[BW TEST CASE]

FIRST STEPS IN SAP BW AND QUERY DESIGNER REQUIREMENTS

Summary

“SECONDE NATURE”, a company based in 11 airports from 3 countries, sells entertainement products for travellers children.

Those products are packs with toys and activity books included.

Those can be divided into 4 groups according to their sizes and are also divided into color packages, each color refers to a theme (the blue pack refers to the sea for instance).

The sales department of “SECONDE NATURE” wants you to analyze the sales since 2012/01/01 in order to change the production of some of their products.

Thus, they prepared some questions you must answer

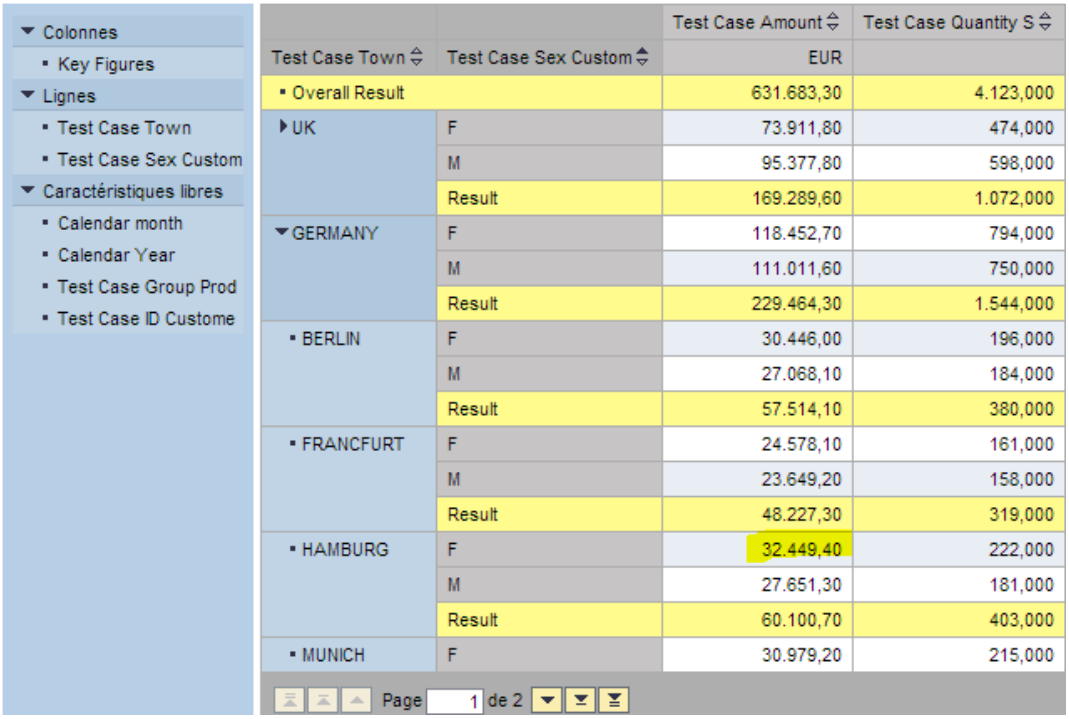
Requests from the sales department:

- Give the amount paid by Females in Hamburg during the whole accounting period.
- Display the name and the phone number of the customer who bought the largest quantity of product C in France in 2013.
- Display the percentage of sales during the peak season (June to September) to annual sales

To answer these requests, you will perform **drill down** and **operations** on the report you will create.

Here are the results you should obtain:

Give the amount paid by Females in Hamburg during the whole accounting period.



Test Case Town	Test Case Sex Custom	Test Case Amount EUR	Test Case Quantity S
Overall Result		631.683,30	4.123,000
UK	F	73.911,80	474,000
	M	95.377,80	598,000
	Result	169.289,60	1.072,000
GERMANY	F	118.452,70	794,000
	M	111.011,60	750,000
	Result	229.464,30	1.544,000
BERLIN	F	30.446,00	196,000
	M	27.068,10	184,000
	Result	57.514,10	380,000
FRANCFURT	F	24.578,10	161,000
	M	23.649,20	158,000
	Result	48.227,30	319,000
HAMBURG	F	32.449,40	222,000
	M	27.651,30	181,000
	Result	60.100,70	403,000
MUNICH	F	30.979,20	215,000

Page 1 de 2

Display the name and the phone number of the customer who bought the largest quantity of product C in France in 2013.

Calendar Year	Test Case ID Custome	Test Case Name Custo	Test Case Phone Cust	Test Case Amount EUR	Test Case Quantity S
2013	33	Lucius Fields	522157278	2.376,00	24,000
	86	Garrison Powell	111272835	1.882,00	18,000
	45	Kylan Petty	986338637	2.064,00	16,000
	93	Patrick Vincent	483230945	2.084,00	16,000
	76	Deirdre Horne	205642946	1.691,00	9,000
	91	Aimee Lester	951964806	1.161,00	9,000
	98	Ulla Neal	316563511	1.194,00	6,000
	72	Mary Church	527192235	495,00	5,000
	77	Libby Mann	877469983	645,00	5,000
	80	Gage Leach	406063625	995,00	5,000
	35	Josephine Harrison	956521080	516,00	4,000

Display the percentage of sales during the peak season (June to September) to annual sales.

Calendar Year	Test Case Town	Test Case Amount	Test Case Quantity S	Peak season percentage
		EUR		%
2012	Result	254.789,80	1.526,000	34,25326
	UK	69.742,60	410,000	36,67859
	GERMANY	88.919,50	548,000	37,43948
	FRANCE	96.127,70	568,000	29,54632
	BORDEAUX	20.635,30	121,000	42,43699
	LYON	31.461,00	187,000	36,39427
	PARIS	16.476,40	103,000	11,87274
	TOULOUSE	27.555,00	157,000	22,64199
2013	Result	179.036,90	1.300,000	36,22248
	UK	48.574,60	336,000	43,08466
	GERMANY	61.026,80	464,000	27,83761
	FRANCE	69.435,50	500,000	38,79140
2014	Result	197.856,60	1.297,000	44,08809
	UK	50.972,40	326,000	46,14458
	GERMANY	79.518,00	532,000	43,05315
	FRANCE	67.366,20	439,000	43,75369
Overall Result		631.683,30	4.123,000	37,89187

To meet their demand, you have at your disposal:

4 flat files (excel files) about their operating result:

- The reference point for each document is written in red.

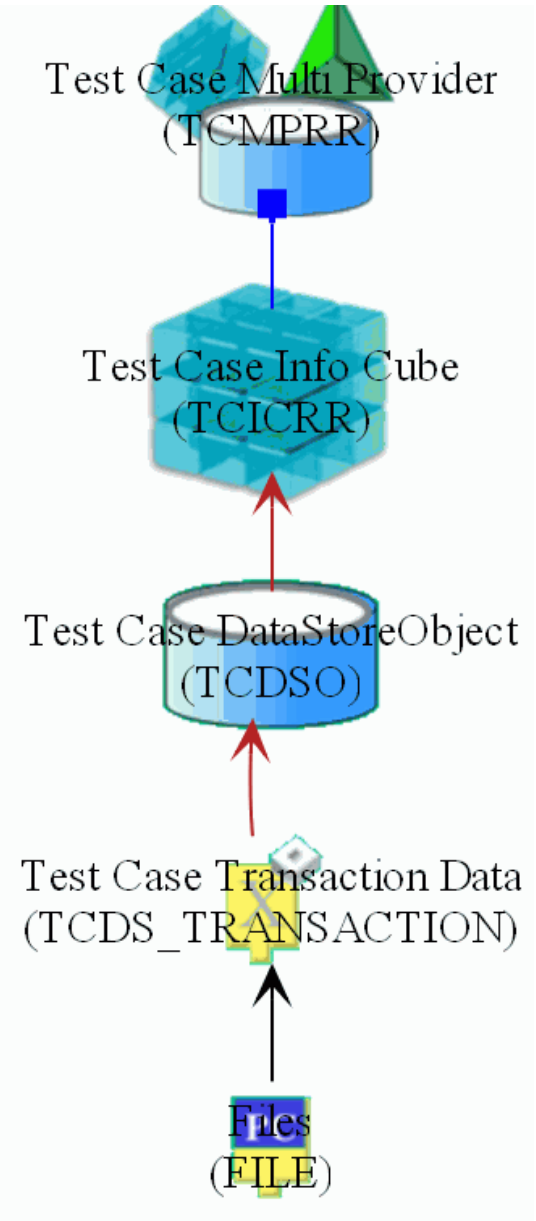
File name	Title	Data contained
Customer_testcase.xlsx	Customers information	• ID Customer • Name • Gender • Phone • Address • eMail
Town_testcase.xlsx	Airports towns	• Towns • Countries
Product_testcase.xlsx	Type of Products	• ID Product • Color Product • Group Product
Fact_table_testcase.xlsx	Sales	All sales and the following information for each sale: • ID Transaction • ID Customer • ID Product • Town • Date • Amount Sold • Quantity Sold

2 SAP handbooks:

- *BW310 - Data Warehousing.pdf*
- *BW305 – Reporting_Part1.pdf*

To obtain the expected results, please follow the steps given in this document.

You will create a **flow** loading data from the **flat files** to a **query** set in *Business Explorer Analyzer*.



Multi provider:
The **MultiProvider** combines data from the **Infocube**(s) and makes it available for reporting.

Info Cube:
An **InfoCube** consists of several **InfoObjects** and is structured according to the star schema where you can create aggregates to access data quickly. It consists of a central fact table and several surrounding dimension tables.

DataStore Object:
A **DataStore Object** contains key fields (such as *ID Product*) and data fields that, in addition to key figures, can also contain character fields (such as *address*). The data in **DSO** is stored in transparent, flat database tables.

DataSource:
A **DataSource** is a set of logically-related fields that are provided to transfer data into BI in a flat structure (the extraction structure), or in multiple flat structures (for hierarchies).

Files:
Source files. It consists of flat files stored in the AOSIS Server.

Then, you will edit the report in *Business Explorer Analyzer*.

At the end, you will automate the loading process by creating **process chains**.

Step 1: Identify the data

Objective: At the end of this step, you will be able to make the distinction between information and transactional data. Also, you will sort data according to their types.

- **Information** (also called analytical information) helps the organization to analyze the data.
- **Transactional data** are information which helps to take a decision in the current transaction. The decisions based on transaction data are short term and immediate and alter the flow of the transaction.

- **Characteristics** are descriptive attributes used to describe the entities such as Customers, products etc. These represent who, what, when, where scenario.
- **Key Figures** are operational attributes, which indicates numerical measures. These represent how much and how many scenario.

Identify all types of data from the flat files. Classify the column header by the following categories:

	Flat File	Characteristics Type: Character string	Characteristics Type: Number	Key Figures
Information				
Transactional Data				

- For example, the type of data *Phone* is a **Characteristic Number**. Moreover, it is information about customers and not a transactional data. Therefore, fill the table in this way:

	Flat File	Characteristics Type: Character string	Characteristics Type: Number	Key Figures
Information	*Customer_testcase*		Phone	
Transactional Data				

Step 2: create InfoObjects

Objective: At the end of this step, you will have created the different InfoObjects corresponding to your data.

- Until the end of the exercise, please replace ## by your initials

Step 2.1: Create an InfoArea

On the *Modeling* screen of the Data Warehousing Workbench, choose *InfoObjects*.
Right click on *AOSIS Integrated Layer* to create an **InfoArea** named after your own first name:

Technical name	*AAOSIS_##*
Long description	*first name*

Step 2.2: Create InfoObjects Catalogs

Right click on *first name* to create an **InfoObject Catalog** with type characteristics named:

Technical name	*TESTCASE*
Long description	*Test Case Characteristics first name*

Right click on *first name* to create an **InfoObject Catalog** with type Key figures named:

Technical name	*TESTCASEB*
Long description	*Test Case key figures first name*

Step 2.3: Create the different InfoObjects

Select the proper **InfoObject Catalog** whether it is a **Characteristic** or a **Key Figure**.

Create **InfoObjects** according to their type of data.

Here are some proposals for the *Technical names*, *Long Descriptions, Data Type and Length.*

Long Description	Technical Name	Data Type	Lenght
ID Transaction	*TCIDT##*	*NUMC*	*4*
ID Customer	*TCIDC##*	*NUMC*	*3*
ID Product	*TCIDP##*	*NUMC*	*6*
Town	*TCT##*	*CHAR*	*15*
Customer Gender	*TCCG##*	*CHAR*	*1*
Group Product	*TCGP##*	*CHAR*	*1*
Address Customer	*TCAC##*	*CHAR*	*60*
Color Product	*TCCP##*	*CHAR*	*6*
Mail Customer	*TCMC##*	*CHAR*	*60*
Name Customer	*TCNC##*	*CHAR*	*30*
Phone Customer	*TCPC##*	*NUMC*	*15*
Amount Sold	*TCAM##*	*CURR*	*17*
Quantity Sold	*TCQS##*	*DEC*	*17*
Country	*TCC##*	*CHAR*	*15*

	• Some data contain **lowercase** letters
	• The report should perform analysis for towns or countries. Therefore, allow hierarchies to perform **drill down analysis**. • Read carefully the questions to determine the **Navigation Attributes**. • Create **InfoObjects** for all elements except date.

Step 2.4: Create Master Data

Create **Master Data** from the proper **InfoObjects**.

A **Master Data** refers to a table displaying analytical information. The **InfoObject** used as a **Master Data** is the link between the **fact table** and the **information table**. The other analytical information is **InfoObjects** used as **Attributes** of the Master Data.

- Thus, activate **Master Data** from the proper **InfoObjects** and insert the **Attributes**.
- According to the **Navigation Attributes** you have noticed, switch the **attributes** type in the **InfoObjects.**

Step 3: Create InfoProviders

*Objective: At the end of this step, you will have created the **Master Data** dedicated to provide analytical information and the **DataStore Object** dedicated to provide transactional data.*

Step 3.1: Create an InfoArea

On the *Modeling* screen of the Data Warehousing Workbench, choose *InfoProvider*.
Right click on *AOSIS Integrated Layer* to create an **InfoArea** named after your own first name:

Technical name	*AAOSIS_##*
Long description	*first name*

Step 3.2: Create Master Data as InfoProvider

Create **InfoProvider** by inserting **Characteristic** as **InfoProvider**. Those **characteristics** refer to the **Master Data** defined in step 2.4.

Step 3.3: Create a DataStore Object

Create a **DataStore Object** in the **InfoArea** created in step 3.1.

Technical name	*TCDSO##*
Long description	*Test Case DataStore Object*

- Assign the **InfoObjects** with **InfoProvider Characteristics** (**InfoObjects** used as **Master Data**) to the *Key Fields*.
- Assign the other **InfoObjects** to the *Data Fields*.
- Assign the Key Figures to the Data Fields
- Assign the **InfoObject** *0CALDAY* the Key Field to handle the dates in the flat file.
- Activate the **Navigation Attributes**.

Step 4: Load data from flat files

*Objective: At the end of this step, the data will be loaded in **BW**. To be more accurate, the information will be loaded in the **Master Data** and the Transactional Data will be loaded in the **DataStore Object**.*

Step 4.1: Create an Application Component

On the *Modeling* screen of the Data Warehousing Workbench, choose *DataSources*.

Expand *FFaosis datasource*, right click on *Test case Application Component* and create an application component named:

Technical name	*TESTCASE##*
Long description	*Test Case Application Component first name*

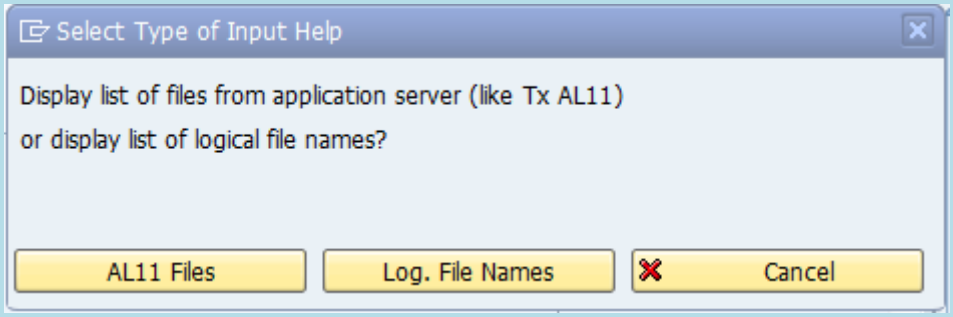
Step 4.2: Create DataSources

Create **DataSources** with the following names to load the **Master Data** (Attributes) and the **DataSore Object.**

Long description	**Technical Name**
DataSource Customers	*TCDS##_CUSTOMERS*
DataSource Town	*TCDS##_TOWN*
DataSource Transaction Data	*TCDS##_TRANSACTION*
DataSource Product	*TCDS##_PRODUCT*

The Flat Files are stored in an Aosis server as CSV files, which are the files type used for SAP BW.

- Switch the *Adapter* field to *Load Text-Type File from Application Server*.
- Search for the file by *File Name*, a pop-op opens,click on AL11 Files.



- Double-click on *DIR_DATA*
- The **flat files** are stored in this folder with the same name as the excel files.

- Do not forget to add *0CALDAY* to the appropriate **Data Source** *fields*.

Create **InfoPackages**

- The **InfoPackage** loads data from a given source into the PSA only.

Create **Transformations**

- Link the **Transactional Data DataSource** to the **DataStore Object.**
- Link the **Master Data Attributes DataSource** to the **Master Data.**

⚠ If a **Field** or an **InfoObject** has no link, please check your mistakes in the previous steps.

Create **Data Transfer Processes**

⚠	• Do not forget to activate the data of the **DataStore Object** after editing the **Data Transfer Process**.
📎	• Select *Full Extraction* • Activate *Handle Duplicate Records*

How many data were inserted for the **Customer Master Data**?

Step 4.3: Maintain Hierarchy

Now that the data are loaded, maintain the hierarchy for the **Master Data Town** by creating **Text Nodes** referring to the countries.

Step 5: Create an InfoCube

*Objective: At the end of this step, you will have created an **InfoCube** and loaded it from the **DataStore Object**.*

Step 5.1: Create an InfoArea

On the *Modeling* screen of the Data Warehousing Workbench, choose *InfoProvider*.
Right click on *AOSIS Data Mart Layer* to create an **InfoArea** named after your own first name:

Technical name	*BAOSIS_##*
Long description	*first name*

Step 5.2: Create an InfoCube

Create an InfoCube with the following properties.

Long Description	Test Case Info Cube first name
Infoprovider Name	TCIC##
Type	Standard InfoCube

- Create and edit **Dimensions**.
- Create the following **Dimensions**:

Dimensions	**Technical Name**
Customer	TCIC##1
Product	TCIC##2
Town	TCIC##3

The **dimensions** *Package*, *Unit* and *Time* are created by SAP. They cannot be deleted.

- Assign the **Characteristics**
- Assign the **Master Data** (more precisely the **Characteristics** inserted as **InfoProvider**) to the appropriate *Dimensions*.

Add *0CALMONTH2* AND *0CALYEAR* to the *Time Characteristic.*

- Assign the **Key Figures**.
- Activate **Navigation**.

Step 5.3: Create a Transformation and a Data Transfer Process

Create a **Transformation** loading data from the **DataStore Object** to the **InfoCube.**

Create a **Data Transfer Process.**

Manage the request of the InfoCube and check that the data records were successfully transferred and added.

Step 6: Create a MultiProvider

*Objective: At the end of this step, you will have created a **MultiProvider** with the same properties as the **InfoCube**.*

In Data Mart Layer, in *first name*.

Create a **MultiProvider** with the following properties.

Technical Name	TCMP##
Long Description	Test Case MultiProvider first name

- Assign the **Characteristics**, **Navigation Attributes** and **Key Figures** as in the **InfoCube**.
- Identify the **Characteristics**.
- Select the **Key Figures**.

Step 7: Business Explorer Analyzer

*Objective: At the end of this step, you will have created a **query** on the **MultiProvider**. Moreover, you will have made operations and navigated in the report to answer the request from the sales department.*

Create a query named *Query_TestCase_firstname*

Edit the query to get:

Rows	*Calendar Year* *Town*
Columns	*Amount* *Quantity Sold*
Free Characteristics	*ID Customer* *Sex Customer* *Group Product* *Calendar Month*

⚠ Do not forget to activate the **hierachy** for the **characteristic** *Test Case Town*.

Execute the **query**

Navigate in report to answer the questions from the sales department

- Give the amount paid by Females in Hamburg during the whole accounting period.
- Display the name and the phone number of the customer who bought the largest quantity of product C in France in 2013.

Create a hidden **Restricted Key Figure** corresponding to the peak season.

Create a **formula** using that **Restricted Key Figure** to calculate the percentage of sales during peak season to annual sales to answer the request

Display the percentage of sales during the peak season (June to September) to annual sales

Step 8: Process Chains

*Objective: At the end of this step, you will have created a **Meta Chain** composed of several **Process Chains** to automate the data loading from your **sources files** to the **MultiProvider**.*

	• Use the elements already created in the previous steps • Move your process chains from *Unassigned Nodes* to AOSIS – Process chains by clicking on *Process Chains* → *Attributes* → *Display Component*
	• Create a different Start **Process** for each **Process Chain**. In our test case, we are not loading data changing daily. Therefore, start the loads *immediately.* • Only the main elements of each Process Chain are written in the Process Chain definition, adding only those links will not make the Process Chain work.

Step 8.1: Create a Process Chain to load each Master Data

Name your **Process Chains** after your **Master Data** names

For each **Master Data**, create a **Process chain** including:

- the appropriate **Infopackage**
- the appropriate **Data Transfer Process**

.

Step 8.2: Create a Process Chain to load the DataStore Object

Name your **Process Chain**: *Transaction Data*

Create a **Process Chain** including:

- the **Infopackage**
- the **Data Transfer Process**
- the **DataStore Object** Activation

Step 8.3: Create a Process Chain to feed the InfoCube

Name your **Process Chain**: *Feed the InfoCube*

Create a **Process Chain** including:

- a *start Process*
- a *Deletion of Target Contents*
- a *Deletion Indexes*
- the appropriate **Data Transfer Process**
- the **DataStore Object** Activation
- an *Index Creation*
- a Compression step

Although the Compression step is frequently used, it is an optional step.

Step 8.4: Create a Meta Chain

The Meta Chain combines all the previous Process Chains to execute a complete load from the source files to the Multi Provider.

Na me your **Meta Chain**: *Main Process Chain*

Create a **Process Chain** including:

- The Process Chains loading the **Master Data**
- The Process Chain *Transaction*
- The Process Chain *Feed the Infocube*

Step 8.5: Schedule the Process Chain (priority C)

Check if the Process Chain is correctly scheduled, all the links are then validated.