ISOM 827 Group Project:

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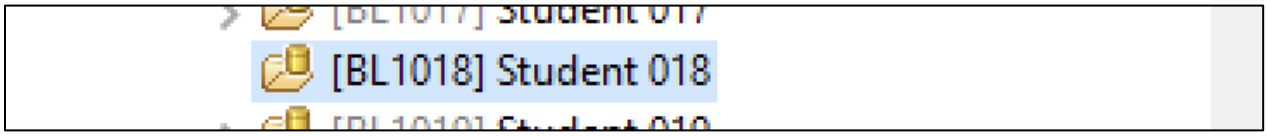
Contents

Benchmark 1:

Question 1:

Insert a screenshot of your student InfoArea (folder) for this semester. What is your InfoArea technical name? What is your InfoArea description?

The screenshot of the InfoArea folder for this semester for our group is:



We would be using the BL1-018 ID for the group project.
Our InfoArea Technical name is BL1018, and the description is Student 018

Question 2:

Are you permitted to edit or delete objects in the MU0 InfoArea?
No, we are not permitted to edit or delete objects in the MU0 InfoArea.

Question 3:

Are you permitted to edit or delete objects in InfoAreas that do not belong to you?
No, we are not permitted to edit or delete objects in InfoAreas that do not belong to us.

Question 4:

Create a list of all key figures, then the dimensions. Within each dimension, list the characteristics.

Key Figures:
[MEASURES] 0+5
[MUONETSA] MUO Net Sales
[MUOQTY] MUO Sales Quantity
[MUODSCNT] MUO Discount
[MUOREV] MUO Revenue
[MUOCOGM] Cost of Goods Manufactured USD

Dimension and characteristics:
[CUSTOMER] CUSTOMER 0+3 :
[MU0SALORG] Sales Organization
[0CURRENCY]Currency Ket
[MU0CUST] MU0 Customer

[ORDER] ORDER 0+2 :
[4MU0DM1-ORDERNUMBER] OrderNumber
[4MU0DM1-ORDERITEM] OrderItem

[PRODUCT] PRODUCT 0+2 :
[0UNIT] Unit of Measure
[MU0MA] Material

[TIME] TIME 0+4 :
[0CALMONTH2] Calendar month
[0CALMONTH2] Calendar Year/month
[0CALYEAR] Calendar Year
[0CALDAY] Calendar Day

Conclusion BM1:

Purpose: To familiarize students with the SAP BW/4HANA environment, focusing on InfoArea creation and understanding object permissions.

Inputs and Outputs: Inputs included SAP BW/4HANA tools and specific tasks (like creating an InfoArea). Outputs were the created InfoArea and understanding object permissions.

Complexities: The complexities involved understanding the technical aspects of SAP BW/4HANA and adhering to permission constraints.

Impressions: This benchmark provided a basic yet crucial understanding of SAP BW/4HANA's environment, highlighting its structured and permission-driven nature.

Benchmark 2:

Data Preview

Data Preview for DataSource

Data Preview for DataSource BL1DSDE018 (FILE)

Number of Records: 20 Show data in internal format

ORDERNUMBER	ORDERITEM	CUSTOMER	PRODUCT	SALESQUANTITY	UNITOFMEASURE	REVENUE	CURRENCY	DISCOUNT	COSTSUSD	SALESDATE
0000100001	000010	0000017000	PRTR1000	4	ST	10,669.84	€	320.10	8,320.00	01/01/2007
0000100001	000020	0000017000	DXTR1000	8	ST	20,005.92	€	600.18	15,600.00	01/01/2007
0000100001	000030	0000017000	DXRD2000	2	ST	2,750.82	€	82.52	2,046.00	01/01/2007
0000100001	000040	0000017000	ORWN1000	5	ST	10,419.75	€	312.59	7,500.00	01/01/2007
0000100002	000010	0000015000	PRTR1000	4	ST	10,669.84	€	533.49	8,320.00	01/03/2007
0000100002	000020	0000015000	ORHT2000	7	ST	9,919.60	€	495.98	7,140.00	01/03/2007
0000100002	000030	0000015000	SHRT1000	6	ST	150.06	€	7.50	90.00	01/03/2007
0000100002	000040	0000015000	RHMT1000	1	ST	41.68	€	2.09	25.00	01/03/2007
0000100002	000050	0000015000	FAID1000	21	ST	700.22	€	35.01	420.00	01/03/2007
0000100002	000060	0000015000	PRRD1000	7	ST	23,340.24	€	1,167.01	17,360.00	01/03/2007
0000100002	000070	0000015000	ORHT2000	2	ST	2,834.17	€	141.71	2,040.00	01/03/2007
0000100003	000010	0000022000	FAID1000	29	ST	966.98	€	29.01	580.00	01/03/2007

Question 1:

What is a data source?

Data sources can differ according to the application or the field in question. Computer applications can have multiple data sources defined, depending on their purpose or function. Applications such as relational database management systems and even websites use databases as primary data sources. Hardware such as input devices and sensors use the environment as the primary data source. A good example is a temperature and pressure control system for a fluid circulation system such as the ones used in factories and oil refineries, which take all related data from the environment or whatever they are monitoring; so the data source here is the environment. Data such as temperature and pressure of the fluid are taken by sensors regularly and then stored in a database, which then becomes the primary data source for another computer application that manipulates and presents this data.

Question 2:

You have created a data source for sales data. What do you think is the destination of this data in terms of the snowflake schema? Why?

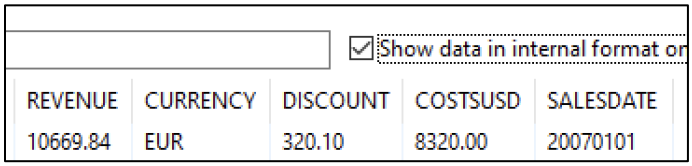
In the context of a Snowflake schema, which is a type of data warehouse design, the "destination" of sales data would typically be in the fact table.

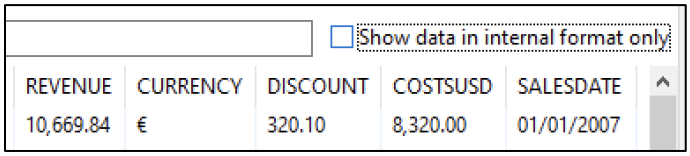
Sales data typically includes quantitative information about transactions, like quantities sold, prices, dates, and times. This kind of data is usually what we refer to as "fact" in data warehousing terms.In a Snowflake schema, the fact table is at the center of the design and contains quantitative data (like sales figures). It's designed for fast, efficient querying and analysis of key business metrics.

Question 3:

Go to the Data Preview and toggle the Show data in internal format only flag. Comment on the revenue formats when you toggle.

In the internal format view, the revenue formats are unstructured (no thousand separator). When the internal format option is left unchecked, the revenue format is more structured with commas (thousand separators).





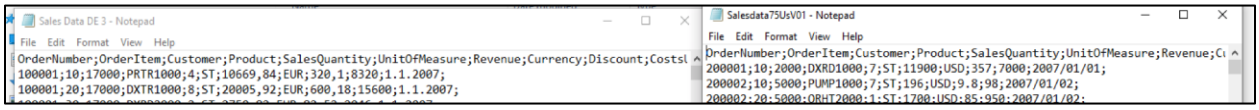
Question 4:

What is the internal format for salesdate?
The internal format for salesdate is YYYYMMDD.

Question 5:

What are the differences of US data as compared to the data from Germany?

The currencies are different (EUR vs USD) and the date formats are also different between the two, as shown in the screenshot below.



Question 6:

Why did we have to create two data sources, one for DE and one for US?

We had to create two separate data sources for DE and US because the data is different and they also have different formats. This allows us to manage and compare different data from different locations; and allows us to identify trends.

Question 7:

What is the unit of measure of sales quantity?
ST (Sales Unit) is the unit of measure of sales quantity.

Question 8:

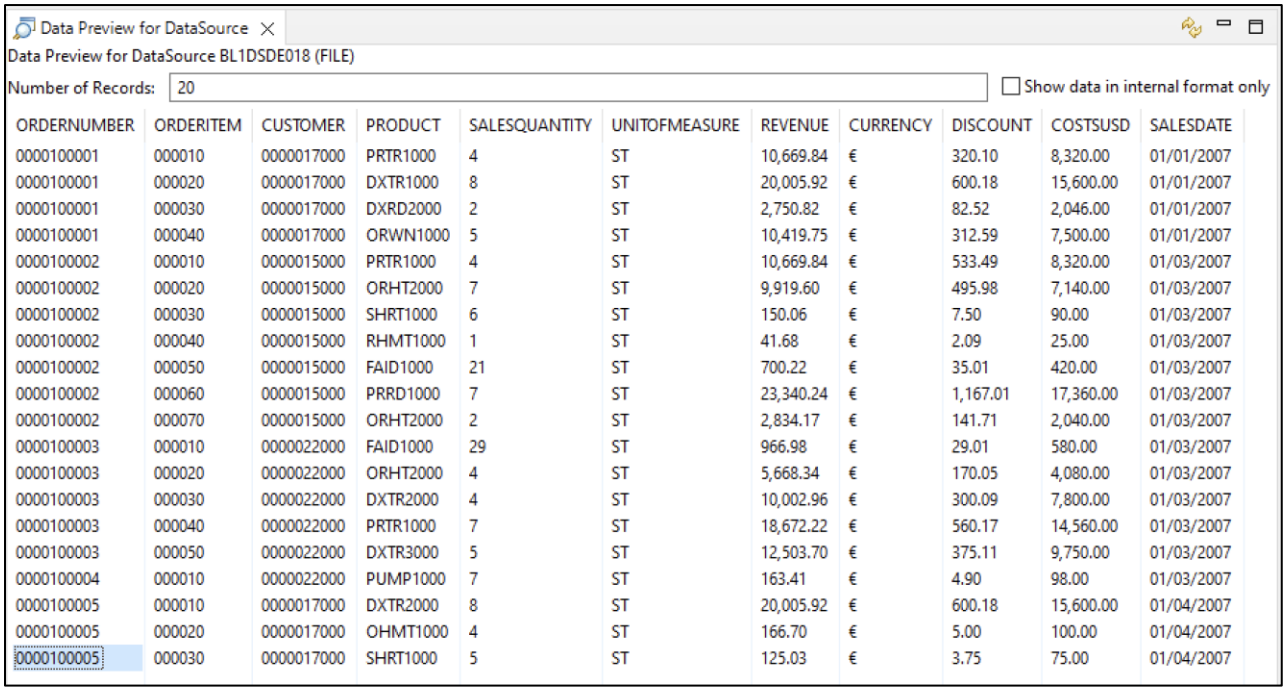
Are any characteristics mapped to the data source fields yet? Why? Why not?
We are still in the process of defining the data fields and mapping them to the relevant fields in the data source, so no characteristics have been mapped to the data source fields yet.

Question 9:

How many sales transactions do we have for US? How many for DE?
We have 20 sales transactions for the US and 20 sales transactions for DE.

Question 10:

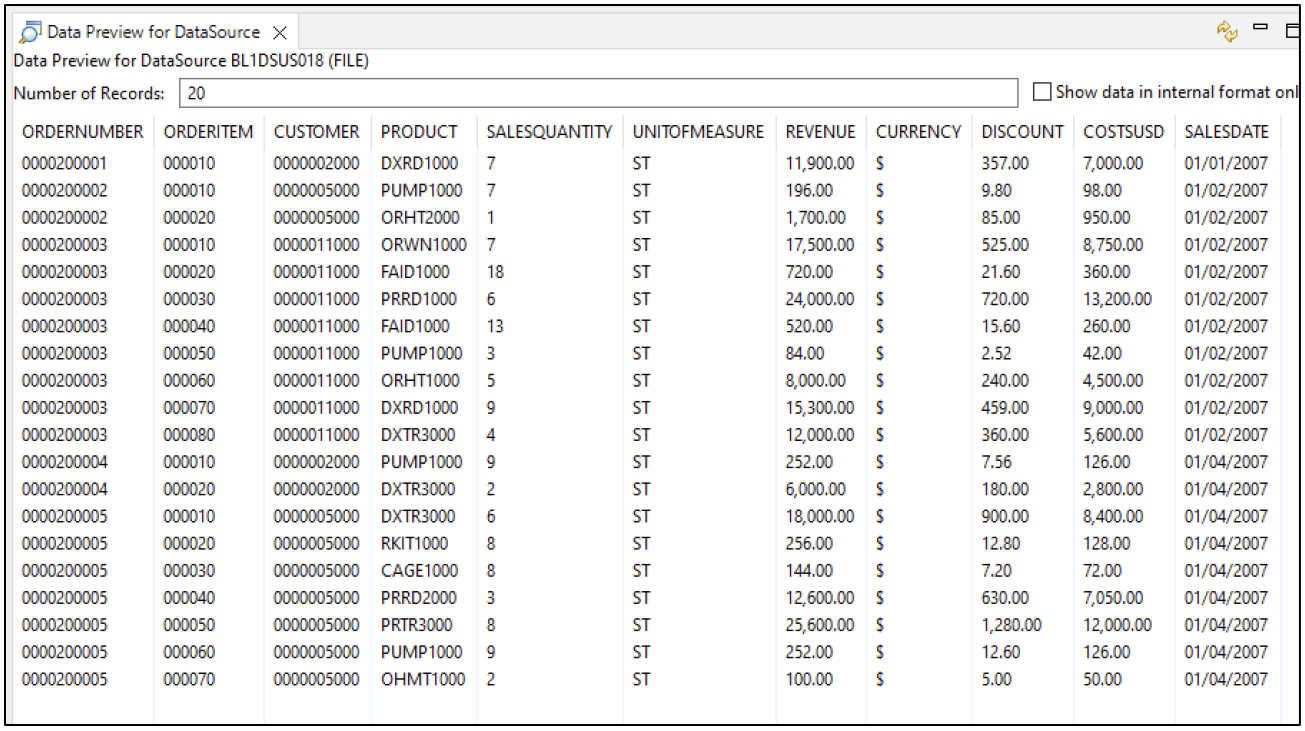
Insert screenshots of the preview of your data in the two datasources.


Data Preview for DataSource

Data Preview for DataSource BL1DSDE018 (FILE)

Number of Records: 20 Show data in internal format only

ORDERNUMBER	ORDERITEM	CUSTOMER	PRODUCT	SALESQUANTITY	UNITOFMEASURE	REVENUE	CURRENCY	DISCOUNT	COSTSUSD	SALESDATE
0000100001	000010	0000017000	PRTR1000	4	ST	10,669.84	€	320.10	8,320.00	01/01/2007
0000100001	000020	0000017000	DXTR1000	8	ST	20,005.92	€	600.18	15,600.00	01/01/2007
0000100001	000030	0000017000	DXRD2000	2	ST	2,750.82	€	82.52	2,046.00	01/01/2007
0000100001	000040	0000017000	ORWN1000	5	ST	10,419.75	€	312.59	7,500.00	01/01/2007
0000100002	000010	0000015000	PRTR1000	4	ST	10,669.84	€	533.49	8,320.00	01/03/2007
0000100002	000020	0000015000	ORHT2000	7	ST	9,919.60	€	495.98	7,140.00	01/03/2007
0000100002	000030	0000015000	SHRT1000	6	ST	150.06	€	7.50	90.00	01/03/2007
0000100002	000040	0000015000	RHMT1000	1	ST	41.68	€	2.09	25.00	01/03/2007
0000100002	000050	0000015000	FAID1000	21	ST	700.22	€	35.01	420.00	01/03/2007
0000100002	000060	0000015000	PRRD1000	7	ST	23,340.24	€	1,167.01	17,360.00	01/03/2007
0000100002	000070	0000015000	ORHT2000	2	ST	2,834.17	€	141.71	2,040.00	01/03/2007
0000100003	000010	0000022000	FAID1000	29	ST	966.98	€	29.01	580.00	01/03/2007
0000100003	000020	0000022000	ORHT2000	4	ST	5,668.34	€	170.05	4,080.00	01/03/2007
0000100003	000030	0000022000	DXTR2000	4	ST	10,002.96	€	300.09	7,800.00	01/03/2007
0000100003	000040	0000022000	PRTR1000	7	ST	18,672.22	€	560.17	14,560.00	01/03/2007
0000100003	000050	0000022000	DXTR3000	5	ST	12,503.70	€	375.11	9,750.00	01/03/2007
0000100004	000010	0000022000	PUMP1000	7	ST	163.41	€	4.90	98.00	01/03/2007
0000100005	000010	0000017000	DXTR2000	8	ST	20,005.92	€	600.18	15,600.00	01/04/2007
0000100005	000020	0000017000	OHMT1000	4	ST	166.70	€	5.00	100.00	01/04/2007
0000100005	000030	0000017000	SHRT1000	5	ST	125.03	€	3.75	75.00	01/04/2007


Data Preview for DataSource

Data Preview for DataSource BL1DSUS018 (FILE)

Number of Records: 20 Show data in internal format onl

ORDERNUMBER	ORDERITEM	CUSTOMER	PRODUCT	SALESQUANTITY	UNITOFMEASURE	REVENUE	CURRENCY	DISCOUNT	COSTSUSD	SALESDATE
0000200001	000010	0000002000	DXRD1000	7	ST	11,900.00	$	357.00	7,000.00	01/01/2007
0000200002	000010	0000005000	PUMP1000	7	ST	196.00	$	9.80	98.00	01/02/2007
0000200002	000020	0000005000	ORHT2000	1	ST	1,700.00	$	85.00	950.00	01/02/2007
0000200003	000010	0000011000	ORWN1000	7	ST	17,500.00	$	525.00	8,750.00	01/02/2007
0000200003	000020	0000011000	FAID1000	18	ST	720.00	$	21.60	360.00	01/02/2007
0000200003	000030	0000011000	PRRD1000	6	ST	24,000.00	$	720.00	13,200.00	01/02/2007
0000200003	000040	0000011000	FAID1000	13	ST	520.00	$	15.60	260.00	01/02/2007
0000200003	000050	0000011000	PUMP1000	3	ST	84.00	$	2.52	42.00	01/02/2007
0000200003	000060	0000011000	ORHT1000	5	ST	8,000.00	$	240.00	4,500.00	01/02/2007
0000200003	000070	0000011000	DXRD1000	9	ST	15,300.00	$	459.00	9,000.00	01/02/2007
0000200003	000080	0000011000	DXTR3000	4	ST	12,000.00	$	360.00	5,600.00	01/02/2007
0000200004	000010	0000002000	PUMP1000	9	ST	252.00	$	7.56	126.00	01/04/2007
0000200004	000020	0000002000	DXTR3000	2	ST	6,000.00	$	180.00	2,800.00	01/04/2007
0000200005	000010	0000005000	DXTR3000	6	ST	18,000.00	$	900.00	8,400.00	01/04/2007
0000200005	000020	0000005000	RKIT1000	8	ST	256.00	$	12.80	128.00	01/04/2007
0000200005	000030	0000005000	CAGE1000	8	ST	144.00	$	7.20	72.00	01/04/2007
0000200005	000040	0000005000	PRRD2000	3	ST	12,600.00	$	630.00	7,050.00	01/04/2007
0000200005	000050	0000005000	PRTR3000	8	ST	25,600.00	$	1,280.00	12,000.00	01/04/2007
0000200005	000060	0000005000	PUMP1000	9	ST	252.00	$	12.60	126.00	01/04/2007
0000200005	000070	0000005000	OHMT1000	2	ST	100.00	$	5.00	50.00	01/04/2007

Conclusion BM2:

Purpose: Understanding data sources and the snowflake schema in SAP BW/4HANA.

Inputs and Outputs: Inputs were sales data and SAP BW/4HANA tools; outputs included understanding the destination of data in snowflake schema and the differences in data formats.

Complexities: Grasping the concept of snowflake schema and dealing with data in different formats from different countries.

Impressions: This benchmark provided insights into data sourcing and handling complexities in a global context.

Benchmark 3:

Question 1:
What type of InfoObject is Revenue?
Revenue InfoObject is a Key Figure: Amount.

Question 2:
Why does revenue not have an Exception Aggregation?
Because it is a summation.

Question 3:
What are other Aggregation options apart from summation?
Other options include: Minimum, maximum and no aggregation.

Question 4:
What type of InfoObject is Sales Quantity?
Key Figure

Question 5:
Why does Sales Quantity not have Exception Aggregation?
Because it is a summation.

Question 6:
What are other Aggregation options apart from summation?
Other options include: Minimum, maximum and no aggregation.

Question 7:
What type of InfoObject is Product Category?
Characteristic

Question 8:
Is the Product category Language Dependent?
Yes

Question 9:
Is the Product Category Time Dependent?
No

Question 10:
Does Product Category have attributes?
No

Question 11:
Why did you enter the Product Category as 3 characters long?
They are short abbreviations for the product.

Question 12:
What type of InfoObject is Material?
Characteristic

Question 13:
Is the Material text Language Dependent?
Yes

Question 14:
Is the Material text Time Dependent?
No

Question 15:
Does Material have attributes? If yes, what are they?
Yes, they are product category, Division, components, and color.

Question 16:
What is meant by Navigation Attributes?
These are attributes that are used like other characteristics.

Question 17:
Are any attributes time dependent?
No

Question 18:
How many attributes does Division have?
Two

Question 19:

What is the length of the color attribute?
10

Question 20:

What is the longest material key can we have in our data warehouse?
Components - 20 Characters

Conclusion BM3:

Purpose: Focused on InfoObject creation and understanding data aggregation in SAP BW/4HANA.

Inputs and Outputs: Inputs involved SAP BW/4HANA environment; outputs were created InfoObjects and comprehension of data aggregation methods.

Complexities: The main challenge was understanding and implementing various data aggregation options.

Impressions: The benchmark helped in grasping complex data structures and aggregation methods, crucial for data analysis.

Benchmark 4:

Question 1:

Explain why we need 6 fields for material (shown above). Hint: Refer to Exercise 3.2 – Modeling Basics.

In addition to the key and description of the material, it has 4 attributes - Product, color, Division and Components. So we need 6 fields.

Question 2:

Why did the system not add a Hierarchy node? Hint: Refer to Exercise 3.2.

The system did not add a hierarchy node because "Hierarchies" was not selected for the properties of Material InfoObject.

Question 3:

In the mapping (rules) Figure 21 above, explain why the left table and right table have different icons for the fields.

The left side of the table has incoming data from the .csv file and the columns with data from the file. The right side of the table has the InfoObjects we created. The data flows from the left to the right for information transformation.

Question 4:

Explain why the Material Description is not connected to anything.

The Material InfoObject we created did not have any Material Description field, so we are unable to map it from source to target.

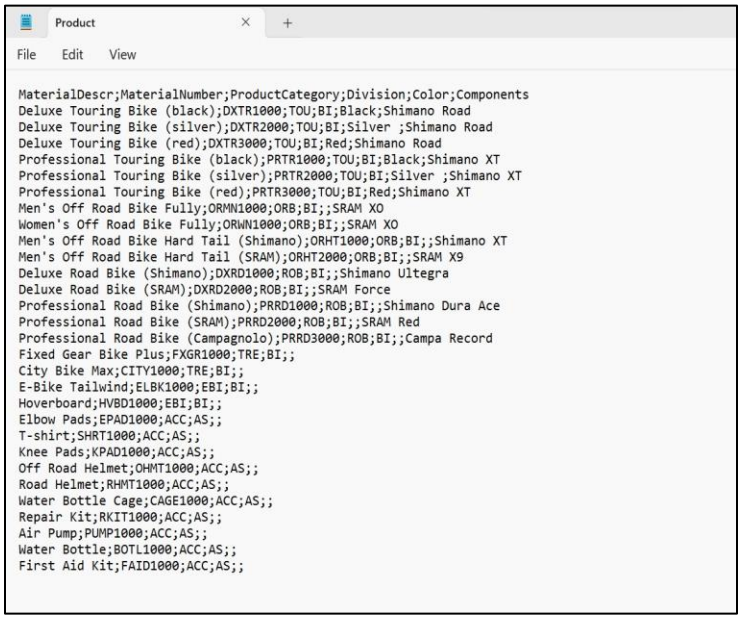
Question 5:

In this task, what part(s) of the E, T, L did you implement for material? Explain.

As we used the Data Transfer Process(DTP) to transfer the data from source to target object, we performed the Load part of the ETL process.

Question 6:

Insert screenshot of product.csv file content.



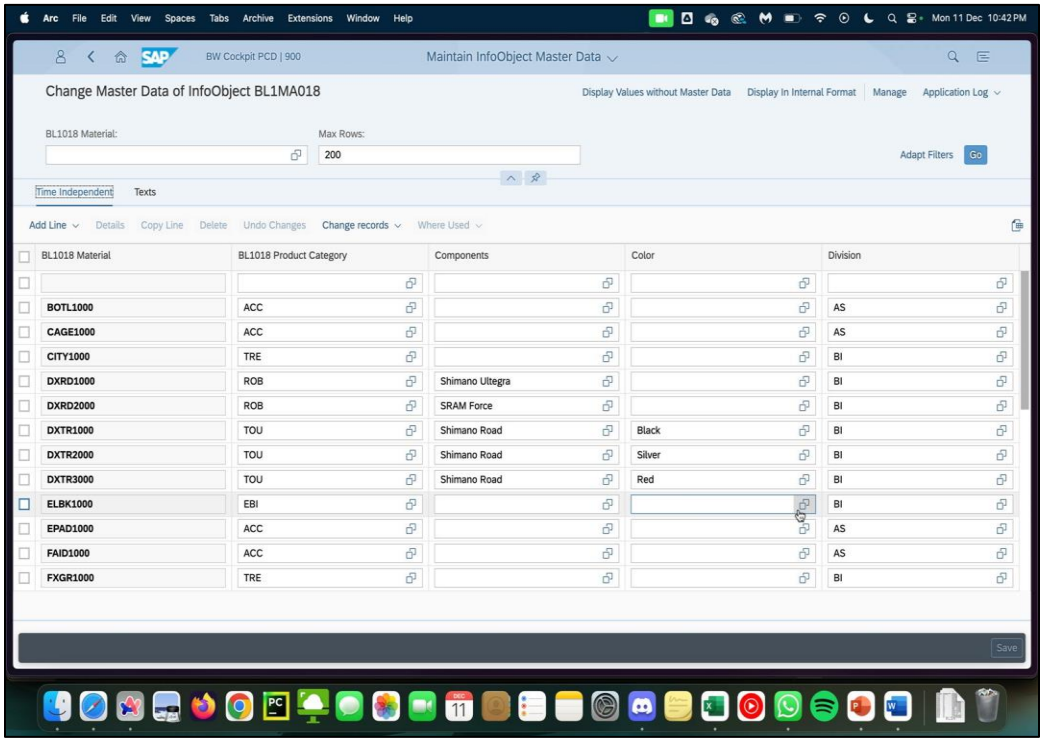
Product

File Edit View

```
MaterialDescr;MaterialNumber;ProductCategory;Division;Color;Components
Deluxe Touring Bike (black);DXTR1000;TOU;BI;Black;Shimano Road
Deluxe Touring Bike (silver);DXTR2000;TOU;BI;Silver ;Shimano Road
Deluxe Touring Bike (red);DXTR3000;TOU;BI;Red;Shimano Road
Professional Touring Bike (black);PRTR1000;TOU;BI;Black;Shimano XT
Professional Touring Bike (silver);PRTR2000;TOU;BI;Silver ;Shimano XT
Professional Touring Bike (red);PRTR3000;TOU;BI;Red;Shimano XT
Men's Off Road Bike Fully;ORMN1000;ORB;BI;;SRAM XO
Women's Off Road Bike Fully;ORWN1000;ORB;BI;;SRAM XO
Men's Off Road Bike Hard Tail (Shimano);ORHT1000;ORB;BI;;Shimano XT
Men's Off Road Bike Hard Tail (SRAM);ORHT2000;ORB;BI;;SRAM X9
Deluxe Road Bike (Shimano);DXRD1000;ROB;BI;;Shimano Ultegra
Deluxe Road Bike (SRAM);DXRD2000;ROB;BI;;SRAM Force
Professional Road Bike (Shimano);PRRD1000;ROB;BI;;Shimano Dura Ace
Professional Road Bike (SRAM);PRRD2000;ROB;BI;;SRAM Red
Professional Road Bike (Campagnolo);PRRD3000;ROB;BI;;Campa Record
Fixed Gear Bike Plus;FXGR1000;TRE;BI;;
City Bike Max;CITY1000;TRE;BI;;
E-Bike Tailwind;ELBK1000;EBI;BI;;
Hoverboard;HVBD1000;EBI;BI;;
Elbow Pads;EPAD1000;ACC;AS;;
T-shirt;SHRT1000;ACC;AS;;
Knee Pads;KPAD1000;ACC;AS;;
Off Road Helmet;OHMT1000;ACC;AS;;
Road Helmet;RHMT1000;ACC;AS;;
Water Bottle Cage;CAGE1000;ACC;AS;;
Repair Kit;RKIT1000;ACC;AS;;
Air Pump;PUMP1000;ACC;AS;;
Water Bottle;BOTL1000;ACC;AS;;
First Aid Kit;FAID1000;ACC;AS;;
```

Question 7:

Insert screenshot of your material master data (attributes) from SAP BW/4HANA.



Arc File Edit View Spaces Tabs Archive Extensions Window Help — Mon 11 Dec 10:42 PM

BW Cockpit PCD | 900 — Maintain InfoObject Master Data

Change Master Data of InfoObject BL1MA018

Display Values without Master Data | Display In Internal Format | Manage | Application Log

BL1018 Material: | Max Rows: 200 | Adapt Filters | Go

Time Independent | Texts

Add Line | Details | Copy Line | Delete | Undo Changes | Change records | Where Used

BL1018 Material	BL1018 Product Category	Components	Color	Division
BOTL1000	ACC			AS
CAGE1000	ACC			AS
CITY1000	TRE			BI
DXRD1000	ROB	Shimano Ultegra		BI
DXRD2000	ROB	SRAM Force		BI
DXTR1000	TOU	Shimano Road	Black	BI
DXTR2000	TOU	Shimano Road	Silver	BI
DXTR3000	TOU	Shimano Road	Red	BI
ELBK1000	EBI			BI
EPAD1000	ACC			AS
FAID1000	ACC			AS
FXGR1000	TRE			BI

Save

Question 8:

Click on the Texts tab. Why are there no texts?

As we performed transforming and loading of the data from source to target of only Material attributes, we did not connect the source data to the text part of the material. So, there are no texts in the texts tab.

Question 9:

Why Is there medium text but no short or any other text fields?

It is because while creating the Material InfoObject we chose only medium text and language dependent and left other fields like short unchecked.

Question 10:

In the mapping figure above, why are only material description and material number connected (and not the rest of the fields on the left side)?

Attribute columns from the source are connected to the material attributes, so we are only mapping and transforming the texts parts of the data from source to target. Hence, we only connected Material description and Material Number as it is already connected because both are dependent.

Question 11:

What rule are we implementing for the language key for material description?
Language key was implemented as constant and setting the value to EN for English texts.

Question 12:

Are there any non-English material descriptions? Why?
There are no non-English material descriptions was we set the rule for Material texts as EN.

Question 13:

Why is the description Medium in length?
That is because we set up the InfoObject to medium texts.

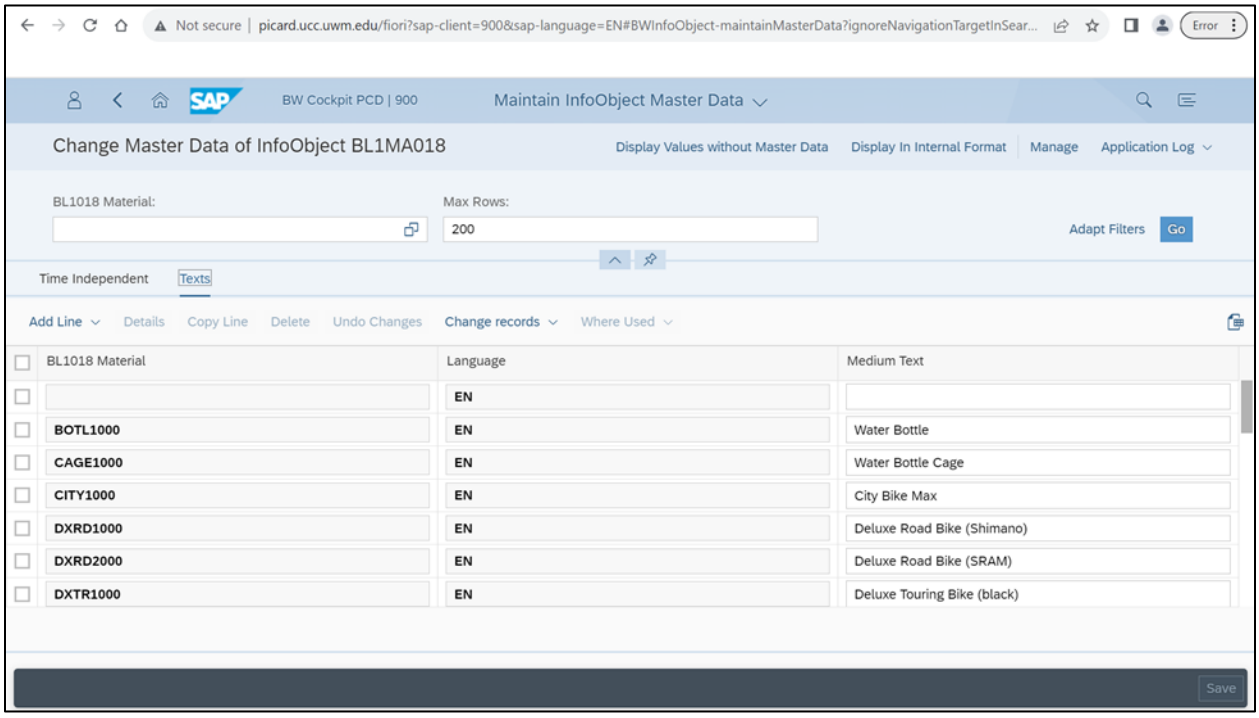
Question 14:

Insert a screenshot of the csv file. Highlight the texts part of It.

```
MaterialDescr;MaterialNumber;ProductCategory;Division;Color;Components
Deluxe Touring Bike (black);DXTR1000;TOU;BI;Black;Shimano Road
Deluxe Touring Bike (silver);DXTR2000;TOU;BI;Silver ;Shimano Road
Deluxe Touring Bike (red);DXTR3000;TOU;BI;Red;Shimano Road
Professional Touring Bike (black);PRTR1000;TOU;BI;Black;Shimano XT
Professional Touring Bike (silver);PRTR2000;TOU;BI;Silver ;Shimano XT
Professional Touring Bike (red);PRTR3000;TOU;BI;Red;Shimano XT
Men's Off Road Bike Fully;ORMN1000;ORB;BI;;SRAM XO
Women's Off Road Bike Fully;ORWN1000;ORB;BI;;SRAM XO
Men's Off Road Bike Hard Tail (Shimano);ORHT1000;ORB;BI;;Shimano XT
Men's Off Road Bike Hard Tail (SRAM);ORHT2000;ORB;BI;;SRAM X9
Deluxe Road Bike (Shimano);DXRD1000;ROB;BI;;Shimano Ultegra
Deluxe Road Bike (SRAM);DXRD2000;ROB;BI;;SRAM Force
Professional Road Bike (Shimano);PRRD1000;ROB;BI;;Shimano Dura Ace
Professional Road Bike (SRAM);PRRD2000;ROB;BI;;SRAM Red
Professional Road Bike (Campagnolo);PRRD3000;ROB;BI;;Campa Record
Fixed Gear Bike Plus;FXGR1000;TRE;BI;;
City Bike Max;CITY1000;TRE;BI;;
E-Bike Tailwind;ELBK1000;EBI;BI;;
Hoverboard;HVBD1000;EBI;BI;;
Elbow Pads;EPAD1000;ACC;AS;;
T-shirt;SHRT1000;ACC;AS;;
Knee Pads;KPAD1000;ACC;AS;;
Off Road Helmet;OHMT1000;ACC;AS;;
Road Helmet;RHMT1000;ACC;AS;;
Water Bottle Cage;CAGE1000;ACC;AS;;
Repair Kit;RKIT1000;ACC;AS;;
Air Pump;PUMP1000;ACC;AS;;
Water Bottle;BOTL1000;ACC;AS;;
First Aid Kit;FAID1000;ACC;AS;;
```

Question 15:

Insert a screenshot of your material master data. Highlight the text part of It.



Conclusion BM4:

Purpose: Involved data mapping, transformation, and loading in SAP BW/4HANA.

Inputs and Outputs: Inputs included SAP BW/4HANA tools and data; outputs were transformed and loaded data.

Complexities: Understanding data transformation rules and implementing ETL (Extract, Transform, Load) processes.

Impressions: Provided practical experience in data transformation and loading, essential for data warehousing.

Benchmark 5:

Question 1:

What is the difference between a field and an InfoObject?

A field is a basic unit of data in a database or table, an info object is a higher-level abstraction in SAP BW that represents business-relevant information, including characteristics and key figures. Info objects provide a way to structure and organize data for meaningful analysis and reporting in a business intelligence environment.

Question 2:

What is the advantage of using InfoObjects instead of fields in an aDSO?

Semantic Layer: InfoObjects add business context and meaning to data fields.
Centralized Metadata Management: InfoObjects are maintained centrally in SAP BW, ensuring consistent data definitions.

Reusability and Consistency: InfoObjects can be reused across different data structures for standardized reporting.

Hierarchy Support: Many InfoObjects support hierarchies, facilitating organized and detailed analyses.

Integration with Master Data: Tight integration with master data simplifies handling and ensures consistency.

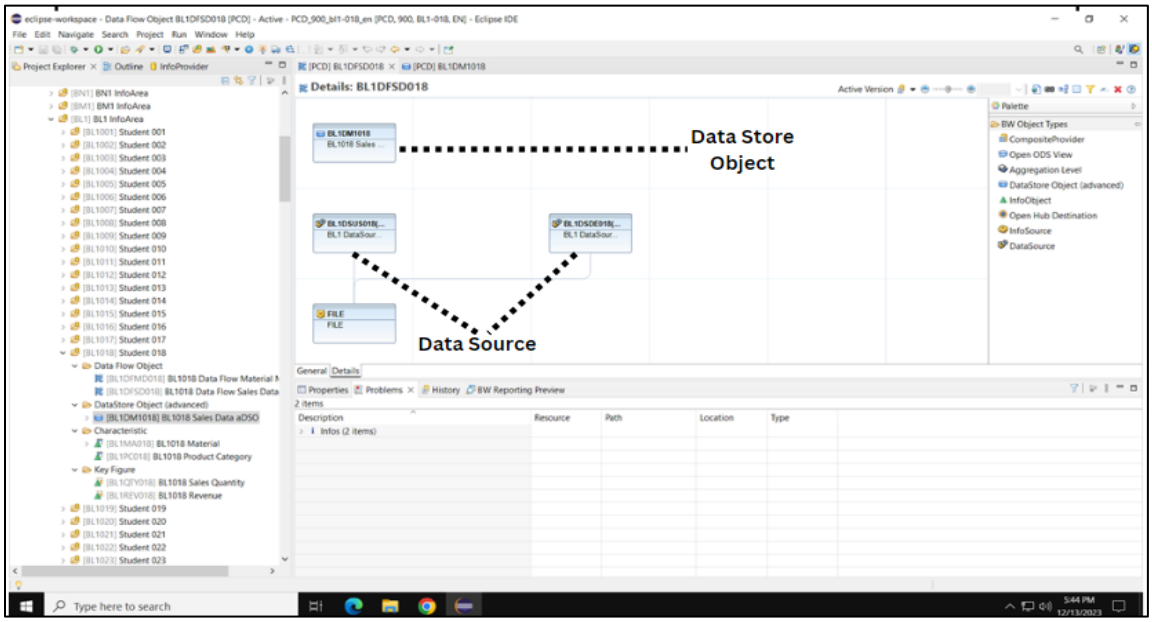
Business Understanding: InfoObjects enhance understanding for business users compared to using fields alone.

Avoiding Redundancy: InfoObjects help prevent redundant data definitions and inconsistencies in modeling.

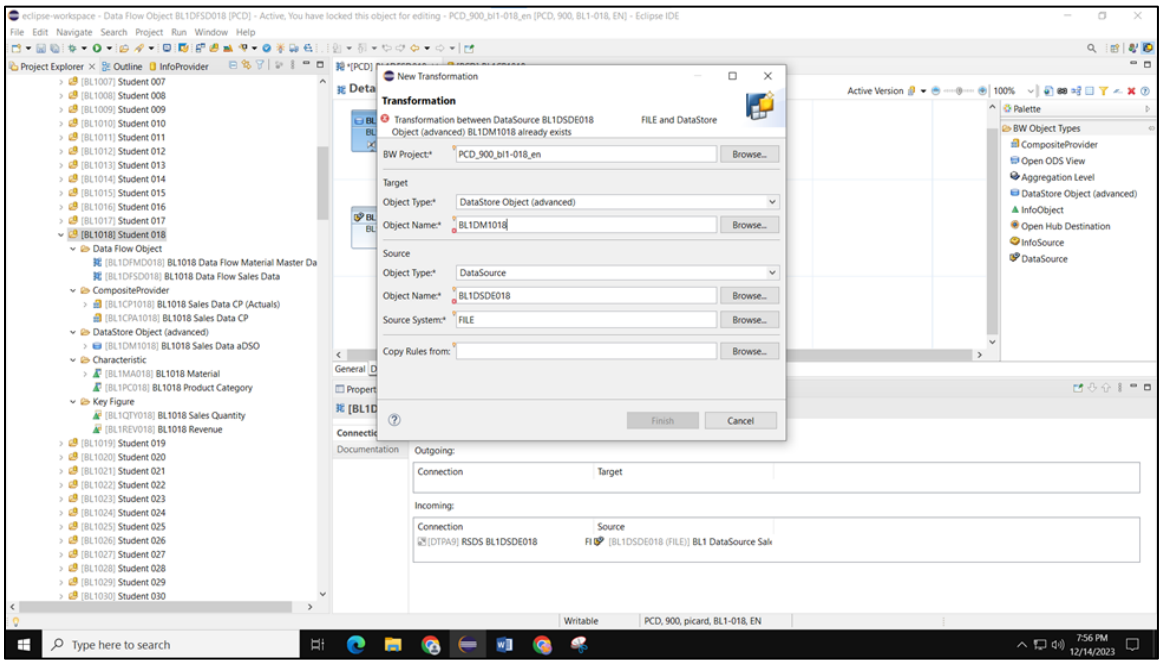
Flexibility: Supports various data modeling scenarios with a structured and flexible approach.

Question 3:

Insert a screenshot of your Data Flow and label each box with the Type of object it is. (not the name)



While transforming the data flow object above we are unable to copy the rules. So, we have deleted all the transformations and data flow objects with the name BL1018 Data Flow Sales Data that we have created earlier and then we created a new Data Flow Object by giving a different name and tried to do the transformation but that didn't work it gave the same error as shown below. Professor advised us to copy the rules from BL1001 even that didn't work.



Question 4:

Why did we choose Direct Assignment for Customer?

The direct assignment strategy is employed when the source field aligns directly with the target field without requiring any transformation or conversion. For instance, the 'Customer' field in the source data can seamlessly map to the 'Customer' InfoObject in the target aDSO (Advanced DataStore Object) as their formats are compatible, obviating the need for additional transformation rules.
This approach simplifies the data loading process, especially beneficial when source and target fields share the same format. In the realm of business, the adoption of the direct assignment strategy is driven by its capacity to enhance transparent communication channels, cultivate accountability, elevate customer experiences, and bring clarity to employee performance.

Question 5:

Can one source object be mapped to multiple target objects? Provide an example.

Yes, it can happen. One source thing can connect to lots of different target things. This makes data modeling more flexible and covers a bunch of possibilities. They call this a "one-to-many relationship." For example, BL1DSDE018 can connect to BL1DM1018 in many ways. This means that info from one place (like sales data from Germany) can be used in lots of different parts of the target storage area.

Question 6:

Why does the Cost of Good Manufactured not need a currency key?

There is no need for an additional currency key for conversion or identification for Cost of Goods Manufactured (CoGM) figures because they are presented in the standard currency, USD, and thus, this is a common scenario when the source data is consistently maintained in a single currency, eliminating the requirement for currency conversion or identification during the data transformation process.

Question 7:

What will be the final currency of Net Sales?

By subtracting Discount from Revenue Net Sales is determined. Neither Revenue nor Discount don't have a fixed currency. Additionally, the format for Revenue and Discount in the Data Source is marked as "External." Consequently, the ultimate currency for Net Sales hinges on the currency associated with Revenue and Discount.

Question 8:

Explain, in detail, the transformation rule for Sales Organization.

A transformation rule outlines the process of mapping data from a source to a target in SAP BW. When dealing with the Sales Organization, this often entails a lookup or join operation. Since Sales Organization details aren't directly available in transaction data, the transformation involves retrieving this information from associated master data (like Customer info) using matching keys. This ensures that each transaction record is appropriately linked with the accurate Sales Organization data.

Question 9:

Why does the Sales Data aDSO need two transformations?

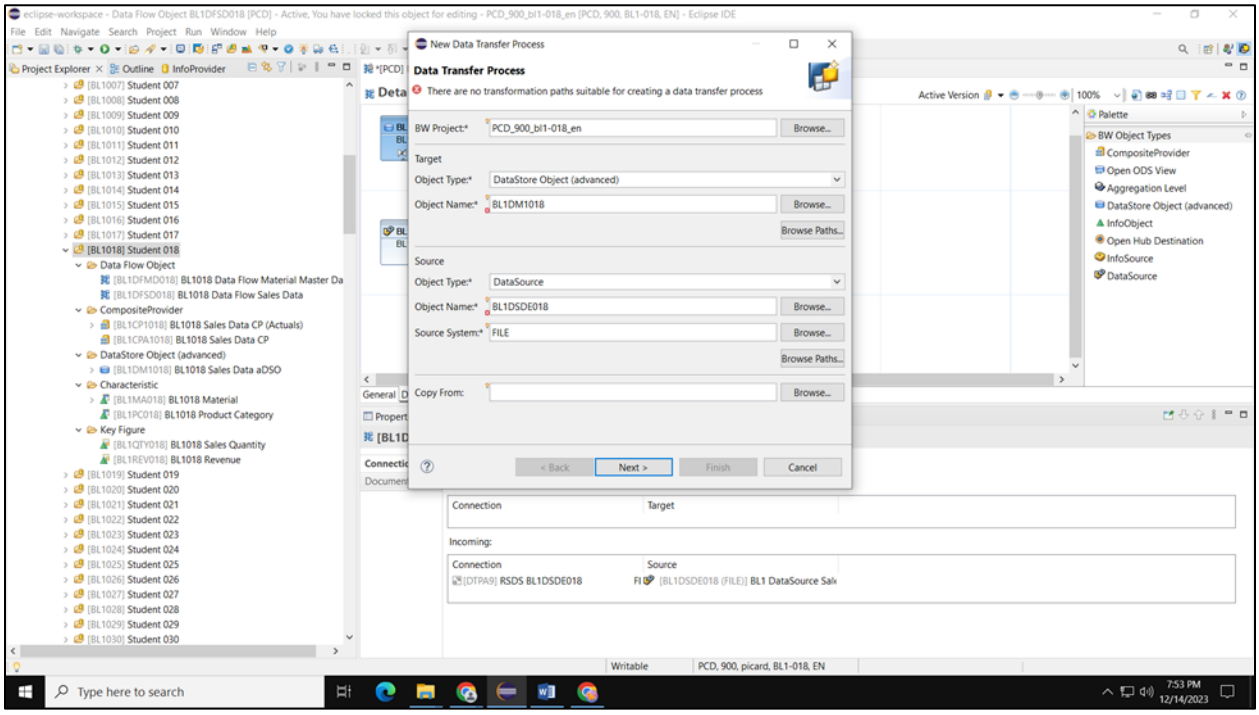
The use of two transformations is necessary because data from both Germany and the US requires specific handling. Each transformation can be customized to address the unique characteristics of each country's data, including distinct formats, currencies, or regional details in the sales data. This strategy ensures precise processing and integration of data from both countries into the aDSO, preserving the integrity and relevance of the data for analytical purposes. By employing two transformations, the Sales Data aDSO can effectively differentiate between fundamental data cleaning and filtering tasks and the more intricate transformation processes.

Question 10:

Why is the order number a field and not an InfoObject?

The order number is designated as a field instead of an InfoObject for simplicity and efficiency. This is because it functions as a unique identifier without necessitating additional complex structures or metadata. Fields are commonly employed for transactional data or as part of a larger table structure, where the full functionality of an InfoObject, like standalone reporting or analysis, is not required. In this context, 'ordernumber' likely serves as a transactional data point within a broader structure, explaining why it is treated as a field rather than a comprehensive InfoObject.

In creating a Data Transfer Process and load data: because of the error in the transformation step, we are unable to create DTP and Load the data.



Question 11:

Why did you have to execute two DTPs?

The need for separate Data Transfer Processes (DTPs) typically emerges when managing data from multiple distinct sources destined for the same target structure. In this scenario, it appears essential to have distinct DTPs for each data source, like one for Germany and another for the US. This ensures precise and efficient loading of data from both sources into the Advanced DataStore Object (aDSO). Each DTP is designed to manage the specific characteristics and formats of its respective source data, ensuring the preservation of data integrity and consistency throughout the process.

Question 12:

What would happen if you executed a DTP twice by mistake?

Running a Data Transfer Process (DTP) twice, especially with full loads instead of delta loads, can lead to duplicate data in the target system. This may result in data redundancy, inconsistencies, and potentially skewed results in analyses and reports. Maintaining data integrity is paramount in data management, underscoring the importance of executing data loading processes accurately to avoid such issues.

Question 13:

What is the source object of the DTP?

The source object serves as the origin of data for loading into the Advanced DataStore Object (aDSO). In this context, the source object for the Data Transfer Process (DTP) is the DataSource housing the sales transaction data. This includes the German sales data from DataSource BL1DSDE018 and the US sales data from DataSource BL1DSUS018, depending on the particular DTP under consideration.

Question 14:

What is the target object of the DTP?

The target object for the Data Transfer Process (DTP) is the Advanced DataStore Object (aDSO), specifically configured to store sales transaction data. The aDSO functions as the destination where data from the source (the sales data DataSources for Germany and the US) is loaded, transformed, and stored, ready for subsequent analysis and reporting.

Question 15:

In these DTP, what type of data are we loading (in the context of the snowflake schema)?

The Data Transfer Processes (DTPs) are responsible for loading transactional data, comprising detailed records of business transactions. In a snowflake schema, this transactional data, encompassing elements such as Revenue, Discount, Net Sales, CostofGoodsManufactured, etc., constitutes the core or fact tables. These fact tables serve as the central hub around which dimensions like customer, product, time, etc., are structured. This arrangement reflects a multidimensional perspective of data, facilitating comprehensive analysis and reporting.

Conclusion BM5:

Purpose: Understanding the advantages of using InfoObjects and the concept of Direct Assignment in SAP BW/4HANA.

Inputs and Outputs: Inputs were SAP BW/4HANA tools; outputs included deeper understanding of InfoObjects and Direct Assignment.

Complexities: Grasping the benefits of InfoObjects over fields and understanding the application of Direct Assignment.

Impressions: Enlightening in terms of advanced data modeling and structuring techniques.

Benchmark 6

Question 1:

What is the difference between an aDSO and a composite provider?

DSO (DataStore Object) is for persistently storing detailed data during staging processes. In contrast, CompositeProvider is a virtual object in SAP BW/4HANA that combines data from multiple sources, allowing for unified reporting without persistently storing data. It provides a real-time view for reporting and analysis across diverse InfoProviders.

Question 2:

Is the data in a composite provider persistent?

No, the data in a CompositeProvider is not persistent. A CompositeProvider is a virtual object in SAP BW/4HANA that combines data from different sources without storing it separately. It provides a unified view for reporting, aggregating data in real-time, but the data itself remains stored in the original InfoProviders or sources.

Question 3:

What object in all of SAP BW/4HANA represents the snowflake schema?

In SAP BW/4HANA, the snowflake schema is commonly depicted using a combination of InfoObjects, encompassing both characteristics and key figures. These InfoObjects are usually structured within Advanced DataStore Objects (aDSOs) and subsequently utilized in Composite Providers for intricate reporting and analysis. The multidimensional structure of the snowflake schema is realized by interconnecting these InfoObjects, which represent different dimensions and facts in a detailed and normalized format. This approach facilitates a comprehensive and organized representation of data for analytical purposes within the BW/4HANA environment.

Question 4:

List the process (at least 10 steps) of building and populating a BW/4HANA 2.0 data warehouse. Refer to all previous exercises in Chapters 3 and 4.

The process of establishing and populating a BW/4HANA 2.0 data warehouse involves several sequential steps:

Defining the Data Model:
Lay out the blueprint for the data structure.

Creating InfoObjects:
Establish InfoObjects for both characteristics and key figures.

Loading Data:
Import both transactional and master data.

Building aDSOs:
Construct Advanced DataStore Objects (aDSOs) for efficient data storage.

Developing Composite Providers:
Create Composite Providers for streamlined data integration.

Implementing Data Transformation:
Set up processes for transforming and transferring data.

Configuring ETL Processes:
Configure Extraction, Transformation, and Loading (ETL) processes.

Setting Up Virtualization Layers:
Configure virtualization layers to facilitate data reporting.

Activating and Validating Data:
Activate and validate the loaded data for accuracy.

Utilizing Analysis Tools:
Leverage tools like Analysis for Excel for data analysis and reporting.

These steps collectively outline the comprehensive journey of structuring, storing, and preparing data to enable effective business intelligence and reporting within the SAP BW/4HANA framework.

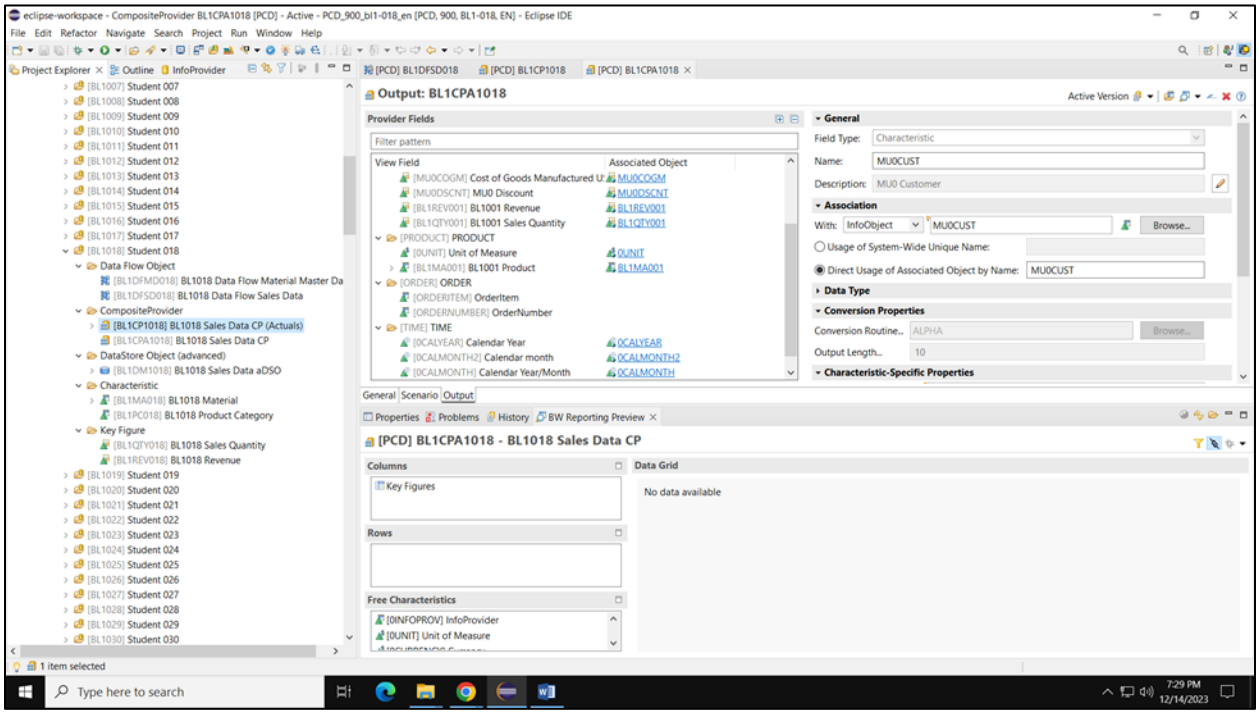
Question 5:

Now that you have modeled, built and populated a data warehouse in SAP BW/4HANA 2.0, list one advantage to snowflake schemas that we had discussed in class but did not implement in our data warehouse.

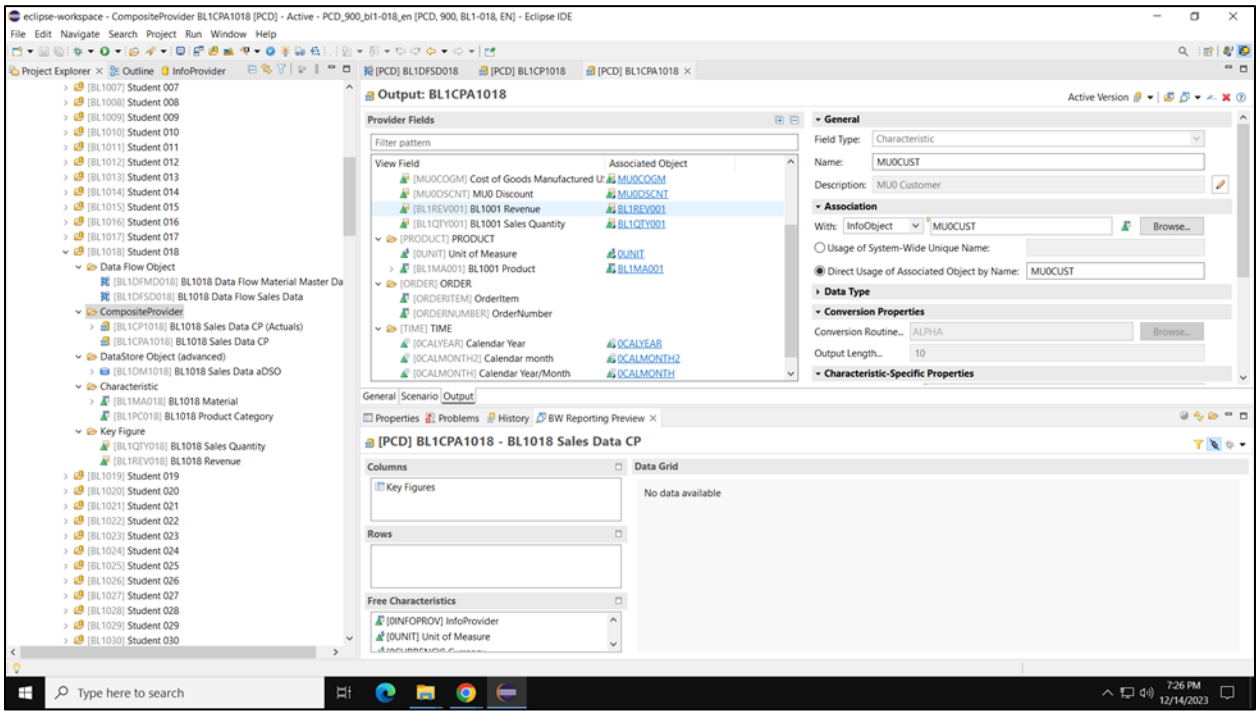
Although we covered the benefits of snowflake schemas in class, our data warehouse hasn't implemented this approach. One key advantage is data normalization, which, if applied, reduces redundancy and boosts data integrity. In a snowflake schema, data is divided into additional tables through normalization, decreasing duplication and establishing a clear structure. While not currently in use, adopting this approach in the future could potentially improve query performance and elevate data quality.

In Benchmark 6 after creating and extending a composite key we are unable to find any information or Data in the Data Grid as shown in the below image

Tried it with BL1018 no output in Data grid.



Tried it with BL1001 no output in Data grid.



Conclusion BM6:

Purpose: Differentiating between aDSO and Composite Provider in SAP BW/4HANA.

Inputs and Outputs: Inputs were SAP BW/4HANA environment; outputs were understanding the difference and application of aDSO and Composite Provider.

Complexities: Understanding the purpose and functionality of both aDSO and Composite Provider.

Impressions: Clarified critical aspects of data warehousing and reporting in SAP BW/4HANA.

Benchmark 7:

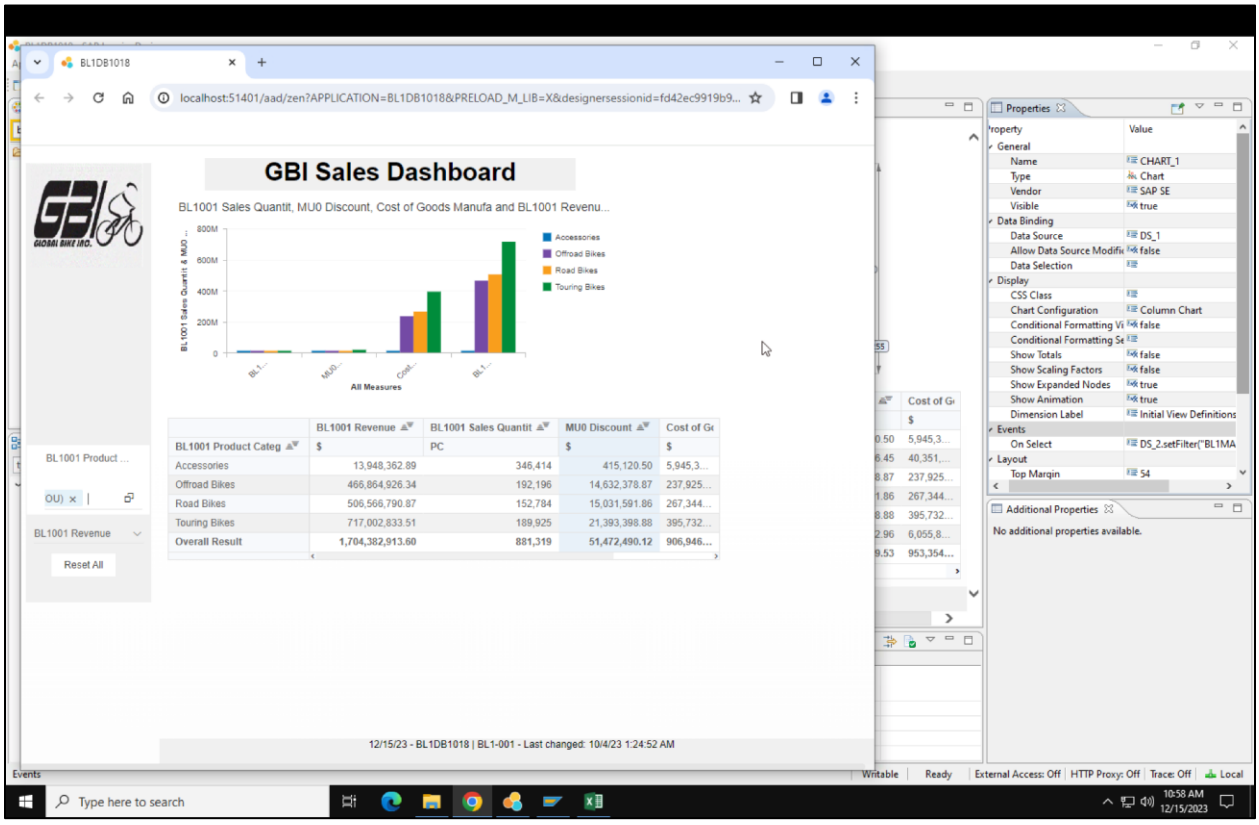
Question 1:

Which is the product category with the highest revenue?
Touring Bikes

Question 2:

Which is the product category with the lowest discount?
Accessories

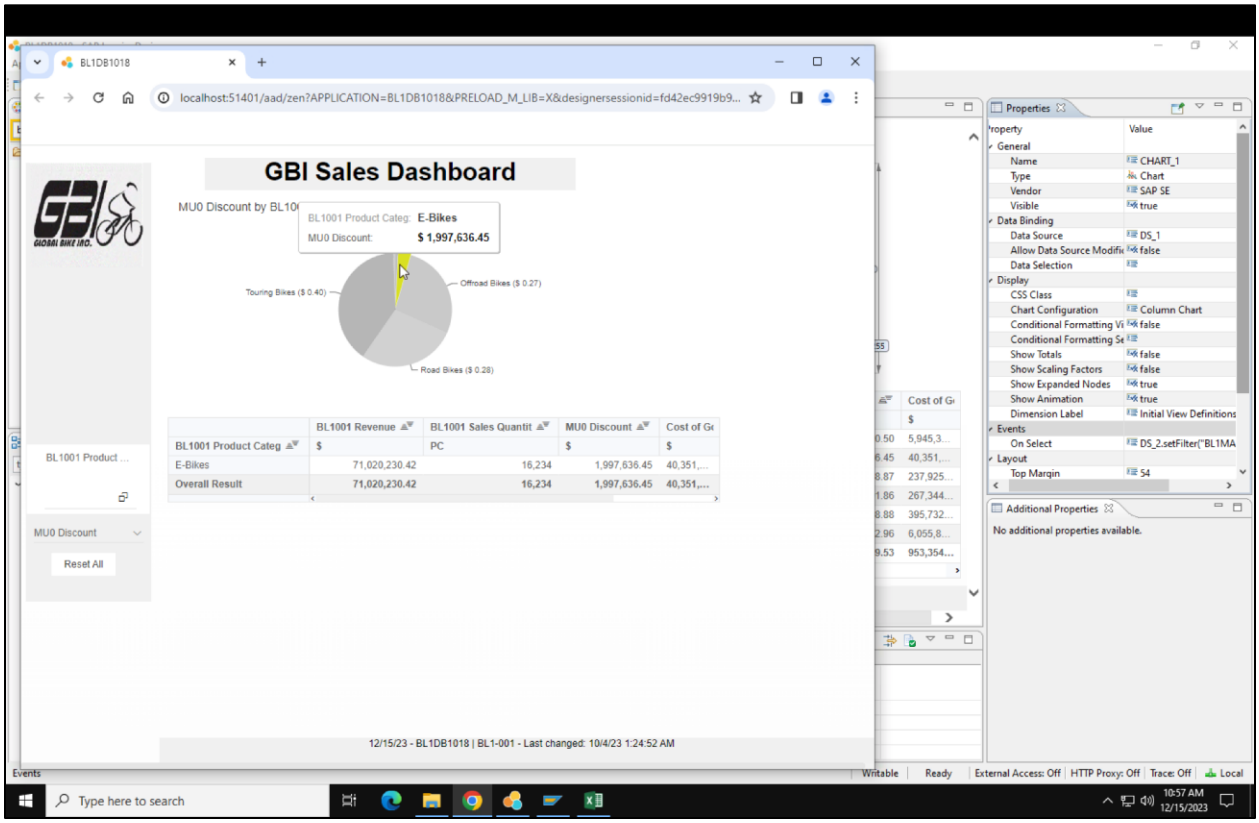
Dashboard used to answer above questions:



Question 3:

What has happened to the chart and the crosstab? How can we leave the crosstab unchanged and only influence chart by means of the filters?
We decouple the crosstab from DS_1 by creating a copy of the datasource.

Pie Chart View:



Zip file of the exported dashboard uploaded with this document.

Conclusion BM7:

Purpose: Utilizing dashboards for data analysis and interpretation in SAP BW/4HANA.

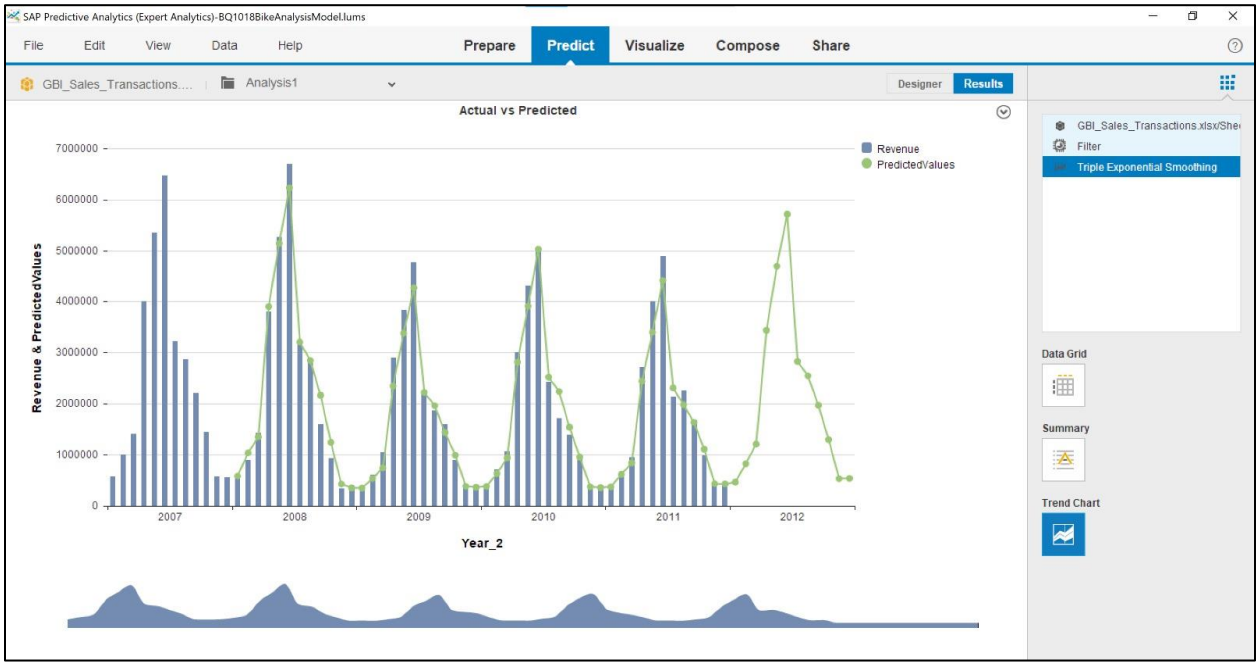
Inputs and Outputs: Inputs included sales data; outputs were insights derived from dashboard analysis.

Complexities: Analyzing and interpreting data using dashboards and understanding their impact on data representation.

Impressions: Provided a practical experience in using dashboards for data analysis and visualization.

Benchmark 8:

Triple exponential smoothing:



Note: Plugged Professor Mee's Dashboard to finish BM8 as advised.

Question 1:

Based on the results, it appears that Triple Exponential Smoothing was able to fit the data well as well as make a good forecast. Why do you think it worked this well?

Triple Exponential Smoothing's success in fitting data, especially in sales scenarios, is attributed to its inherent ability to effectively model time series with seasonal variations. The method, also known as Holt-Winters Exponential Smoothing, incorporates components for capturing average level, trend, and seasonality. In sales data, where patterns repeat due to seasonal influences, such as holidays or promotions, this method is well-suited to address such complexities.

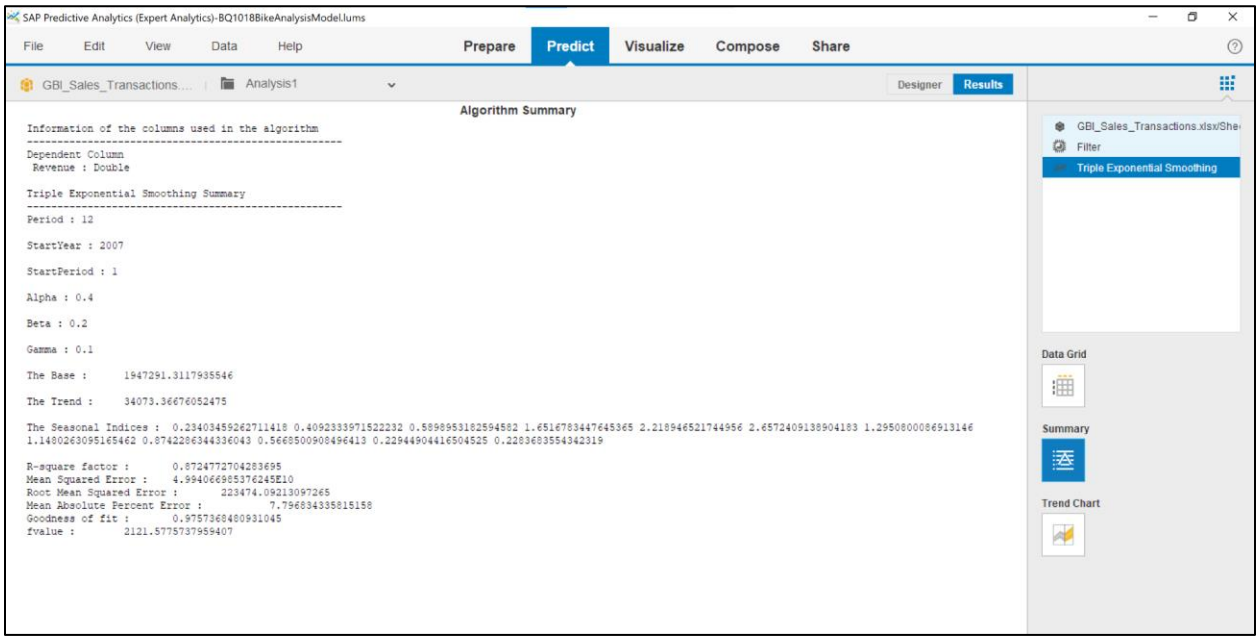
Question 2:

Would single or double exponential smoothing have worked for this GBI sales data? Why or why not?

Single Exponential Smoothing (SES) is inadequate for GBI sales data, as it cannot capture both trend and seasonality. Double Exponential Smoothing (DES) addresses trends but lacks the ability to model seasonality. The success of Triple Exponential Smoothing implies GBI sales data involves both trend and seasonality, making it the more suitable choice for accurate forecasting.

Question 3:

Explore the results tab to find the R-square factor. What is the R-square factor telling you about the model? Also look for Goodness of Fit. Comment on it as well.



The R-square factor and Goodness of Fit are both indicators of how well the Triple Exponential Smoothing model fits the data:

1. **R-square Factor (0.8725):**

- The R-square factor, which ranges from 0 to 1, represents the proportion of the variance in the dependent variable (Revenue in this case) that is explained by the model. A value of 0.8725 is relatively high, indicating that the Triple Exponential Smoothing model accounts for approximately 87.25% of the variability in the Revenue data. This suggests a strong ability of the model to capture and explain the observed patterns in the data.

2. **Goodness of Fit (0.9757):**

- The Goodness of Fit value, often represented by R-squared or a similar metric, is exceptionally high at 0.9757. This value is close to 1, indicating a very good fit of the model to the actual data. A high Goodness of Fit suggests that the predicted values from the model closely match the observed values, reinforcing the reliability of the forecasting model.

In summary, both the R-square factor and the Goodness of Fit metrics provide positive insights into the performance of the Triple Exponential Smoothing model. The model accounts for a significant portion of the variance in the Revenue data and demonstrates a high level of accuracy in predicting values. These results indicate that the chosen Triple Exponential Smoothing parameters, including the alpha, beta, and gamma values, are effective in capturing the underlying patterns in the time series data.

Conclusion BM8:

Purpose: Understanding and applying Triple Exponential Smoothing for forecasting in SAP BW/4HANA.

Inputs and Outputs: Inputs were sales data; outputs included forecasting results and understanding of Triple Exponential Smoothing.

Complexities: Comprehending and applying a complex forecasting method like Triple Exponential Smoothing.

Impressions: This benchmark was insightful, especially in the application of advanced forecasting techniques in data analysis.

Thank you for your swift assistance in resolving the BM5 issue and thank you for granting additional time to submit the report. Your guidance during the Zoom session and suggestion to use BL-001 proved to be very helpful. We appreciate your constant support, understanding, and dedication to our learning experience.