4.3

Answer Sheet / Enterprise Data Warehouse

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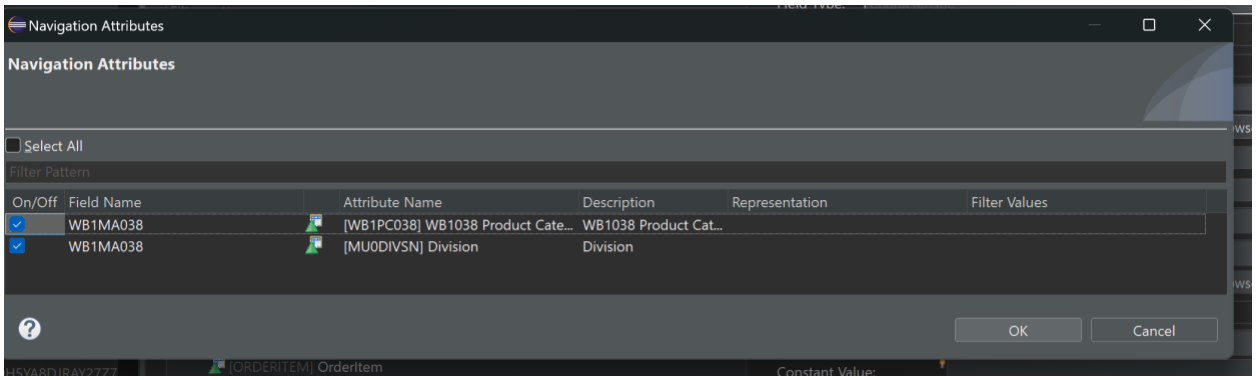
Provide screenshots to support your answers.

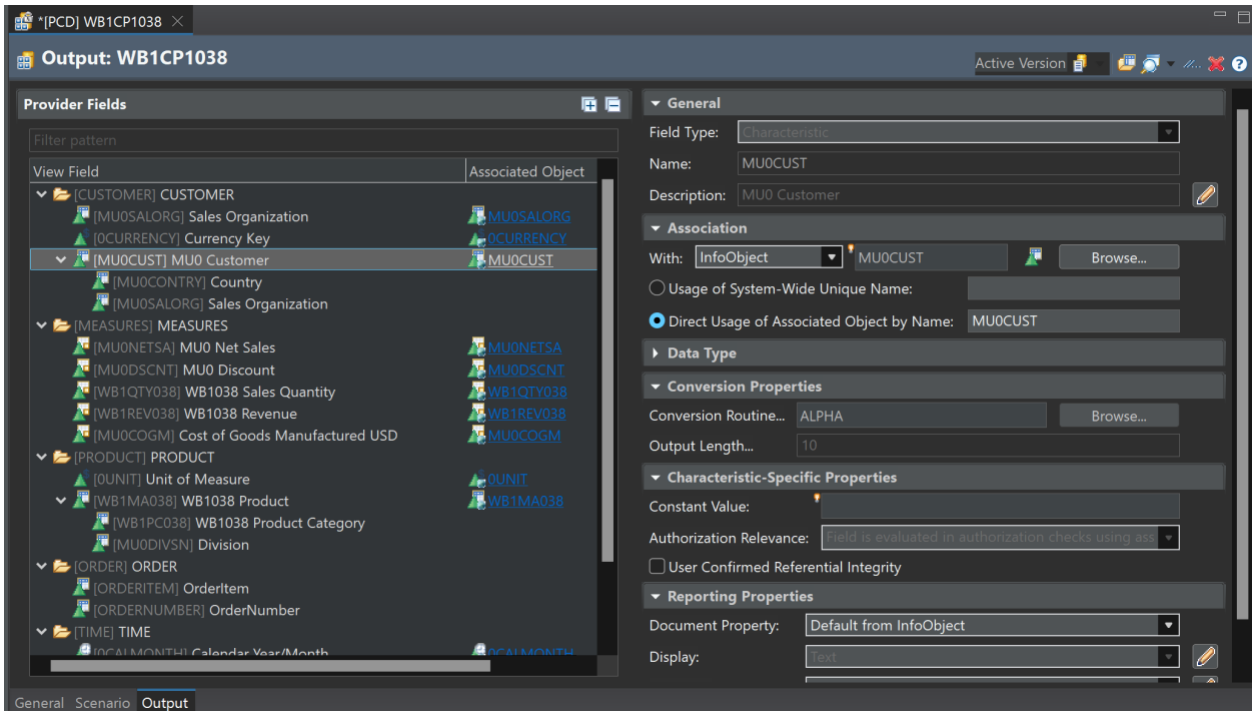
Question 1: What is the difference between a field and an InfoObject?

A Field is a local, non-reusable data element used for quick modeling, while an InfoObject is a reusable, central object in SAP BW/4HANA that carries master data, hierarchies, and supports reporting and authorization.

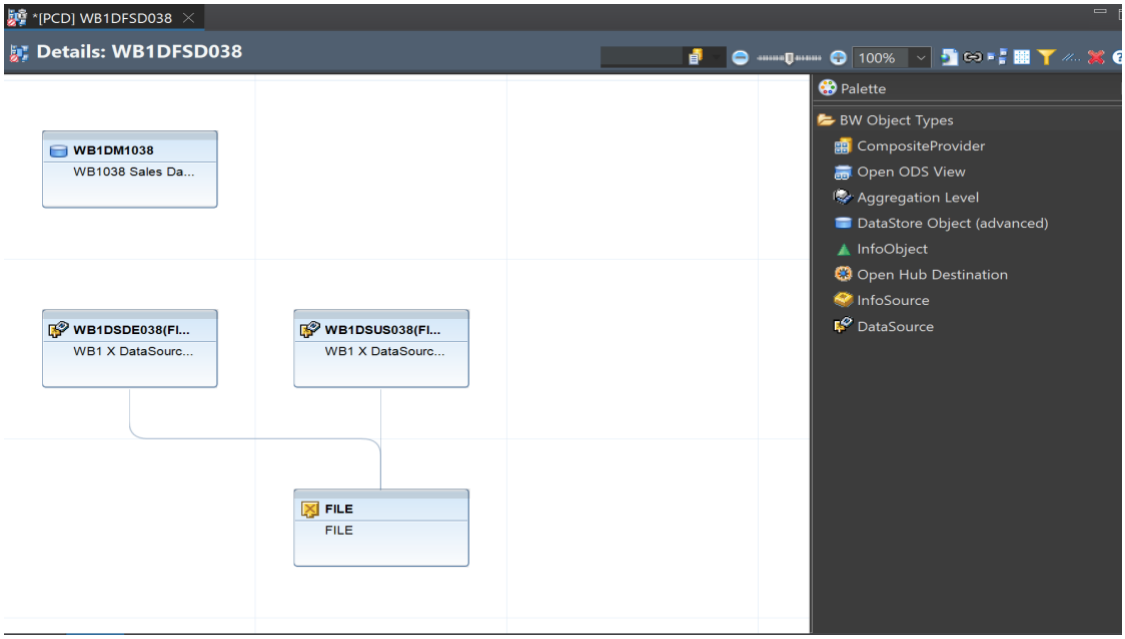


Question 2: What is the advantage of using InfoObjects instead of fields in an aDSO?

Using InfoObjects in an aDSO allows for master data access, navigation attributes, reusable metadata, built-in conversion routines, and better reporting flexibility. Fields lack these capabilities and are only suitable for temporary or raw structures.

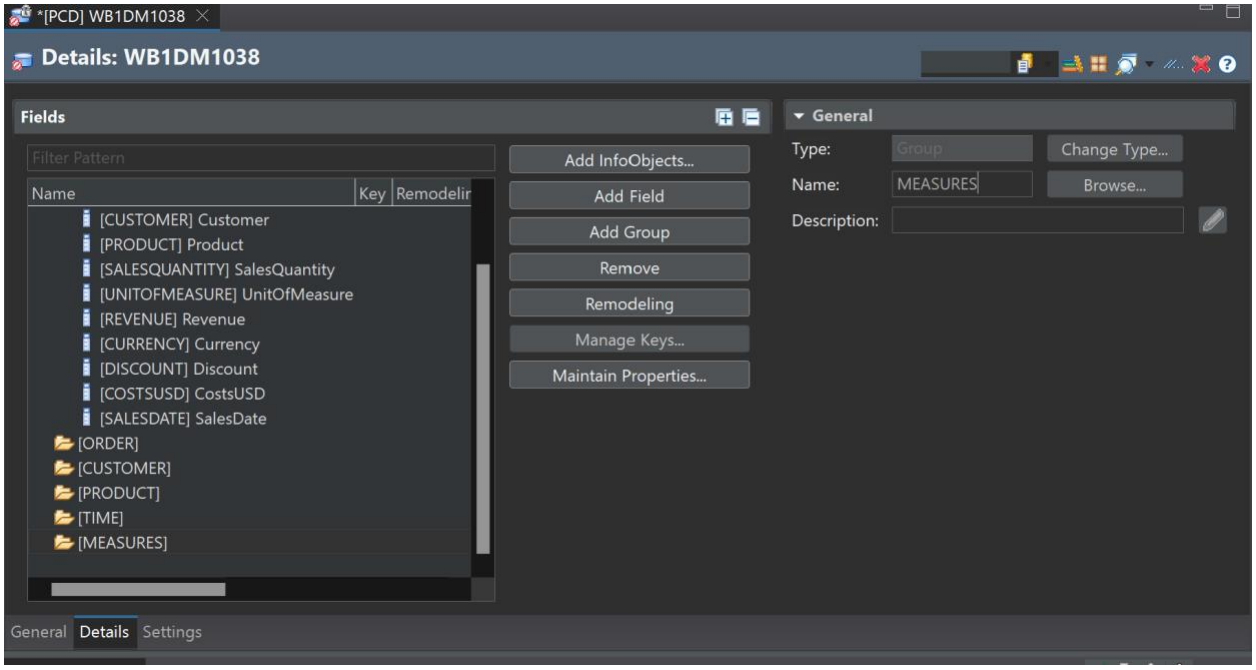


Question 3: **Insert a screenshot of your Data Flow and label each box with the type of object it is (not the name).**



Question 4: Why did we choose Direct Assignment for Customer?

Direct Assignment was chosen for Customer because the source field contains clean, standardized values that directly match the format required by the target InfoObject. This allows for a simple and efficient 1-to-1 mapping without the need for lookups or transformation logic.



Question 5: Can one source object be mapped to multiple target objects? Provide an example.

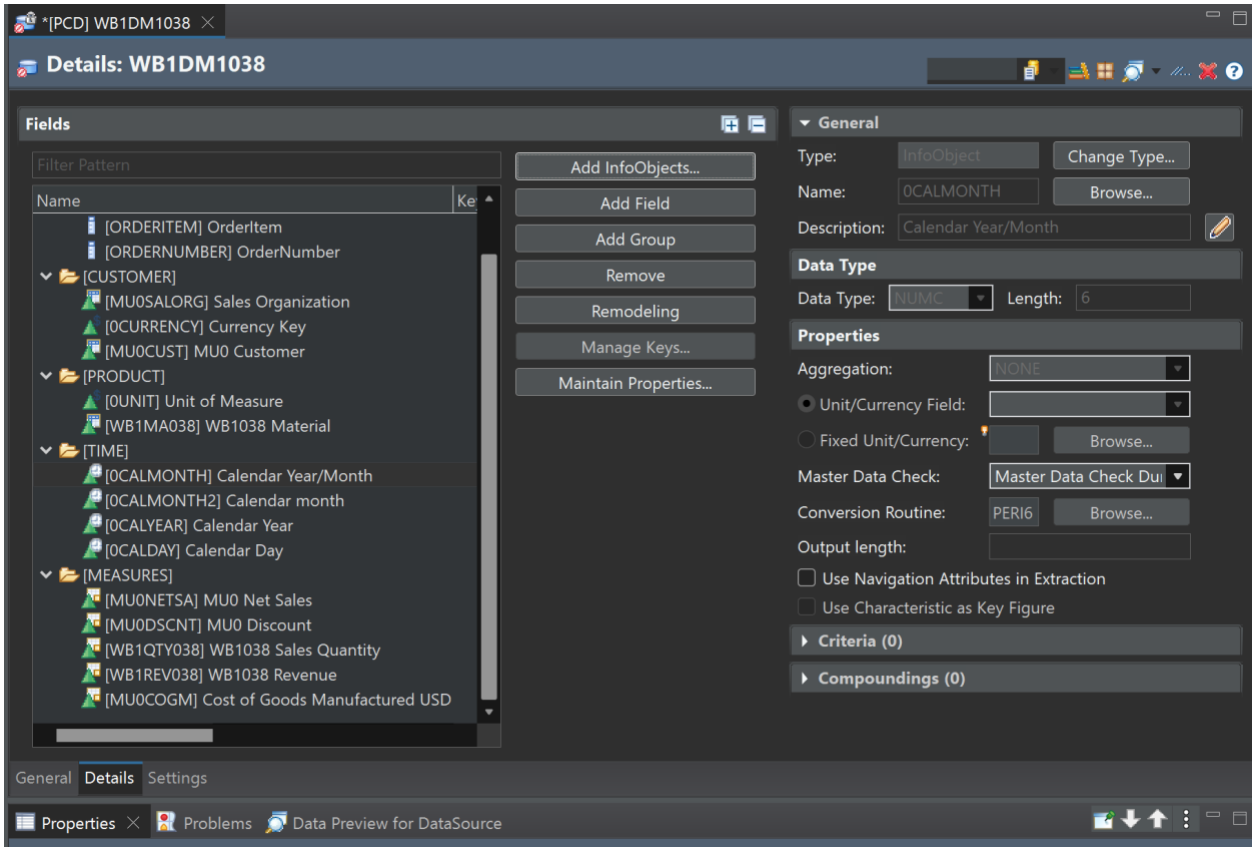
Yes, one source object can be mapped to multiple target objects in SAP BW/4HANA.

The source field SALESDATE is a perfect example:

It is mapped directly to the target InfoObject 0CALDAY (Calendar Day) for time-based reporting.

The same SALESDATE is also used as part of a lookup key in the transformation to fetch additional master data (like Sales Org from Customer).

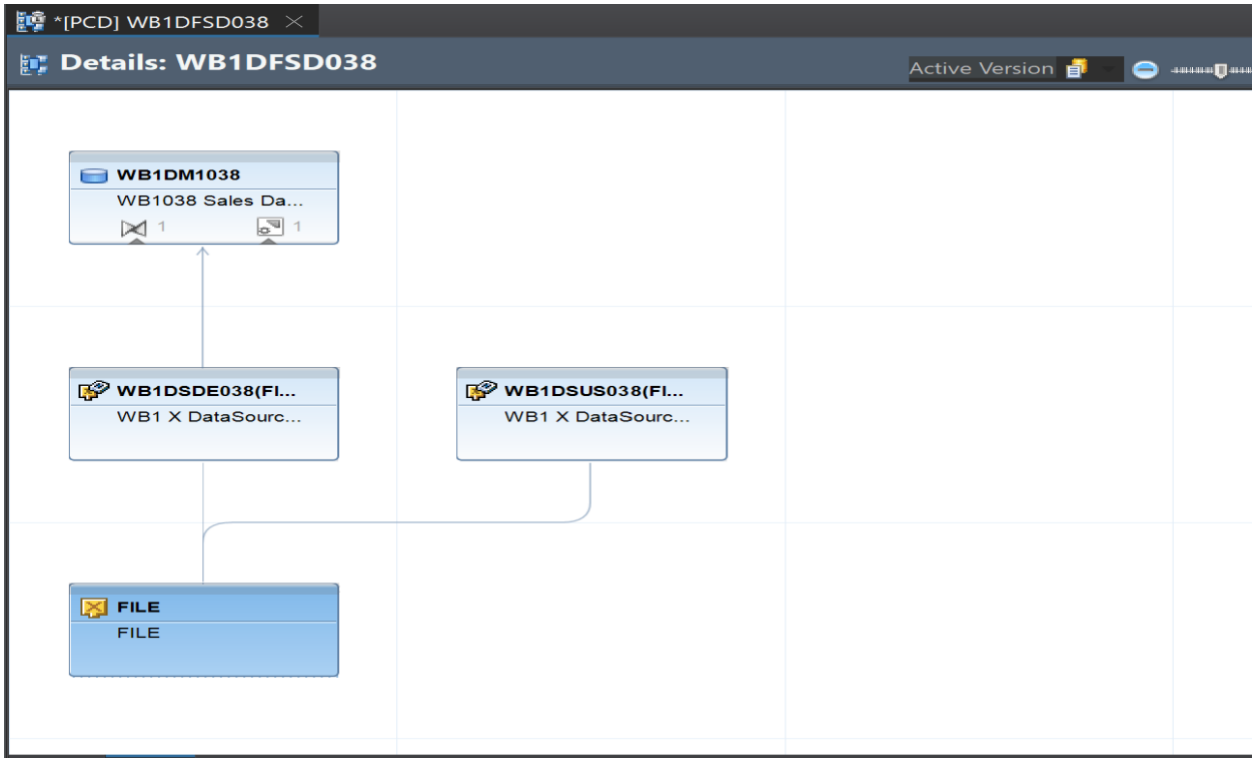
This demonstrates how one field can serve multiple purposes — both as a direct assignment and as a lookup Input.



Question 6: Why does the Cost of Good Manufactured not need a currency key?

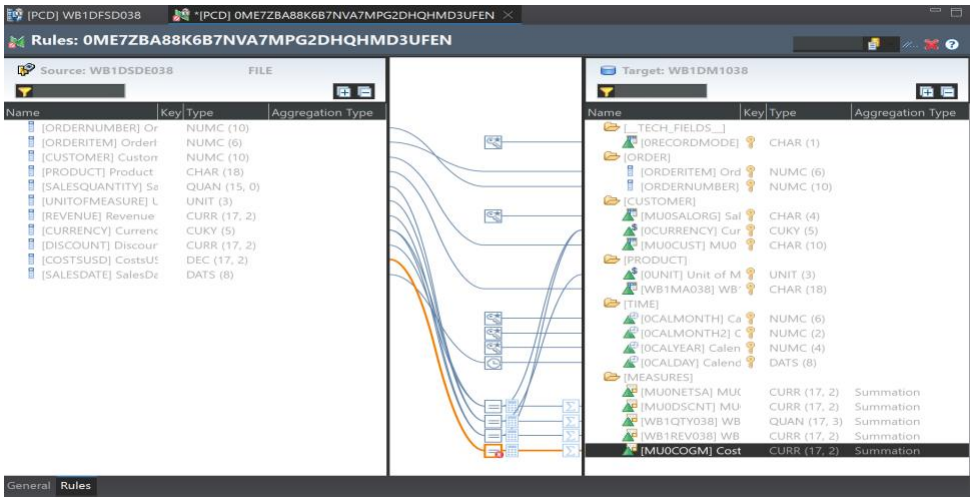
The Cost of Goods Manufactured (COGM) does not need a separate currency key because the currency information is already handled by the assigned key figure InfoObject, which inherits the currency from a central field like CURRENCY in the aDSO.

SAP BW/4HANA allows you to set a reference currency field for all financial measures, so individual fields like COGM don't require their own separate currency mapping.



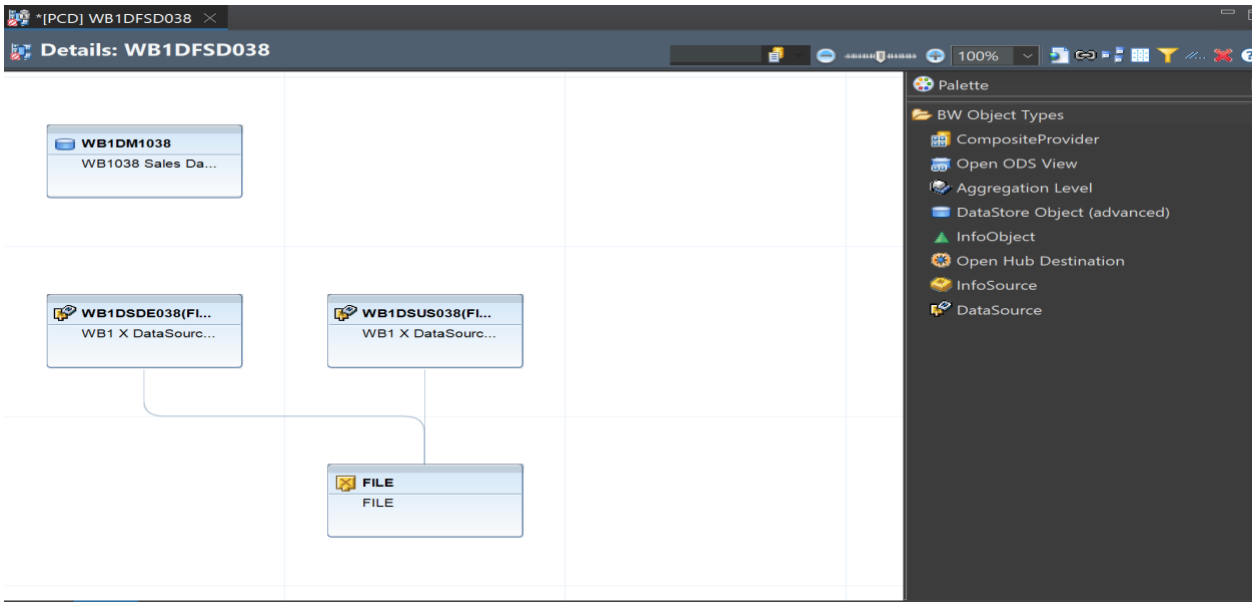
Question 7: What will be the Final currency of Net Sales?

The final currency of Net Sales will be determined by the CURRENCY field from the source data. Since Net Sales is a calculated key figure (Revenue – Discount), it inherits its currency from the same reference field used by Revenue and Discount.



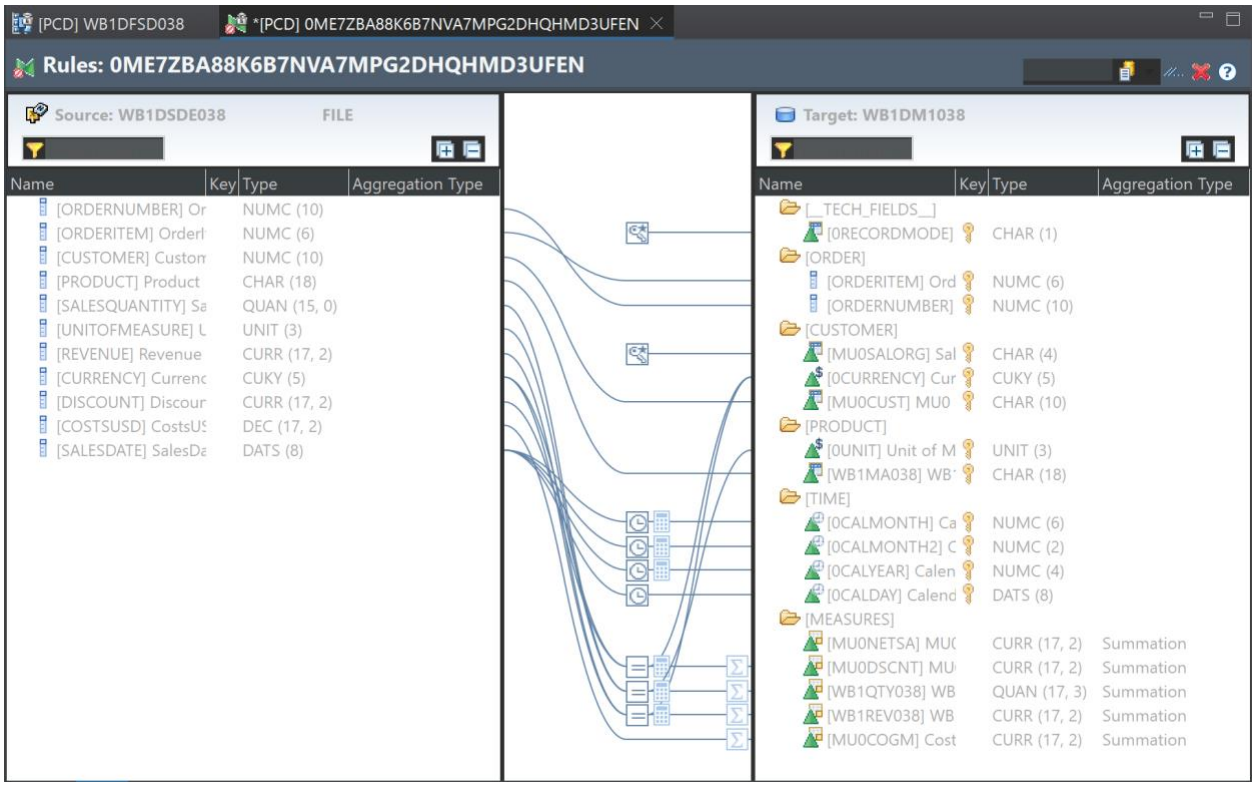
Question 8: Explain, in detail, the transformation rule for Sales Organization.

The Sales Organization (MU0SALORG) is not directly mapped from the source file. Instead, it is derived using a lookup transformation rule based on master data.



Question 9: Why does the Sales Data aDSO need two transformations?

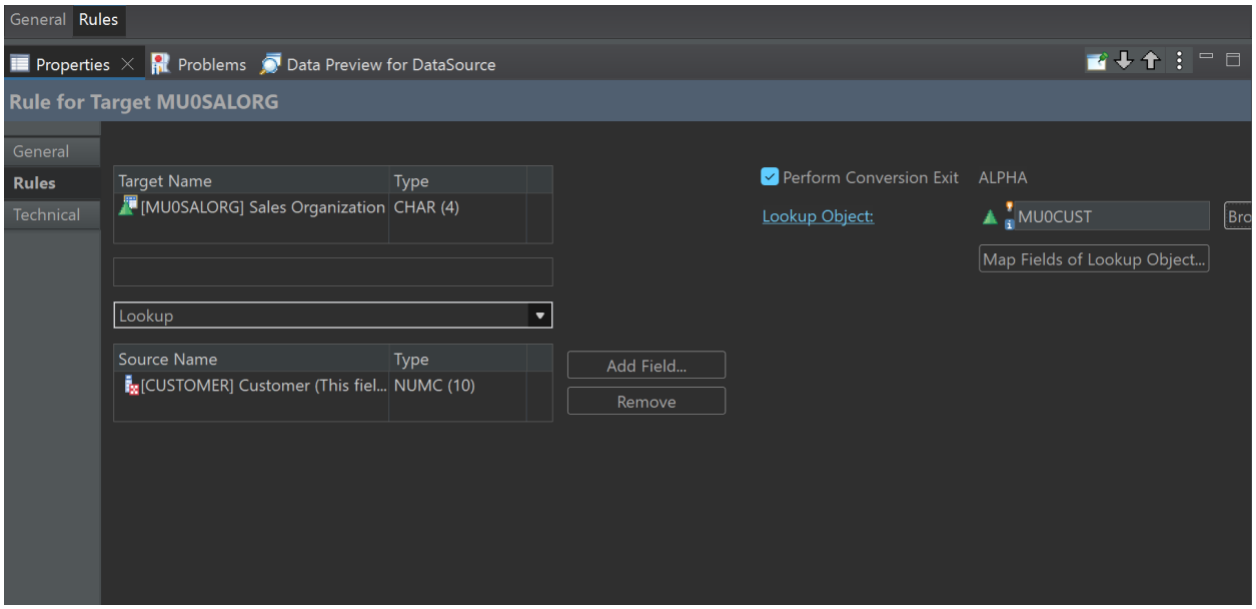
The Sales Data aDSO (WB1DM1038) requires two separate transformations because it receives data from two different DataSources — one for Germany (DE) and one for the United States (US). Each source contains region-specific formats, currencies, and file structures, which must be transformed independently before loading into the unified aDSO.



Question 10: Why is the ordernumber a field and not an InfoObject?

The ORDERNUMBER is modeled as a field instead of an InfoObject because it is typically a transaction-specific identifier that:

- Varies uniquely for each record,
- Does not require master data or hierarchy association, and
- Is not reused across multiple datasets or Models.



Question 11: Why did you have to execute two DTPs?

Two DTPs were executed because the aDSO (WB1DM1038) receives data from two different DataSource's — one for Germany (DE) and another for the United States (US). Each source requires its own Data Transfer Process (DTP) to load data into the target.

EXPLANATION:

- **Separate Data Files:**
- WB1DSDE038: German sales data
- WB1DSUS038: U.S. sales data

- **Independent Transformations:**

  Each source has its own transformation logic, adapting region-specific formats (e.g., currency, date, units).

- **DTP #1:**

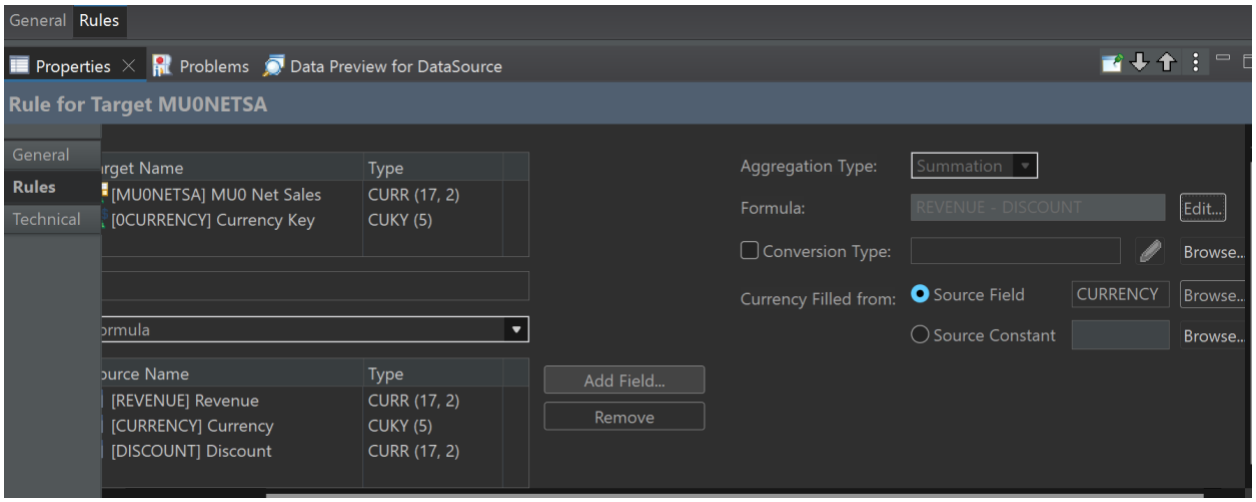
  Loads data from WB1DSDE038 to the aDSO

- **DTP #2:**

  Loads data from WB1DSUS038 to the aDSO

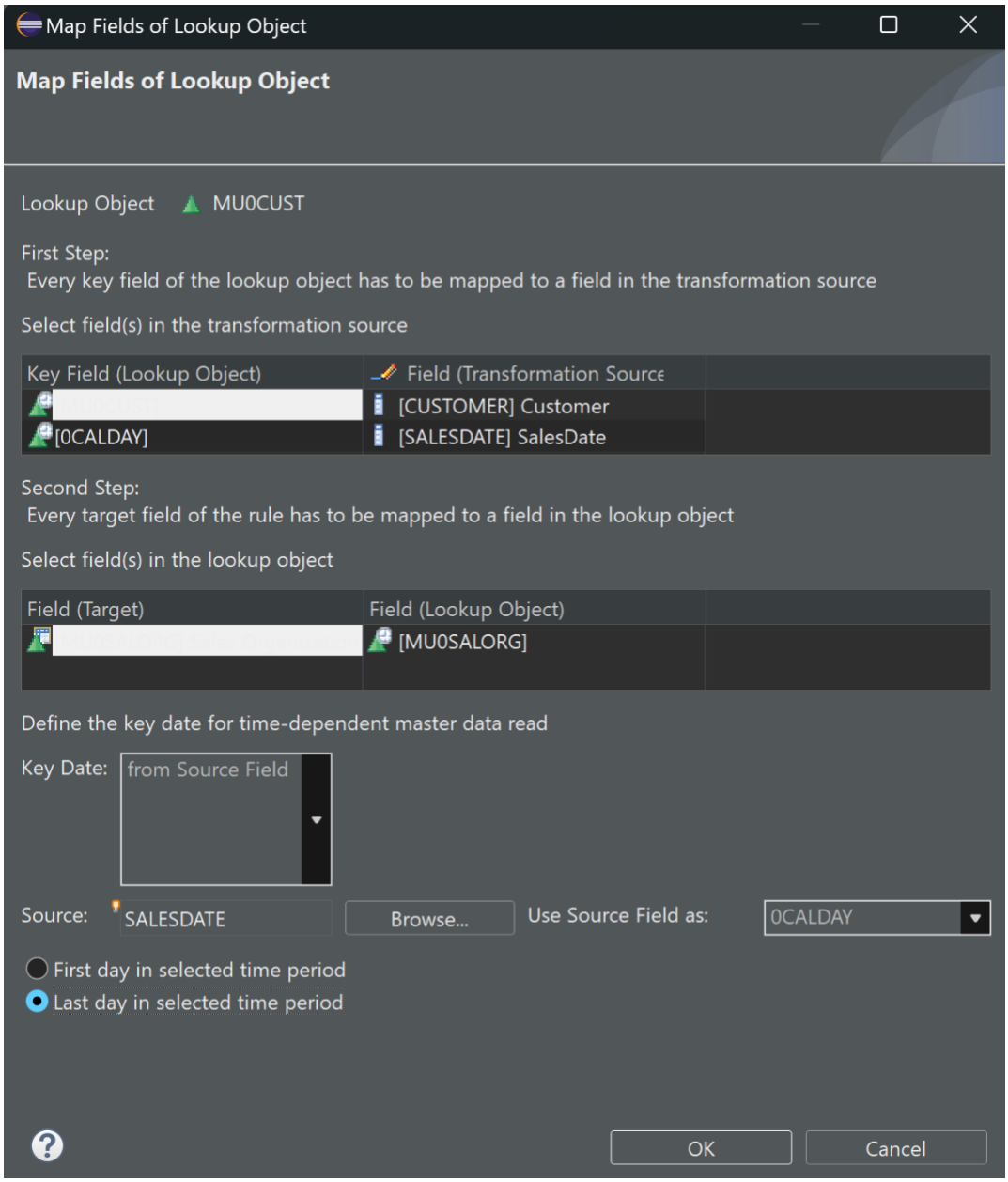
- **Goal:**

  Populate the **same aDSO** with combined sales data from two countries, keeping the structure unified but data sources separate.



Question 12: What would happen if you executed a DTP twice by mistake?

If a DTP is executed twice by mistake in Full mode, it loads all records again, causing duplicate data in the aDSO and inflating totals like revenue or quantity. This can mislead reports unless the extra request is deleted.

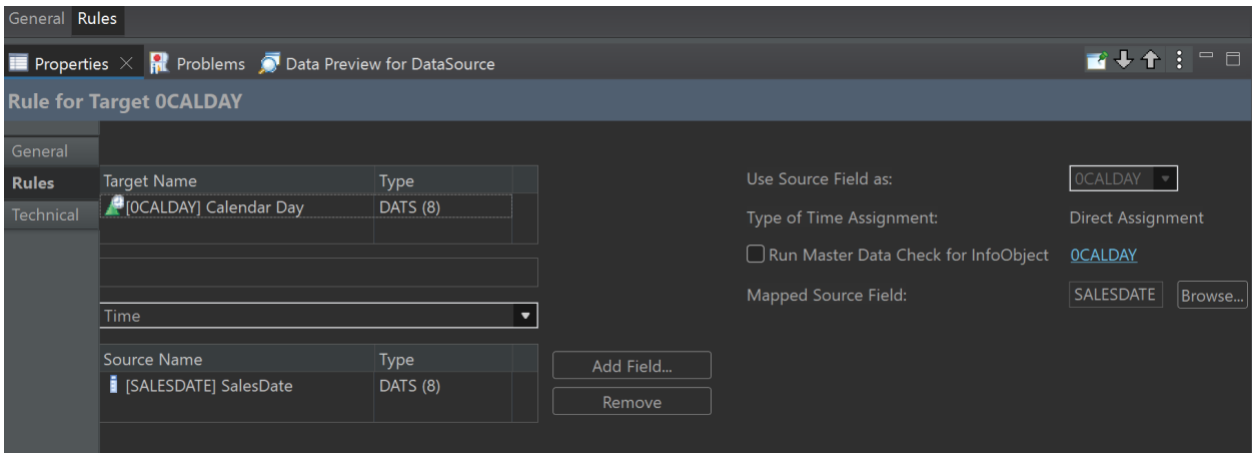


Question 13: What is the source object of the DTP?

The source object of the DTP is the DataSource — which provides the raw data to be loaded into the aDSO. In this case, the DTP sources are:

- WB1DSDE038 for Germany
- WB1DSUS038 for United States

Each DTP pulls data from its respective DataSource into the common target aDSO.



Question 14: What is the target object of the DTP?

The target object of the DTP is the Advanced DataStore Object (aDSO) where the transformed data is loaded.

In your case, the DTP target is:

WB1DM1038 — the aDSO that stores combined sales data from both DE and US sources.

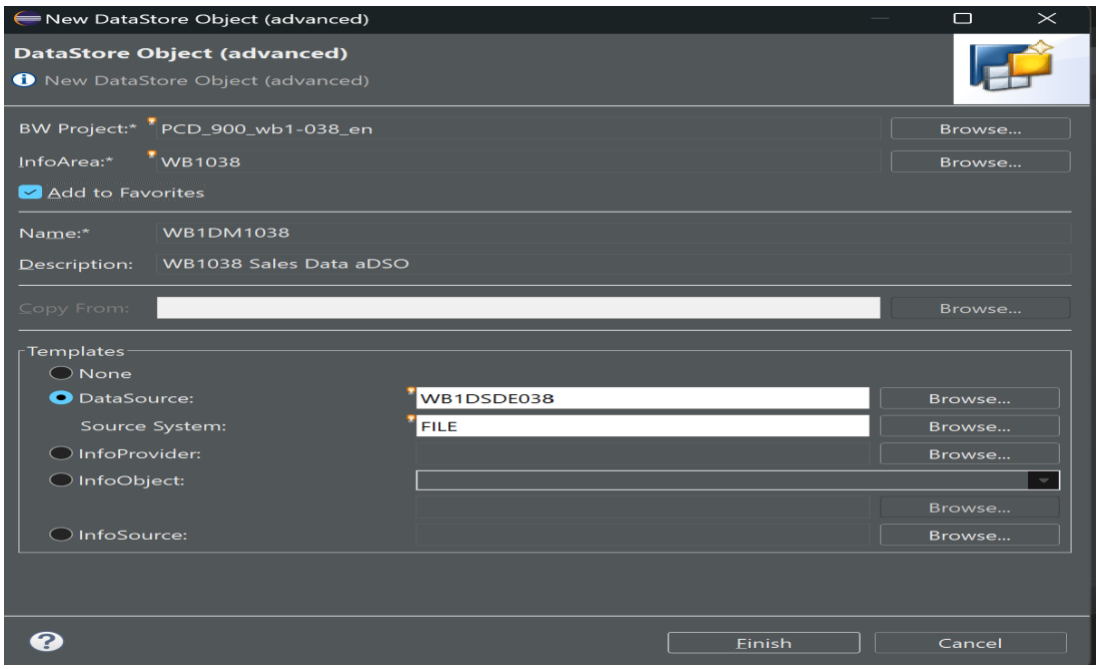
Question 15: In these DTP, what type of data are we loading (in the context of the snowflake schema)?

In these DTPs, we are loading transaction (fact) data into an aDSO, which plays the central fact table role in the snowflake schema.

This data includes:

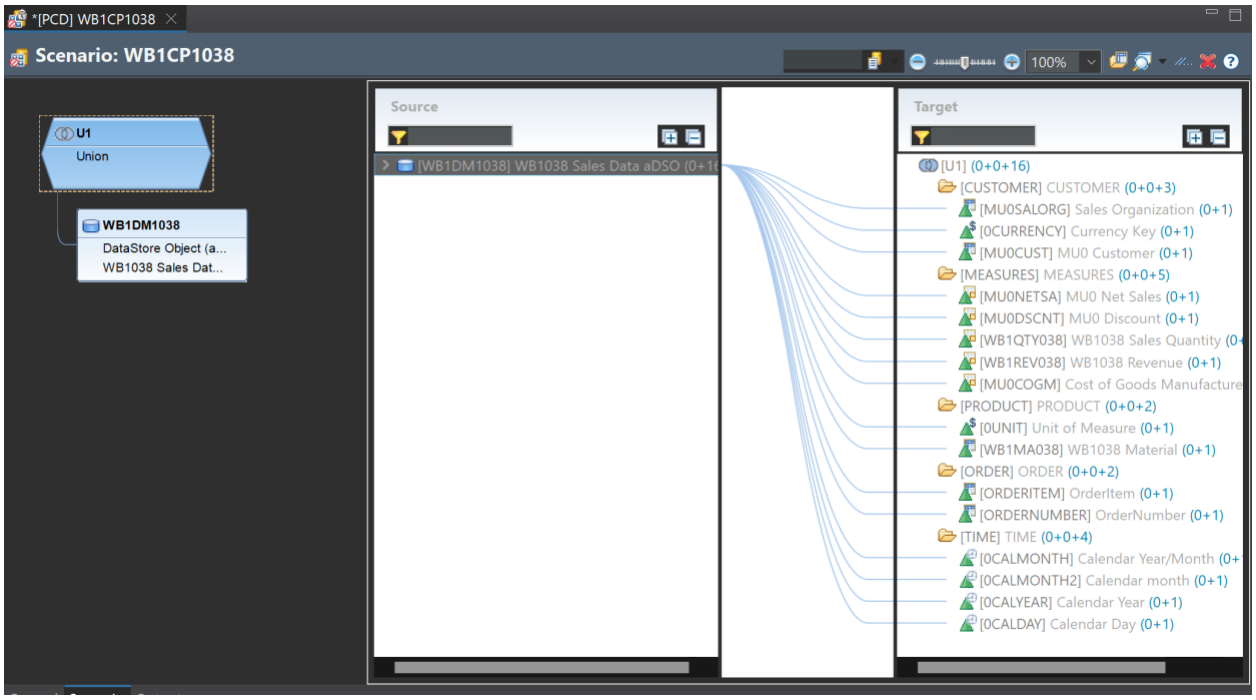
- REVENUE
- DISCOUNT
- COSTSUSD
- SALESDATE
- CUSTOMER, etc.

These facts are linked to dimensions like Product, Time, and Customer via Info Objects (which act as foreign keys to dimension tables in the snowflake model).



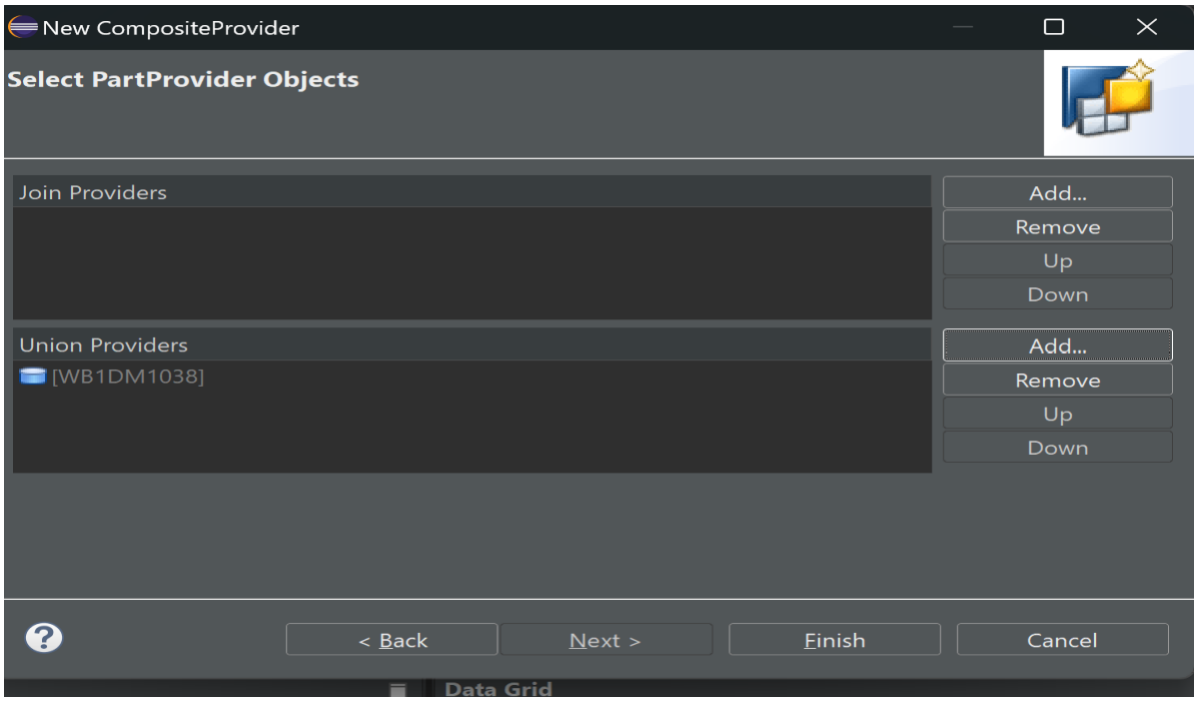
Question 16: What is the difference between an aDSO and a composite provider?

An aDSO stores actual transaction data physically, used for data staging and loading. A Composite Provider creates a virtual layer by combining multiple data sources (like aDSOs) for flexible reporting — it does not store data.



Question 17: Is the data in a composite provider persistent?

No, the data in a Composite Provider is not persistent. It is a virtual object that combines data from underlying persistent sources (like aDSOs or Info Cubes) at runtime for reporting purposes.



Question 18: What object of SAP BW/4HANA represents the snowflake schema?

The Composite Provider best represents the snowflake schema in SAP BW/4HANA.

Why:

- It logically joins fact data (from aDSOs) with dimension data (from master data Info Objects).
- Supports unions and joins, mimicking how fact and dimension tables are related in a snowflake model.
- Allows navigation across normalized dimension hierarchies, like customer, product, and time.

Question 19: 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.

1. Create Info Objects (Chapter 3.1–3.3)

- Define characteristics (e.g., Product, Customer, Sales Org) and key figures (e.g., Revenue, Discount).
- Set data types, length, and attributes.

2. Load Master Data via DataSource (Chapter 3.4)

- Upload CSV files for master data (e.g., Product.csv, Customer.csv).
- Configure DataSource (delimiter, encoding, skip header row).

3. Create Transformations for Master Data (Chapter 3.4)

- Map CSV fields to Info Objects.
- Apply direct assignment, conversions, and time-dependent lookups where needed.

4. Create and Execute DTPs for Master Data (Chapter 3.5)

- Create Data Transfer Process (DTP) from the DataSource to each Info Object.
- Load and activate requests in the "Manage" tab.

5. Verify Master Data in BW Cockpit (Chapter 3.6)

- Use "Display Master Data" to confirm text, attributes, and time-dependencies are correctly loaded.

6. Create aDSO for Transaction Data (Chapter 4.1)

- Design an Advanced DataStore Object for storing fact data (e.g., sales transactions).
- Add fields and link to Info Objects.

7. Create DataSource's for Transaction Data (Chapter 4.1–4.2)

- One each for US and DE sales data.
- Upload respective CSVs, configure separator, and encoding settings.

8. Define Transformations for Transaction Data (Chapter 4.2)

- Map fields like REVENUE, DISCOUNT, CUSTOMER, SALESDATE.
- Use lookups to fetch related fields like Sales Org.
- Create calculated key figures (e.g., Net Sales = Revenue – Discount).

9. Create and Execute DTPs (Chapter 4.2–4.3)

- Load data from both US and DE sources into the aDSO using separate DTPs.
- Confirm record count and status.

10. Create a Composite Provider (Chapter 4.3)

- Combine the aDSO with related master data using a union or join.
- Enable navigation attributes and prepare for reporting.

Question 20: 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.

One snowflake schema advantage we discussed but did not implement is hierarchies (e.g., Product Category → Product). They enable drill-down in reporting, but our data model did not include parent-child or level-based hierarchies.