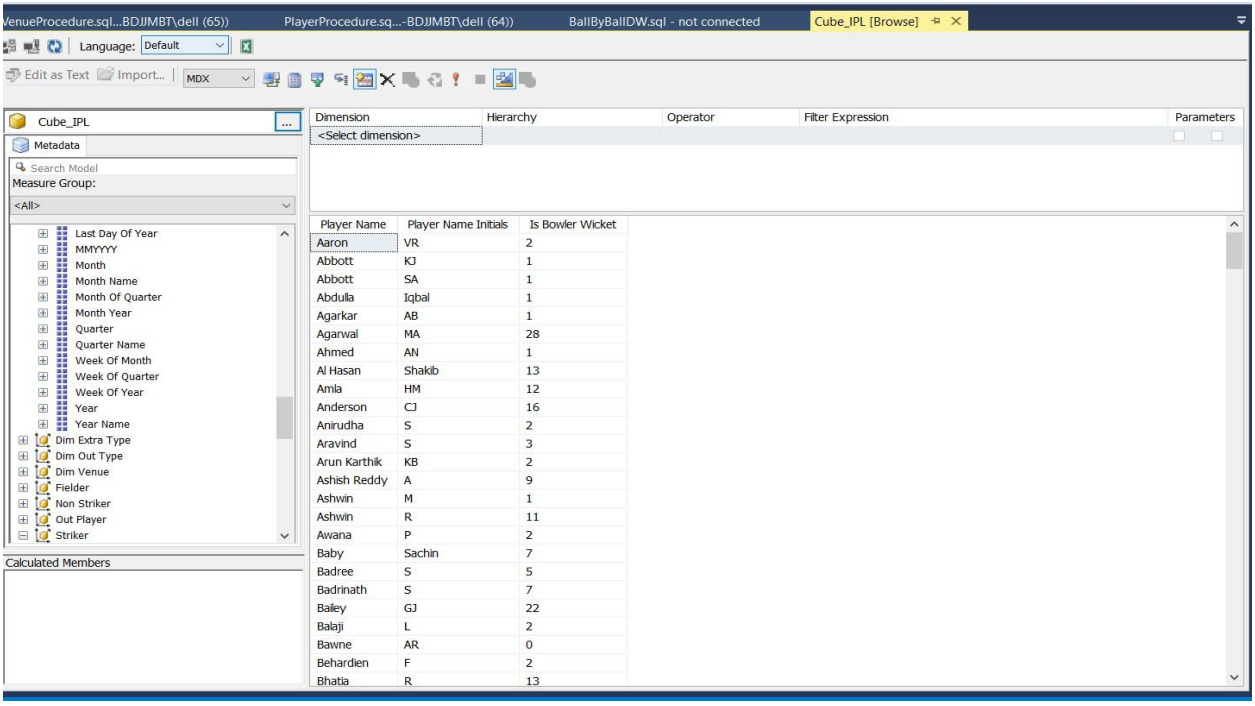


Create KPI

Next a KPI was created to get the players who have scored more than 30.



Browse Cube Data

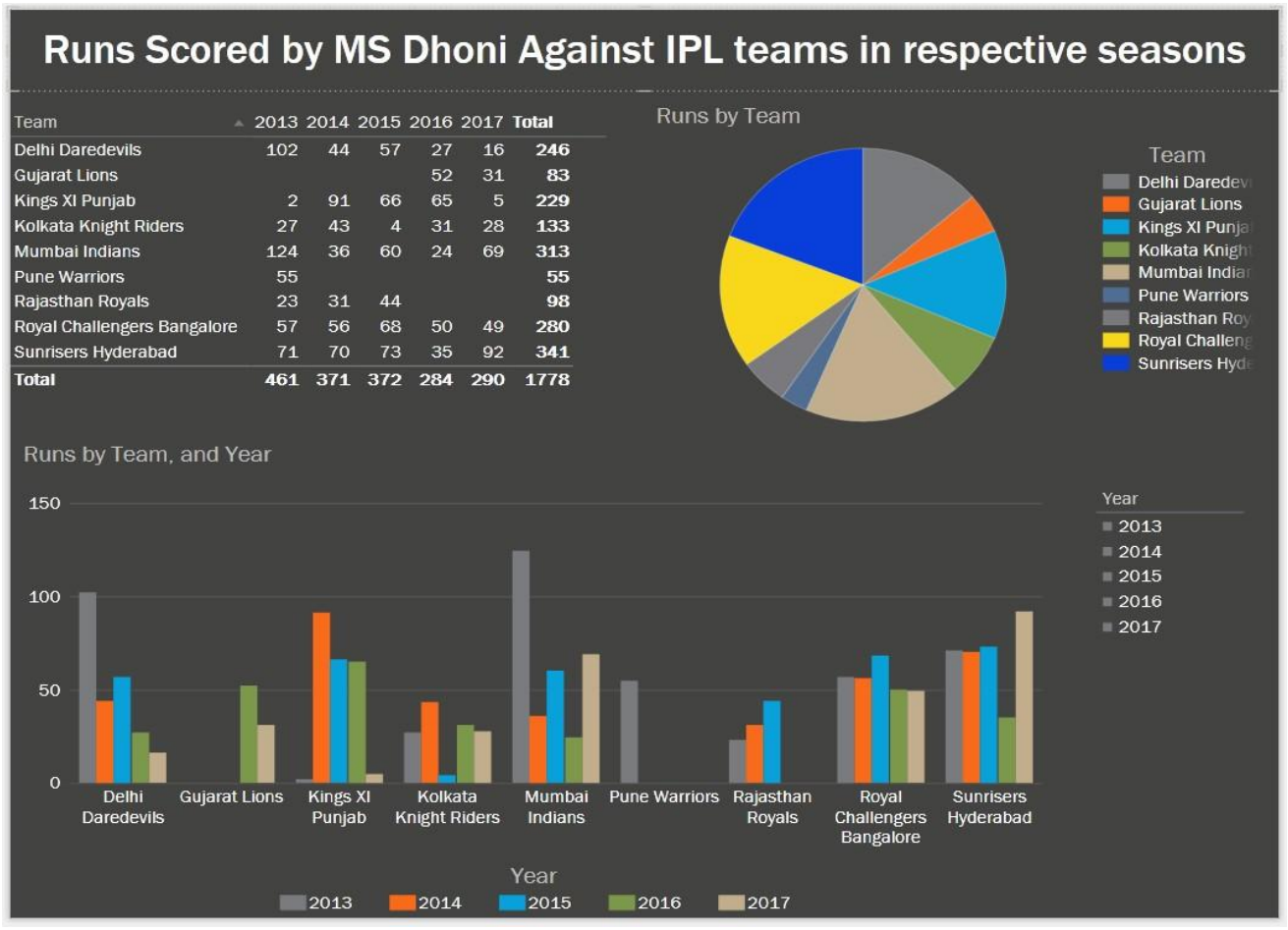


Demonstration of OLAP operations

Slice

Runs scored by Dhoni against IPL teams is show by the below table and charts. We can slice the data according to the season/year using the year slicer.

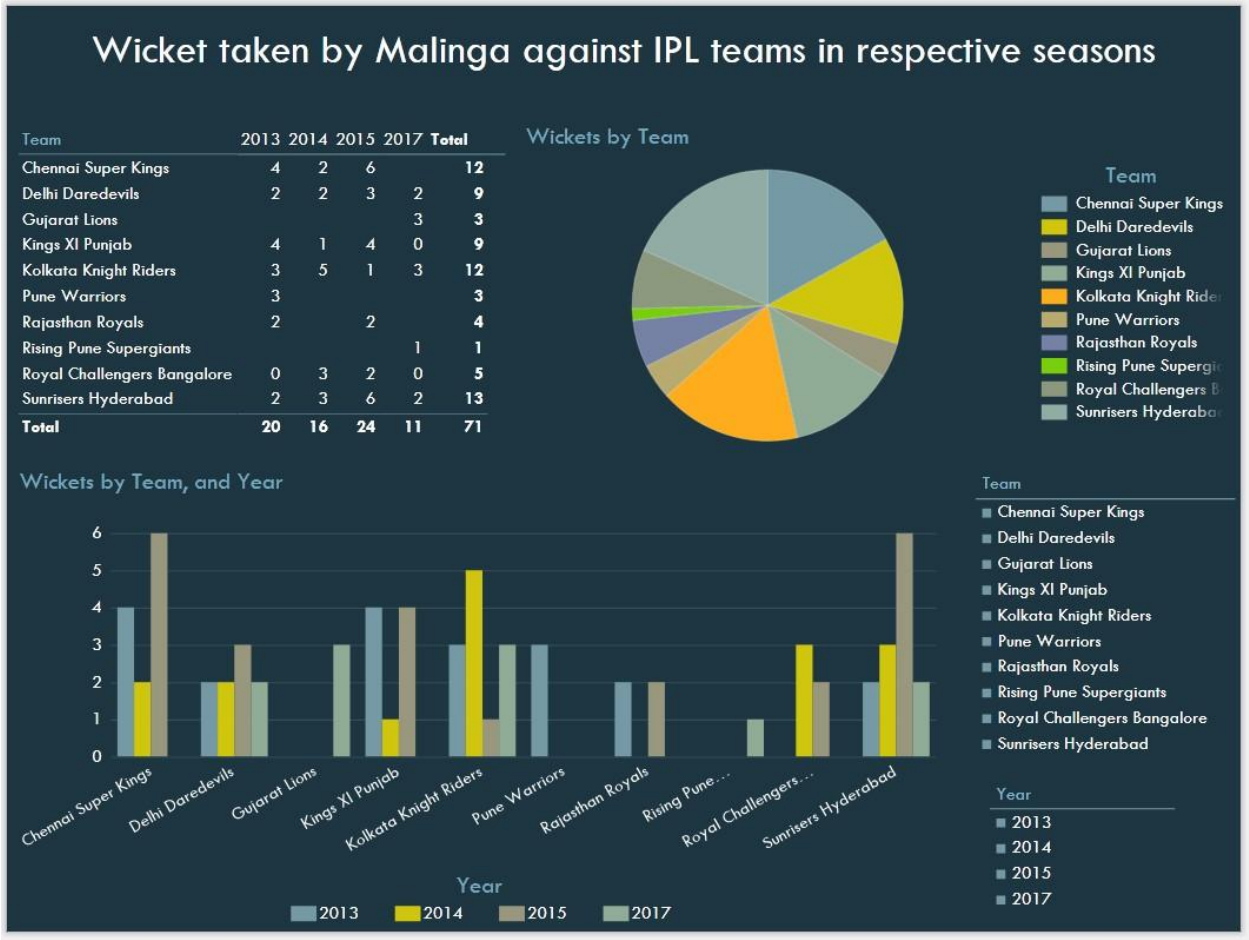
Note – In any of these table null values are not set to zero because having null values doesn't mean the player hasn't scored runs or wickets, it means that he has not played that ball, over or match.



Team	2013	2014	2015	2016	2017	Total
Delhi Daredevils	102	44	57	27	16	**246**
Gujarat Lions				52	31	**83**
Kings XI Punjab	2	91	66	65	5	**229**
Kolkata Knight Riders	27	43	4	31	28	**133**
Mumbai Indians	124	36	60	24	69	**313**
Pune Warriors	55					**55**
Rajasthan Royals	23	31	44			**98**
Royal Challengers Bangalore	57	56	68	50	49	**280**
Sunrisers Hyderabad	71	70	73	35	92	**341**
Total	**461**	**371**	**372**	**284**	**290**	**1778**

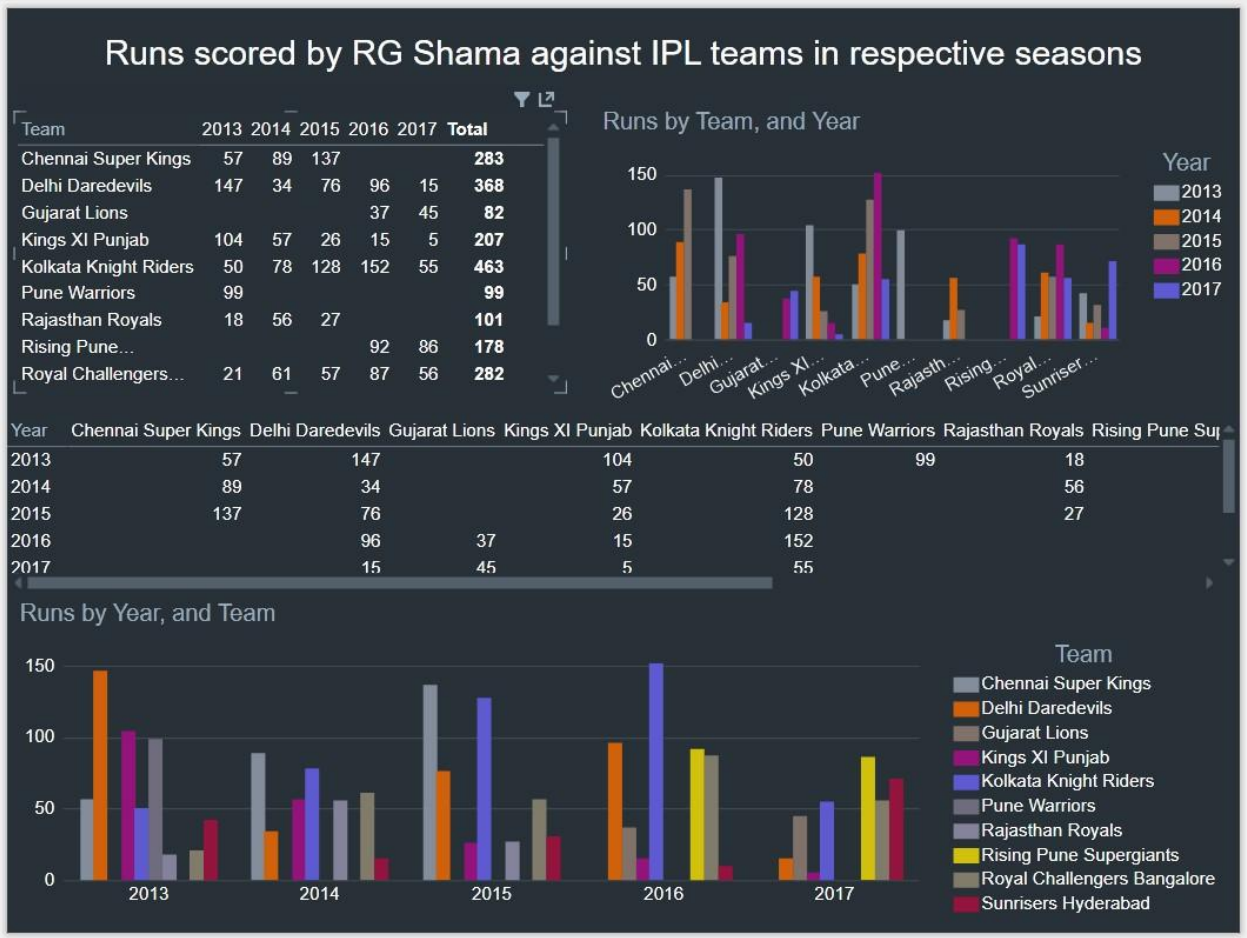
Dice

Wickets taken by Malinga against IPL teams is show by the below table and graphs. We can dice the data according to the season/year and team using the year slicer and team slicer.



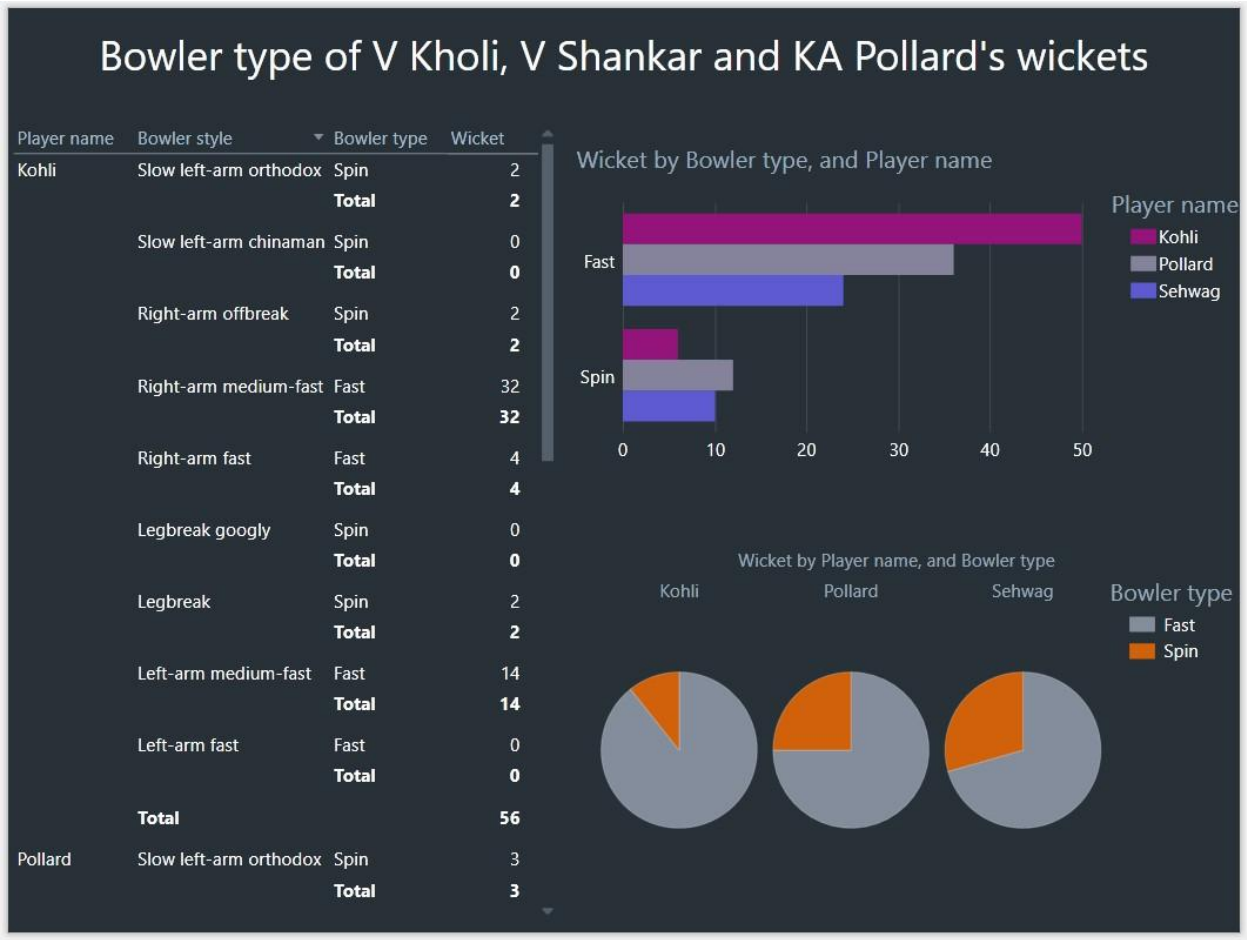
Pivot

Runs scored by Sharma against IPL teams is show by the below table and charts. The pivot table and chart using team and year is show in bottom diagrams.



Roll-up

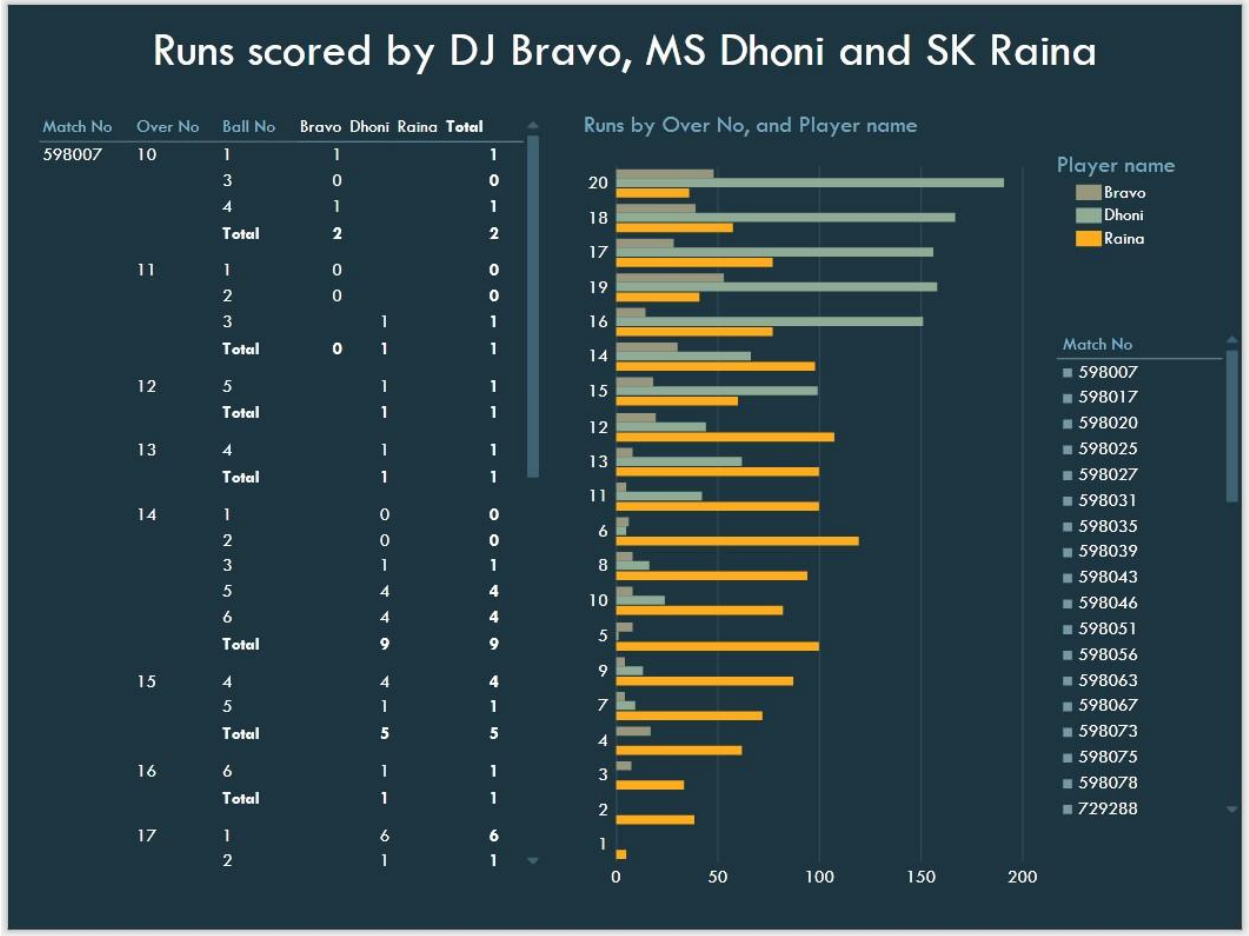
Bowler type of Kholi, Shankar, pollard's wickets is show by the below table and charts. We can roll-up by bowler style and bowler type.



Drill-Down

Runs scored by Bravo. Dhoni, Raina is show by the below table and charts.

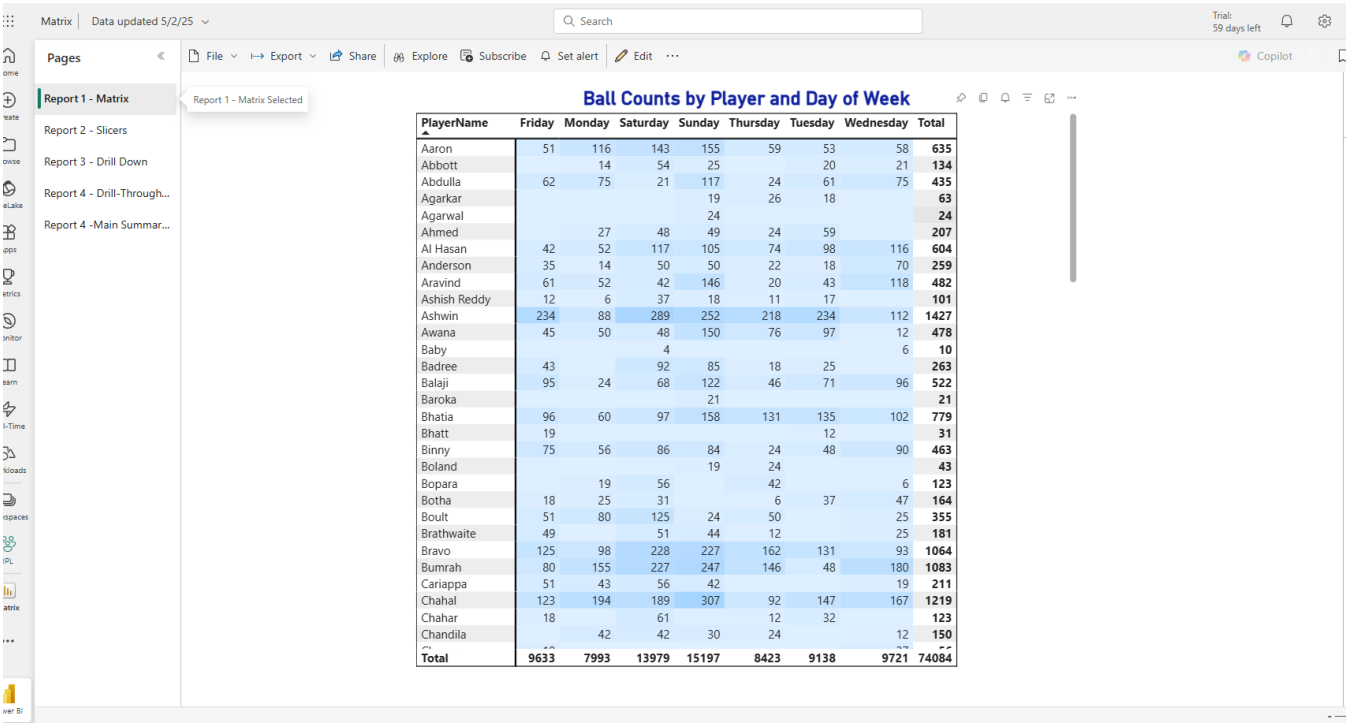
We can Drill-Down by Match number, over number and ball number..



Match No	Over No	Ball No	Bravo	Dhoni	Raina	Total
598007	10	1	1			1
		3	0			0
		4	1			1
		Total	**2**			**2**
	11	1	0			0
		2	0			0
		3		1		1
		Total	**0**	**1**		**1**
	12	5		1		1
		Total		**1**		**1**
	13	4		1		1
		Total		**1**		**1**
	14	1		0		0
		2		0		0
		3		1		1
		5		4		4
		6		4		4
		Total		**9**		**9**
	15	4		4		4
		5		1		1
		Total		**5**		**5**
	16	6		1		1
		Total		**1**		**1**
	17	1		6		6
		2		1		1

PowerBI Reports

Report1: Report with a matrix



PlayerName	Friday	Monday	Saturday	Sunday	Thursday	Tuesday	Wednesday	Total
Aaron	51	116	143	155	59	53	58	635
Abbott		14	54	25		20	21	134
Abdulla	62	75	21	117	24	61	75	435
Agarkar				19	26	18		63
Agarwal				24				24
Ahmed		27	48	49	24	59		207
Al Hasan	42	52	117	105	74	98	116	604
Anderson	35	14	50	50	22	18	70	259
Aravind	61	52	42	146	20	43	118	482
Ashish Reddy	12	6	37	18	11	17		101
Ashwin	234	88	289	252	218	234	112	1427
Awana	45	50	48	150	76	97	12	478
Baby			4				6	10
Badree	43		92	85	18	25		263
Balaji	95	24	68	122	46	71	96	522
Baroka				21				21
Bhatia	96	60	97	158	131	135	102	779
Bhatt	19					12		31
Binny	75	56	86	84	24	48	90	463
Boland				19	24			43
Bopara		19	56		42		6	123
Botha	18	25	31		6	37	47	164
Boult	51	80	125	24	50		25	355
Brathwaite	49		51	44	12		25	181
Bravo	125	98	228	227	162	131	93	1064
Bumrah	80	155	227	247	146	48	180	1083
Cariappa	51	43	56	42			19	211
Chahal	123	194	189	307	92	147	167	1219
Chahar	18		61		12	32		123
Chandila		42	42	30	24		12	150
Total	9633	7993	13979	15197	8423	9138	9721	74084

- Data Preparation

  I connected Power BI Desktop to the cube where ball counts, player names, and days of the week were available.

- Modeling

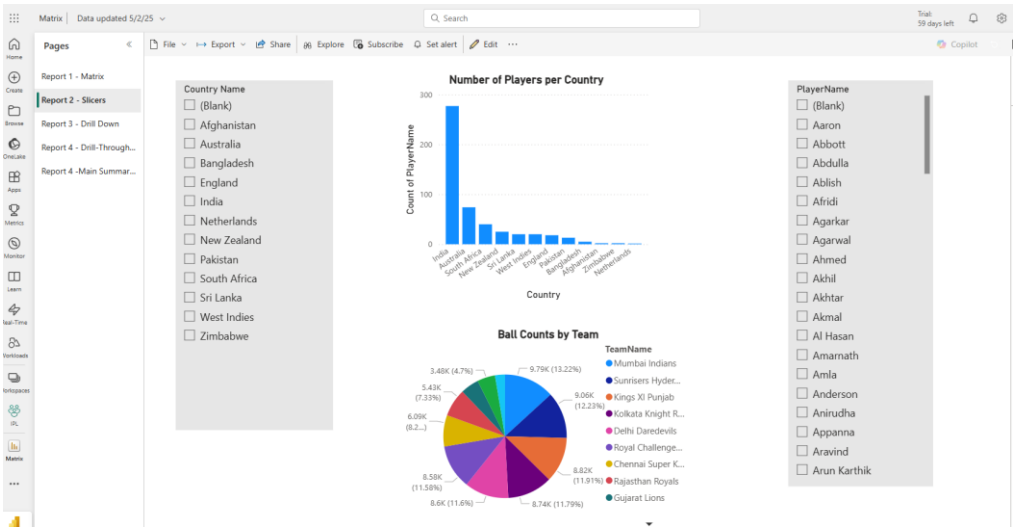
  No changes were done manually to relationships as data was pre-modeled in the cube.

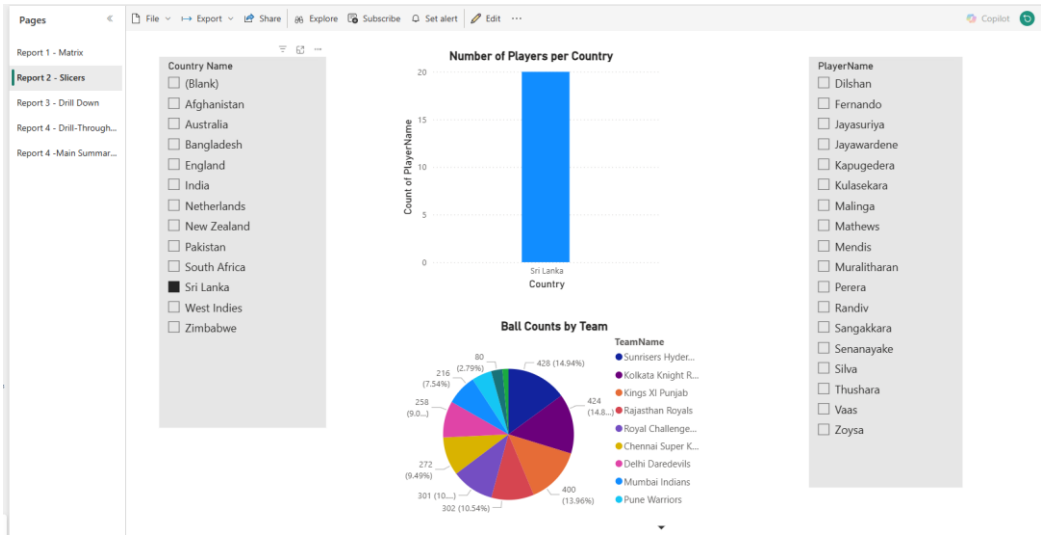
- Visual Design

  A Matrix visual was used.

  - ❖ Rows: Player Name
  - ❖ Columns: Day of Week
  - ❖ Values: Ball Counts

Report 2: Report with more than one parameter





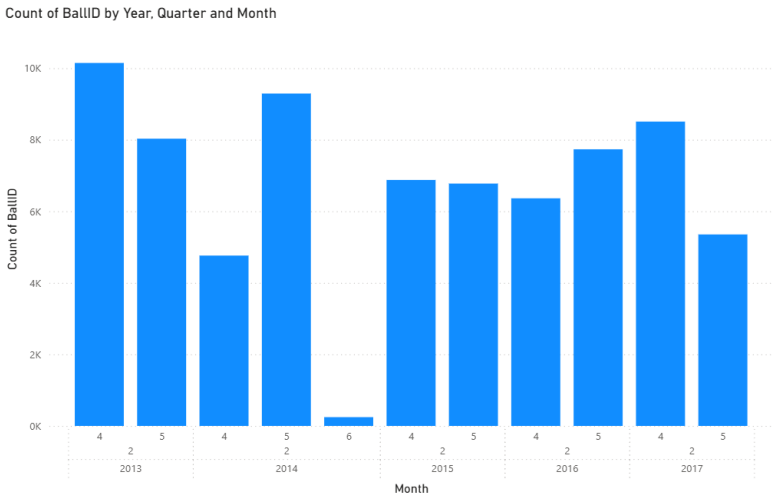
- Data Preparation

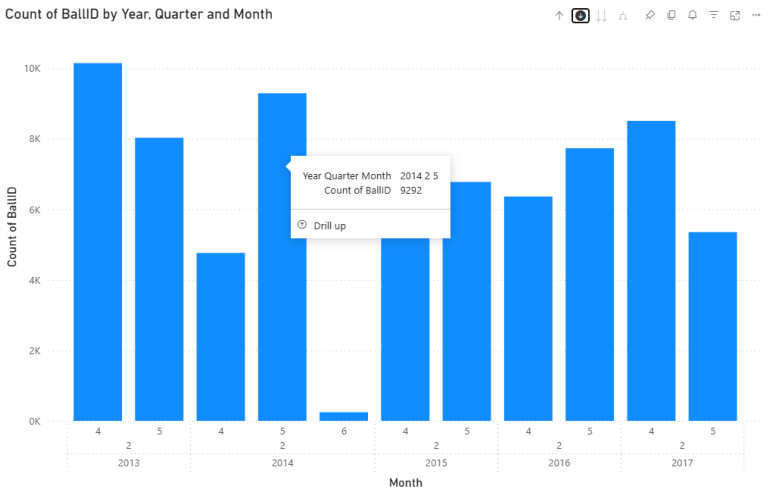
  Fields such as Country, Player Name, and Team were selected from the cube.
- Modeling

  No manual relationships added; cube structure used as-is.
- Visual Design
  - Two slicers were added:
    - ❖ First Slicer: Country

- ❖ Second Slicer: Players
- Charts created:
  - ❖ Bar Chart: Number of players per country
  - ❖ Pie Chart: Ball counts by team

Report 3: Drill-down report





- Data Preparation

  Year, Quarter, and Month fields were selected from the cube.
- Modeling

  No new hierarchies were created manually; Year ➔ Quarter ➔ Month hierarchy was made inside the visual itself.
- Visual Design

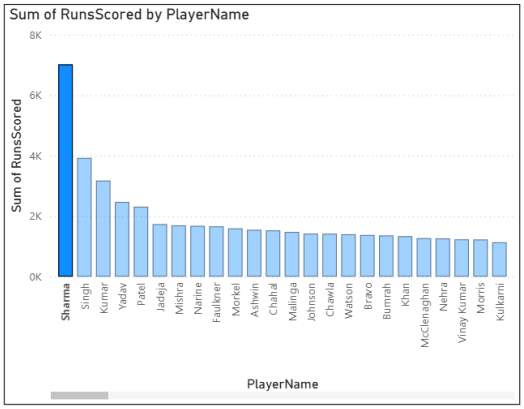
  A Clustered Column Chart was used.

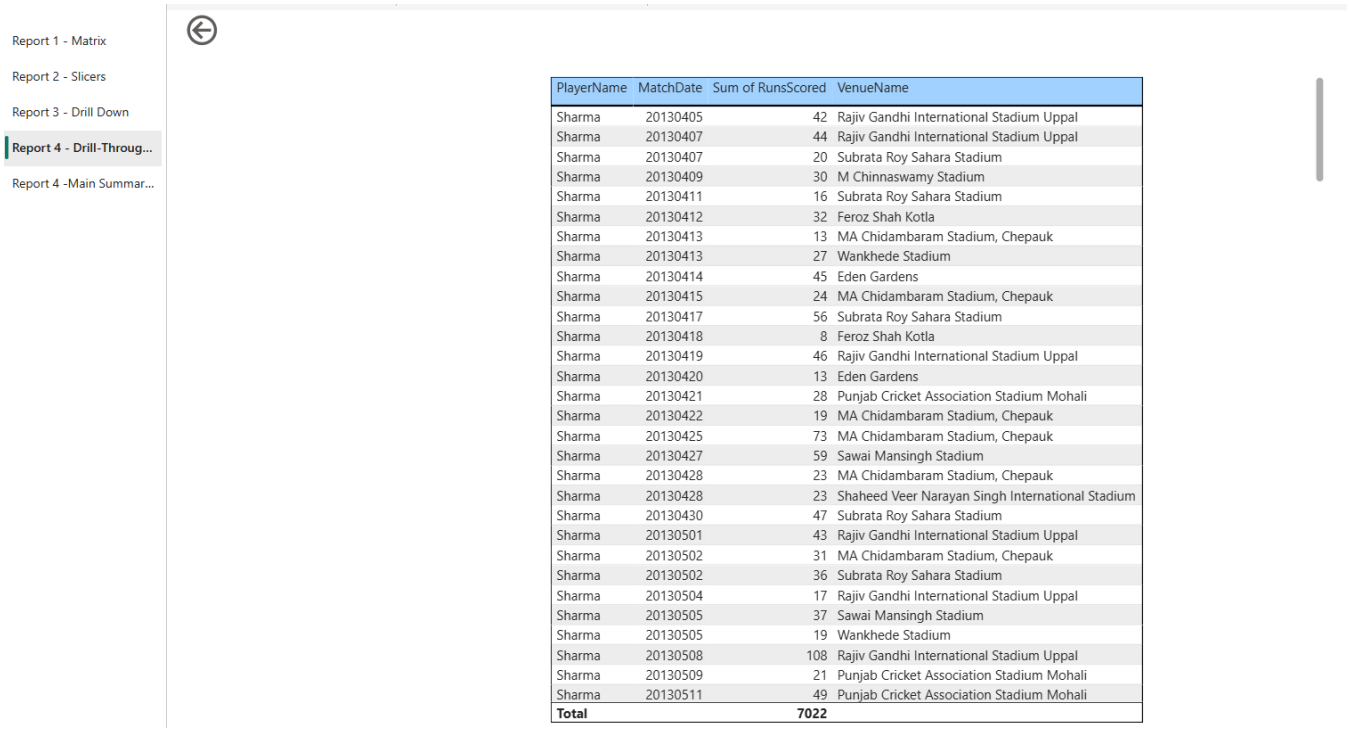
  ❖ Axis: Year ➔ Quarter ➔ Month (hierarchical drill-down)

  ❖ Values: Total Runs

  Drill-down mode was enabled, allowing users to click and explore deeper into the data by time levels.

Report 4: Drill-through report





PlayerName	MatchDate	Sum of RunsScored	VenueName
Sharma	20130405	42	Rajiv Gandhi International Stadium Uppal
Sharma	20130407	44	Rajiv Gandhi International Stadium Uppal
Sharma	20130407	20	Subrata Roy Sahara Stadium
Sharma	20130409	30	M Chinnaswamy Stadium
Sharma	20130411	16	Subrata Roy Sahara Stadium
Sharma	20130412	32	Feroz Shah Kotla
Sharma	20130413	13	MA Chidambaram Stadium, Chepauk
Sharma	20130413	27	Wankhede Stadium
Sharma	20130414	45	Eden Gardens
Sharma	20130415	24	MA Chidambaram Stadium, Chepauk
Sharma	20130417	56	Subrata Roy Sahara Stadium
Sharma	20130418	8	Feroz Shah Kotla
Sharma	20130419	46	Rajiv Gandhi International Stadium Uppal
Sharma	20130420	13	Eden Gardens
Sharma	20130421	28	Punjab Cricket Association Stadium Mohali
Sharma	20130422	19	MA Chidambaram Stadium, Chepauk
Sharma	20130425	73	MA Chidambaram Stadium, Chepauk
Sharma	20130427	59	Sawai Mansingh Stadium
Sharma	20130428	23	MA Chidambaram Stadium, Chepauk
Sharma	20130428	23	Shaheed Veer Narayan Singh International Stadium
Sharma	20130430	47	Subrata Roy Sahara Stadium
Sharma	20130501	43	Rajiv Gandhi International Stadium Uppal
Sharma	20130502	31	MA Chidambaram Stadium, Chepauk
Sharma	20130502	36	Subrata Roy Sahara Stadium
Sharma	20130504	17	Rajiv Gandhi International Stadium Uppal
Sharma	20130505	37	Sawai Mansingh Stadium
Sharma	20130505	19	Wankhede Stadium
Sharma	20130508	108	Rajiv Gandhi International Stadium Uppal
Sharma	20130509	21	Punjab Cricket Association Stadium Mohali
Sharma	20130511	49	Punjab Cricket Association Stadium Mohali
Total		**7022**	

- Data Preparation

  Fields like Player Name and Team Name were selected from the cube.
- Modeling

  Drill-through functionality was used without modifying the data model.
- Visual Design
  - A Clustered Column Chart was used.
  - Added a Drill-Through field on the detail page.
  - On the main page, users can right-click a data point and navigate to the detail page to see more information.