Sri Lanka Institute of Information Technology

Assignment II

Data Warehouse & Business Intelligence

2022

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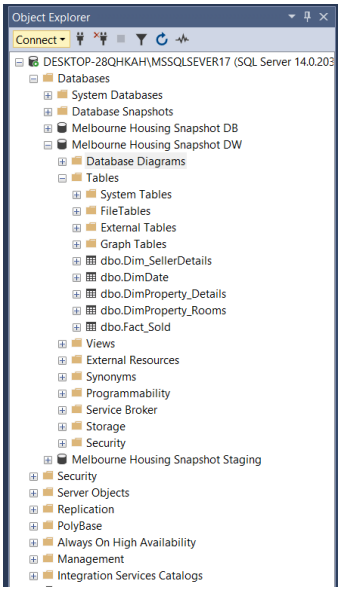
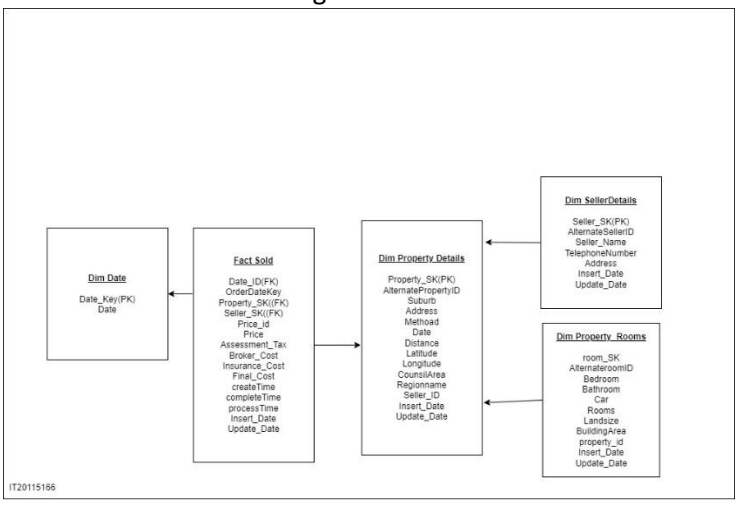
Step 1: Data source

Data Warehouse implemented in the previous assignment was used as the source to complete Assignment 1. There are Four dimension tables and one fact table in that data warehouse. As described in the Assignment I, the selected data set consisted of transactional data.

- Fact_Sold
- Dim_Property_Details
- Dim_Property_Rooms
- Dim_SellerDetails
- Dim_Date



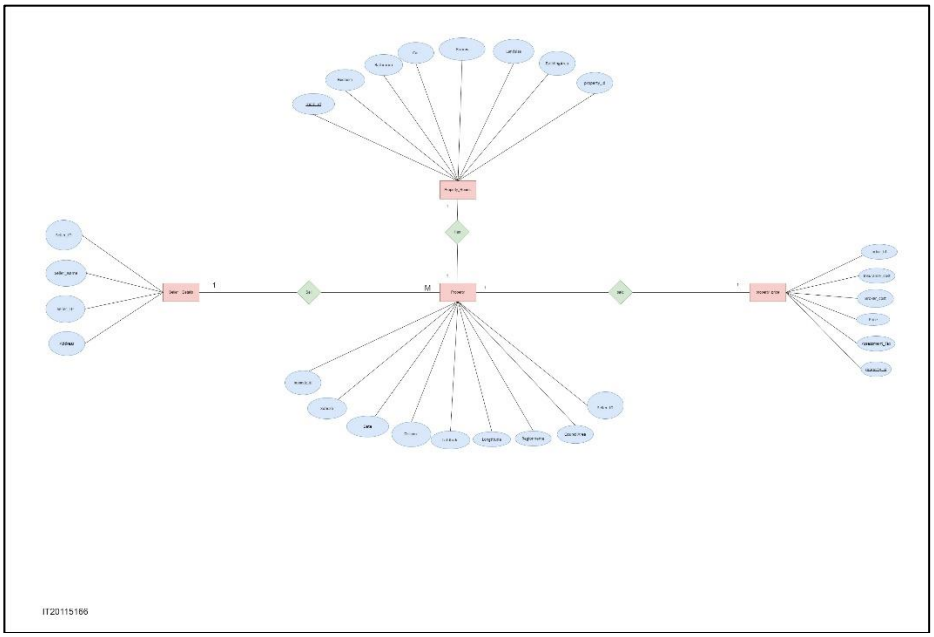
❖ Data warehouse design



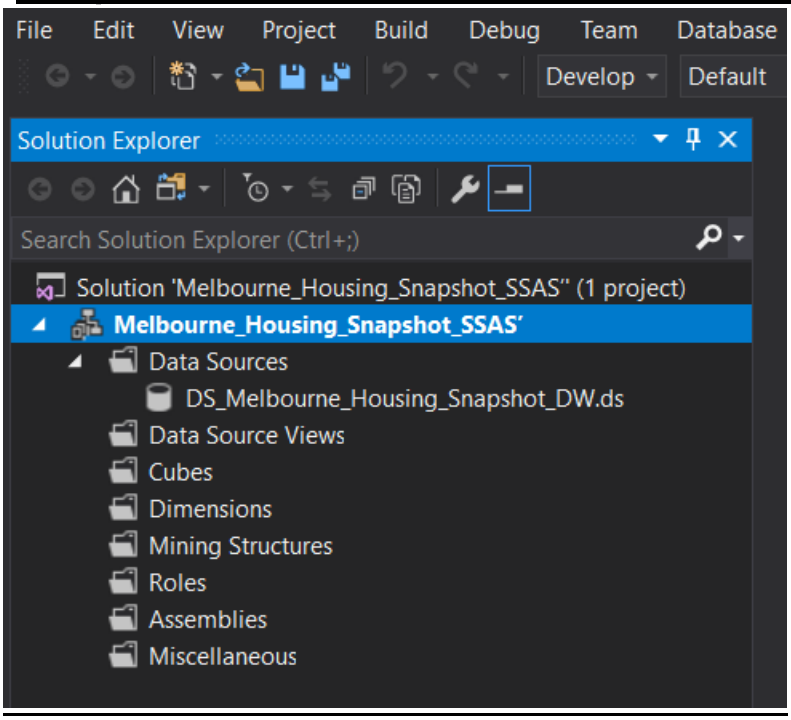
Dimention Name	Dimention Attributes	Data Type	Key column	Derived Logic
Dim_Property_Details	Property_SK	int	Primary key	Auto increment
	AlternatePropertyID	int		
	Suburb	varchar(50)		
	Address	varchar(50)		
	Method	varchar(50)		
	Date	varchar(50)		
	Diatance	varchar(50)		
	Lattitude	varchar(50)		
	Longitude	varchar(50)		
	Seller_ID	int		
	Regionname	varchar(50)		
	Insert_Date	datetime		System Datetime
	ModifiedDatedate	datetime		System Datetime
Dim_SellerDetails	Seller_SK	int	Primary key	
	AlternateSellerID	int		
	Seller_Name	nvarchar(50)		
	Telephone_Number	nvarchar(50)		
	Address	nvarchar(50)		
	Insert_Date	datetime		System Datetime
	Update_Date	datetime		System Datetime
DimDate	DateKey	int	Primary key	
	Date	datetime		
	FullDateUK	char(10)		

	FullDateUSA	char(10)		
	DayOfMonth	varchar(4)		
	DaySuffix	varchar(9)		
	DayName	varchar(9)		
	More….			
Fact_Sold	Seller_SK	int	foreign key	
	Property_SK	int	foreign key	
	Date_ID	int	foreign key	
	Price	float		
	price_id	int		
	Assessment_Tax	varchar(50)		
	Broker_Cost	varchar(50)		
	createTime	datetime		
	completeTime	datetime		
	processTime	datetime		
	Insurance_Cost	float		
	Final_Cost	float		Price+Assessment_Tax+Broker_Cost+Insurance_Cost
	Insert_Date	datetime		System Datetime
	Update_Date	datetime		System Datetime
DimProperty_Rooms	room_SK	int		
	AlternateroomID	int		
	Bedroom	varchar(50)		
	Bathroom	varchar(50		
	Car	varchar(50		
	Rooms	varchar(50		
	landsize	varchar(50		
	BuildingArea	varchar(50		
	property_id	int		
	Insert_Date	datetime		System Datetime
	Insert_Date	datetime		System Datetime

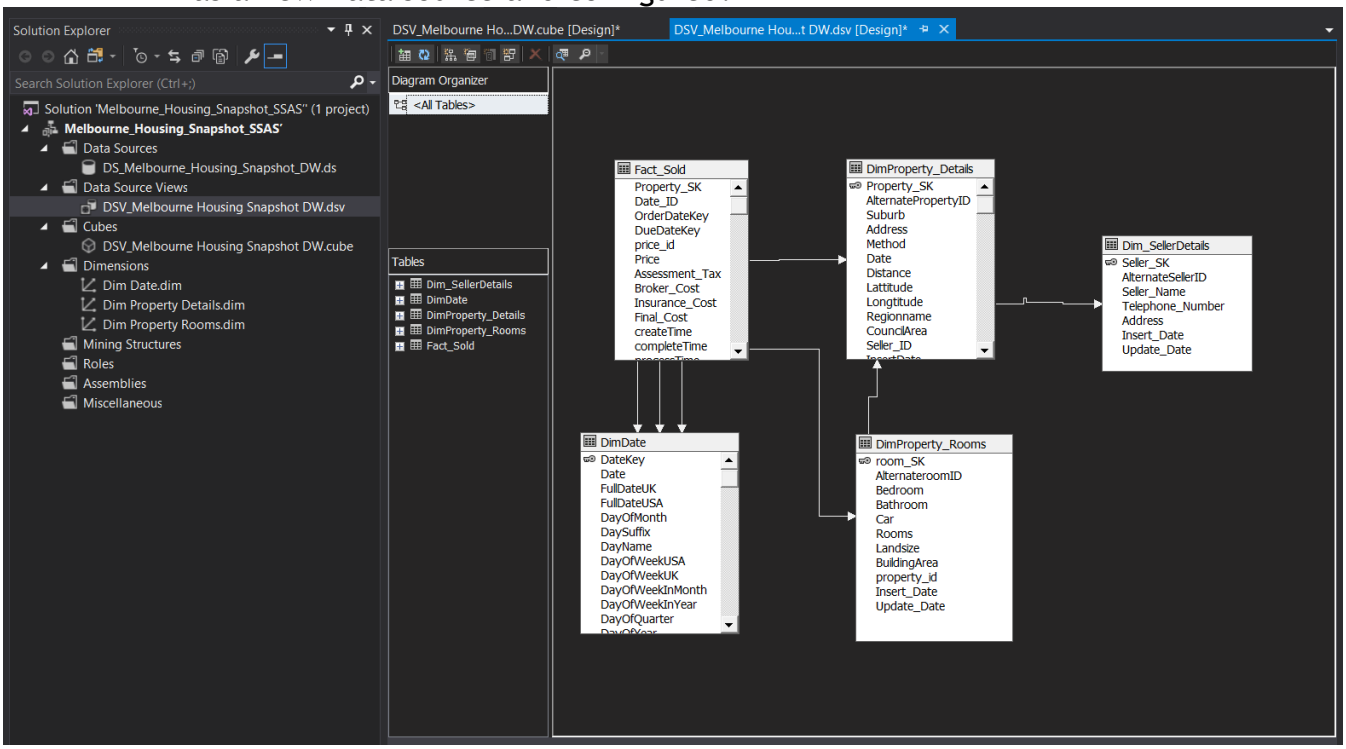
❖ ER-Diagram



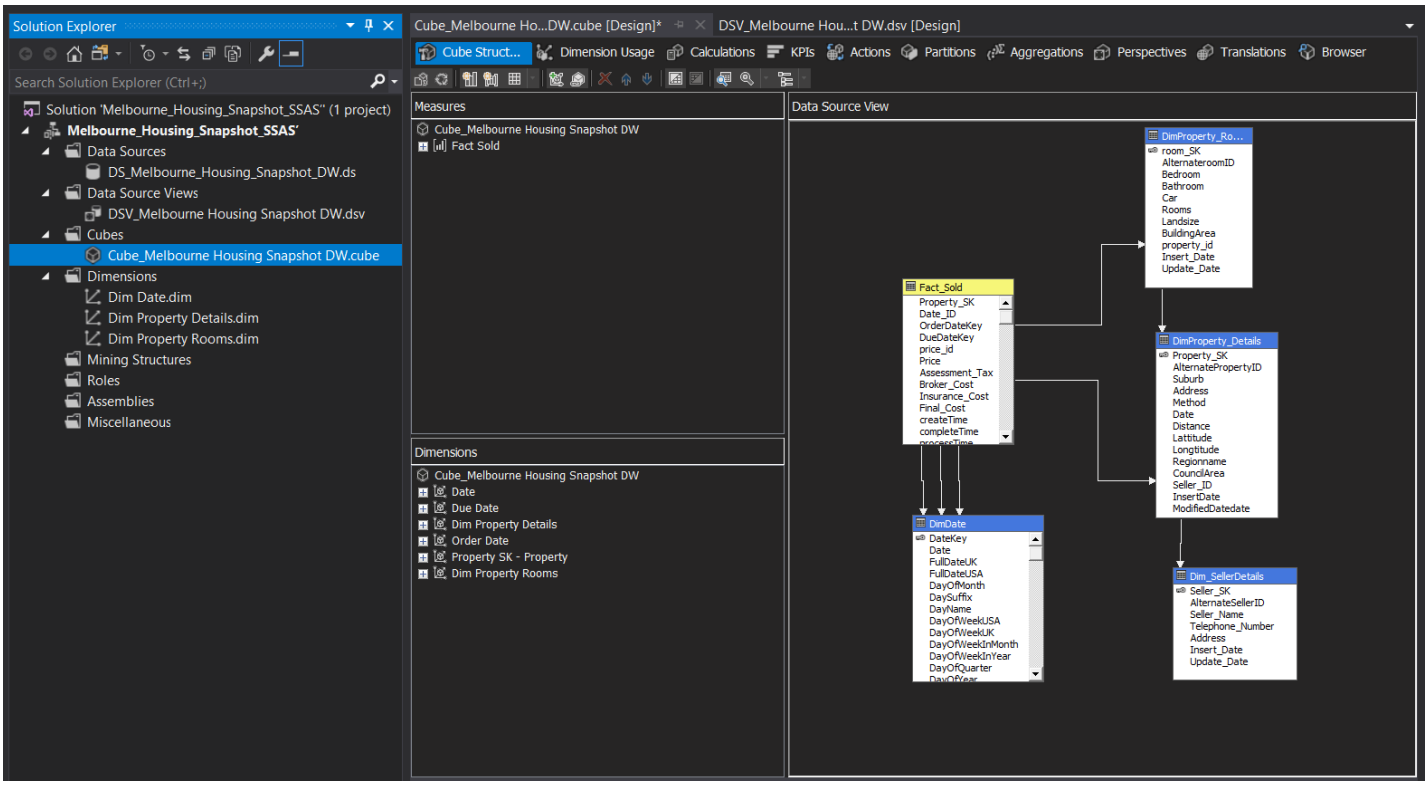
Step 2: SSAS CUBE IMPLEMENTATION



- A new SSAS project was created and named as 'Melbourne_Housing_Snapshot_SSAS', to begin the SSAS cube implementation. First the created Data warehouse was added as a new Data source and configured.



- Next a new Data Source view was added after adding the same warehouse, The created data source view is attached below



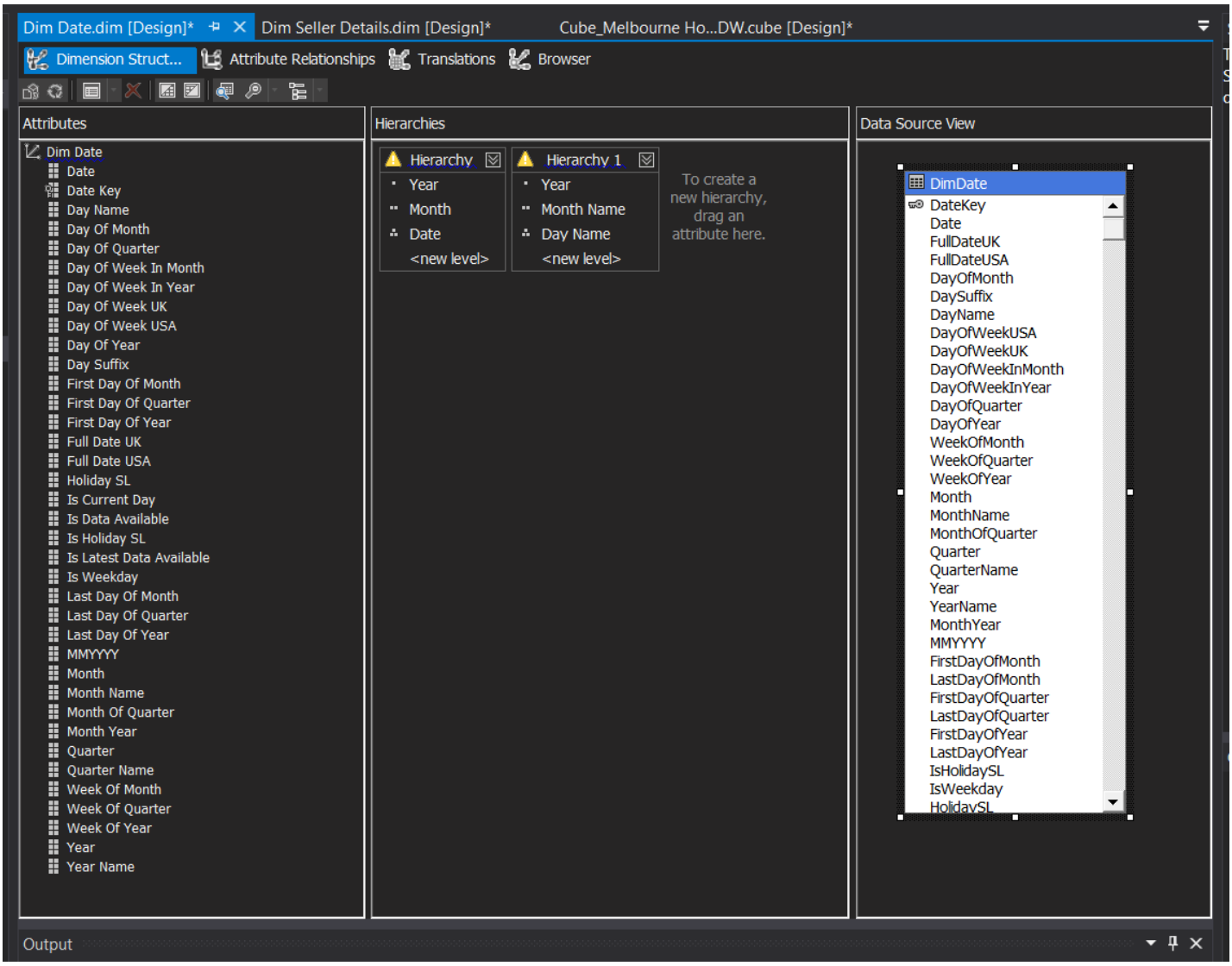
- Next a cube was created by adding a new cube and selecting the fact table, measures, dimensions appropriately. The created cube is demonstrated below:

Next attributes were added to the relevant dimensions.

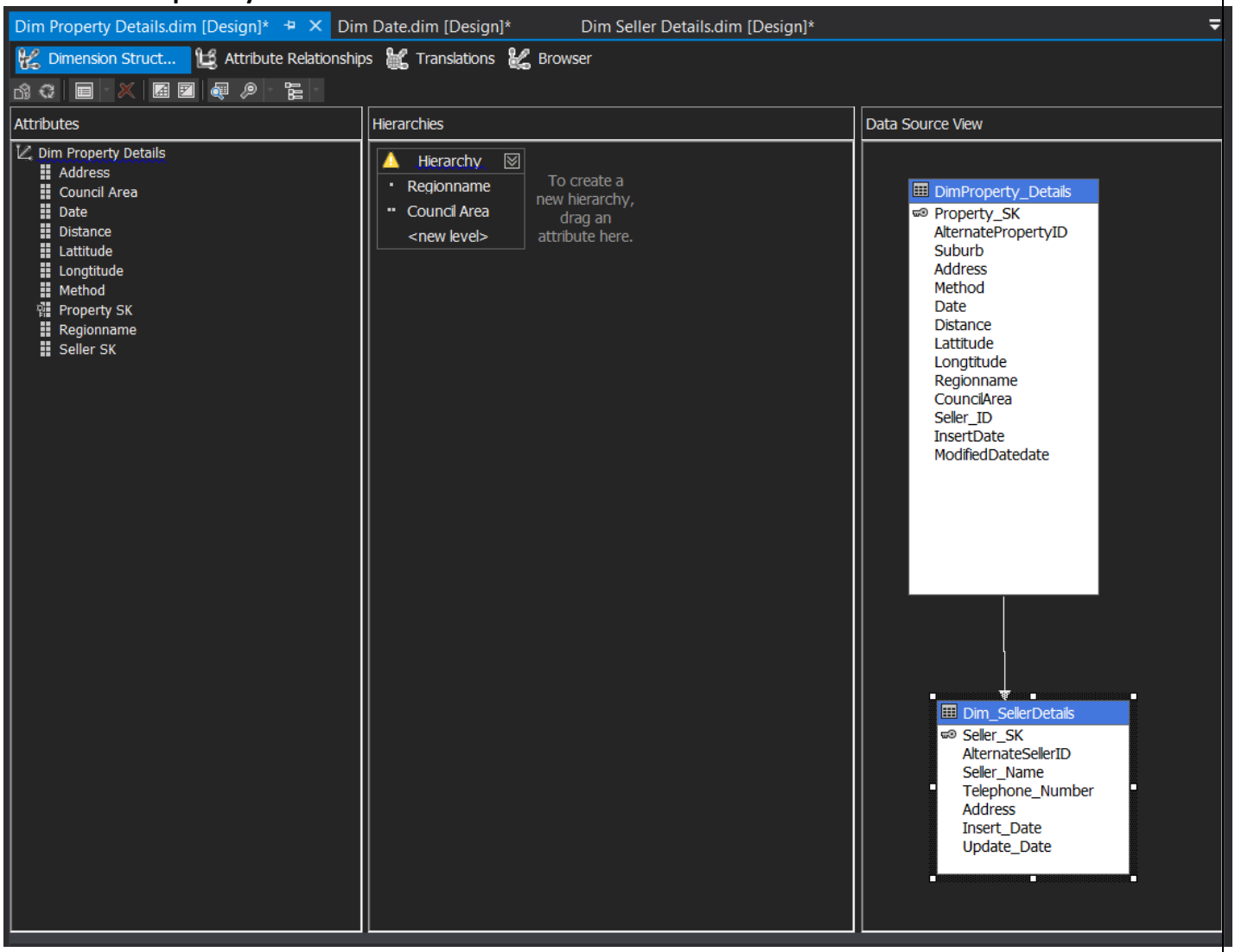
- Hierarchies are created for Dim_Date and Dim_Property.
- Year -> Month -> Day
- Year -> Month Name -> Day Name
- Region Name -> Council Area

a. Date Dimension

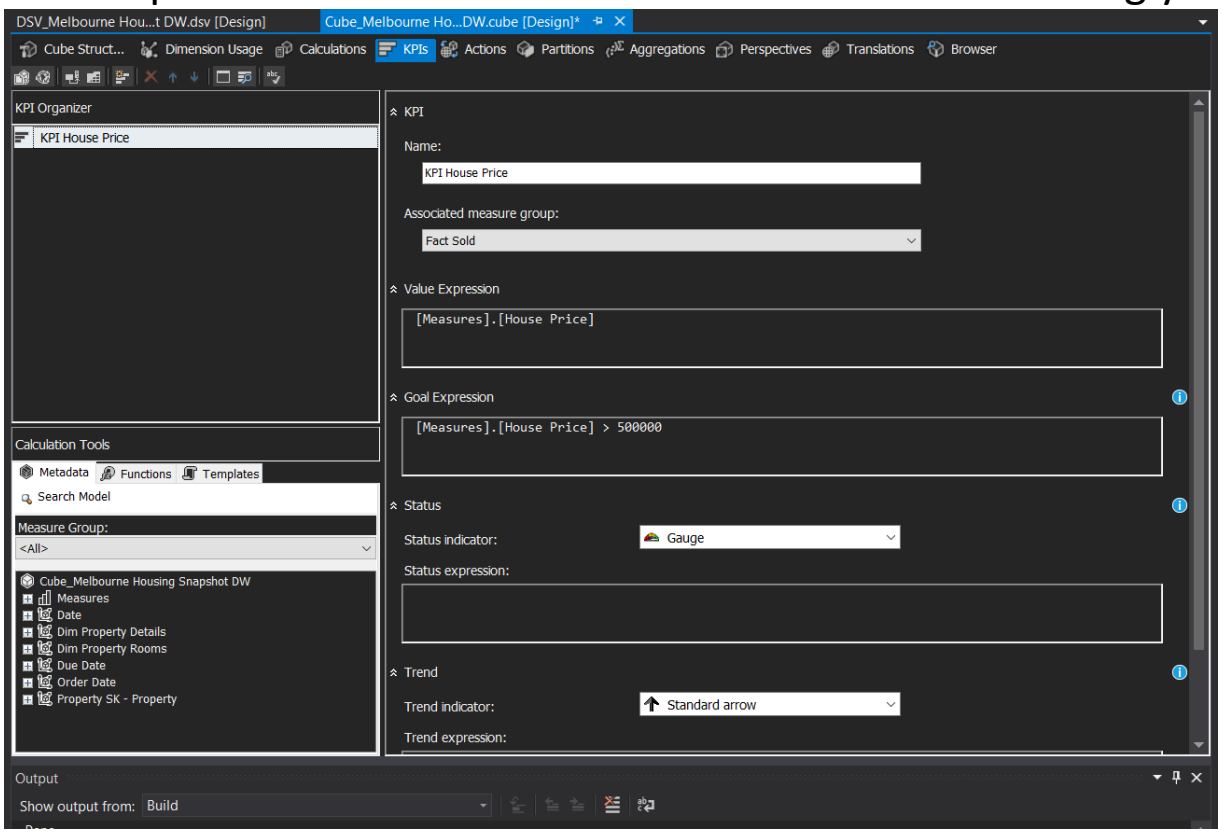
- In next step SSAS cube is designed using necessary measures in the Fact_Sold. Also include hierarchies for dimensions.

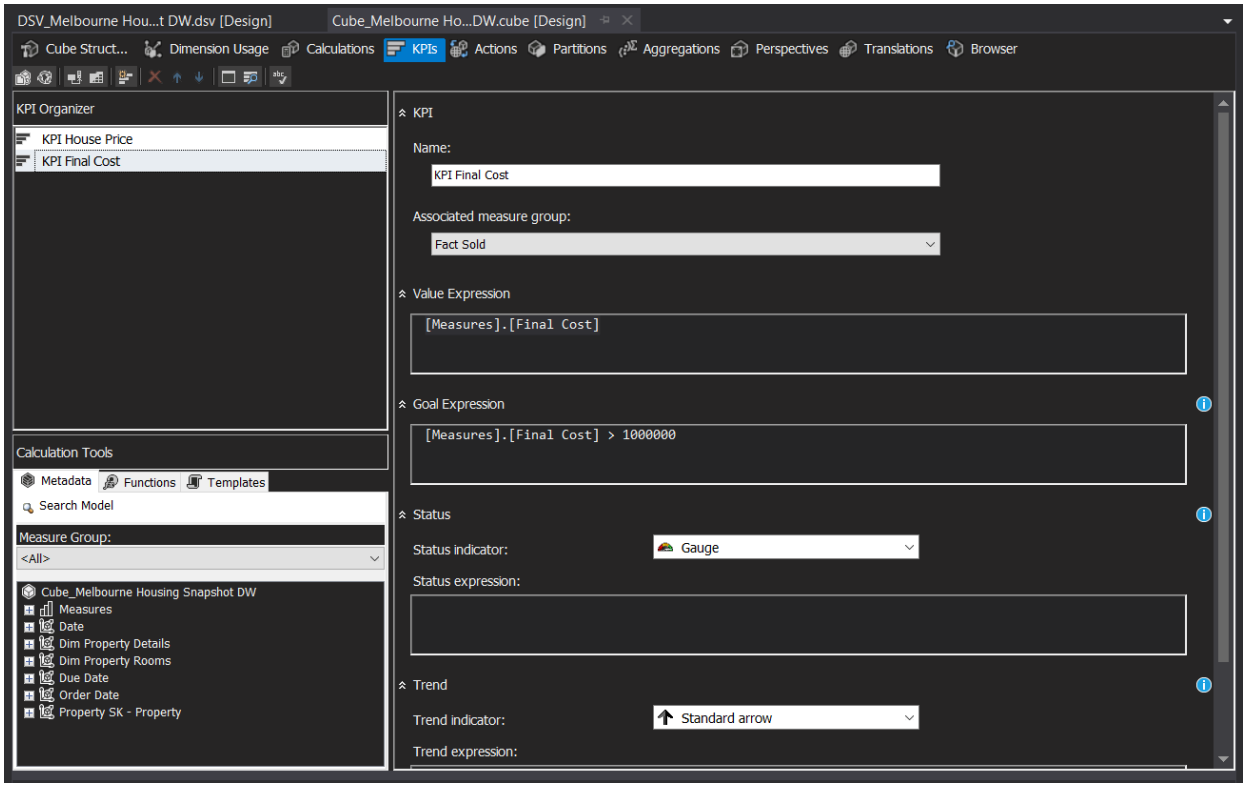


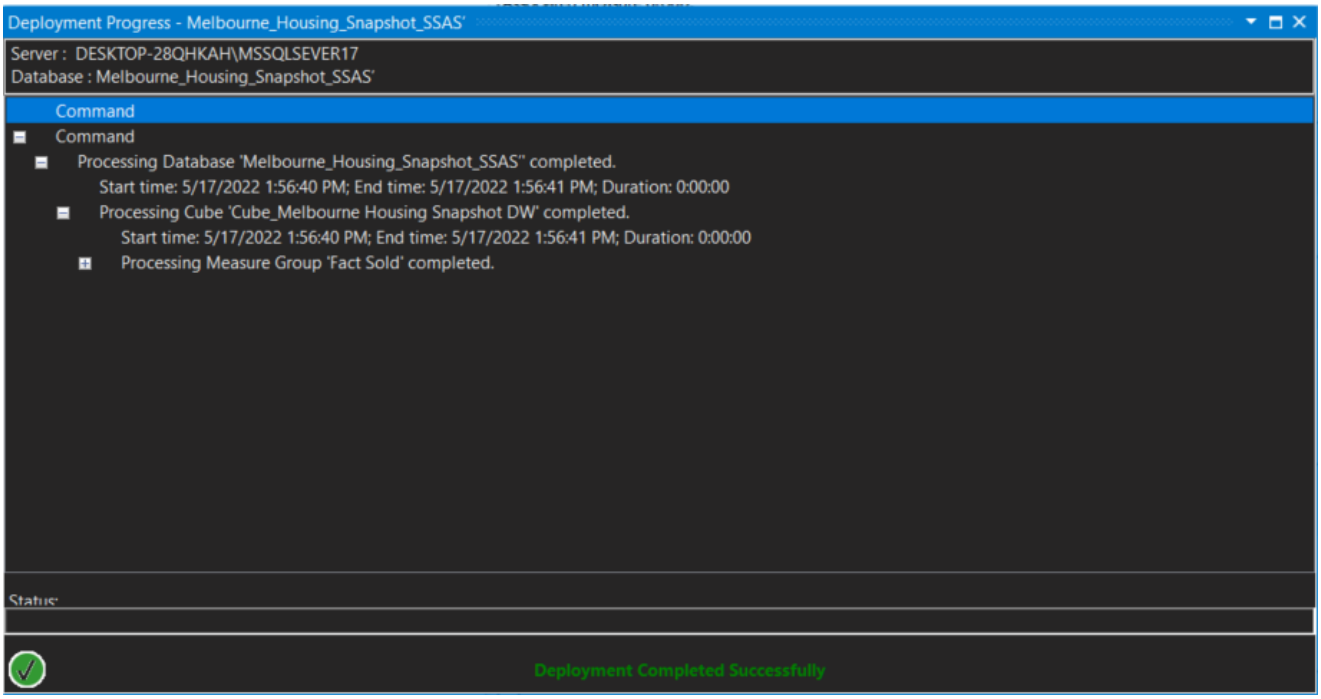
b. DimProperty

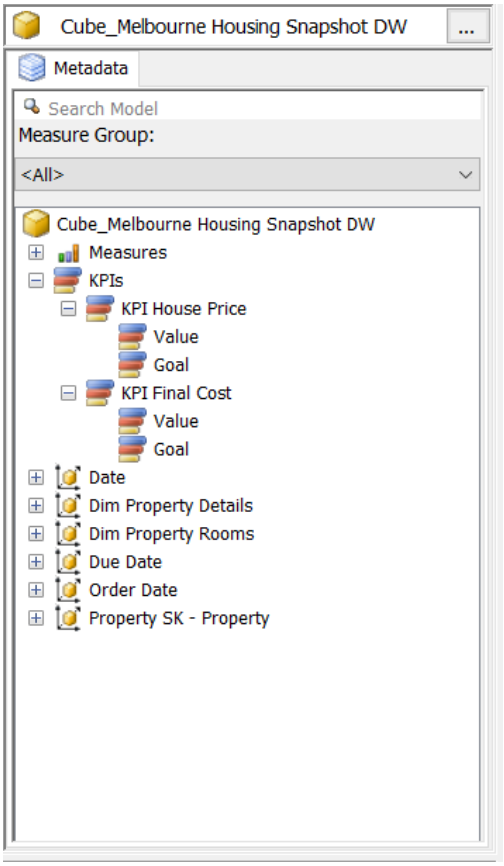


- As the next step KPIs were created to address business requirements. The below KPIs were created accordingly.



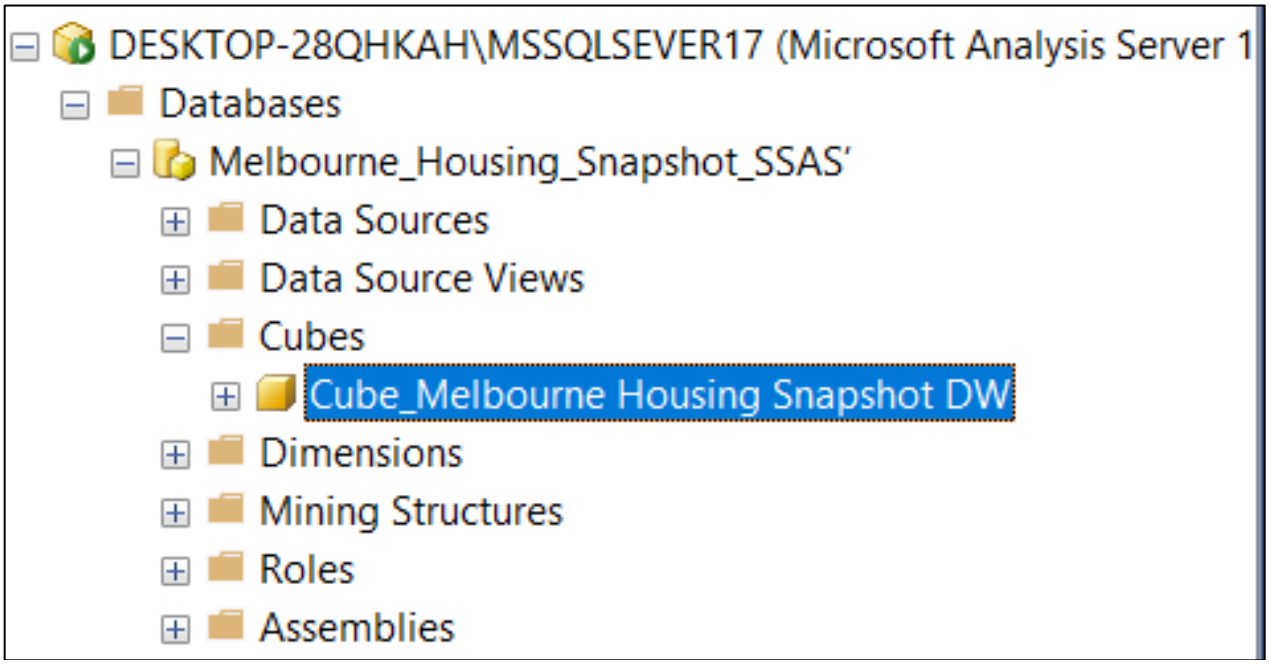






- And then KPIs are created using the measures in SSAS Cube.

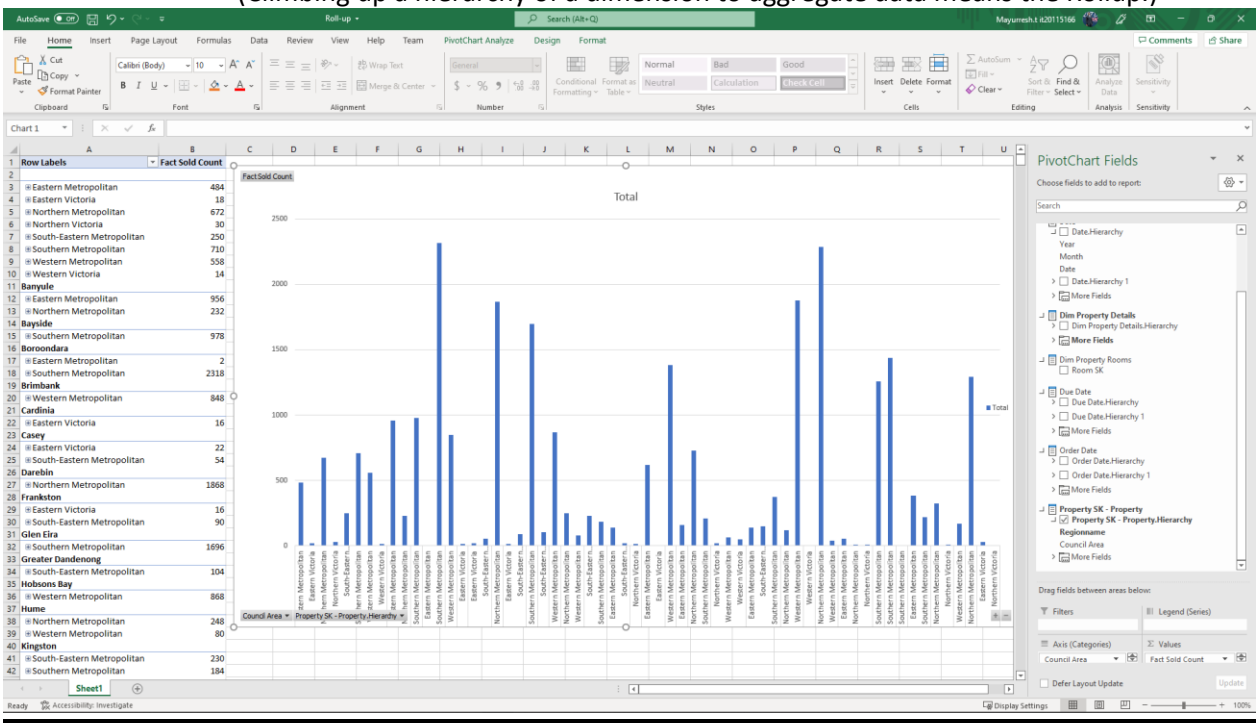
Step3.DEMONSTRATION OF OLAP OPERATIONS



- After deployment the created cube is shown in the SQL Server Management Studio

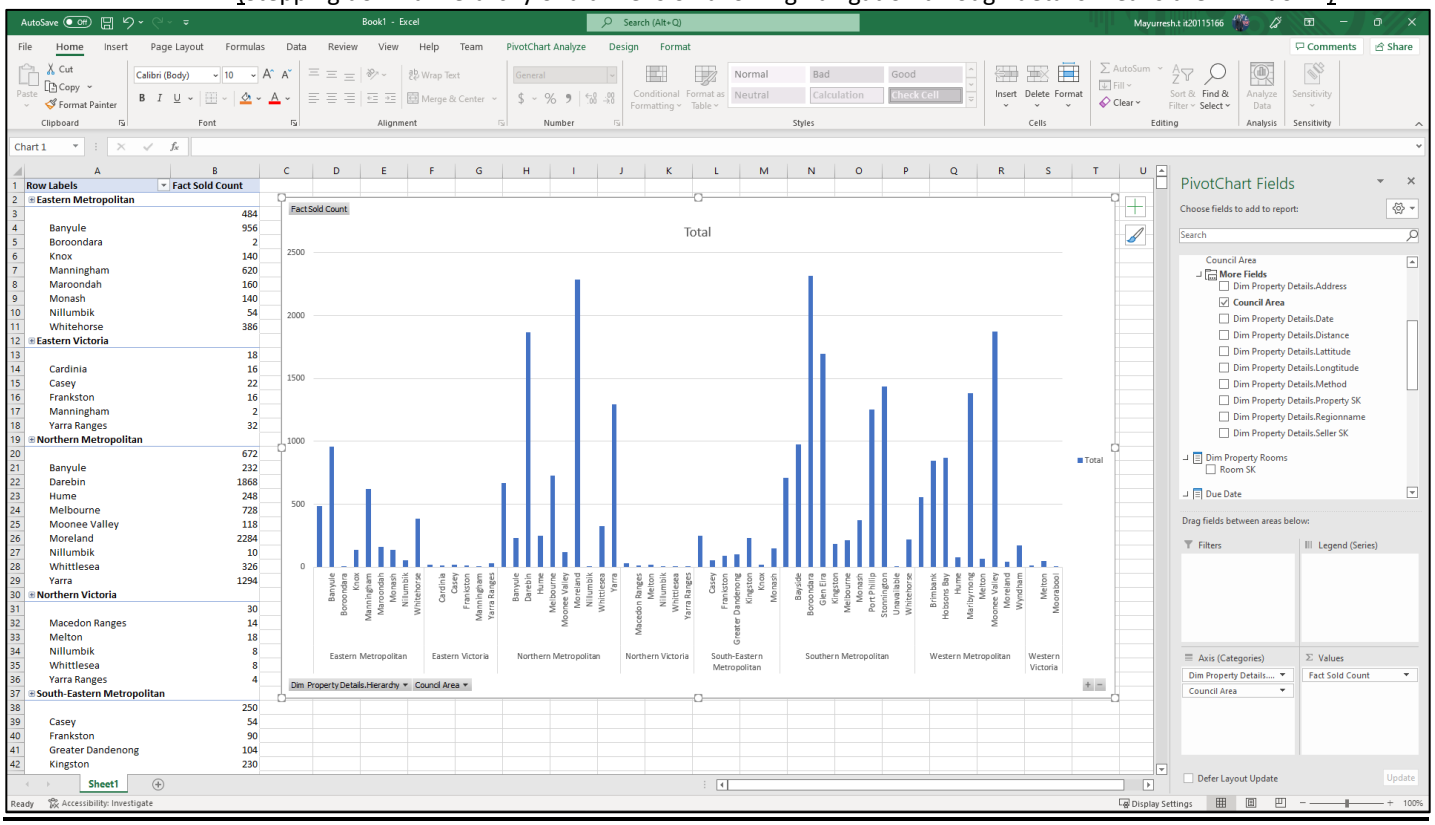
Roll-up

(Climbing up a hierarchy of a dimension to aggregate data means the Rollup.)



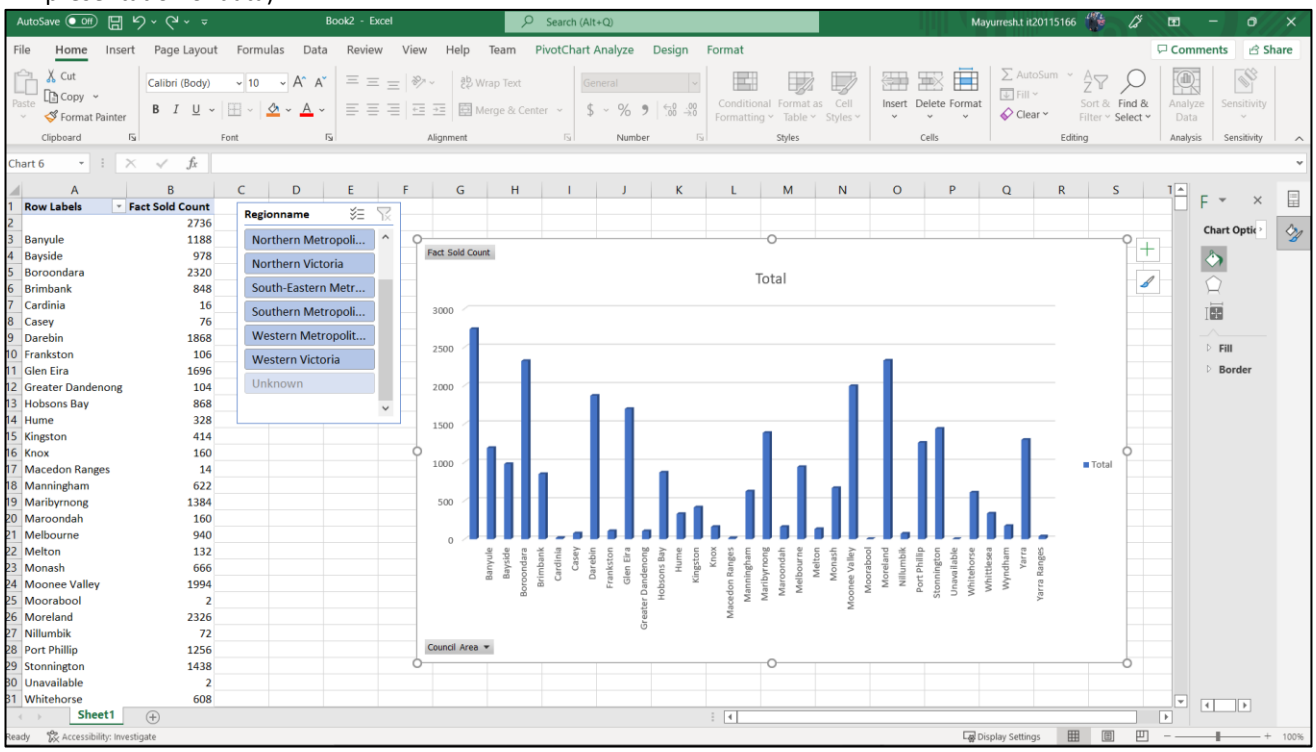
Drill-down

(Stepping down a hierarchy of a dimension allowing navigation through details means the Drill-down)

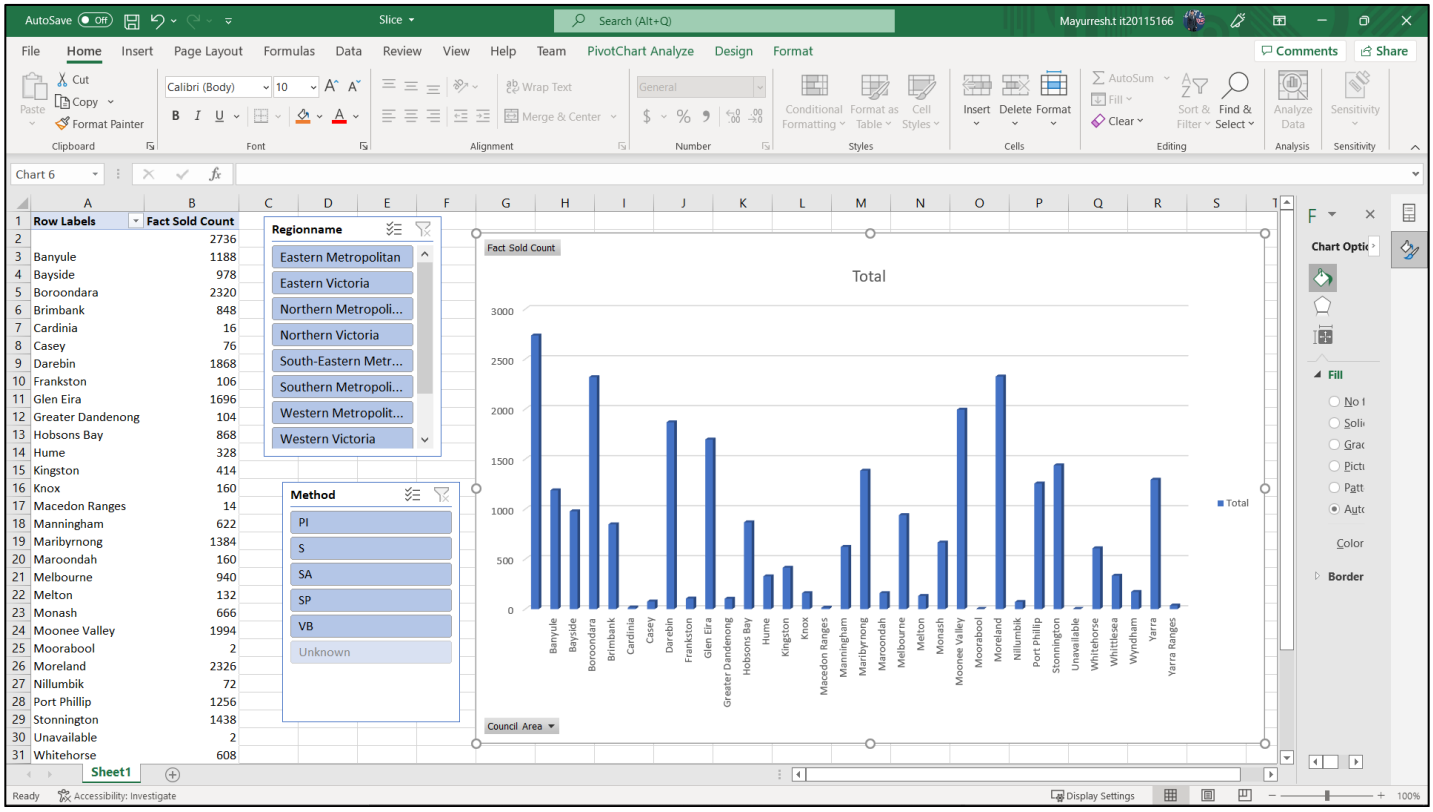


Slice

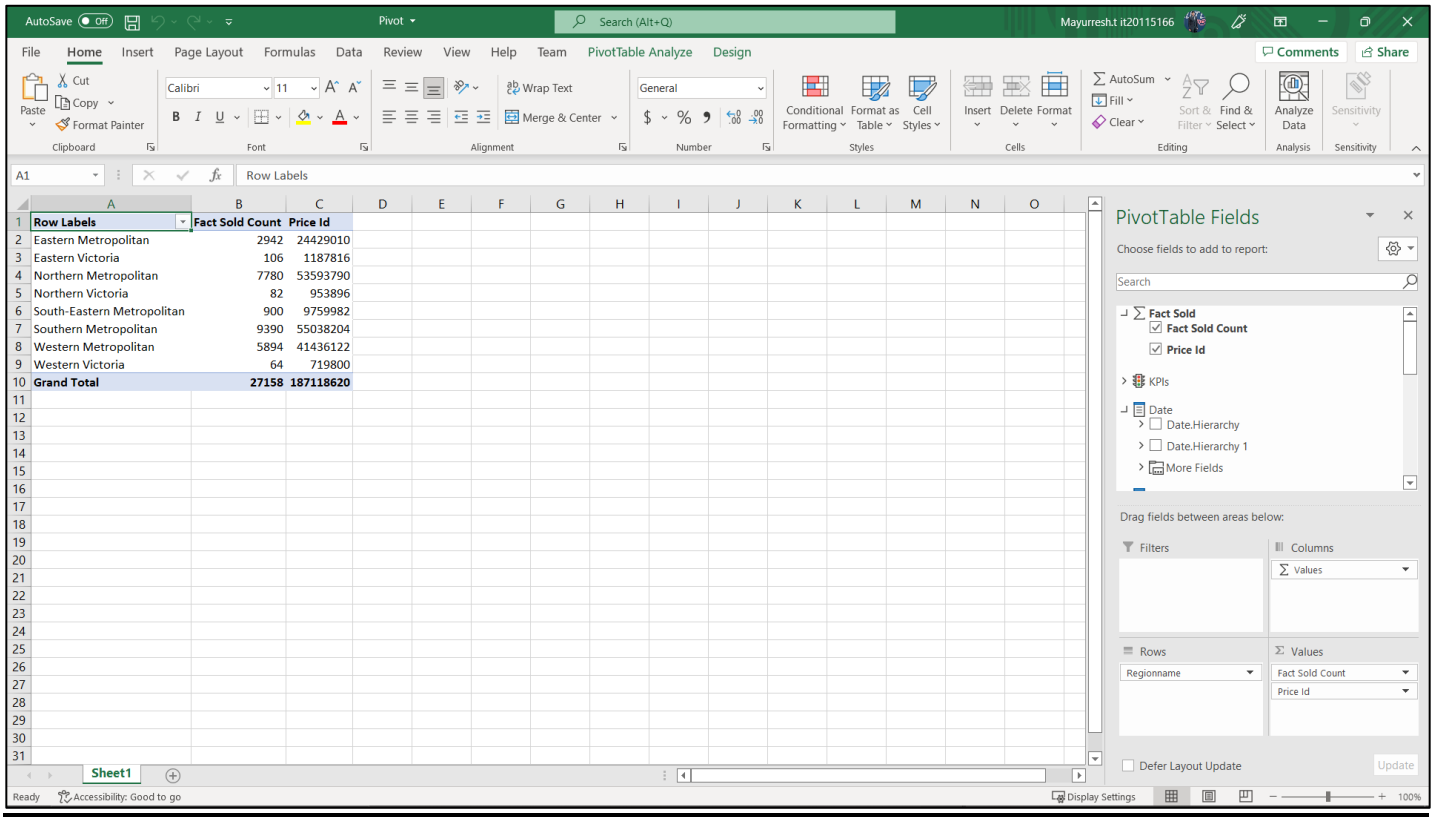
(Since column fields are not categorized to subfields. The data axes can be rotated to provide a substitute presentation of data)



Dice



Pivot



Step 4: SSRS Reports