

# **Kyubit Self-Service BI**

©2024 Kyubit, all rights reserved

[www.kyubit.com](http://www.kyubit.com)

# Contents

1. Kyubit Self-Service BI Concepts.....	3
1.1. Self-Service Data Models .....	3
1.2. Self-Service Data Analysis & Visualization .....	3
2. Kyubit Self-Service BI Overview.....	4
2.1. End-user experience .....	5
2.2. How it works .....	5
2.3. Pros.....	5
2.4. Limitations.....	5
3. Step-by-step Self-Service BI.....	6
3.1. Create Analytic Model from Excel/CSV file .....	6
3.2. Create Analytic Model from the Query results .....	8
3.3. Data Definition .....	10
3.4. Organize Structures Additionally .....	15
3.5. Processing of Analytic Model .....	16
3.6. Usage in Analysis and Dashboards.....	19
3.7. Date filtering .....	21
3.8. ‘Calculated Measures’ in Analytic Model .....	22

# 1. Kyubit Self-Service BI Concepts

## 1.1. Self-Service Data Models

Kyubit BI software provides features and tools to quickly create data models (**Analytic Models**) in the Kyubit application from the data stored in **Excel/CSV files** or **SQL query results**, by the regular end-user without the involvement of BI professionals or third-party analytic software modules or special databases (OLAP). Such Self-Service **Analytic Models** can be used to create data analysis, reports, KPIs and dashboards by the same regular end-user with drag-and-drop and other user-friendly actions in the Kyubit application. In other words, Kyubit BI application provides all that it takes for a regular end-user to build data models for the analysis and data visualization. Data models (Analytic Models) consist of the Measures, Dimensions, Hierarchies and Details that are used while analyzing the prepared model in the analysis grid/chart view or preparing insights on the dashboard. While preparing data to create new Analytic Model, the source data needs to be organized in rows and columns. Later in the process, the user defines the Analytic Model structure by defining which column contains values for the model structures like **measures, dimensions** or **details** to complete the final Analytic Model processing.

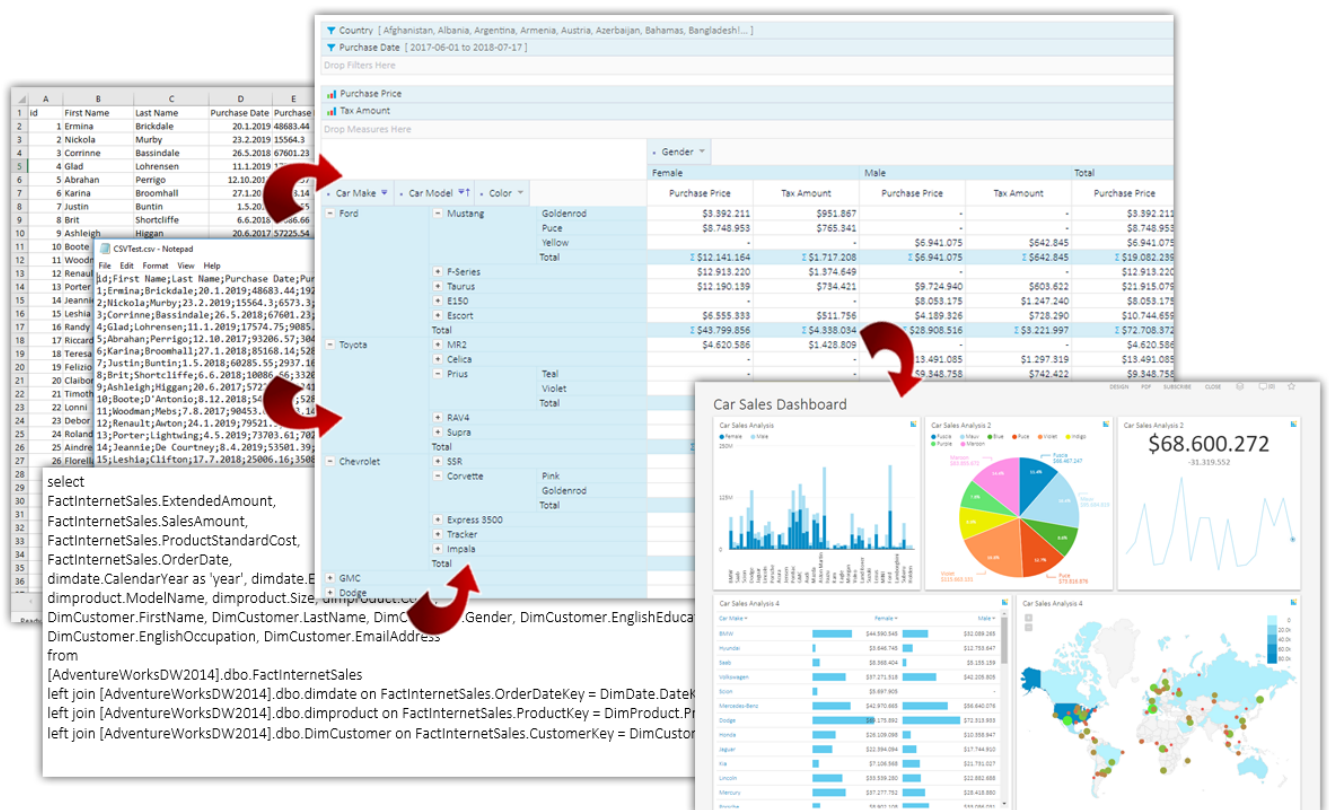
## 1.2. Self-Service Data Analysis & Visualization

Once Self-Service data model (Analytic Models) is created in the Kyubit BI application, the same user, as well as other authorized users can quickly create data analysis, charts and reports based on the same 'Analytic Model' with a simple and comprehensive approach (**drag-and-drop**) that does not require special skills or training. Furthermore, created analysis/report could be used while creating dashboard charts, tables and KPIs, to **visualize prepared data insights by the regular end-user**. Kyubit BI includes features to quickly design the dashboard layout by drag-and-drop various charts, connecting with previously prepared queries or analyses, positioning and resizing dashboard elements, setting display options for the individual dashboard element and setting overall dashboard style.

## 2. Kyubit Self-Service BI Overview

Kyubit 'Analytic Model' is a Self-Service BI analytic feature that could be quickly utilized using your data from **Excel/CSV files** and **SQL query results**, without creating OLAP cubes. With analytic models, end-user can create pivot tables, analytic reports and dashboards, using measures, dimensions, slicers and many features similar to OLAP analysis.

In many situations, you have a set of data you wish to analyze, but you probably will not engage creating OLAP cubes, which almost always requires knowledge, time, tools, etc. With Kyubit Self-Service BI, end-user can quickly import and configure **Analytic Models**, which behaves almost like you have OLAP cubes ready for analysis. Set of values from Excel/CSV files or query results is transformed to analytic models and Self-Service BI tools are ready for all Kyubit users to use them in analysis and dashboards, while values from the same data sources could be scheduled to update regularly with new values based on our preference.



## 2.1. End-user experience

After Kyubit Self-Service BI 'Analytic Model' is processed, authorized end-users can start a new analysis, that will look the same as if they are analyzing OLAP cube structures (very similar). End-users can create analysis, reports and create dashboards based on created analysis the same way they are doing with OLAP based analyses. Most features, like **drill-down**, **drill-through**, **expanding**, **slicing**, **ordering**, **isolating** are included in Analytic model analysis.

## 2.2. How it works

After you import your data from Excel/CSV files or SQL query Results and process 'Analytic Model', Kyubit creates special structures in Kyubit internal "**KyubitAnalyticModels**" **SQL database**, that are suitable for quick analytic SQL queries. While analyzing data Kyubit is creating SQL queries to bring analytic results from Kyubit Analytic Models database. In other words, Kyubit is using SQL technology, combined with **ColumnStore indexes** and some **smart caching** to bring data analysis. Only technology prerequisite is MS SQL Server, which is prerequisite for the whole product anyway.

## 2.3. Pros

- The main reason to use 'Analytic Model' is for a regular user to quickly add a set of data for analysis, dashboard usage, scheduled subscriptions and sharing with other users.
- Excel/CSV data format should be friendly to all users while preparing data to be used
- Great usage of Date filters (if data contains date values) that are much friendlier to be used than OLAP 'date' structures. Quickly select absolute or relative date filter values in the analysis, report or dashboard filters.

## 2.4. Limitations

There are limitations to Kyubit Self-Service BI 'Analytic Model' usage, that should be known before using new Kyubit technology. Kyubit Analytic Model is not created in mind to replace more serious analytic engines, like OLAP technology, but to bring a simple solution for smaller data sets (below 10 million of rows) that should be analyzed quickly with very little knowledge of data analysis and structures.

- 'Analytic Model' will perform great with hundreds of thousands of rows of data, while we would not recommend being used with more than 10 million of rows of data. This question greatly depends on the hardware on which SQL server is running, but more millions of rows of data should be used with in-any-case more robust and scalable OLAP technology.
- There are no limitations to the number of category members (rows) in grid analysis and reports, while analytic grid and report can contain a maximum of 128 series (columns) of values in analysis for each measure in the analysis.
- On category axis there could be multiple category levels expanding (drill-down) to explore data in more details, while series members cannot be expanded.

### 3. Step-by-step Self-Service BI

#### 3.1. Create Analytic Model from Excel/CSV file

Data stored in Excel or CSV file delimited by the **semicolon (;)**, can be quickly uploaded to Kyubit application and immediately is ready for the step of 'Data Definition'.

**Numeric and date values** in Excel/CSV file should respect current Kyubit BI server **regional settings** format for decimal separator and date format.

- Prepare Excel/CSV file based on the columns and rows that contain data for analysis.

	A	B	C	D	E	F	G	H	I	J	K	L
1	id	First Name	Last Name	Purchase Date	Purchase Price	Tax Amount	Gender	Car Make	Car Model	Color	City	Country
2	1	Ermina	Brickdale	20.1.2019	48683.44	1927.06	Female	Mazda	Tribute	Fuscia	Moguqi	China
3	2	Nickola	Murby	23.2.2019	15564.3	6573.3	Male	Hyundai	Elantra	Purple	Talzemt	Morocco
4	3	Corrinne	Bassindale	26.5.2018	67601.23	5412.56	Female	Dodge	Charger	Aquamarine	General Lavalle	Argentina
5	4	Glad	Lohrensen	11.1.2019	17574.75	9085.54	Female	Lexus	ES	Orange	Autun	France
6	5	Abrahan	Perrigo	12.10.2017	93206.57	3044.03	Male	Plymouth	Laser	Goldenrod	Suwałki	Poland
7	6	Karina	Broomhall	27.1.2018	85168.14	5286.2	Female	Lincoln	Mark VIII	Maroon	Kirzhach	Russia
8	7	Justin	Buntin	1.5.2018	60285.55	2937.16	Male	Volkswag	Scirocco	Indigo	Centralniy	Russia
9	8	Brit	Shortcliffe	6.6.2018	10086.66	3320.71	Male	Saab	9-7X	Orange	Skore	Albania
10	9	Ashleigh	Higgan	20.6.2017	57225.54	1341.04	Female	Volkswagi	Fox	Pink	Zhengyu	China

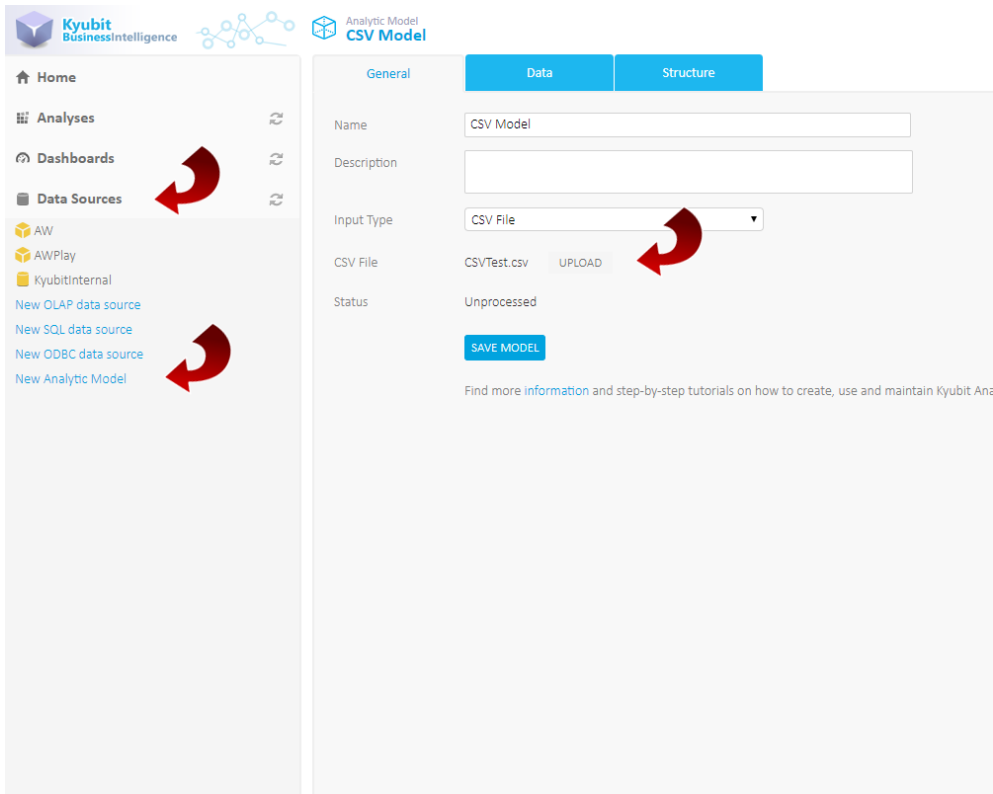
  

CSVTest.csv - Notepad

File Edit Format View Help

```
id;First Name;Last Name;Purchase Date;Purchase Price;Tax Amount;Gender;Car Make;Car Model;Color;City;Country;
1;Ermina;Brickdale;20.1.2019;48683.44;1927.06;Female;Mazda;Tribute;Fuscia;Moguqi;China;2001;ebrickdale0@to;
2;Nickola;Murby;23.2.2019;15564.3;6573.3;Male;Hyundai;Elantra;Purple;Talzemt;Morocco;2011;nmurby1@constant;
3;Corrinne;Bassindale;26.5.2018;67601.23;5412.56;Female;Dodge;Charger;Aquamarine;General Lavalle;Argentina;
4;Glad;Lohrensen;11.1.2019;17574.75;9085.54;Female;Lexus;ES;Orange;Autun;France;2009;glohrensen3@buzzfeed.;
5;Abrahan;Perrigo;12.10.2017;93206.57;3044.03;Male;Plymouth;Laser;Goldenrod;Suwałki;Poland;1990;aperrigo4@;
6;Karina;Broomhall;27.1.2018;85168.14;5286.2;Female;Lincoln;Mark VIII;Maroon;Kirzhach;Russia;1995;kbroomha;
7;Justin;Buntin;1.5.2018;60285.55;2937.16;Male;Volkswagen;Scirocco;Indigo;Centralniy;Russia;1987;jbuntin6@;
8;Brit;Shortcliffe;6.6.2018;10086.66;3320.71;Male;Saab;9-7X;Orange;Skore;Albania;2005;bshortcliffe7@usatod;
9;Ashleigh;Higgan;20.6.2017;57225.54;1341.04;Female;Volkswagen;Fox;Pink;Zhengyu;China;1992;ahiggan8@about.;
10;Boote;D'Antonio;8.12.2018;54923.96;5288.26;Male;Ford;Thunderbird;Puce;Bibinje;Croatia;1989;bdantonio9@;
11;Woodman;Meb;7.8.2017;90453.63;7883.14;Male;GMC;Yukon;Green;Pleasant Point;New Zealand;2005;wmebsa@fc2.;
12;Renault;Awton;24.1.2019;79521.5;5063.29;Male;Suzuki;Grand Vitara;Khaki;Nanling;China;1999;rawtonb@sourc;
13;Porter;Lightwing;4.5.2019;73703.61;7020.95;Male;Toyota;Sienna;Purple;Villeneuve-d'Ascq;France;2012;pligl;
14;Jeannie;De Courtney;8.4.2019;53501.39;4835.19;Female;GMC;Yukon XL 1500;Maroon;Guaynabo;Puerto Rico;2000;
15;Leshia;Clifton;17.7.2018;25006.16;3508.76;Female;Mazda;B-Series;Purple;Tanjungrejo Lor;Indonesia;1991;lr;
16;Randy;Halpeine;2.10.2018;33424.96;5442.23;Male;Nissan;Quest;Purple;Nanshi;China;1999;rhhalpeinef@mayoclin;
17;Riccardo;Djurisic;2.7.2018;57812.23;6477.99;Male;Mitsubishi;Mighty Max Macro;Aquamarine;Labytnangi;Russ;
18;Teresa;Redparth;22.3.2018;35617.85;9723.67;Female;Buick;LaCrosse;Green;Somié;Cameroon;2005;tredparthh@pr;
19;Felizio;Silkston;26.3.2018;41550.7;2767.68;Male;Chevrolet;Tracker;Green;Cherëmukhovo;Russia;2002;fsilkst;
20;Claiborn;Finney;10.12.2018;99441.13;6519.52;Male;Subaru;Forester;Violet;Santo Amaro;Portugal;2011;cfiney;
21;Timothea;Aloigi;18.12.2018;22584.67;6512.69;Female;Eagle;Talon;Mauv;Marsada;Philippines;1998;taloigik@ir;
22;Lenni;Poate;28.9.2018;27369.14;7138.44;Female;Bentley;Continental GT;Purple;Huangjiabu;China;2010;lpoate;
23;Debor;Roz;14.3.2019;17516.05;8179.03;Female;Saturn;VUE;Teal;Portland;United States;2009;drozm@buzzfeed.;
24;Roland;Readshaw;19.6.2018;18085.04;9918.43;Male;Mazda;B-Series Plus;Violet;Krnabë;Albania;1996;rreadsha;
25;Aindrea;Pennaman;6.4.2018;18975.19;7344.49;Female;Lamborghini;Diablo;Mauv;Cikondang;Indonesia;1991;apenn;
26;Florella;Finch;10.4.2019;49614.93;7732.42;Female;Toyota;Tacoma;Teal;Kokologo;Burkina Faso;2005;ffinchp@;
27;Brewer;McGorman;30.1.2019;95108.95;8254.29;Male;Chevrolet;Tahoe;Pink;San Nicolás;Honduras;1995;bmcgorman;
```

Create a new Analytic model, add some name for the model, save it, and then upload an Excel/CSV file. Once uploaded, the file is automatically saved to this model.



- After upload, select 'Data' tab to inspect the sample data from the Excel/CSV file. Creating analytic model is ready for the next step of 'Data Definition' explained below.

Analytic Model CSV Model

General Data Structure

Measure	Dimension	Dimension	Date	Measure	Measure	Dimension	Dimension	Dimension
id	First Name	Last Name	Purchase Date	Purchase Price	Tax Amount	Gender	Car Make	Car Model
[Format Values]				[Format Values]	[Format Values]			
1	Ermina	Brickdale	20.1.2019	48683.44	1927.06	Female	Mazda	Tribute
2	Nickola	Murby	23.2.2019	15564.3	6573.3	Male	Hyundai	Elantra
3	Corrinne	Bassindale	26.5.2018	67601.23	5412.56	Female	Dodge	Charger
4	Glad	Lohrensen	11.1.2019	17574.75	9085.54	Female	Lexus	ES
5	Abrahan	Perrigo	12.10.2017	93206.57	3044.03	Male	Plymouth	Laser
6	Karina	Broomhall	27.1.2018	85168.14	5286.2	Female	Lincoln	Mark VIII
7	Justin	Buntin	1.5.2018	60285.55	2937.16	Male	Volkswagen	Scirocco
8	Brit	Shortcliffe	6.6.2018	10086.66	3320.71	Male	Saab	9-7X
9	Ashleigh	Higgan	20.6.2017	57225.54	1341.04	Female	Volkswagen	Fox
10	Boote	D'Antonio	8.12.2018	54923.96	5288.26	Male	Ford	Thunderbird
11	Woodman	Mebs	7.8.2017	90453.63	7883.14	Male	GMC	Yukon
12	Renault	Awton	24.1.2019	79521.5	5063.29	Male	Suzuki	Grand Vitara
13	Porter	Lightwing	4.5.2019	73703.61	7020.95	Male	Toyota	Sienna
14	Jeannie	De Courtney	8.4.2019	53501.39	4835.19	Female	GMC	Yukon XL 1500
15	Leshia	Clifton	17.7.2018	25006.16	3508.76	Female	Mazda	B-Series
16	Randy	Halpeine	2.10.2018	33424.96	5442.23	Male	Nissan	Quest
17	Riccardo	Djurisic	2.7.2018	57812.23	6477.99	Male	Mitsubishi	Mighty Max Macro
18	Teresa	Redparth	22.3.2018	35617.85	9723.67	Female	Buick	LaCrosse
19	Felizio	Silkston	26.3.2018	41550.7	2767.68	Male	Chevrolet	Tracker
20	Claiborn	Finey	10.12.2018	99441.13	6519.52	Male	Subaru	Forester
21	Timothea	Aloigi	18.12.2018	22584.67	6512.69	Female	Eagle	Talon
22	Lonni	Poate	28.9.2018	27369.14	7138.44	Female	Bentley	Continental GT
23	Debor	Roz	14.3.2019	17516.05	8179.03	Female	Saturn	VUE
24	Balad	Bardshaw	19.6.2018	10086.66	3320.71	Male	Saab	9-7X

### 3.2. Create Analytic Model from the Query results

If the data for the analytic model is based on existing data from the relational databases, create the **SQL query** that will be used to retrieve data for the new model. Any valid SQL query could be used to run against the **SQL server** or **ODBC data sources** registered in the Kyubit application.

- Under 'Data Sources' select New Analytic Model, change input type to 'Query', select the data source for query and set query text. This query will be used to get data for this analytic model.

The screenshot displays the Kyubit Business Intelligence interface for creating a new analytic model. The left sidebar contains navigation options: Home, Analyses, Dashboards, Data Sources, AdventureWorksDW2014, AW, AWPlay, CSV Model, KyubitInternal, New OLAP data source, New SQL data source, New ODBC data source, and New Analytic Model. The main content area is titled 'Analytic Model New Analytic Model' and features three tabs: General, Data, and Structure. The 'General' tab is selected, showing the following configuration:

- Name: Adventure Works Analytic Model
- Description: (empty)
- Input Type: Query
- Data Source: AdventureWorksDW2014(SQL)
- Query: 

```
select
FactInternetSales.ExtendedAmount,
FactInternetSales.SalesAmount,
FactInternetSales.ProductStandardCost,
FactInternetSales.OrderDate,
dimdate.CalendarYear as 'year', dimdate.EnglishMonthName as 'month', dimdate.DayNumberOfMonth as 'day',
dimproduct.ModelName, dimproduct.Size, dimproduct.Color,
DimCustomer.FirstName, DimCustomer.LastName, DimCustomer.Gender, DimCustomer.EnglishEducation, DimCustomer.EnglishOccupation,
from
[AdventureWorksDW2014].dbo.FactInternetSales
left join [AdventureWorksDW2014].dbo.dimdate on FactInternetSales.OrderDateKey = DimDate.DateKey
left join [AdventureWorksDW2014].dbo.dimproduct on FactInternetSales.ProductKey = DimProduct.ProductKey
left join [AdventureWorksDW2014].dbo.DimCustomer on FactInternetSales.CustomerKey = DimCustomer.CustomerKey
```
- Status: -

A 'SAVE MODEL' button is located at the bottom of the configuration area. Below the button, a note states: 'Find more information and step-by-step tutorials on how to create, use and maintain Kyubit Analytic Models based on your data from CSV files'.



- When the query is defined, click on the 'Run Query' button or 'Data' tab to get the query sample results for the inspection. At the same time, the analytic model creation is ready for the 'Data Definition' step explained below.

Analytic Model  
Adventure Works Analytic Model

General Data Structure

Measure	Measure	Measure	Date	Dimension	Dimension	Dimension	Dimension	Dimension
ExtendedAmount	SalesAmount	ProductStandardCost	OrderDate	year	month	day	ModelName	Size
[Format Values]	[Format Values]	[Format Values]						
3578,2700	3578,2700	2171,2942	29.12.2010 0:00:00	2010	December	29	Road-150	65
3399,9900	3399,9900	1912,1544	29.12.2010 0:00:00	2010	December	29	Mountain-100	44
3399,9900	3399,9900	1912,1544	29.12.2010 0:00:00	2010	December	29	Mountain-100	44
699,0982	699,0982	413,1463	29.12.2010 0:00:00	2010	December	29	Road-650	65
3399,9900	3399,9900	1912,1544	29.12.2010 0:00:00	2010	December	29	Mountain-100	44
3578,2700	3578,2700	2171,2942	30.12.2010 0:00:00	2010	December	30	Road-150	44
3578,2700	3578,2700	2171,2942	30.12.2010 0:00:00	2010	December	30	Road-150	65
3374,9900	3374,9900	1898,0944	30.12.2010 0:00:00	2010	December	30	Mountain-100	44
3399,9900	3399,9900	1912,1544	30.12.2010 0:00:00	2010	December	30	Mountain-100	38
3578,2700	3578,2700	2171,2942	31.12.2010 0:00:00	2010	December	31	Road-150	44
3578,2700	3578,2700	2171,2942	31.12.2010 0:00:00	2010	December	31	Road-150	44
699,0982	699,0982	413,1463	31.12.2010 0:00:00	2010	December	31	Road-650	55
3578,2700	3578,2700	2171,2942	31.12.2010 0:00:00	2010	December	31	Road-150	55
3578,2700	3578,2700	2171,2942	31.12.2010 0:00:00	2010	December	31	Road-150	55
3578,2700	3578,2700	2171,2942	1.1.2011	2011	January	1	Road-150	55

### 3.3. Data Definition

When the source for the new analytic model is defined (CSV file or query), the next step is to define the **role** of **each column** in the provided data set on the 'Data' tab. Possible definition for the columns are 'Measure', 'Dimension', 'Date' and 'Details'.

#### Measure

The measure is a value from our data set that will be used for the aggregations while analyzing the analytic model. Typically, using Sum, Avg, Count and other aggregations. The measure has to be of the **numeric values** in the Kyubit Analytic Model.

#### Dimension

The dimension values are used to slice and analyze measure values, used in the required context. Analytic results are based on measures and dimension members on the categories and series.

#### Date

The Date column could be used as a filter in the analysis. Because analyzing business data mostly include filtering based on a certain period, this is an extremely useful element for the analysis. The Date cannot be used on analysis categories and series.

#### Details

Some information from data set are not good analytic material to be used on analysis categories and series, but should only be available when asked for details of aggregated data. For example, information such as 'address' and 'phone number', we are hardly going to use as aggregating data, but still, we like to use as 'Details' on the aggregated results. Setting such columns as the 'Details' ensures a more compact analytic model, faster processing and smaller size on the disk.

## Example data definitions...

New

Words Backlog Ads G Drive Kyubit PS WL PO PER Azure Hosting Translate Console Addiko Tečaj Intell. Incubator Kyul

Analytic Model  
Adventure Works Analytic Model

General Data Structure

Measure	Date	Dimension	Dimension	Dimension	Dimension	Dimension	Dimension	Details	Details	Dimension	Dimension
ProductStandardCost	OrderDate	year	month	day	ModelName	Size	Color	FirstName	LastName	Gender	Eng
\$#,###	29.12.2010 0:00:00	2010	December	29	Road-150	62	Red	Cole	Watson	M	
\$1,912.15	29.12.2010 0:00:00	2010	December	29	Mountain-100	44	Silver	Rachael	Martinez	F	
\$1,912.15	29.12.2010 0:00:00	2010	December	29	Mountain-100	44	Silver	Sydney	Wright	F	
\$413.15	29.12.2010 0:00:00	2010	December	29	Road-650	62	Black	Ruben	Prasad	M	Gr
\$1,912.15	29.12.2010 0:00:00	2010	December	29	Mountain-100	44	Silver	Christy	Zhu	F	
\$2,171.29	30.12.2010 0:00:00	2010	December	30	Road-150	44	Red	Colin	Anand	M	
\$2,171.29	30.12.2010 0:00:00	2010	December	30	Road-150	62	Red	Albert	Alvarez	M	
\$1,898.09	30.12.2010 0:00:00	2010	December	30	Mountain-100	48	Black	Julio	Ruiz	M	
\$1,912.15	30.12.2010 0:00:00	2010	December	30	Mountain-100	38	Silver	Curtis	Lu	M	
\$2,171.29	31.12.2010 0:00:00	2010	December	31	Road-150	48	Red	Edward	Brown	M	Gr
\$2,171.29	31.12.2010 0:00:00	2010	December	31	Road-150	48	Red	Emma	Brown	F	
\$413.15	31.12.2010 0:00:00	2010	December	31	Road-650	52	Red	Brad	Deng	M	
\$2,171.29	31.12.2010 0:00:00	2010	December	31	Road-150	52	Red	Martha	Xu	F	P
\$2,171.29	31.12.2010 0:00:00	2010	December	31	Road-150	56	Red	Katrina	Raji	F	
\$2,171.29	1.1.2011 0:00:00	2011	January	1	Road-150	56	Red	Courtney	Edwards	F	P
\$2,171.29	1.1.2011 0:00:00	2011	January	1	Road-150	44	Red	Abigail	Henderson	F	
\$2,171.29	2.1.2011 0:00:00	2011	January	2	Road-150	62	Red	Sydney	Rogers	F	
\$2,171.29	2.1.2011 0:00:00	2011	January	2	Road-150	44	Red	Leticia	Alonso	F	

Example usage of defined structures later in analysis.

**Kyubit Business Intelligence** Analysis **Analysis on Analytic Model**

GRID CHART REPORT

Size [ 38, 40, 42, 44, 46, 48, 50, 52, 54, 56, 58, 60, 62, 70, L, M, Null, S, X... ]

OrderDate [ 2011-01-01 to 2014-01-01 ]

Drop Filters Here

ProductStandardCost

Drop Measures Here

Gender

		F	M	Total
Color	ModelName	ProductStandardCost	ProductStandardCost	ProductStandardCost
+ Black		\$2.535.545,35	\$2.551.307,66	∑ \$5.086.853,01
- Blue	Touring-3000	\$71.984,64	\$55.834,24	∑ \$127.818,88
	Sport-100	\$13.825,56	\$12.896,88	∑ \$26.722,44
	Touring-1000	\$474.217,6	\$465.326,02	∑ \$939.543,62
	Classic Vest	\$6.124,92	\$6.504,76	∑ \$12.629,68
	Touring-2000	\$151.030	\$129.885,8	∑ \$280.915,8
	Total	∑ \$717.182,72	∑ \$670.447,7	∑ \$1.387.630,42
+ Yellow		\$1.537.282,2	\$1.527.047,28	∑ \$3.064.329,48
+ Silver		\$1.432.553,22	\$1.346.178,87	∑ \$2.778.732,09
+ Multi		\$39.415,1	\$38.880,13	∑ \$78.295,23
+ NA		\$76.926,44	\$78.137,2	∑ \$155.063,64
+ Red		\$2.348.619,92	\$2.326.646,08	∑ \$4.675.266
+ White		\$883,68	\$940,8	∑ \$1.824,48
Total		∑ \$8.688.408,63	∑ \$8.539.585,72	∑ \$17.227.994,35

## Column Caption and Description

While defining data for the analytic model, optionally click on the column name and set its caption (if should be different from the source) and column Description.

## Format Values

Measure values should be provided as a pure numeric value. To configure measure to be presented as a formatted numeric value (Currency for example), click on the "Format values" below column name and choose one of the formatting options or write your own.

## Key Sorting Column

Assign another column that contains values (numbers) that will be used for sorting of the dimension level. For example, if the dimension level contains months (January, February, March,...), sorting these values alphabetically does not make sense. Here comes the 'Key column' that contains values that will be used for sorting. For example, if we have column 'MonthNumbers' that contains values (1,2,3, etc.) corresponding to the order of the month, we will apply the 'MonthNumber' column as a 'Key Column' for the dimension level 'Months'.

Property	Value
Source Column	EnglishMonthName
Column Caption	Month Name
Column Description	Month Name
Sorting Key Column	MonthNumberOfYear

When the Analytic Model is processed, in the analysis click on the 'Level Sorting' > Member Key to apply sorting with values from the 'Sorting Key Column'.

Month Name	Sales Amount
January	\$1,821,359
February	\$1,583,818
March	\$858,518
April	\$902,242
May	\$920,379
June	\$1,292,758
July	\$1,041,116
August	\$1,138,271
September	\$1,089,059
October	\$1,243,124
November	\$1,198,257
December	\$1,336,954
Total	\$14,425,855

**Grid sorting definition for**

Sort by: Member Key

(Optional) Sort using values in Column: -

Sort Order: Asc

SET CLOSE

## Ranges

If the values for a particular dimension are of the numeric type, it would be convenient to organize them in ranges. Typically, we would like to analyze data based not on the particular number, but the range of values that present certain scope we can give a new for. To organize numeric values of the particular dimension into ranges, click on the dimension column and the **Range** button. Defined any number of ranges by providing the range name, min, and max values. After the data processing, the dimension will be presented with the defined ranges as its members.

The screenshot shows a BI tool interface with a 'New Analysis' window and a 'Ranges' dialog box.

**New Analysis Window:**

- Buttons: GRID, CHART, REPORT
- Drop Filters Here
- Drop Measures Here
- Drop Series Here
- Dimension: Size
- Measure: SalesAmount
- Table:

Size	SalesAmount
Big	\$58.650,5
Normal	\$87.975,75
Small	\$191.572,06
Very small	\$3.399,99
Total	Σ \$341.598,3

**Ranges Dialog Box:**

Name	Min	Max
Very small	>= 0	< 40
Small	>= 40	< 50
Normal	>= 50	< 60
Big	>= 60	< 200

Buttons: ADD, OK, CLOSE

## 3.4 Organize Structures Additionally

When each column definition is defined, we can immediately proceed to the processing of the Analytic Model, but on the third tab 'Structure' there are additional options to **organize analytic model** structures. Instead to leave all dimension levels in 'Default dimension', we can create new dimensions and organize levels appropriately to be **more comprehensive** for end-users.

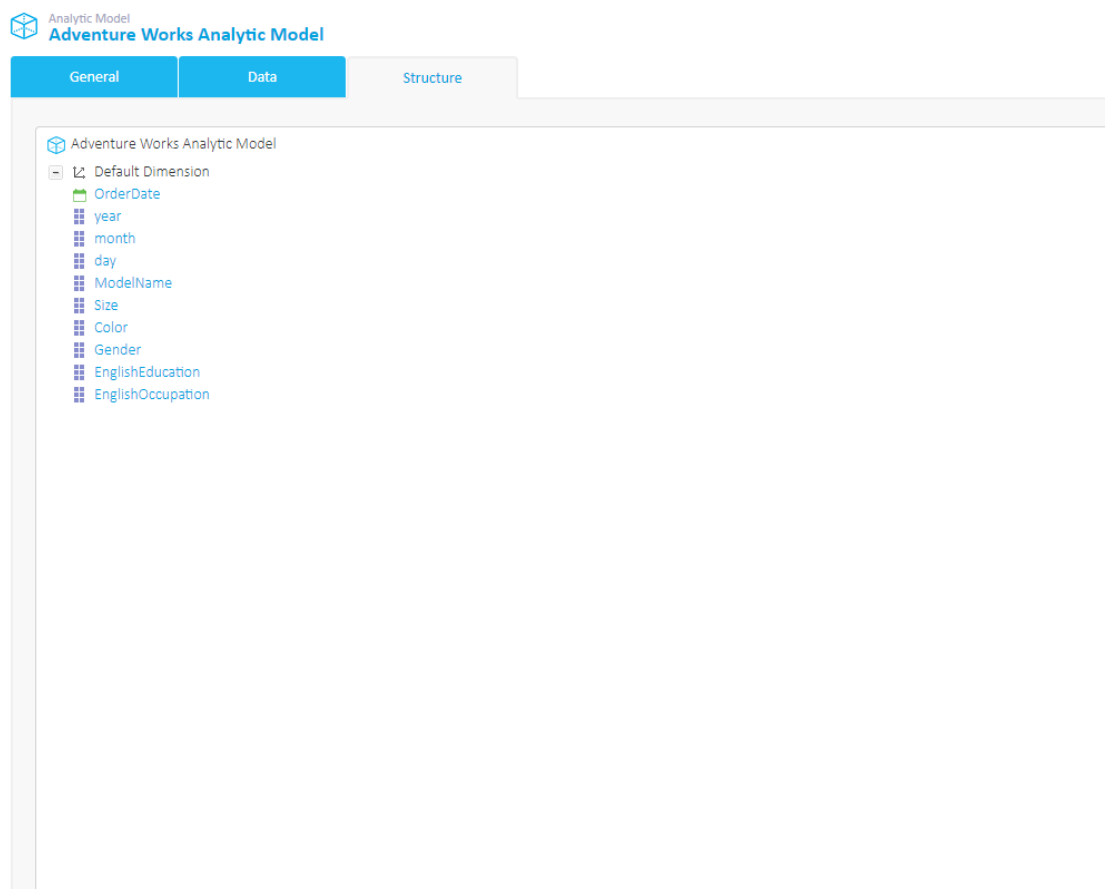
### New Dimension

Create a new dimension based on some topic (for example, 'Customer' or 'Product') and assign appropriate analytic levels to this dimension. This way you group analytic levels to certain topic and makes analysis more comprehensive.

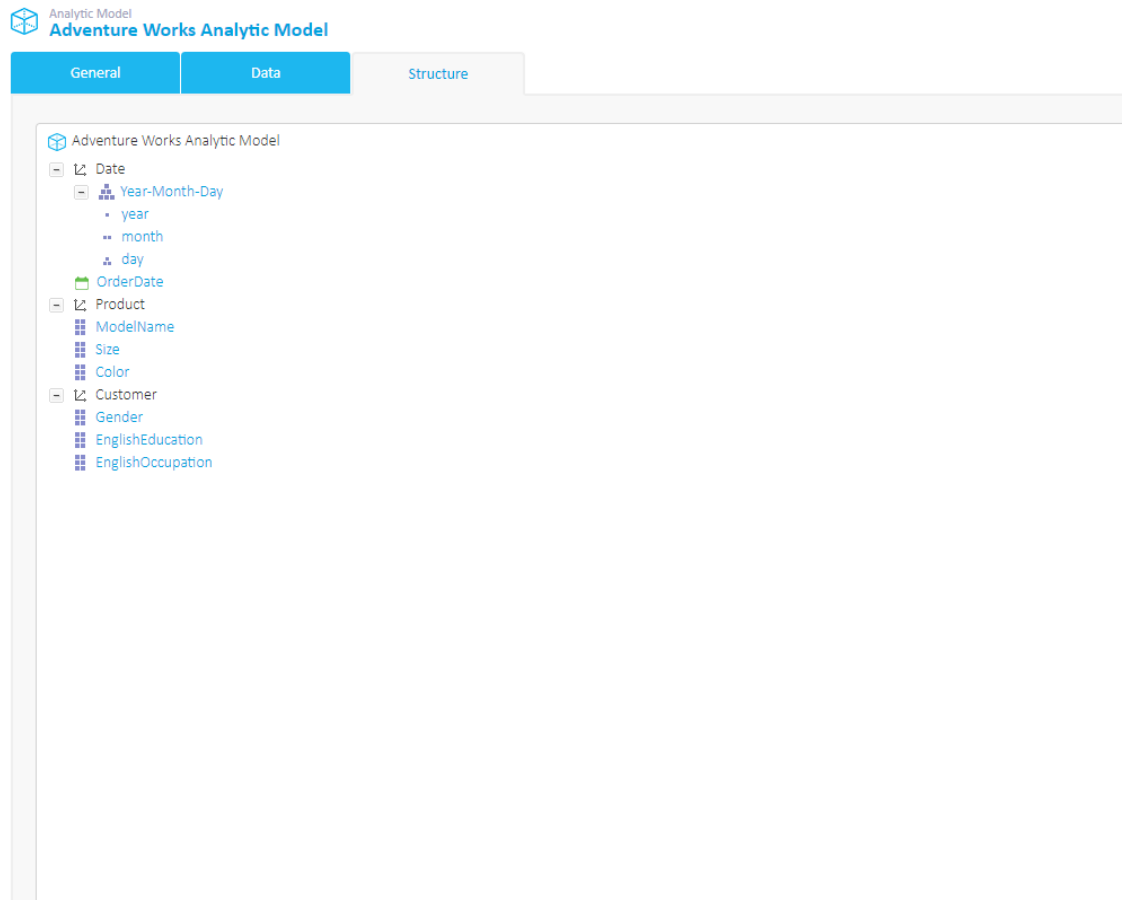
### New Hierarchy

When analytic levels are related to each other in parent-child relation, it is practical to organize them inside 'Hierarchies'. For example, Year-Month-Day or Continent-Country-City. This way makes analysis easy to drill-down data from a higher view to more detailed values for end-user.

Default structure.



Organized structure.



### 3.5. Processing of Analytic Model

While preparing the analytic model, the user can save and open same analytic model many times, which is in 'Unprocessed' status. When all data and structures are prepared, click the **Process Analytic Model** button on the 'Structure' tab to actually start processing of analytic model data and make it ready for analysis and visualizations. The process could take from **few seconds to several minutes** (or more) depending on a number of rows and columns defined for the analytic model. All columns not required to be 'Dimension' set to 'Details' structure type, which will speed processing and save space in the 'models' database.

#### Analytic Model Status

There are 3 analytic model status, **Unprocessed**, **Processing** and **Processed**. While the analytic model is processing, it cannot be used by any user. If processing fails for any reason, it reverts to 'Unprocessed' status.

#### Log

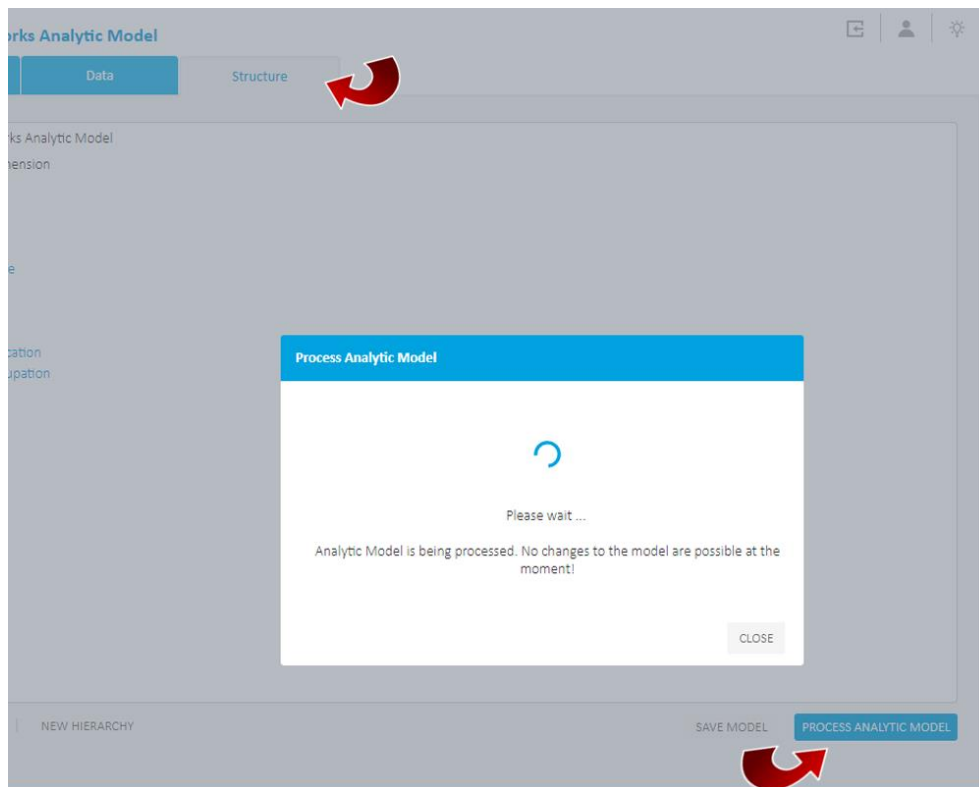
After processing of the analytic model, **details of processing** could be inspected by clicking on the 'Log' button in 'General' tab. If the processing of the analytic model has failed, this is a good place to start troubleshooting for the possible cause of the problem.



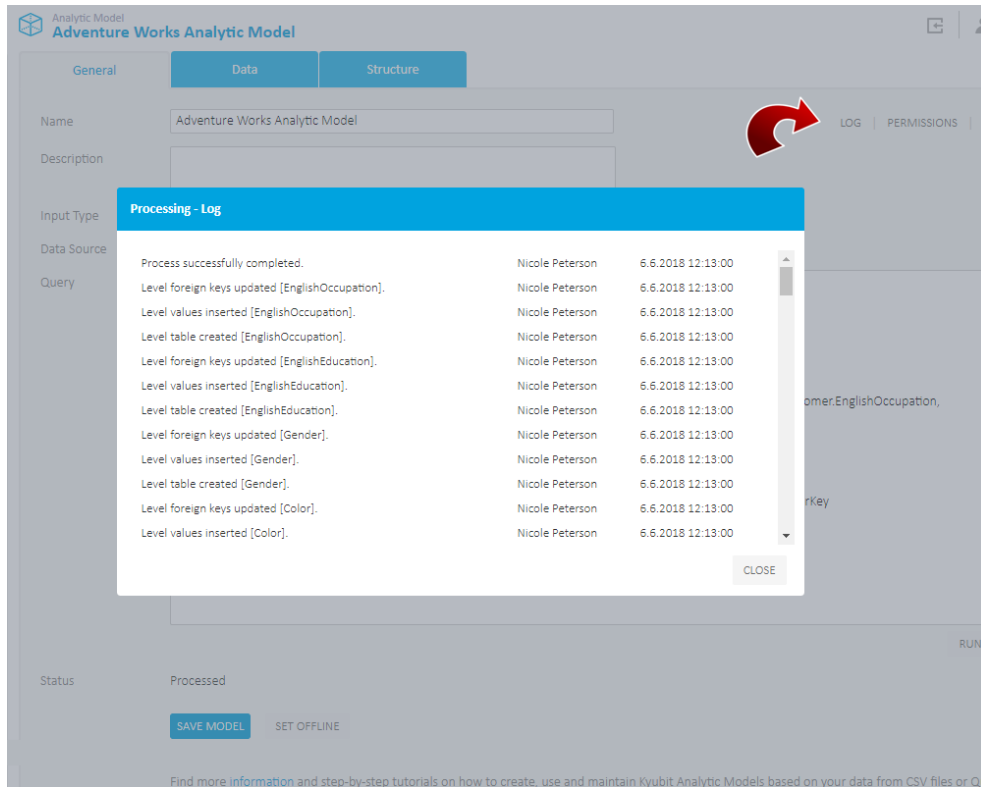
## Schedule model updates

The **Analytic model** could be **updated automatically** with 'Scheduled Jobs'. Go to Schedule -> Jobs and create new Job 'Process Analytic Model' and time preference for updates to occur. If Analytic model is based on the query, the same query will be run against the defined data source to bring fresh data into Analytic model. If Analytic model is based on the Excel/CSV file, schedule job can be created only if Excel/CSV file is uploaded from shared folder and path begin with "\\..." (For example, [\\SomeMachine\FolderWithData](#)).

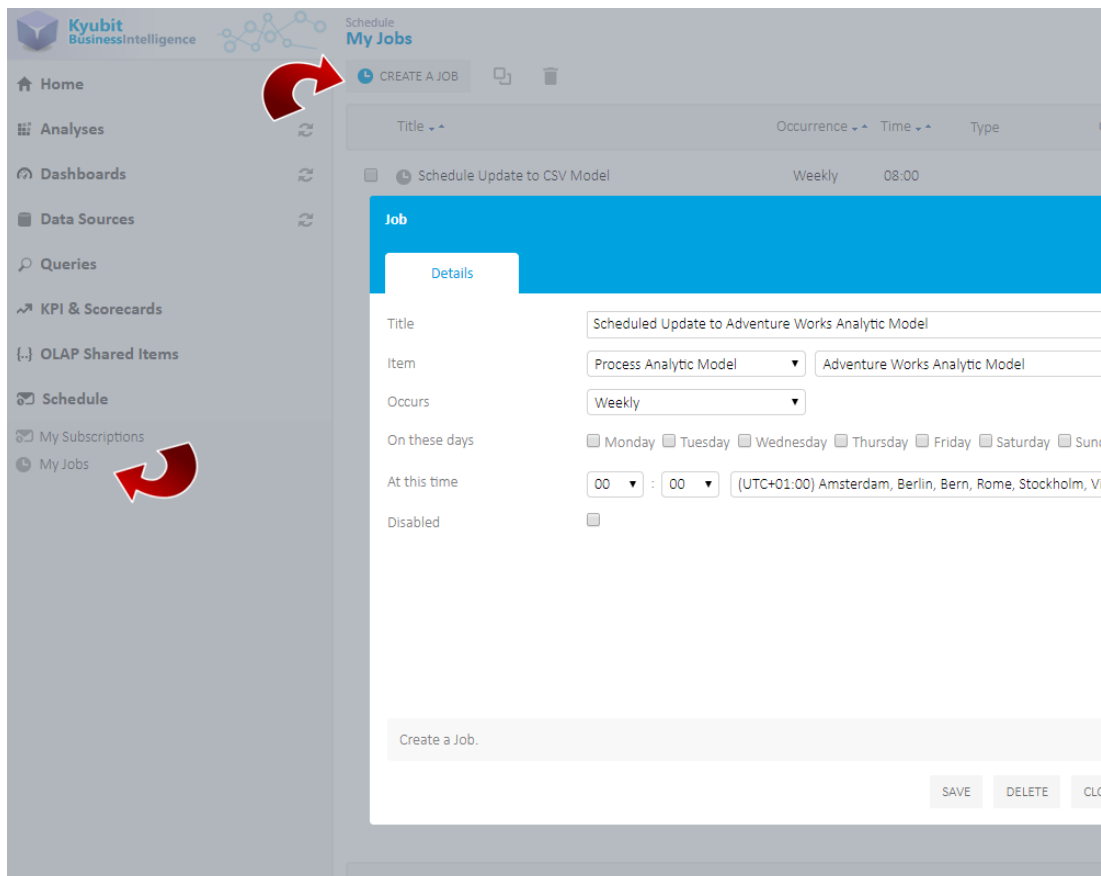
Processing of Analytic model could be started manually or with 'Scheduled Jobs'.



Find useful / troubleshooting information in the processing 'Log' form.



Schedule Analytic model update from the defined model data sources.



### 3.6. Usage in Analysis and Dashboards

After the Analytic model is processed, it is ready for the **analysis** and **visualizations**. Create the analysis and reports in the grid/chart view by adding measures and dimensions on the categories/series axis or slicer axis. Use ordering, aggregate, isolating and other analytic actions to prepare the analytic report of your interest. Once the analysis is prepared it could be added to the **Dashboard** and be visualized by many charts and visualization widgets, while at the same time data could be further analyzed by the end-user working with the dashboard (Drill-down, drill-through, drill-by, slicing and other useful analytic actions).

Analysis with Analytic models.

The screenshot displays the 'Car Sales Analysis' dashboard in the Kyubit Business Intelligence tool. The interface includes a sidebar with 'Analyses' and a list of measures and dimensions. The main area shows a data grid with filters for Country and Purchase Date. The grid is organized by Gender (Female and Male) and includes columns for Purchase Price and Tax Amount. A context menu is visible over a cell, providing options such as Refresh, Drillthrough, and formatting settings.

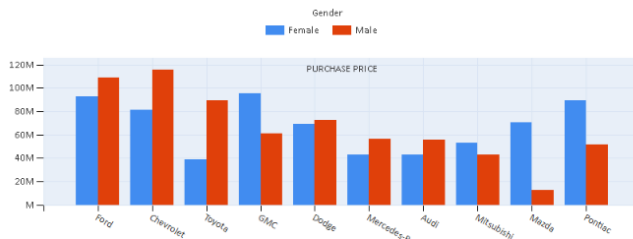
Car Make	Car Model	Color	Female		Male		Total
			Purchase Price	Tax Amount	Purchase Price	Tax Amount	
Ford	Mustang	Goldenrod	\$9,392,211	\$951,867	-	-	\$9,392,211
		Puce	\$8,748,958	\$765,341	-	-	\$8,748,958
		Yellow	-	-	\$6,941,075	\$642,845	\$6,941,075
	Total	\$12,141,164	\$1,717,208	\$6,941,075	\$642,845	\$19,082,289	
	F-Series	\$12,913,220	\$1,374,849	-	-	\$12,913,220	
Toyota	MR2	Taurus	\$12,190,199	\$754,421	\$9,724,940	\$603,622	\$21,915,075
		E150	-	-	\$8,053,175	\$1,247,240	\$8,053,175
		Escort	\$6,555,333	\$511,756	\$4,189,326	\$728,290	\$10,744,659
	Total	\$43,799,856	\$4,338,034	\$28,908,516	\$3,221,997	\$72,708,372	
	MR2	\$4,620,586	\$1,428,809	-	-	\$4,620,586	
Chevrolet	Prius	Celica	-	-	\$13,491,085	\$1,297,319	\$13,491,085
		Prius	-	-	\$9,348,758	\$742,422	\$9,348,758
		Total	\$9,522,962	\$9,522,962	\$9,522,962	\$9,522,962	
	RAV4	\$114,143,548	\$4,153,146	\$4,153,146	\$55,170,326	\$55,170,326	
	Supra	\$493,538	\$901,958	\$801,958	\$8,504,576	\$8,504,576	
GMC	Corvette	Pink	-	-	\$759,567	\$7,472,836	\$7,472,836
		Goldenrod	\$4,791,645	\$4,791,645	-	-	\$4,791,645
		Total	\$4,791,645	\$4,791,645	\$4,791,645	\$4,791,645	
	Express 3500	\$7,773,760	\$7,773,760	\$7,773,760	\$7,773,760		
	Tracker	\$2,488,577	\$2,488,577	\$2,488,577	\$2,488,577		
Dodge	Impala	Impala	\$88,780,095	\$6,827,133	\$63,996,798	\$6,419,696	\$149,719,975
		Tracker	\$60,980,261	\$5,457,068	\$55,833,504	\$5,856,276	\$96,144,211
		Total	\$40,310,706	\$4,405,726	\$50,470,810	\$5,023,526	\$93,420,355
	Tracker	\$52,698,890	\$5,372,810	\$43,073,410	\$4,619,740	\$95,772,300	
	Impala	\$70,642,937	\$5,835,948	\$11,126,865	\$2,651,162	\$81,769,802	
Lexus	Lexus	Lexus	\$36,131,440	\$5,008,205	\$22,764,553	\$2,525,157	\$58,895,999
		Total	\$576,729,466	\$62,569,900	\$559,343,862	\$65,715,582	\$1,136,073,328
		Total	\$576,729,466	\$62,569,900	\$559,343,862	\$65,715,582	\$1,136,073,328

Reports prepared with the Analytic models.

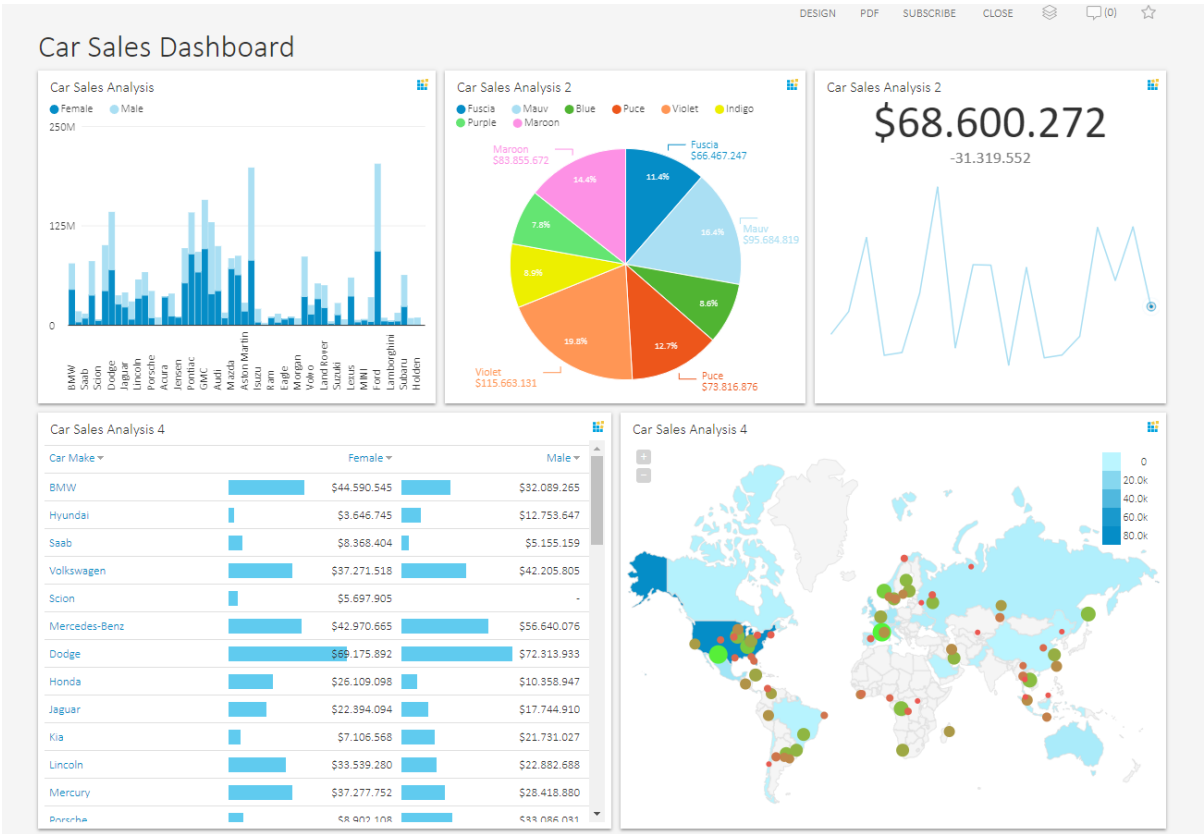
Car Sales Analysis

Filters: (1) Purchase Date: 2017-06-01 to 2018-07-17

Car Make	Car Model	Color	Female		Male		Total		
			Purchase Price	Tax Amount	Purchase Price	Tax Amount	Purchase Price	Tax Amount	
Ford	Mustang	Goldensrod	\$3,392,211	\$951,867	-	-	\$3,392,211	\$951,867	
		Puce	\$8,748,953	\$769,341	-	-	\$8,748,953	\$769,341	
		Yellow	-	-	\$6,941,075	\$642,845	\$6,941,075	\$642,845	
		Total	\$12,141,164	\$1,721,208	\$6,941,075	\$642,845	\$19,082,239	\$2,364,053	
	E-Series	-	-	\$19,273,789	\$1,637,772	\$19,273,789	\$1,637,772		
	F-Series	\$13,913,328	\$1,374,649	-	-	\$13,913,328	\$1,374,649		
	Taurus	\$12,190,139	\$734,421	\$9,724,940	\$803,822	\$21,915,079	\$1,538,243		
	F150	-	-	\$8,083,175	\$1,247,240	\$8,083,175	\$1,247,240		
	Total	\$37,244,523	\$3,826,278	\$43,992,973	\$4,121,479	\$81,237,496	\$7,947,757		
	Chevrolet	Corvette	Puce	-	-	\$1,311,782	\$945,136	\$1,311,782	\$945,136
Pink			-	-	\$7,472,839	\$759,567	\$7,472,839	\$759,567	
Goldensrod			\$4,791,649	\$851,251	-	-	\$4,791,649	\$851,251	
Purple			\$9,857,927	\$377,219	-	-	\$9,857,927	\$377,219	
Total		\$14,449,571	\$928,466	\$8,784,621	\$1,704,703	\$23,234,193	\$2,633,167		
S10		-	-	\$12,438,309	\$1,851,564	\$12,438,309	\$1,851,564		
Suburban 2500		-	-	\$10,084,200	\$1,678,699	\$10,084,200	\$1,678,699		
SSR		\$493,938	\$637,013	\$8,011,042	\$901,958	\$8,504,979	\$1,538,971		
Blazer		\$7,941,800	\$805,417	\$4,003,034	\$716,637	\$8,341,842	\$1,522,054		
Total		\$22,884,910	\$2,370,894	\$39,718,205	\$5,883,361	\$62,603,129	\$7,924,285		
Toyota	Camry Solara	Blue	\$7,765,797	\$1,884,817	-	-	\$7,765,797	\$1,884,817	
		Total	\$7,765,797	\$1,884,817	\$12,478,015	\$1,426,067	\$20,243,812	\$2,310,884	
	RAV4	\$207,608	\$181,779	\$9,151,993	\$1,120,120	\$9,359,599	\$1,301,899		
	Ceica	-	-	\$13,491,085	\$1,297,319	\$13,491,085	\$1,297,319		
	Prius	-	-	\$9,348,758	\$742,422	\$9,348,758	\$742,422		
	Total	\$9,972,961	\$2,404,921	\$39,348,758	\$4,742,422	\$69,321,481	\$8,407,982		
	GMC	Hummer	Blue	\$32,496,321	\$3,407,348	\$44,309,845	\$4,388,628	\$76,806,166	\$7,795,976
			Total	\$32,496,321	\$3,407,348	\$44,309,845	\$4,388,628	\$76,806,166	\$7,795,976
		Dodge	\$69,178,852	\$7,924,466	\$72,313,933	\$6,085,491	\$141,492,823	\$15,881,967	
		Mercedes-Benz	\$42,970,668	\$6,422,972	\$56,640,076	\$6,245,937	\$99,610,741	\$12,671,909	
Audi		\$42,950,274	\$6,085,728	\$55,508,426	\$5,989,201	\$98,458,700	\$11,971,107		
Mitsubishi		\$52,898,890	\$5,372,810	\$43,073,410	\$4,619,740	\$95,972,300	\$9,992,550		
Mazda		\$70,642,937	\$5,835,949	\$12,420,874	\$3,461,070	\$83,063,811	\$9,297,018		
Pontiac		\$89,173,942	\$5,318,738	\$51,571,712	\$3,980,301	\$140,745,654	\$8,978,039		
Total		\$678,365,123	\$67,400,799	\$667,131,162	\$77,663,010	\$1,334,562,324	\$145,124,049		

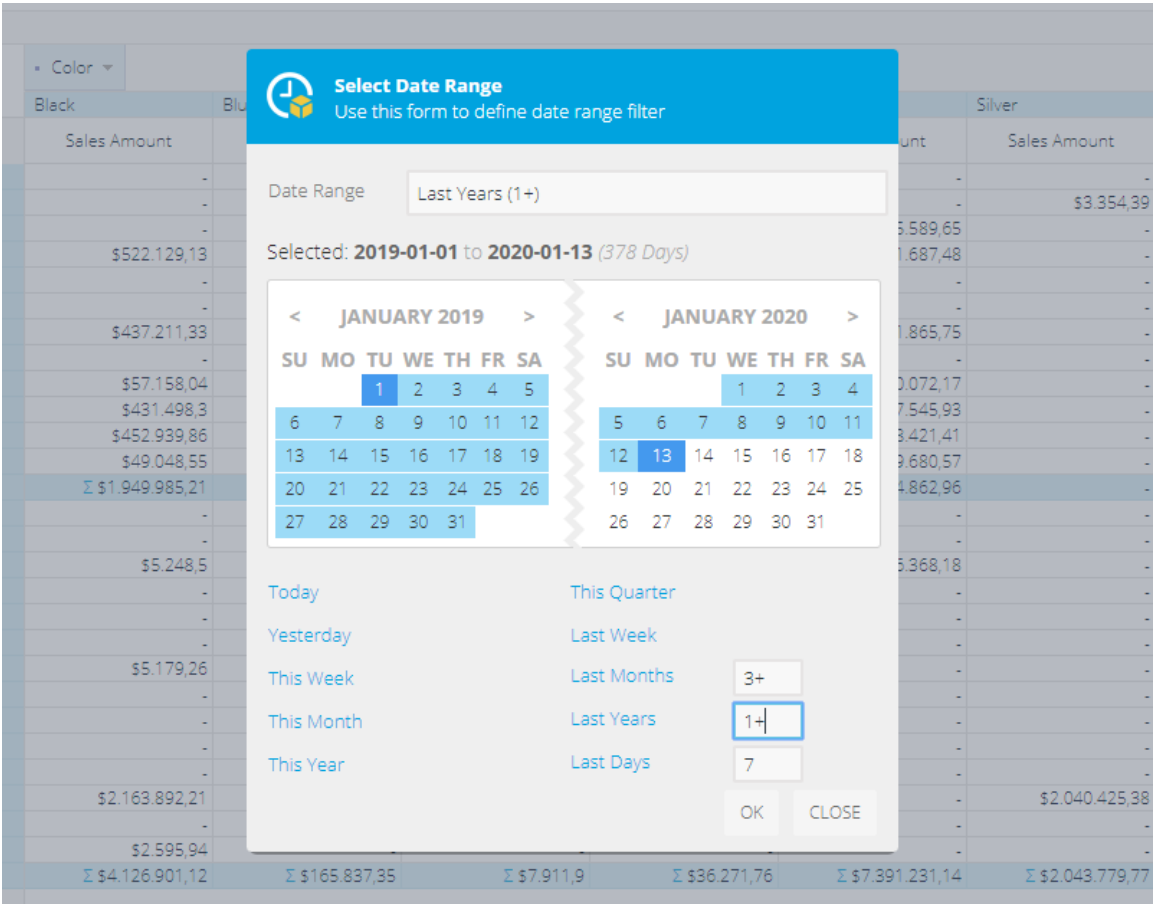


Dashboards based on the Analytic models.



### 3.7. Date filtering

Advantage of Analytic Model over OLAP is clearly date filtering, which offers date picker dialog with options to set fixed or relative date periods that would be used to slice data in analysis, report or dashboard usage.

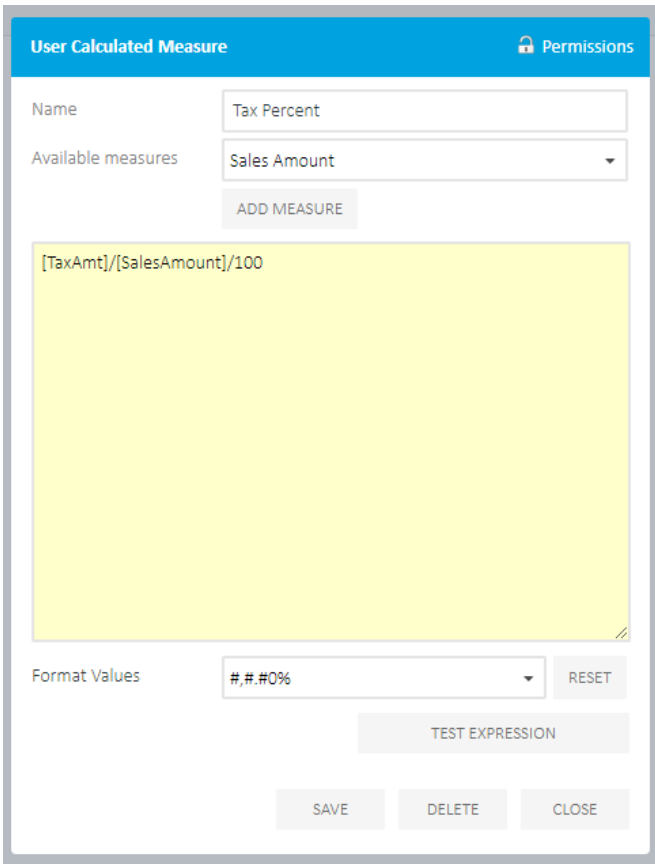


To set relative date period, enter a number, which would return Last x months, years or days to the current date. For example, for the last 3 years without the current year, set 'Last Year' to '3'. To also include the current year, set 'Last Year' to '3+'.

### 3.8. 'Calculated Measures' in Analytic Model

The prepared analytic model contains model measures that could be used by end-user to create 'Calculated Measures' based on the required expression and formatting options.

To create new 'Calculated Measure', in grid analysis view click the 'Options' and select 'Create User Calculated Measure'. A form to edit 'Calculated Measure' expression will be displayed. Any expression that contains analytic model expressions could be used to create a new 'Calculated Measure'.



'Calculated Measures' expression for the values that cannot be null (division by zero issue) have to be included in the **NULLIF([Measure],0)** statement. This will ensure that expression will never be evaluated resulting in 'division by zero' exception.

While constructing the calculated measure, a user could use arithmetic operators and mathematical functions to prepare the final expression.

- + (Add)
- (Subtract)
- \* (Multiply)
- / (Divide)
- % (Modulo)

ABS	DEGREES	RAND
ACOS	EXP	ROUND
ASIN	FLOOR	SIGN
ATAN	LOG	SIN


'Test Expression' feature could warn that used expression is not valid. After saving the calculated measure, it is immediately visible along with the model measures in the Analytic Models structure tree.

The screenshot shows the Kyubit Business Intelligence interface. On the left, the 'Analyses' pane shows the 'Adventure Works Analytic Model' with a tree view of measures and dimensions. The 'Measures' list includes 'Sales Amount', 'Discount Amount', 'TaxAmt', 'Product Standard Cost', 'Tax Percent', and 'Mix'. A red arrow points to 'Tax Percent' in this list. The main area shows a grid analysis with 'Tax Percent' as the measure and 'Product Name' as the dimension. A table of data is displayed with columns for 'Product Name' and 'Tax Percent'. A red arrow points to the 'Tax Percent' header in the table.

Product Name	Tax Percent
Water Bottle - 30 oz.	27,90%
Road-150 Red, 48	26,96%
Road-150 Red, 62	26,88%
Road-150 Red, 52	24,16%
Road-150 Red, 56	23,60%
Road-150 Red, 44	22,48%
Patch Kit/8 Patches	21,14%
Mountain-200 Black, ...	20,32%
Mountain Tire Tube	18,91%
Mountain-200 Silver, 38	18,32%
Mountain-200 Black, ...	18,08%
Mountain-200 Silver, 46	16,80%
Mountain-200 Black, ...	16,56%
Mountain-200 Silver, 42	16,48%
Road-250 Red, 58	15,92%
Road-250 Black, 52	15,76%
Road Tire Tube	14,99%
AWC Logo Cap	14,61%
Sport-100 Helmet, Red	14,51%

To edit existing 'Calculated Measure' right-click on the measure in grid analysis or open in 'OLAP Share Items' section. Each created 'Calculated Measure' is not visible to other users, unless appropriate permissions are set for other users and groups to see or manage the same calculated measure.



- Home
- Analyses
- Dashboards
- Data Sources
- Queries
- KPI & Scorecards
- OLAP Shared Items**
- User Named Sets
- User Drillthrough Columns
- User Calculated Measures 

Name	Data Source
Mix	Adventure Works Analytic Model
Tax Percent	Adventure Works Analytic Model