SQL SERVER ANALYTICAL SERVICE CHEAT SHEET

SSAS BASICS

SSAS

SSAS is a technology from Microsoft Business Intelligence stack, which is used to develop online Analytical Processing (OLAP) solutions.

Cubes

Cubes are the multi-dimensional data sources which has two basic constituents named dimensions and facts (measures).

- **Dimensions:** They are referred to as Master Tables
- **Facts:** These are referred to as measurable details

Key Features of SSAS

- **Speed:** It takes less time to respond to a query due to Expressions(MDX) aggregation of the facts
- **Data Analysis:** Allows multi-dimensional analysis facilitated by the cubes
- **Automatic Link and display:** It provide the facility to automatically link and display the report
- **Good data model:** For better business reporting and analysis a good data model can be created

Multi-Dimensional Database

It is referred to as a cube which is a foundation of multidimensional databases and each cube typically contains more than two dimensions

Data Source Views

DSVs enable to create logical view of only the tables involved in the data warehouse design

Key Features of SSAS

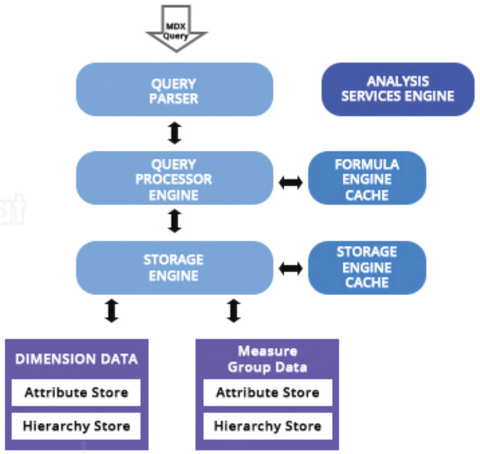
- **Star schema:** A schema where every dimension present in the Data Source View (DSV) is directly linked or related to fact or measurable table. It consists of a DE normalized data and can be used in small companies with small databases
- **Snowflake schema:** It is a schema where some dimensions are linked directly to a fact table and some are indirectly linked to fact tables. It consists of a normalized data and can be used in large companies with big databases
- **Star Flake:** It is a hybrid structure which contains a combination or star (DE normalized data) and snowflake (normalized data) schema

Key Features of SSAS

OLAP cube is a technique which is used to hold the data in an optimized form and used to analyze the data with quick response

Multi-Dimensional Expressions (MDX)

It is a query language used for retrieving data from multidimensional databases like OLAP databases



Statement	MDX Expression
To calculate Simple Gross Profit	[Measures].[Sales Amount] – [Measures].[Total Product Cost]
To calculate sales in a particular country e.g. (Canada)	([Measures].[Sales Amount], [Customer].[Country].&[United States])
To calculate year to date sales of any level of date hierarchy	AGGREGATE(PeriodsToDate([Date].[Calendar Hierarchy].[Year], [Date].[Calendar Hierarchy].CurrentMember), ([Measures].[Sales])
Alternate year to date expression	AGGREGATE (YTD ([Date Order].[Calendar].CurrentMember), Measures.[Sales Amount])
To check the product ranking	IIF (Product.Product.CurrentMember IS Product.Product.[All],NULL, IIF (Measures.[Sales Amount] = 0, NULL, RANK(Product.Product.CurrentMember, ORDER (Product.Product.Members, Measures.[Sales Amount]))))
Sales from 365 days ago	(ParallelPeriod([Invoice Date].[Date Hierarchy].[Date], 365, [Invoice Date].[Date Hierarchy].CurrentMember), [Measures].[Sales Amount])
Sales done in the previous period	(Measures.[Sales Amount], [Date Order].[Calendar].CurrentMember.PrevMember)
To view top 10 selling products	TopCount (Product.Product.Product.Members,10,Measures.[Sales Amount])
To display the average sales from three years till date	Avg({ParallelPeriod([Date].[Date].[Year], 3, StrToMember("[Date].[Date].&[" + Format(now(), "yyyyMMdd") + "]")) : StrToMember("[Date].[Date].&[" + Format(now(), "yyyyMMdd") + "]")} , [Measures].[Sales Count])
Drillthrough Action caption	'Get Sales Details for' +[Product].[Product].CurrentMember.Member_Caption
To change SSAS Calculation text color	IIF([Measures].[Profit Percentage] < .40, 255 , 0)
SSAS KPI Goal Expression	Case When IsEmpty (ParallelPeriod ([Date Order].[Fiscal].[Fiscal Year], 1,[Date Order].[Fiscal].CurrentMember)) Then [Measures].[Sales Amount] Else 1.10 * ([Measures].[Sales Amount], ParallelPeriod([Date Order].[Fiscal].[Fiscal Year], 1,[Date Order].[Fiscal].CurrentMember)) End

Statement	Expression
Changing a calculation using scope statement	SCOPE ([Measures].[Scope Profit]); THIS = ([Measures].[Sales Amount] - [Measures].[Standard Product Cost]); END SCOPE;
Clear ration value when at all levels	SCOPE ([Customer].[Customer Geography].[All], Measures.RatioOverParent); THIS = NULL
SSAS KPI Value Expression	[Measures].[Sales Amount] * 1.2
SSAS KPI Status Expression	Case When KpiValue("Sales Revenue YTD") / KpiGoal("Sales RevenueYTD") > 1 Then 1 When KpiValue("Sales Revenue YTD") / KpiGoal("Sales Revenue YTD") <= 1 And KpiValue("Sales Revenue YTD") / KpiGoal("Sales Revenue YTD") >= .85 Then 0 Else -1 End
SSAS KPI Trend Expression	Case When IsEmpty (ParallelPeriod ([Date Order].[Fiscal].[Fiscal Year], 1,[Date Order].[Fiscal].CurrentMember)) Then 0 When VBA!Abs ((KpiValue("Sales Revenue YTD")- (KpiValue("Sales Revenue YTD"), ParallelPeriod ([Date Order].[Fiscal].[Fiscal Year], 1, [Date Order].[Fiscal].CurrentMember))) /(KpiValue("Sales Revenue YTD"), ParallelPeriod ([Date Order].[Fiscal].[Fiscal Year], 1,[Date Order].[Fiscal].CurrentMember))) <=.02 Then 0 When (KpiValue("Sales Revenue YTD")- (KpiValue("Sales Revenue YTD"), ParallelPeriod ([Date Order].[Fiscal].[Fiscal Year], 1, [Date Order].[Fiscal].CurrentMember))) /(KpiValue("Sales Revenue YTD"), ParallelPeriod([Date Order].[Fiscal].[Fiscal Year],1,[Date Order].[Fiscal].CurrentMember)) >.02 Then 1 Else -1 End

IntelliPaat