

PUBLIC

Hybrid Data Warehousing: Integrating On-Premise Data Sources with SAP Data Warehouse Cloud and BW/4HANA

ANA368

Exercises

Jascha Kanngiesser / SAP

TABLE OF CONTENTS

WORKSHOP OVERVIEW	3
Workshop Topics and Exercises	3
Workshop Information	3
1. INTRODUCTION TO THE SALES DATA MODEL	4
DEMO Content: Table Description	4
Sales Data Model in BW/4HANA.....	5
2. LOGGING ONTO DWC AND CREATING THE FIRST SPACE (IT SPACE).....	7
Exercise Description.....	7
3. IMPORTING THE BW/4HANA DATA MODEL TO DWC.....	12
Exercise Description.....	12
4. CREATING THE SECOND SPACE (LOB SPACE).....	15
Exercise Description.....	15
5. IMPORTING ADDITIONAL SALES DATA VIA FLAT FILE IMPORT	17
Exercise Description.....	17
6. BUILD THE FIRST STORY IN THE IT SPACE	21
Exercise Description.....	21
7. COMBINING DATA FROM SPACES TO VISUALIZE DATA IN SAC.....	26
Exercise Description.....	26
8. EXPAND THE DATA MODEL IN DWC WITH SENTIMENT ANALYSIS.....	47
Exercise Description.....	47

WORKSHOP OVERVIEW

Welcome to the TechEd 2020 workshop session ANA368 covering the topic of Hybrid Scenarios with SAP Data Warehouse Cloud (DWC) and SAP BW/4HANA.

In this workshop, we will be importing a sales data model which resides on a BW/4HANA 2.0 system into DWC, where we will combine it with further sales data uploaded via flat files (CSV). We will expand upon the data model in DWC, and visualize the data using SAP Analytics Cloud (SAC).

Workshop Topics and Exercises

During this workshop, we will cover the following topics via presentations and exercises:

1. Introduction to the Sales Data Model
2. Logging onto DWC and Creating the First Space (IT Space)
3. Importing the BW/4HANA Data Model to DWC
4. Creating the Second Space (LoB Space)
5. Importing Additional Sales Data via Flat File
6. Build the First Story in the IT Space
7. Combining Data from Spaces to Visualize Data in SAC
8. Expand the Data Model in DWC with Sentiment Analysis

Workshop Information

During the workshop, please use the user that has been assigned to you with the naming convention:

- saptechedana368+XXX@sap.com

Where 'XXX' represents your individual participant number. In the following exercise instructions, we have been logged in with the user saptechedana368+001@sap.com.

All users have the password: **SAPTechEd2020!**

The DWC tenant for this workshop is: <https://dwc-teched2020.eu10.hcs.cloud.sap/dwaas-ui/index.html#/home>

For the workshop material, we will be working with the Best Run Bikes sales data.

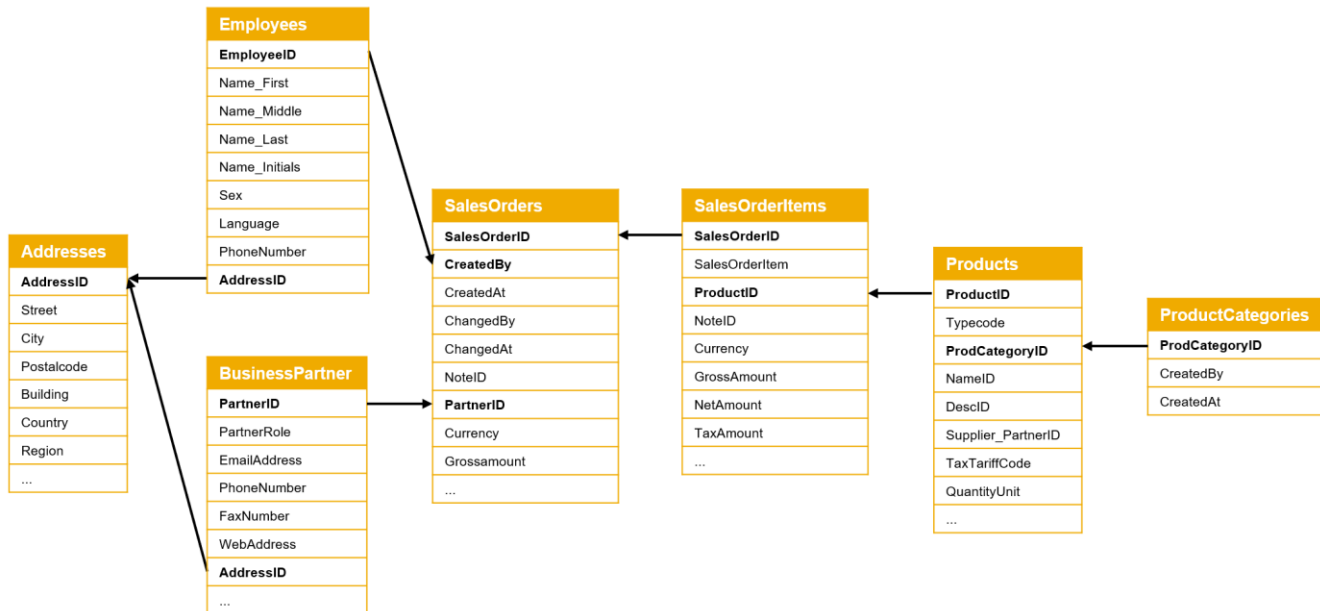
The data will be coming from a connection to an SAP BW/4HANA 2.0 system and merged in the model with data uploaded as flat files. You will find the needed flat files in the GitHub repository: **teched2020-ANA368**.

1. INTRODUCTION TO THE SALES DATA MODEL

In this section, we will introduce the data model in SAP BW/4HANA 2.0 that we will be importing to DWC for the hybrid scenario. The data sets may be familiar to some that have worked with SAP DWC tutorials previously, as we will be using the Best Run Bikes sales data.

DEMO Content: Table Description

The demo content mentioned in this document is based on a Sales Order scenario. The model is developed in a way that it covers the basic scenarios as well as a few advanced scenarios.



SalesOrders

This dataset contains consolidated order details with Gross Amount, Net Amount, and Tax Amount aggregated for each order, i.e. one row per order. It also contains Partner information, creating employee, Sales Organization for region details (for e.g. EMEA, APJ, etc.) and most importantly, the three status flags for an order – BillingStatus, DeliveryStatus, LifecycleStatus. These status flags have three possible values – I (In Progress), C (Completed) and X (Canceled).

Foreign keys in this dataset – CreatedBy and ChangedBy (EmployeeID from Employees), PartnerID (PartnerID from BusinessPartner)

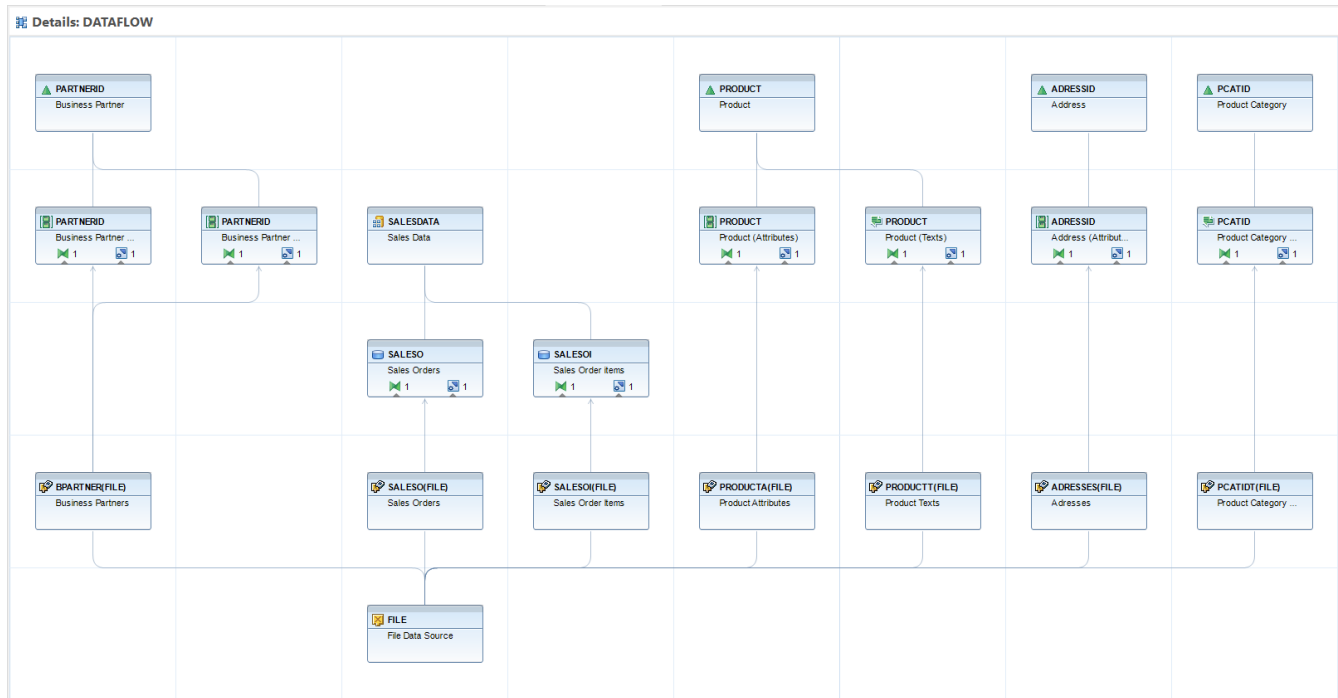
SalesOrderItem

This dataset contains the breakdown of each order from SalesOrders, therefore, redundant data for SalesOrderID is included. This is the right place to find the products that have been ordered, quantity of the products, and pricing details for each product. The DeliveryDate column in this dataset impacts the DeliveryStatus flag in SalesOrders. In case of a canceled order, the date in this column is set to “99991231”.

Foreign keys in this dataset – ProductID (ProductID from Products)

Sales Data Model in BW/4HANA









Although you do not have to access the BW/4HANA system for this workshop, we will show you how the data model looks in BW Modeling Tools to give you an overview:



As can be seen, the data is loaded from 7 different Data Sources into BW/4HANA. Two ADSOs store the Sales Orders and the Sales Order Items, which are combined in the BW Query **SALESDATA_Q001** (this will be shown as *Semantic Query* in the Business Builder when imported to DWC). The remaining sources are modeled as Characteristic InfoObjects in the DataFlow. We will be adding the Characteristics of PARTNER and PRODUCT to our sales data model in DWC later in this workshop.

ANA368

When we import this data from BW/4HANA into DWC, we should see the following objects in the Data Builder:

Files (8)							
	Business Name	Technical Name	Type	Created By	Created On	Changed By	Changed On
<input type="checkbox"/>	 /BIC/MPARTNERID	BICMPARTNERID	Remote Table	SAPTechED ANA368_001	Oct 21, 2020 14:13	SAPTechED ANA368_001	Oct 21, 2020 14:13
<input type="checkbox"/>	 /BIC/MPRODUCT	BICMPRODUCT	Remote Table	SAPTechED ANA368_001	Oct 21, 2020 14:13	SAPTechED ANA368_001	Oct 21, 2020 14:13
<input type="checkbox"/>	 /BIC/TPRODUCT	BICTPRODUCT	Remote Table	SAPTechED ANA368_001	Oct 21, 2020 14:13	SAPTechED ANA368_001	Oct 21, 2020 14:13
<input type="checkbox"/>	 Sales Data	BICVSALESDATA8	Remote Table	SAPTechED ANA368_001	Oct 21, 2020 14:13	SAPTechED ANA368_001	Oct 21, 2020 14:13
<input type="checkbox"/>	 DLPARTNERID	DLPARTNERID	Dimension (View)	SAPTechED ANA368_001	Oct 21, 2020 14:13	SAPTechED ANA368_001	Oct 21, 2020 14:13
<input type="checkbox"/>	 Product	PRODUCT__T	View	SAPTechED ANA368_001	Oct 21, 2020 14:13	SAPTechED ANA368_001	Oct 21, 2020 14:13
<input type="checkbox"/>	 DLPRODUCT	DLPRODUCT	Dimension (View)	SAPTechED ANA368_001	Oct 21, 2020 14:13	SAPTechED ANA368_001	Oct 21, 2020 14:13
<input type="checkbox"/>	 Product	TAPRODUCT	Dimension (View)	SAPTechED ANA368_001	Oct 21, 2020 14:13	SAPTechED ANA368_001	Oct 21, 2020 14:13

As well as the following objects in the Business Builder:

ANA368_001_IT (4)				<div><div><div><div>+</div><div>▼</div></div><div><div>📁</div><div>▼</div></div><div><div>🔗</div><div>▼</div></div><div><div>✎</div></div><div><div>📄</div></div><div><div>🗑</div></div></div><div>Search objects</div><div>🔍</div></div>		
	Business Name <div>⌵</div>	Type	Created By	Created On	Changed By	Changed On
	<div>📦</div> Business Partner	Dimension (Business Entity)	SAPTechED ANA368_001	Oct 21, 2020 14:14	SAPTechED ANA368_001	Oct 21, 2020 14:14
	<div>📦</div> Product	Dimension (Business Entity)	SAPTechED ANA368_001	Oct 21, 2020 14:14	SAPTechED ANA368_001	Oct 21, 2020 14:14
	<div>📊</div> Sales Data	Analytical Dataset (Business Entity)	SAPTechED ANA368_001	Oct 21, 2020 14:14	SAPTechED ANA368_001	Oct 21, 2020 14:14
	<div>⚙️</div> Semantic Query	Consumption Model	SAPTechED ANA368_001	Oct 21, 2020 14:14	SAPTechED ANA368_001	Oct 21, 2020 14:14

As part of this workshop, we will be combining this data imported from BW/4HANA into a Space in DWC with data coming from Flat Files imported to another Space in DWC.

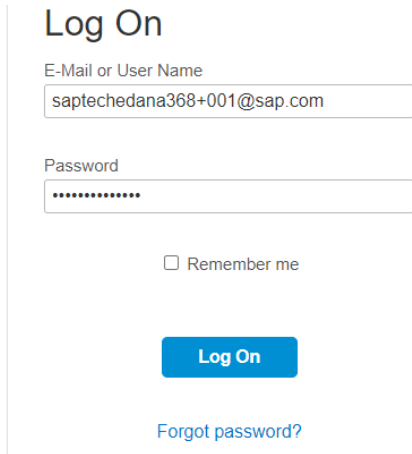

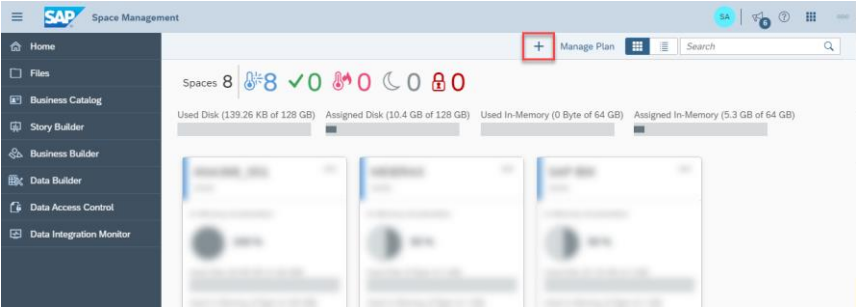
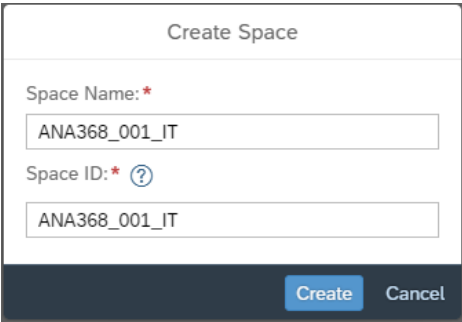
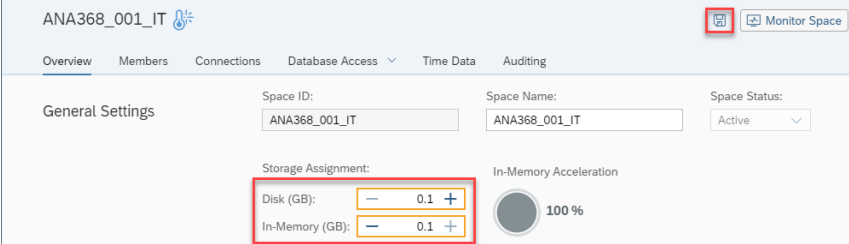
2. LOGGING ONTO DWC AND CREATING THE FIRST SPACE (IT SPACE)


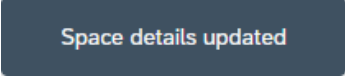
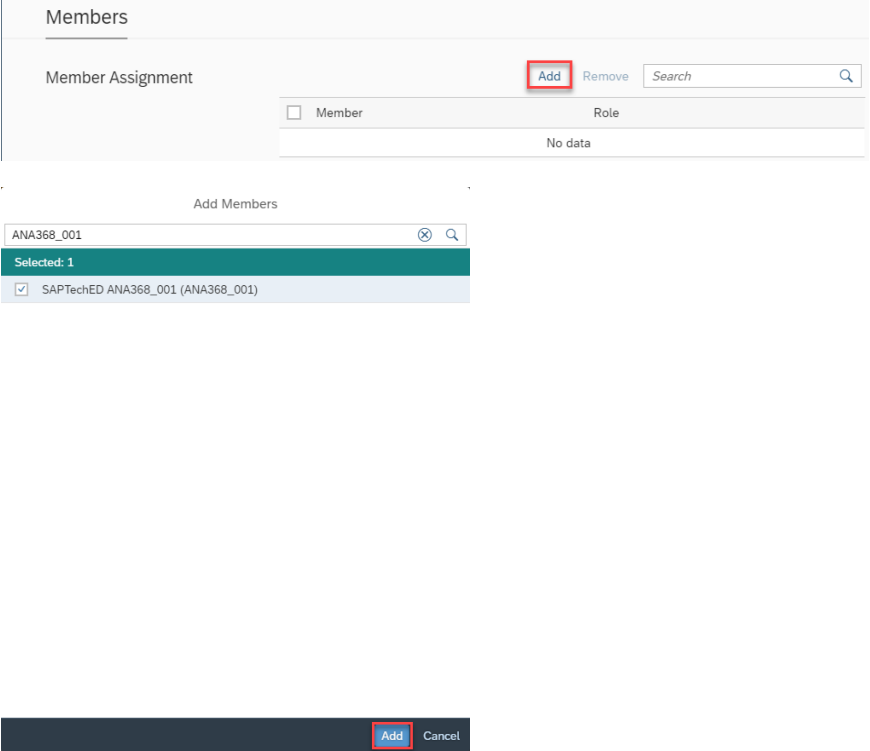
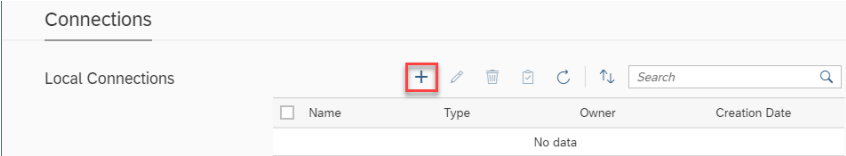
Before you can import the data from BW/4HANA, you need to log into DWC, and create the first Space for this hybrid scenario.

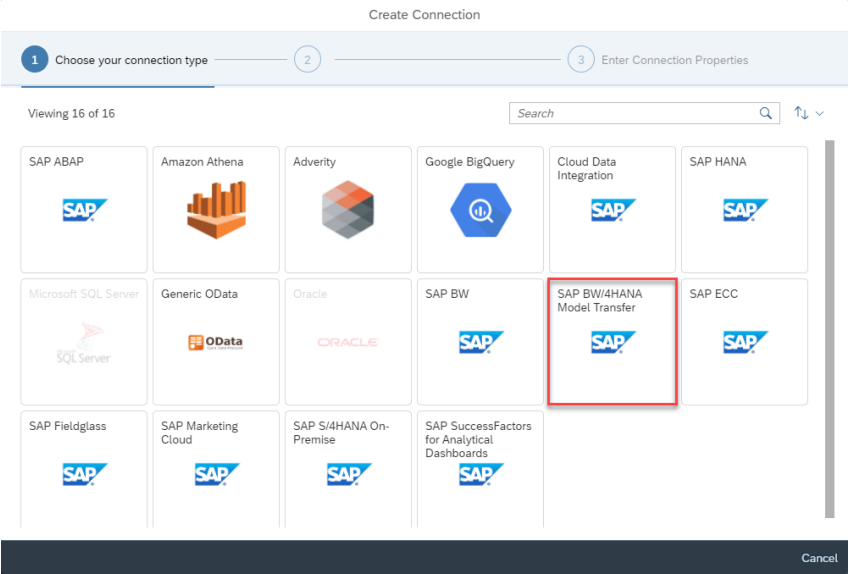
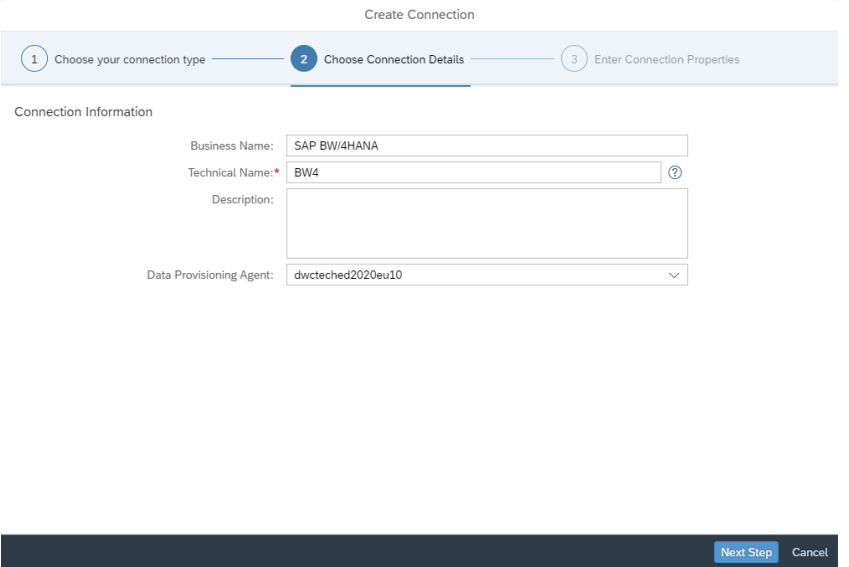
Exercise Description

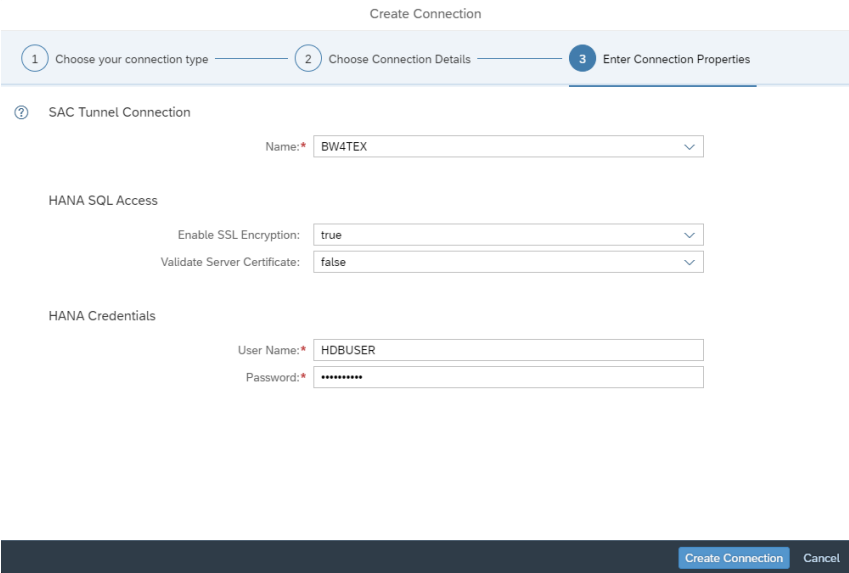

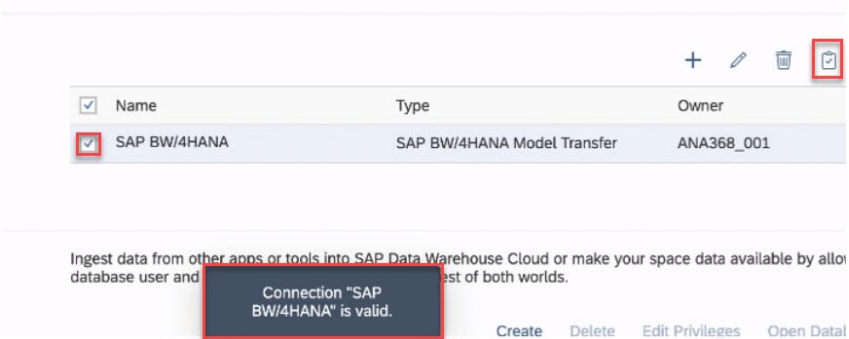
You will learn

- To log onto DWC
- To create a Space and assign yourself as a member of the Space
- Create an SAP BW/4HANA Model Transfer connection

Explanation	Screenshot
<p>1. Log onto DWC using the tenant link and user + password mentioned in the introduction.</p>	 <p>The screenshot shows the 'Log On' page of the SAP Space Management interface. It includes a 'Log On' header, a text field for 'E-Mail or User Name' containing 'saptechedana368+001@sap.com', a password field with masked characters, a 'Remember me' checkbox, a blue 'Log On' button, and a 'Forgot password?' link.</p>
<p>2. Once you are logged on, please go to <i>Space Management</i></p> <p></p> <p>and create your first Space by clicking the + button.</p>	 <p>The screenshot shows the SAP Space Management dashboard. A red box highlights a '+' button in the top right corner of the dashboard area. The dashboard displays various metrics like 'Spaces 8', 'Used Disk', 'Assigned Disk', 'Used In-Memory', and 'Assigned In-Memory'.</p>
<p>3. Please name the Space ANA368_XXX_IT where 'XXX' is your user number.</p>	 <p>The screenshot shows the 'Create Space' form. It has two input fields: 'Space Name' with the value 'ANA368_001_IT' and 'Space ID' with the value 'ANA368_001_IT'. There are 'Create' and 'Cancel' buttons at the bottom.</p>
<p>4. Once the Space is created, please change the Storage Assignment under General Settings to the lowest possible option, as depicted here:</p> <p>This will be sufficient for this workshop.</p>	 <p>The screenshot shows the configuration page for the space 'ANA368_001_IT'. A red box highlights the 'Storage Assignment' section, which includes 'Disk (GB)' and 'In-Memory (GB)' both set to '0.1'. There is also an 'In-Memory Acceleration' slider set to '100 %'.</p>

Explanation	Screenshot
<p>5. Save the changes .</p> <p>You should see a pop-up at the bottom confirming that the Space details have been updated.</p>	
<p>6. Under Member Assignment, please add your user by clicking the Add button.</p> <p>Search for your user and add it by marking it, and clicking Add.</p> <p><i>[INFO] Whilst creating the material for this workshop, we sometimes experienced an error message when adding users. This is currently an open Bug. To work around this bug, please refresh (F5) the page after the error message has appeared, then the user should appear in the member list.</i></p>	
<p>7. Under Connections, create a connection of type SAP BW/4HANA Model Transfer by clicking the + button.</p>	

Explanation	Screenshot
8. In the first dialog box, select the connection type SAP BW/4HANA Model Transfer .	 <p>The screenshot shows the 'Create Connection' dialog box with three steps: 1. Choose your connection type, 2. Choose Connection Details, and 3. Enter Connection Properties. Step 1 is active. It displays a grid of 16 connection types. The 'SAP BW/4HANA Model Transfer' option is highlighted with a red border. Other options include SAP ABAP, Amazon Athena, Adverity, Google BigQuery, Cloud Data Integration, SAP HANA, Microsoft SQL Server, Generic OData, Oracle, SAP BW, SAP ECC, SAP Fieldglass, SAP Marketing Cloud, SAP S/4HANA On-Premise, and SAP SuccessFactors for Analytical Dashboards. A search bar and a 'Cancel' button are also visible.</p>
9. In the second dialog box, give your connection a <i>Business Name</i> and a <i>Technical Name</i> , and choose the DPAgent dwctched2020eu10 from the dropdown menu.	 <p>The screenshot shows the 'Create Connection' dialog box with three steps: 1. Choose your connection type, 2. Choose Connection Details, and 3. Enter Connection Properties. Step 2 is active. It displays the 'Connection Information' section with the following fields: 'Business Name' (SAP BW/4HANA), 'Technical Name' (BW4), 'Description' (empty), and 'Data Provisioning Agent' (dwctched2020eu10). A 'Next Step' button and a 'Cancel' button are visible at the bottom.</p>

Explanation	Screenshot
<p>10. In the third dialog box, choose the BW4TEX connection under <i>SAC Tunnel Connection</i>.</p> <p>Change the value of <i>Validate Server Certificate</i> from true to false.</p> <p>Enter the following HANA Credentials:</p> <p>User: HDBUSER Passwd: Teched2020</p> <p>Click on <i>Create Connection</i>.</p>	
<p>11. Once the connection is created, validate it by marking it and clicking .</p> <p>This concludes the first exercise.</p>	


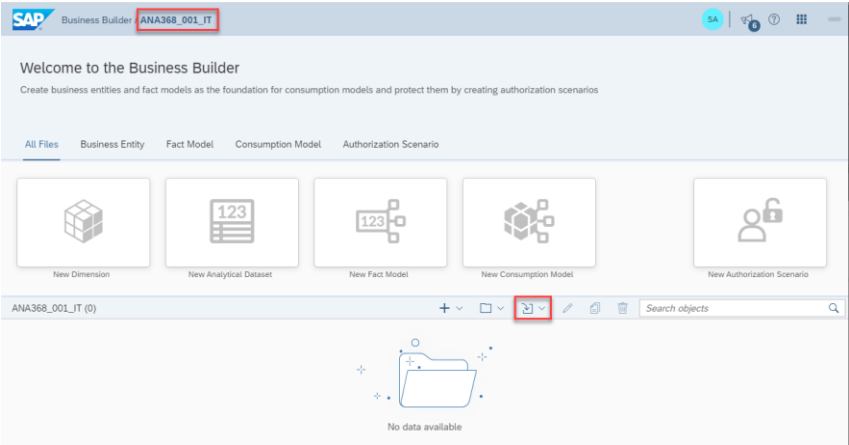

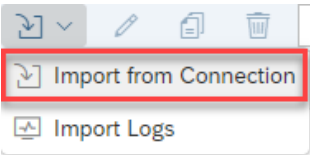
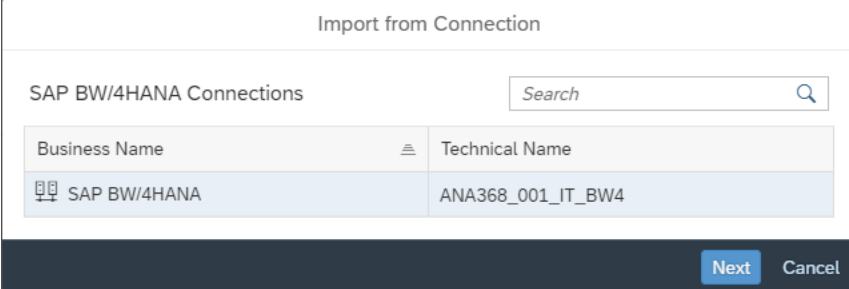
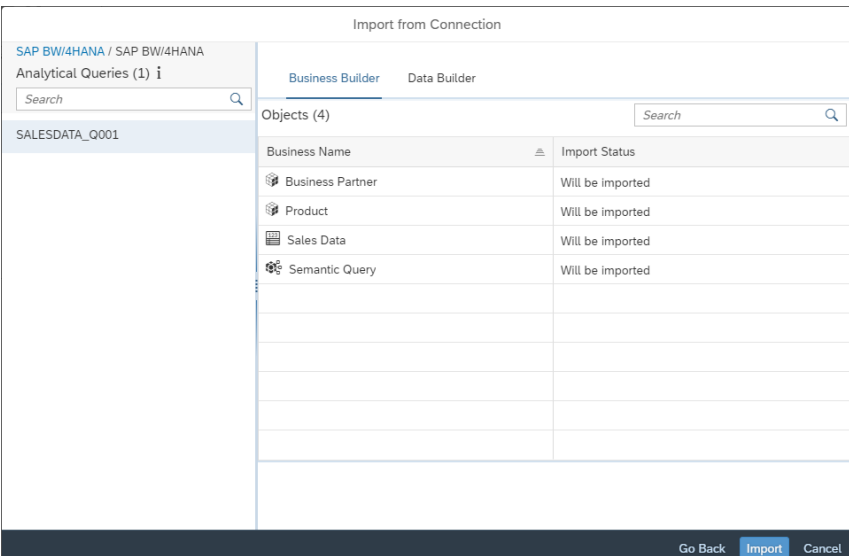
3. IMPORTING THE BW/4HANA DATA MODEL TO DWC

In this exercise, you will be importing the data model from the BW/4HANA system into your first DWC Space ANA368_XXX_IT.

Exercise Description

You will learn

- How to import a BW/4HANA data model into DWC using the *Import from Connection* function.

Explanation	Screenshot
<p>12. Making sure that you are in your newly created IT Space, please go to the <i>Business Builder</i> tab.</p> <p> Business Builder</p> <p>At the top you will see the navigation path, which should have your Space name.</p>	
<p>13. In the Business Builder, click on the  button, and choose <i>Import from Connection</i>.</p>	
<p>14. Mark the connection to BW/4HANA that you created in the previous exercise and click on <i>Next</i>.</p>	
<p>15. In the next screen, you should see just the BW Query SALESDATA_Q001. When you mark it, you will see the objects which will be imported to the Business Builder and the Data Builder.</p> <p>Click on <i>Import</i>.</p> <p>[INFO] In this step we have also observed sporadic error messages. If you get an error message, please click on Go Back, and try again.</p>	

Explanation	Screenshot																																																																	
<p>16. You should see a confirmation at the bottom of the screen, that the import has started.</p> <p>As well, you can see the progress of the import under the notifications at the top of the screen.</p>	<div><div>Batch deployment of 12 objects started.</div><div><div>SAPTechED ANA368_001 SA</div><div><div></div><div>7</div></div><div></div><div></div></div><div><div>All Types</div><div>Search</div><div></div><div></div></div><div><div></div><div>Import of remote model SALESDATA_Q001 started 41 seconds ago</div><div></div></div></div>																																																																	
<p>17. Once the import has completed (it should not take more than a few minutes), you will see 4 files in the Business Builder, and 8 files in the Data Builder.</p> <p>You have now successfully imported the data model from BW/4HANA into DWC.</p>	<div><div>ANA368_001_IT (4)</div><div><div></div><div></div><div></div><div></div></div><table><thead><tr><th></th><th>Business Name</th><th>Type</th><th>Created By</th></tr></thead><tbody><tr><td></td><td>Business Partner</td><td>Dimension (Business Entity)</td><td>SAPTechED ANA368_001</td></tr><tr><td></td><td>Product</td><td>Dimension (Business Entity)</td><td>SAPTechED ANA368_001</td></tr><tr><td></td><td>Sales Data</td><td>Analytical Dataset (Business Entity)</td><td>SAPTechED ANA368_001</td></tr><tr><td></td><td>Semantic Query</td><td>Consumption Model</td><td>SAPTechED ANA368_001</td></tr></tbody></table></div> <div><div>Files (8)</div><div><div></div><div></div><div></div><div></div></div><table><thead><tr><th></th><th>Business Name</th><th>Technical Name</th><th>Type</th><th>Created By</th></tr></thead><tbody><tr><td></td><td>/BIC/MPARTNERID</td><td>BICMPARTNERID</td><td>Remote Table</td><td>SAPTechED ANA368_001</td></tr><tr><td></td><td>/BIC/MPRODUCT</td><td>BICMPRODUCT</td><td>Remote Table</td><td>SAPTechED ANA368_001</td></tr><tr><td></td><td>/BIC/TPRODUCT</td><td>BICTPRODUCT</td><td>Remote Table</td><td>SAPTechED ANA368_001</td></tr><tr><td></td><td>Sales Data</td><td>BICVSALESDATA8</td><td>Remote Table</td><td>SAPTechED ANA368_001</td></tr><tr><td></td><td>DLPARTNERID</td><td>DLPARTNERID</td><td>Dimension (View)</td><td>SAPTechED ANA368_001</td></tr><tr><td></td><td>Product</td><td>PRODUCT__T</td><td>View</td><td>SAPTechED ANA368_001</td></tr><tr><td></td><td>DLPRODUCT</td><td>DLPRODUCT</td><td>Dimension (View)</td><td>SAPTechED ANA368_001</td></tr><tr><td></td><td>Product</td><td>TAPRODUCT</td><td>Dimension (View)</td><td>SAPTechED ANA368_001</td></tr></tbody></table></div>		Business Name	Type	Created By		Business Partner	Dimension (Business Entity)	SAPTechED ANA368_001		Product	Dimension (Business Entity)	SAPTechED ANA368_001		Sales Data	Analytical Dataset (Business Entity)	SAPTechED ANA368_001		Semantic Query	Consumption Model	SAPTechED ANA368_001		Business Name	Technical Name	Type	Created By		/BIC/MPARTNERID	BICMPARTNERID	Remote Table	SAPTechED ANA368_001		/BIC/MPRODUCT	BICMPRODUCT	Remote Table	SAPTechED ANA368_001		/BIC/TPRODUCT	BICTPRODUCT	Remote Table	SAPTechED ANA368_001		Sales Data	BICVSALESDATA8	Remote Table	SAPTechED ANA368_001		DLPARTNERID	DLPARTNERID	Dimension (View)	SAPTechED ANA368_001		Product	PRODUCT__T	View	SAPTechED ANA368_001		DLPRODUCT	DLPRODUCT	Dimension (View)	SAPTechED ANA368_001		Product	TAPRODUCT	Dimension (View)	SAPTechED ANA368_001
	Business Name	Type	Created By																																																															
	Business Partner	Dimension (Business Entity)	SAPTechED ANA368_001																																																															
	Product	Dimension (Business Entity)	SAPTechED ANA368_001																																																															
	Sales Data	Analytical Dataset (Business Entity)	SAPTechED ANA368_001																																																															
	Semantic Query	Consumption Model	SAPTechED ANA368_001																																																															
	Business Name	Technical Name	Type	Created By																																																														
	/BIC/MPARTNERID	BICMPARTNERID	Remote Table	SAPTechED ANA368_001																																																														
	/BIC/MPRODUCT	BICMPRODUCT	Remote Table	SAPTechED ANA368_001																																																														
	/BIC/TPRODUCT	BICTPRODUCT	Remote Table	SAPTechED ANA368_001																																																														
	Sales Data	BICVSALESDATA8	Remote Table	SAPTechED ANA368_001																																																														
	DLPARTNERID	DLPARTNERID	Dimension (View)	SAPTechED ANA368_001																																																														
	Product	PRODUCT__T	View	SAPTechED ANA368_001																																																														
	DLPRODUCT	DLPRODUCT	Dimension (View)	SAPTechED ANA368_001																																																														
	Product	TAPRODUCT	Dimension (View)	SAPTechED ANA368_001																																																														


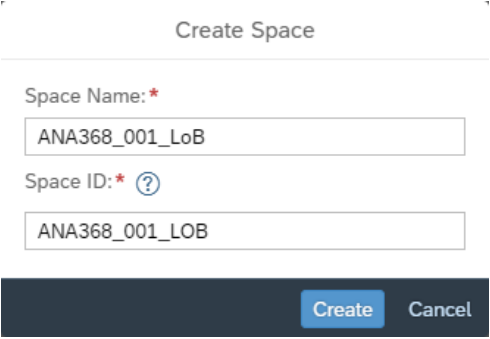

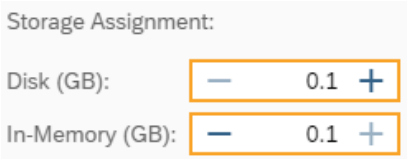
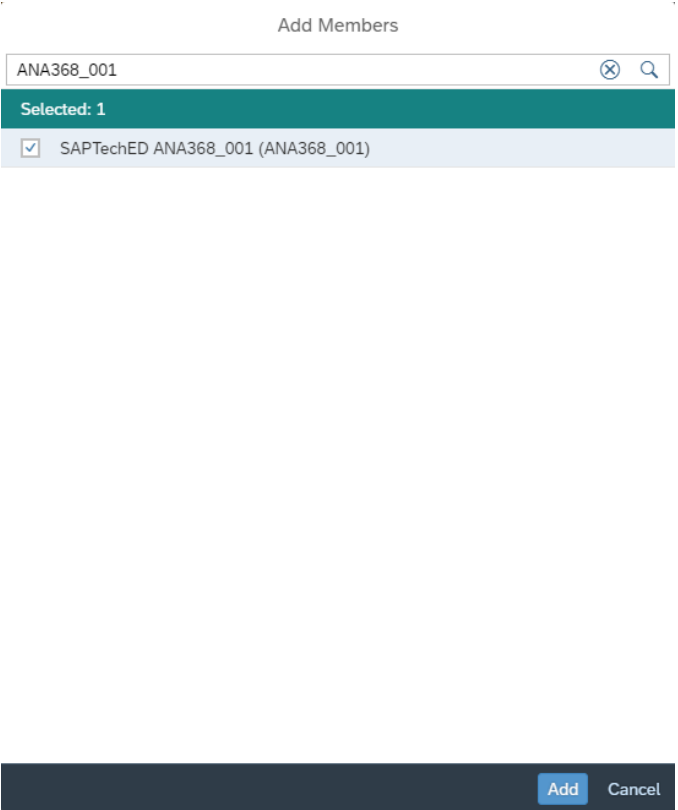
4. CREATING THE SECOND SPACE (LOB SPACE)

In this exercise, you will create a second Space for importing other sales data residing in flat files, which will later be combined with the data that you imported from BW/4HANA to complete the hybrid scenario.

Exercise Description

You will learn

- To create a DWC Space.

Explanation	Screenshot
<p>18. In this short exercise, you will create an LoB Space which will be used to combine data with your IT Space containing the BW/4HANA Data.</p> <p>Please again go to Space Management, and click the  button to create a new Space.</p> <p>Please name this second Space ANA368_XXX_LoB, where 'XXX' is your workshop user number.</p>	 <p>The screenshot shows the 'Create Space' dialog box. It has two input fields: 'Space Name: *' with the value 'ANA368_001_LoB' and 'Space ID: * ?' with the value 'ANA368_001_LOB'. At the bottom, there are 'Create' and 'Cancel' buttons.</p>
<p>19. Please also lower the storage assignment in this Space and click the  button to save.</p>	 <p>The screenshot shows the 'Storage Assignment' dialog box. It has two input fields: 'Disk (GB):' with the value '0.1' and 'In-Memory (GB):' with the value '0.1'. Both fields have minus and plus buttons for adjustment.</p>
<p>20. Under Members, add your user as a member by selecting it and clicking <i>Add</i>.</p> <p>You now have your second Space for importing flat files.</p>	 <p>The screenshot shows the 'Add Members' dialog box. It has a search bar with the value 'ANA368_001'. Below the search bar, it says 'Selected: 1'. There is a list of members with a checkbox next to 'SAPTechED ANA368_001 (ANA368_001)'. At the bottom, there are 'Add' and 'Cancel' buttons.</p>

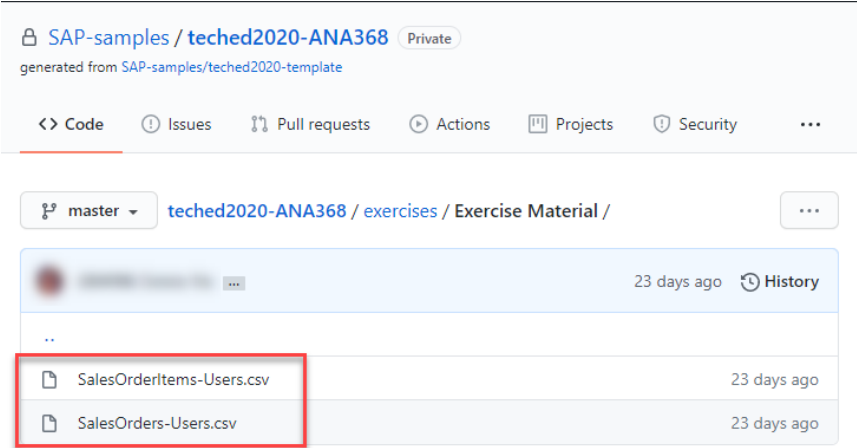

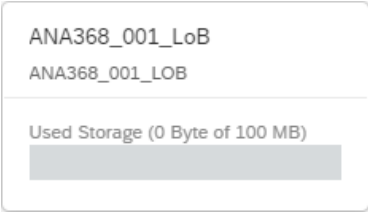


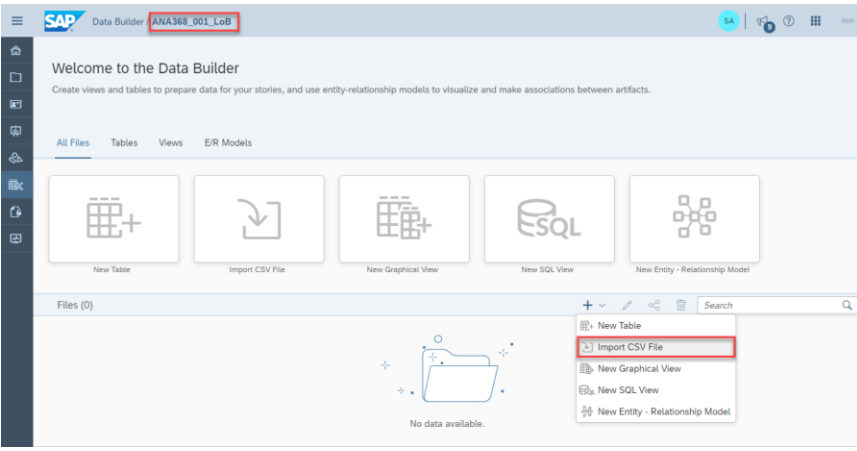
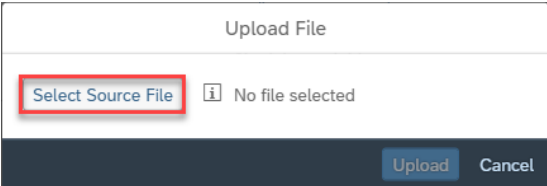
5. IMPORTING ADDITIONAL SALES DATA VIA FLAT FILE IMPORT

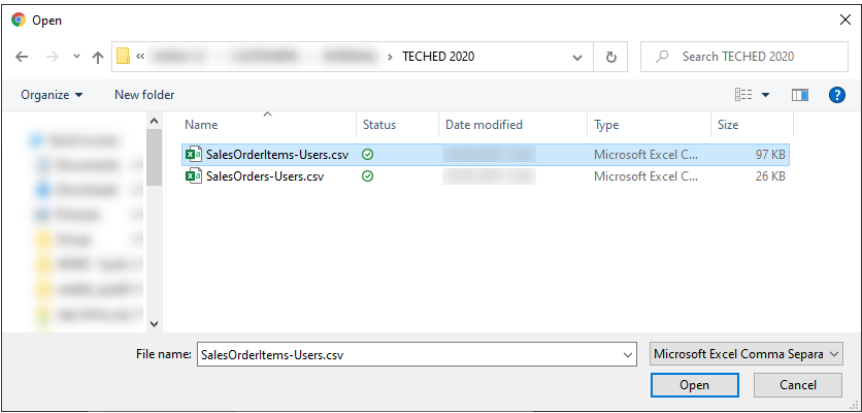
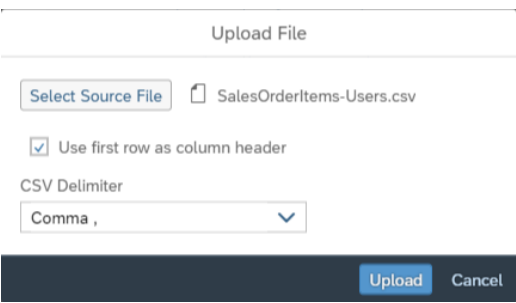
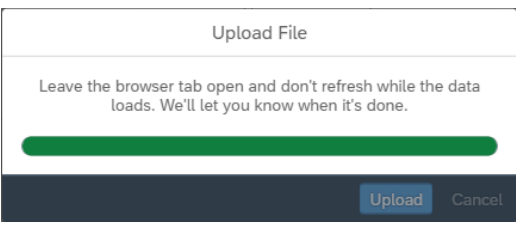
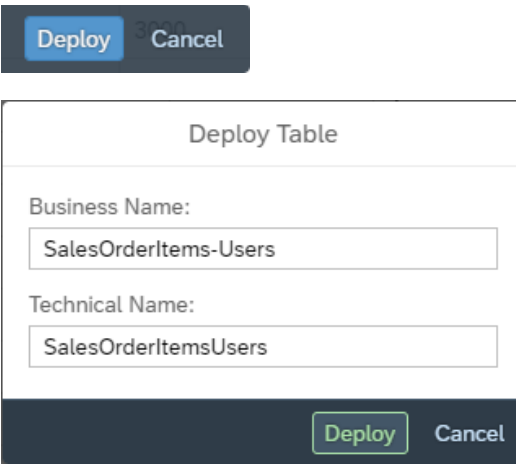
In this exercise, you will import two flat files to your LoB Space that you just created.

Exercise Description

You will learn

- To add flat files to a Space using the Data Builder.

Explanation	Screenshot
<p>21. Please go to the provided GitHub page for this workshop (teched2020-ANA368) and download the two CSV files from the <i>Exercise Material</i> folder.</p>	
<p>22. Back in DWC, please go to the <i>Data Builder</i>.</p> <p> Data Builder</p> <p>In the Data Builder, make sure that you choose your LoB Space.</p>	
<p>23. In your LoB Space, click the  button, and choose <i>Import CSV File</i>.</p> <p>Due to updates to the tenant, you may have to click the  button instead, and there choose <i>Import CSV File</i>.</p>	
<p>24. Click <i>Select Source File</i> in the pop-up.</p>	

Explanation	Screenshot
<p>25. Choose the first file from the directory where you downloaded it to.</p> <p>Click on <i>Open</i>.</p>	
<p>26. Tick the box to use the first row of the CSV file as the header column and set the <i>CSV Delimiter</i> to either auto-detect, or Comma delimited, as is the case in this file. Click on <i>Upload</i>.</p>	
<p>27. You will get a progress for the upload.</p>	
<p>28. Once the data has loaded, a preview will be displayed and you will get the option to deploy the table.</p> <p>Click on <i>Deploy</i> at the bottom of the screen.</p> <p>Leave the default Business Name and Technical Name, and click on <i>Deploy</i> again in the pop-up.</p>	

Explanation	Screenshot																								
29. While the file deploys, you will see the following pop-up at the bottom of your screen.	<div>SalesOrderItemsUsers deployment started. You will get notified once the process finalized.</div>																								
30. Once the deployment has completed, you will see the file in the list in the Data Builder.	<table><tr><th colspan="8">Files (1)</th></tr><tr><th></th><th>Business Name</th><th>Technical Name</th><th>Type</th><th>Created By</th><th>Created On</th><th>Changed By</th><th>Changed On</th></tr><tr><td><input type="checkbox"/></td><td>SalesOrderItems-Users</td><td>SalesOrderItemsUs...</td><td>Relational Dataset (Local Table)</td><td>SAPTechED ANA368_001</td><td></td><td>SAPTechED ANA368_001</td><td></td></tr></table>	Files (1)									Business Name	Technical Name	Type	Created By	Created On	Changed By	Changed On	<input type="checkbox"/>	SalesOrderItems-Users	SalesOrderItemsUs...	Relational Dataset (Local Table)	SAPTechED ANA368_001		SAPTechED ANA368_001	
Files (1)																									
	Business Name	Technical Name	Type	Created By	Created On	Changed By	Changed On																		
<input type="checkbox"/>	SalesOrderItems-Users	SalesOrderItemsUs...	Relational Dataset (Local Table)	SAPTechED ANA368_001		SAPTechED ANA368_001																			
31. Repeat the steps in this exercise for the second file.	<div><div>Welcome to the Data Builder</div><div>Create views and tables to prepare data for your stories, and use entity-relationship models to visualize and make associations between artifacts.</div><div><div>All Files</div><div>Tables</div><div>Views</div><div>E/R Models</div></div><div><div><div><div></div></div><div>New Table</div></div><div><div><div></div></div><div>Import CSV File</div></div><div><div><div></div></div><div>New Graphical View</div></div><div><div><div></div></div><div>New SQL View</div></div><div><div><div></div></div><div>New Entity - F</div></div></div><table><tr><th colspan="6">Files (2)</th></tr><tr><th></th><th>Business Name</th><th>Technical Name</th><th>Type</th><th>Created By</th><th>Created On</th></tr><tr><td><input type="checkbox"/></td><td>SalesOrderItems-Users</td><td>SalesOrderItemsUsers</td><td>Relational Dataset (Local Table)</td><td>SAPTechED ANA368_001</td><td></td></tr><tr><td><input type="checkbox"/></td><td>SalesOrders-Users</td><td>SalesOrdersUsers</td><td>Relational Dataset (Local Table)</td><td>SAPTechED ANA368_001</td><td></td></tr></table></div>	Files (2)							Business Name	Technical Name	Type	Created By	Created On	<input type="checkbox"/>	SalesOrderItems-Users	SalesOrderItemsUsers	Relational Dataset (Local Table)	SAPTechED ANA368_001		<input type="checkbox"/>	SalesOrders-Users	SalesOrdersUsers	Relational Dataset (Local Table)	SAPTechED ANA368_001	
Files (2)																									
	Business Name	Technical Name	Type	Created By	Created On																				
<input type="checkbox"/>	SalesOrderItems-Users	SalesOrderItemsUsers	Relational Dataset (Local Table)	SAPTechED ANA368_001																					
<input type="checkbox"/>	SalesOrders-Users	SalesOrdersUsers	Relational Dataset (Local Table)	SAPTechED ANA368_001																					

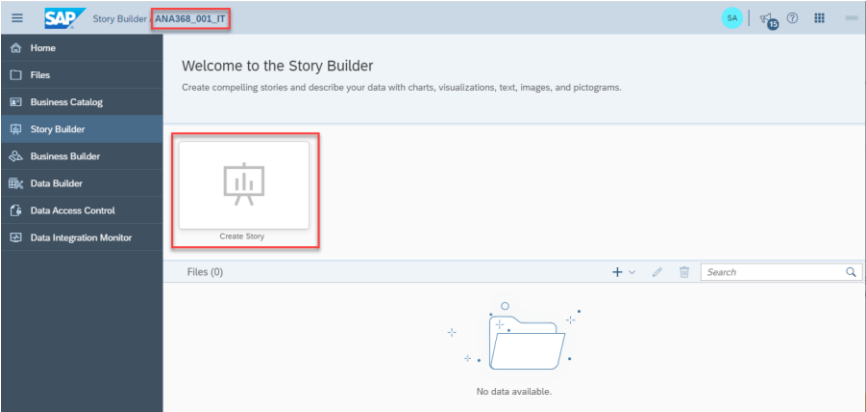
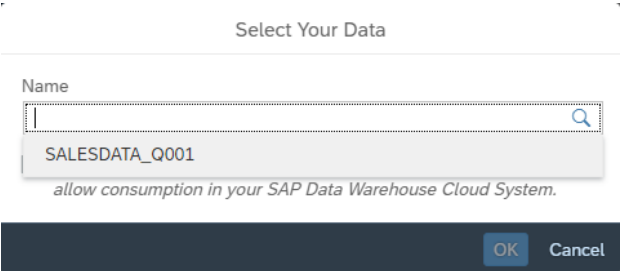
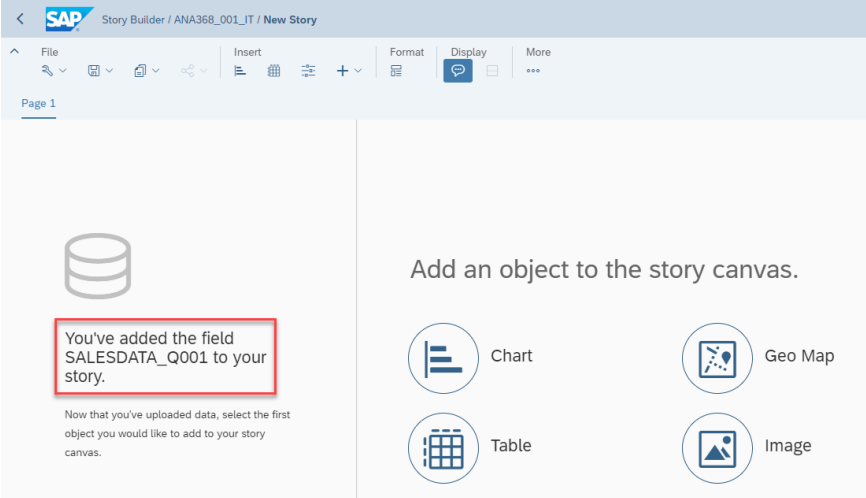
6. BUILD THE FIRST STORY IN THE IT SPACE


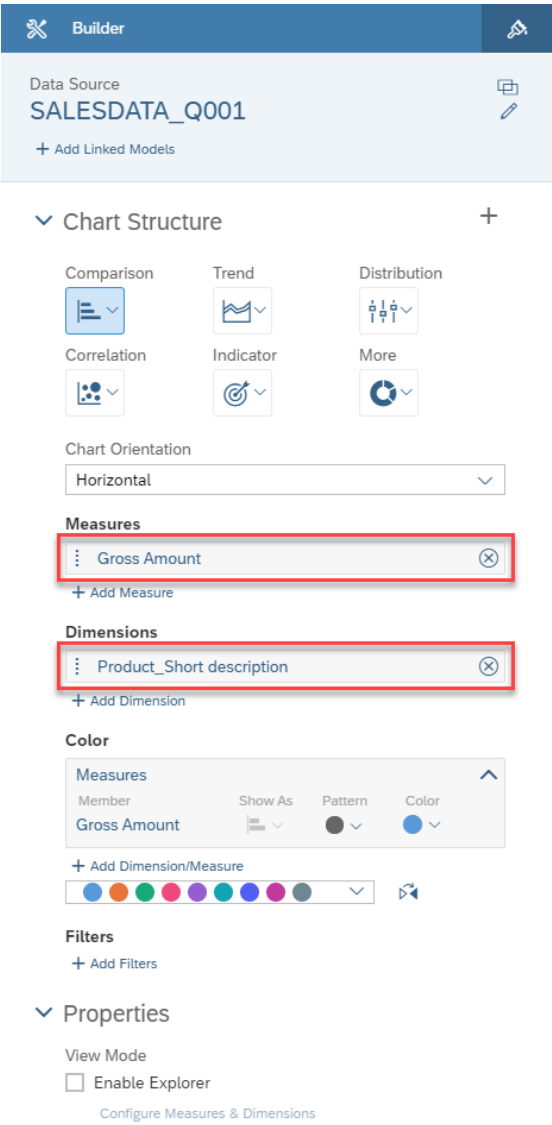
In this exercise, you will use the data available in your IT Space coming from BW/4HANA to create a simple overview of the gross amount of sales per product that you have.

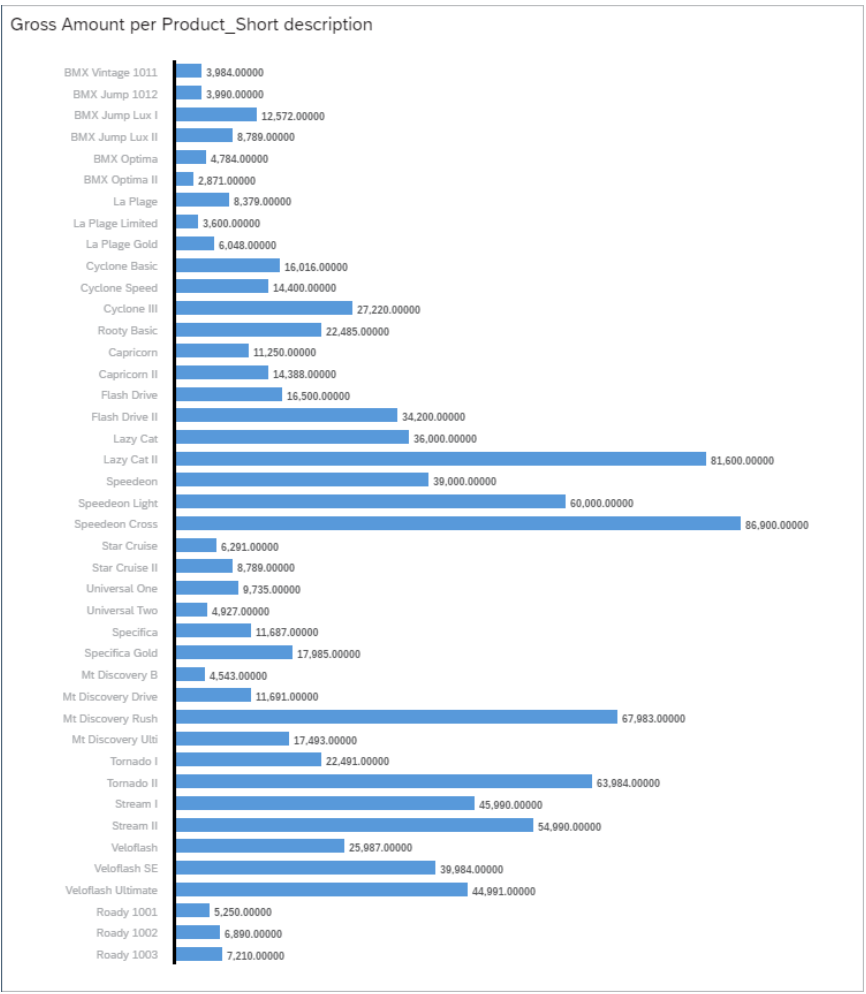
Exercise Description

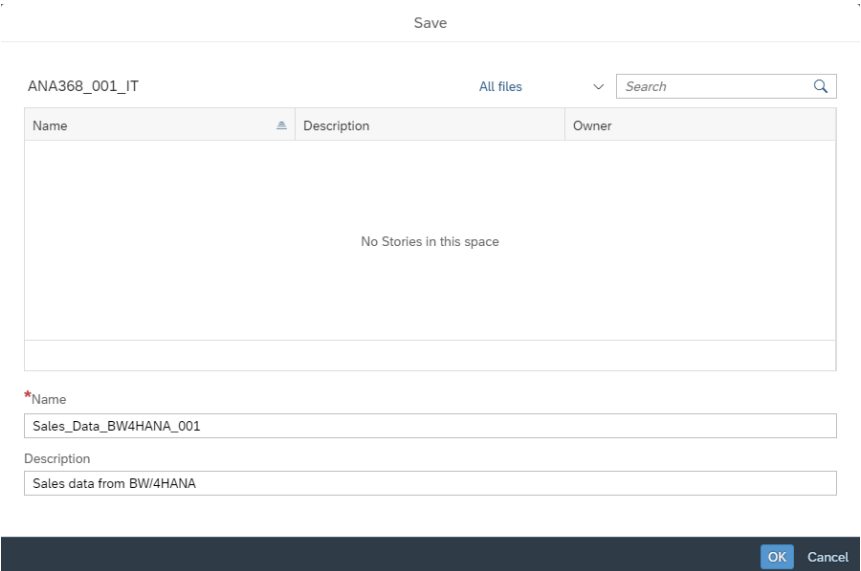
You will learn

- To create a simple Story in DWC.

Explanation	Screenshot
<p>32. Go to the Story Builder and choose your IT Space.</p> <p>Click on <i>Create Story</i>.</p>	
<p>33. In the pop-up, use the arrow to choose the consumption model SALESDATA_Q001.</p> <p>Then click on <i>OK</i>.</p>	
<p>34. You will see on the left side, that you have added SALESDATA_Q001 to the story.</p>	

Explanation	Screenshot
<p>35. To build the first Story, please choose the object <i>Chart</i>.</p>	<p>Add an object to the story canvas.</p> 
<p>36. On the right, in the Designer, please click + Add Measure to add the Measure <i>Gross Amount</i>.</p> <p>Please click on + Add Dimension to add the Dimension <i>Product_Short description</i>.</p>	

Explanation	Screenshot																																																																																						
<p>37. You can manipulate the size of the chart by pulling it larger on the canvas.</p> <p>If everything has worked as expected, you should have the following chart in your Story.</p> <p>You have now built your first Story.</p>	 <p>Gross Amount per Product_Short description</p> <table border="1"> <thead> <tr> <th>Product_Short description</th> <th>Gross Amount</th> </tr> </thead> <tbody> <tr><td>BMX Vintage 1011</td><td>3,984.00000</td></tr> <tr><td>BMX Jump 1012</td><td>3,990.00000</td></tr> <tr><td>BMX Jump Lux I</td><td>12,572.00000</td></tr> <tr><td>BMX Jump Lux II</td><td>8,789.00000</td></tr> <tr><td>BMX Optima</td><td>4,784.00000</td></tr> <tr><td>BMX Optima II</td><td>2,871.00000</td></tr> <tr><td>La Plage</td><td>8,379.00000</td></tr> <tr><td>La Plage Limited</td><td>3,600.00000</td></tr> <tr><td>La Plage Gold</td><td>6,048.00000</td></tr> <tr><td>Cyclone Basic</td><td>16,016.00000</td></tr> <tr><td>Cyclone Speed</td><td>14,400.00000</td></tr> <tr><td>Cyclone III</td><td>27,220.00000</td></tr> <tr><td>Rooty Basic</td><td>22,485.00000</td></tr> <tr><td>Capricorn</td><td>11,250.00000</td></tr> <tr><td>Capricorn II</td><td>14,388.00000</td></tr> <tr><td>Flash Drive</td><td>16,500.00000</td></tr> <tr><td>Flash Drive II</td><td>34,200.00000</td></tr> <tr><td>Lazy Cat</td><td>36,000.00000</td></tr> <tr><td>Lazy Cat II</td><td>81,600.00000</td></tr> <tr><td>Speedeon</td><td>39,000.00000</td></tr> <tr><td>Speedeon Light</td><td>60,000.00000</td></tr> <tr><td>Speedeon Cross</td><td>86,900.00000</td></tr> <tr><td>Star Cruise</td><td>6,291.00000</td></tr> <tr><td>Star Cruise II</td><td>8,789.00000</td></tr> <tr><td>Universal One</td><td>9,735.00000</td></tr> <tr><td>Universal Two</td><td>4,927.00000</td></tr> <tr><td>Specifica</td><td>11,687.00000</td></tr> <tr><td>Specifica Gold</td><td>17,985.00000</td></tr> <tr><td>Mt Discovery B</td><td>4,543.00000</td></tr> <tr><td>Mt Discovery Drive</td><td>11,691.00000</td></tr> <tr><td>Mt Discovery Rush</td><td>67,983.00000</td></tr> <tr><td>Mt Discovery Ulti</td><td>17,493.00000</td></tr> <tr><td>Tornado I</td><td>22,491.00000</td></tr> <tr><td>Tornado II</td><td>63,984.00000</td></tr> <tr><td>Stream I</td><td>45,990.00000</td></tr> <tr><td>Stream II</td><td>54,990.00000</td></tr> <tr><td>Veloflash</td><td>25,987.00000</td></tr> <tr><td>Veloflash SE</td><td>39,984.00000</td></tr> <tr><td>Veloflash Ultimate</td><td>44,991.00000</td></tr> <tr><td>Roady 1001</td><td>5,250.00000</td></tr> <tr><td>Roady 1002</td><td>6,890.00000</td></tr> <tr><td>Roady 1003</td><td>7,210.00000</td></tr> </tbody> </table>	Product_Short description	Gross Amount	BMX Vintage 1011	3,984.00000	BMX Jump 1012	3,990.00000	BMX Jump Lux I	12,572.00000	BMX Jump Lux II	8,789.00000	BMX Optima	4,784.00000	BMX Optima II	2,871.00000	La Plage	8,379.00000	La Plage Limited	3,600.00000	La Plage Gold	6,048.00000	Cyclone Basic	16,016.00000	Cyclone Speed	14,400.00000	Cyclone III	27,220.00000	Rooty Basic	22,485.00000	Capricorn	11,250.00000	Capricorn II	14,388.00000	Flash Drive	16,500.00000	Flash Drive II	34,200.00000	Lazy Cat	36,000.00000	Lazy Cat II	81,600.00000	Speedeon	39,000.00000	Speedeon Light	60,000.00000	Speedeon Cross	86,900.00000	Star Cruise	6,291.00000	Star Cruise II	8,789.00000	Universal One	9,735.00000	Universal Two	4,927.00000	Specifica	11,687.00000	Specifica Gold	17,985.00000	Mt Discovery B	4,543.00000	Mt Discovery Drive	11,691.00000	Mt Discovery Rush	67,983.00000	Mt Discovery Ulti	17,493.00000	Tornado I	22,491.00000	Tornado II	63,984.00000	Stream I	45,990.00000	Stream II	54,990.00000	Veloflash	25,987.00000	Veloflash SE	39,984.00000	Veloflash Ultimate	44,991.00000	Roady 1001	5,250.00000	Roady 1002	6,890.00000	Roady 1003	7,210.00000
Product_Short description	Gross Amount																																																																																						
BMX Vintage 1011	3,984.00000																																																																																						
BMX Jump 1012	3,990.00000																																																																																						
BMX Jump Lux I	12,572.00000																																																																																						
BMX Jump Lux II	8,789.00000																																																																																						
BMX Optima	4,784.00000																																																																																						
BMX Optima II	2,871.00000																																																																																						
La Plage	8,379.00000																																																																																						
La Plage Limited	3,600.00000																																																																																						
La Plage Gold	6,048.00000																																																																																						
Cyclone Basic	16,016.00000																																																																																						
Cyclone Speed	14,400.00000																																																																																						
Cyclone III	27,220.00000																																																																																						
Rooty Basic	22,485.00000																																																																																						
Capricorn	11,250.00000																																																																																						
Capricorn II	14,388.00000																																																																																						
Flash Drive	16,500.00000																																																																																						
Flash Drive II	34,200.00000																																																																																						
Lazy Cat	36,000.00000																																																																																						
Lazy Cat II	81,600.00000																																																																																						
Speedeon	39,000.00000																																																																																						
Speedeon Light	60,000.00000																																																																																						
Speedeon Cross	86,900.00000																																																																																						
Star Cruise	6,291.00000																																																																																						
Star Cruise II	8,789.00000																																																																																						
Universal One	9,735.00000																																																																																						
Universal Two	4,927.00000																																																																																						
Specifica	11,687.00000																																																																																						
Specifica Gold	17,985.00000																																																																																						
Mt Discovery B	4,543.00000																																																																																						
Mt Discovery Drive	11,691.00000																																																																																						
Mt Discovery Rush	67,983.00000																																																																																						
Mt Discovery Ulti	17,493.00000																																																																																						
Tornado I	22,491.00000																																																																																						
Tornado II	63,984.00000																																																																																						
Stream I	45,990.00000																																																																																						
Stream II	54,990.00000																																																																																						
Veloflash	25,987.00000																																																																																						
Veloflash SE	39,984.00000																																																																																						
Veloflash Ultimate	44,991.00000																																																																																						
Roady 1001	5,250.00000																																																																																						
Roady 1002	6,890.00000																																																																																						
Roady 1003	7,210.00000																																																																																						

Explanation	Screenshot
38. Save your Story as Sales_Data_BW4HANA_XXX	

7. COMBINING DATA FROM SPACES TO VISUALIZE DATA IN SAC

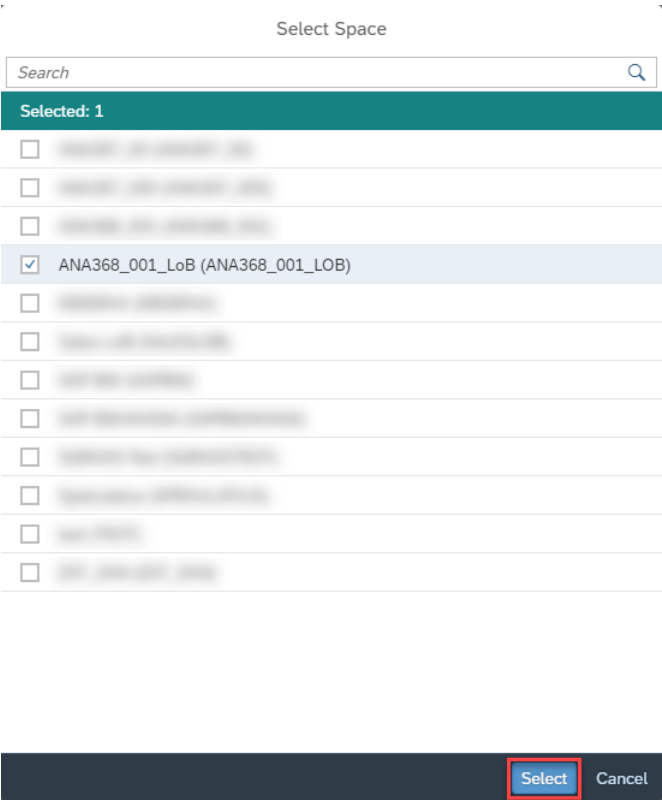
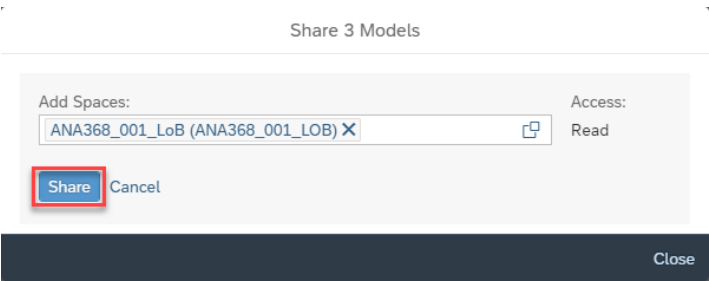


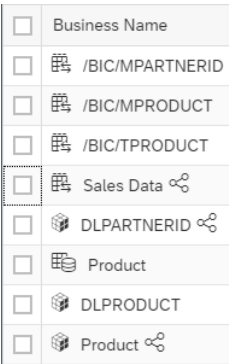
In this exercise, you will be combining the data from the IT Space with the data from the LoB Space by exposing a subset of the data in the IT Space to the LoB Space.

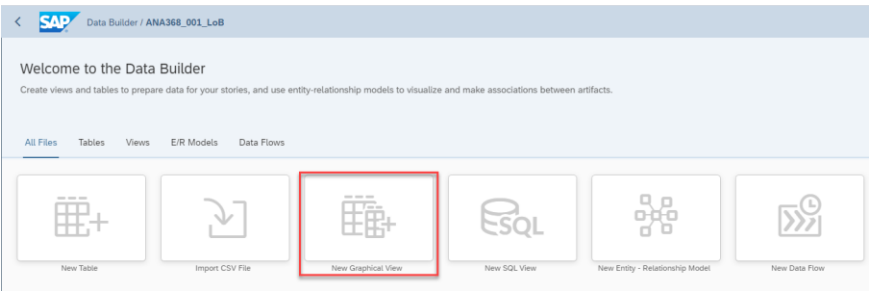
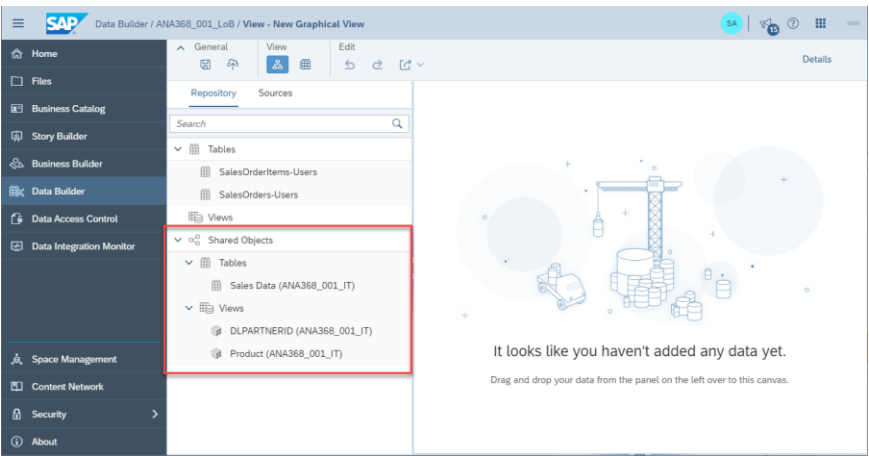
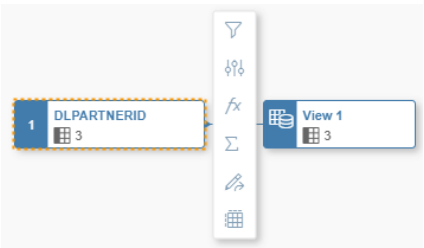
Exercise Description

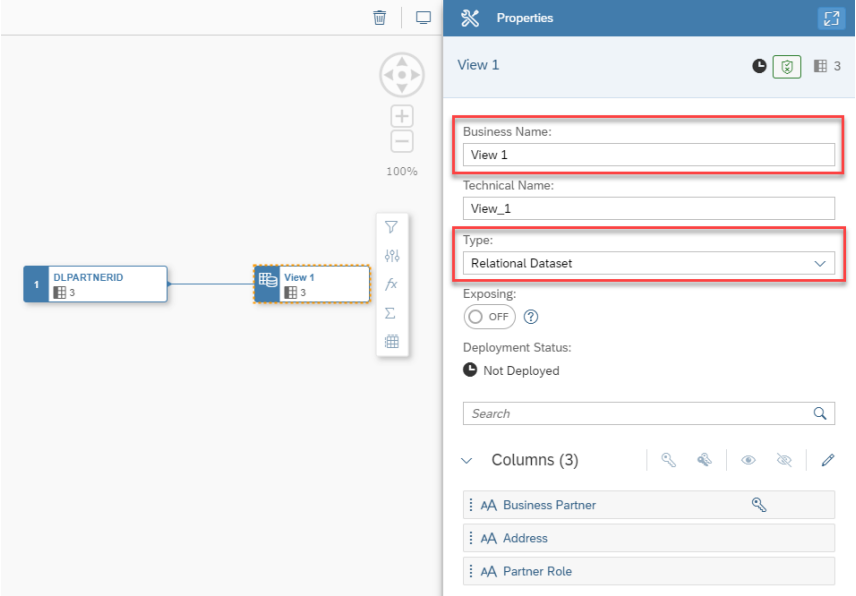
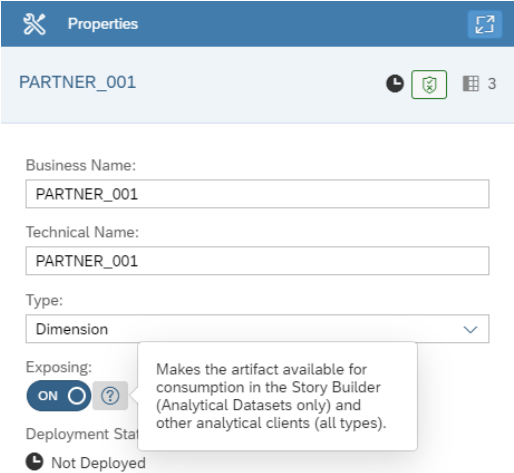
You will learn


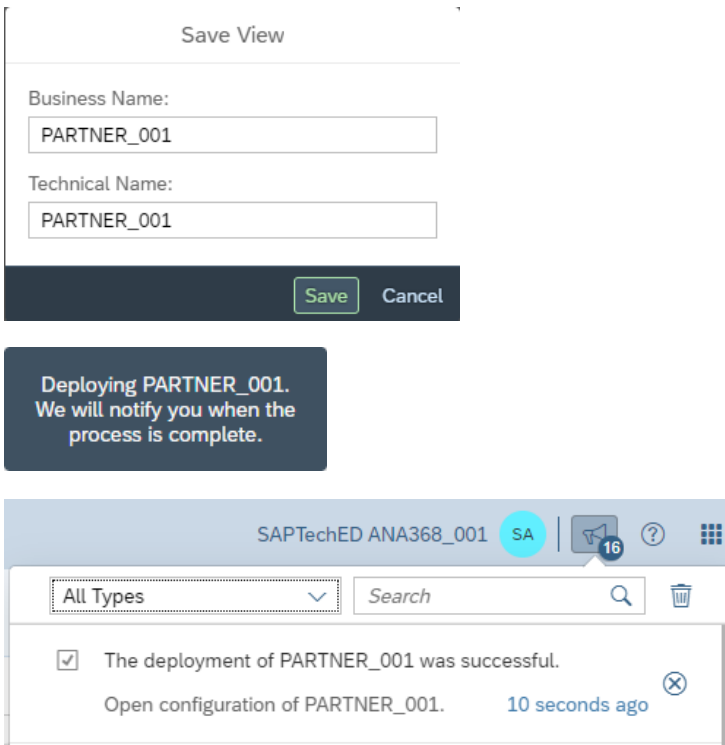
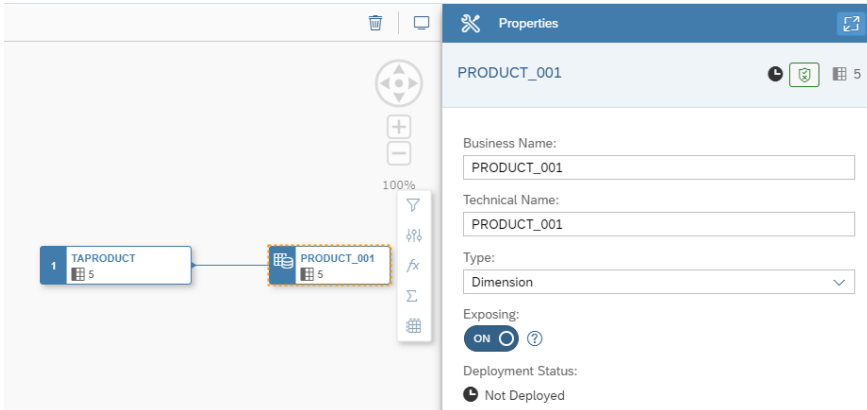
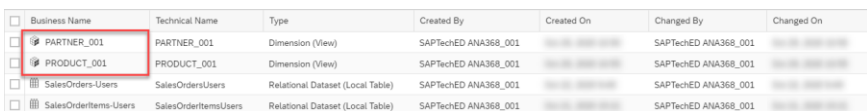
- To share data between Spaces
- Building a data model with combined data from two Spaces
- Creating a Story with the combined model

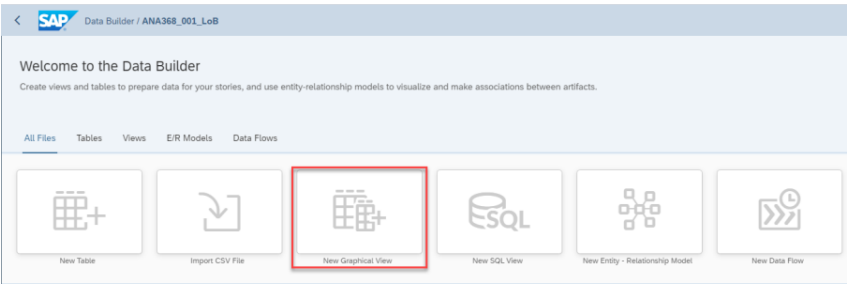
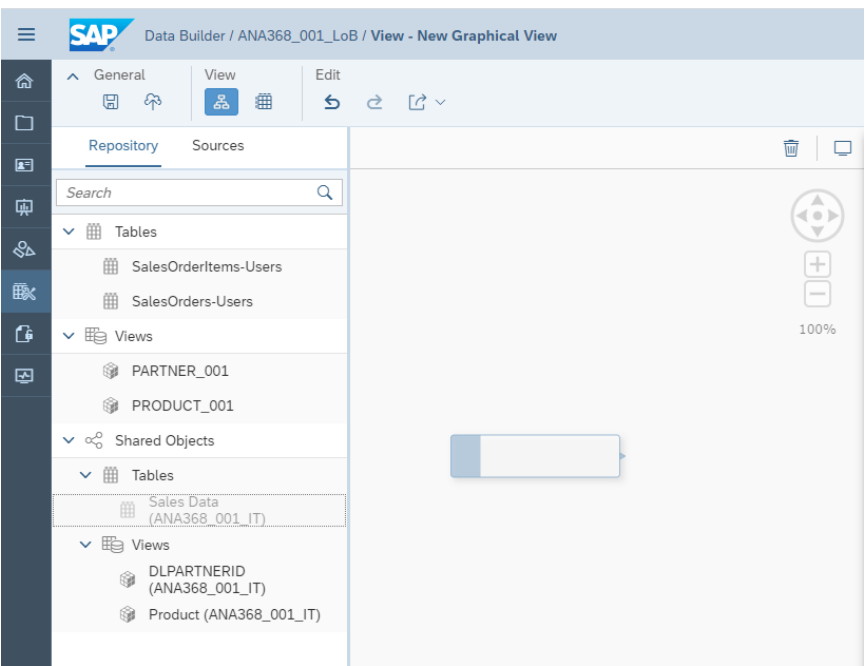

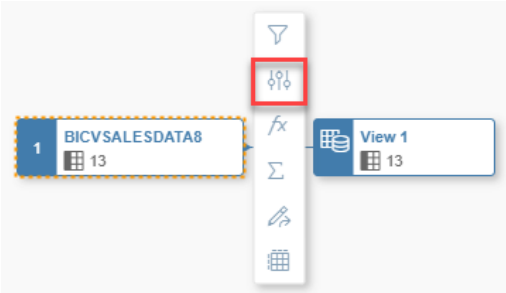
Explanation	Screenshot																																				
39. Go to the Data Builder and choose your IT Space.	<div><div>ANA368_001_IT</div><div>ANA368_001_IT</div><div>Used Storage (40.96 KB of 100 MB)</div><div></div></div>																																				
40. In the Data Builder for your IT Space, you see your 8 files under <i>All Files</i> in the initial view. Mark the following: Sales Data DLPARTNERID Product (TAPRODUCT)	<table><tr><td><input type="checkbox"/></td><td>Business Name</td><td>Technical Name</td><td>Type</td></tr><tr><td><input type="checkbox"/></td><td> /BIC/MPARTNERID</td><td>BICMPARTNERID</td><td>Remote Table</td></tr><tr><td><input type="checkbox"/></td><td> /BIC/MPRODUCT</td><td>BICMPRODUCT</td><td>Remote Table</td></tr><tr><td><input type="checkbox"/></td><td> /BIC/TPRODUCT</td><td>BICTPRODUCT</td><td>Remote Table</td></tr><tr><td><input checked="" type="checkbox"/></td><td> Sales Data</td><td>BICVSALESDATA8</td><td>Remote Table</td></tr><tr><td><input checked="" type="checkbox"/></td><td> DLPARTNERID</td><td>DLPARTNERID</td><td>Dimension (View)</td></tr><tr><td><input type="checkbox"/></td><td> Product</td><td>PRODUCT__T</td><td>View</td></tr><tr><td><input type="checkbox"/></td><td> DLPRODUCT</td><td>DLPRODUCT</td><td>Dimension (View)</td></tr><tr><td><input checked="" type="checkbox"/></td><td> Product</td><td>TAPRODUCT</td><td>Dimension (View)</td></tr></table>	<input type="checkbox"/>	Business Name	Technical Name	Type	<input type="checkbox"/>	/BIC/MPARTNERID	BICMPARTNERID	Remote Table	<input type="checkbox"/>	/BIC/MPRODUCT	BICMPRODUCT	Remote Table	<input type="checkbox"/>	/BIC/TPRODUCT	BICTPRODUCT	Remote Table	<input checked="" type="checkbox"/>	Sales Data	BICVSALESDATA8	Remote Table	<input checked="" type="checkbox"/>	DLPARTNERID	DLPARTNERID	Dimension (View)	<input type="checkbox"/>	Product	PRODUCT__T	View	<input type="checkbox"/>	DLPRODUCT	DLPRODUCT	Dimension (View)	<input checked="" type="checkbox"/>	Product	TAPRODUCT	Dimension (View)
<input type="checkbox"/>	Business Name	Technical Name	Type																																		
<input type="checkbox"/>	/BIC/MPARTNERID	BICMPARTNERID	Remote Table																																		
<input type="checkbox"/>	/BIC/MPRODUCT	BICMPRODUCT	Remote Table																																		
<input type="checkbox"/>	/BIC/TPRODUCT	BICTPRODUCT	Remote Table																																		
<input checked="" type="checkbox"/>	Sales Data	BICVSALESDATA8	Remote Table																																		
<input checked="" type="checkbox"/>	DLPARTNERID	DLPARTNERID	Dimension (View)																																		
<input type="checkbox"/>	Product	PRODUCT__T	View																																		
<input type="checkbox"/>	DLPRODUCT	DLPRODUCT	Dimension (View)																																		
<input checked="" type="checkbox"/>	Product	TAPRODUCT	Dimension (View)																																		
41. With the files marked, click on the button next to the search bar to share them. In the pop-up, click the select button.	<div>Share 3 Models</div> <div><div>Add Spaces:</div><div><div>Enter Space</div><div></div></div><div>Access: Read</div><div><div>Share</div><div>Cancel</div></div></div> <div>Close</div>																																				

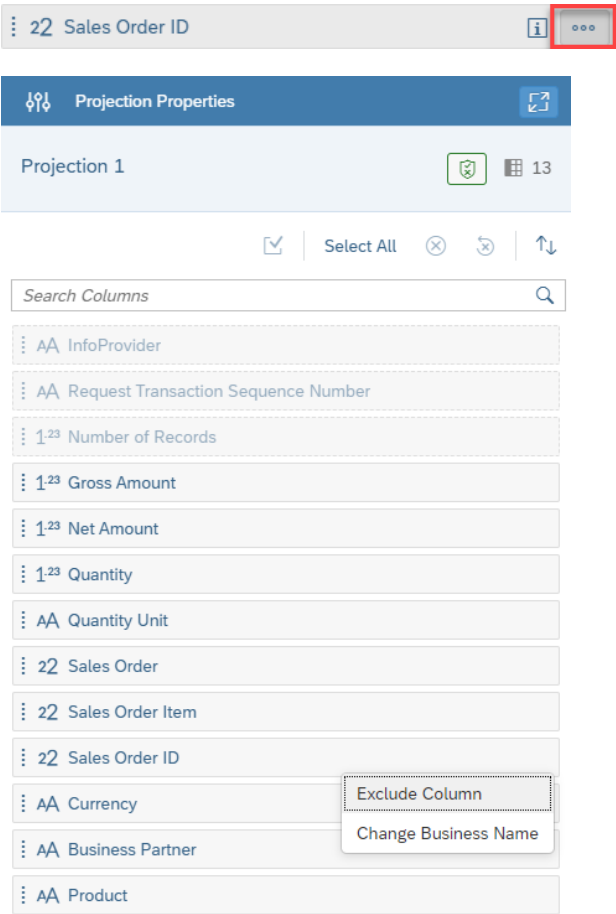
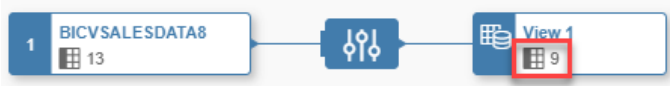
Explanation	Screenshot
42. Choose your LoB Space and click on <i>Select</i> .	
43. Click on <i>Share</i> . You will get a confirmation that your models were shared successfully at the bottom of the screen. After this, you can close the <i>Share 3 Models</i> pop-up.	
44. In the file overview, you can now see a  after the files which you have shared. If you click on  you can see which Spaces the files have been shared with.	

Explanation	Screenshot
<p>45. In the Data Builder, change to your LoB Space.</p> <p>Click on <i>New Graphical View</i>.</p>	
<p>46. You should be able to see your new objects under <i>Shared Objects</i> when you expand <i>Repository</i> list.</p> <p>The first part of this exercise is done; you have successfully shared objects across two DWC Spaces.</p>	
<p>47. First, you will create two dimension views (for Partner and Product) which will later be added as associations to the main view that you will be using to build your sales data Story with.</p> <p>Start by dragging and dropping the shared view DLPARTNERID onto the canvas.</p>	

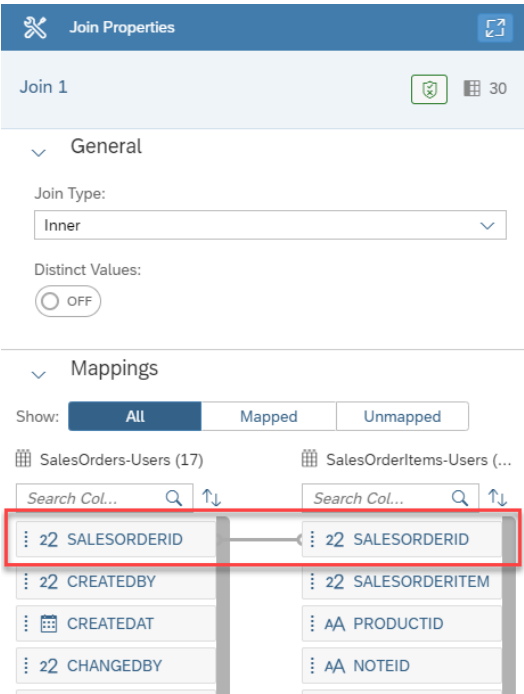
Explanation	Screenshot
<p>48. Mark the View and change the Properties <i>Business Name</i>, <i>Type</i> and <i>Exposing</i> as described in the next step.</p> <p>In case the <i>Properties</i> screen on the right does not open automatically, you can open it by clicking <i>Details</i> at the top right.</p>	
<p>49. As <i>Business Name</i>, please enter PARTNER_XXX, where XXX is your workshop user number.</p> <p>As <i>Type</i>, please choose Dimension.</p> <p>Optional: Toggle <i>Exposing</i> to be on.</p>	

Explanation	Screenshot																																								
<p>50. Deploy the View by clicking </p> <p>Click Save.</p> <p>You can see when the deployment is successful in the notifications at the top.</p>																																									
<p>51. Please repeat steps 45-50 for the Product table (TAPRODUCT) which you also shared from the IT Space, by going to the Data Builder overview in the LoB Space and clicking on New Graphical View.</p> <p>Prepare the view in the same way as for Partner, and deploy it as a view of type <i>Dimension</i>.</p> <p>Name this View PRODUCT_XXX.</p>																																									
<p>52. You can now see your two new Dimension Views in the Data Builder overview.</p>	 <table> <tr> <th></th><th>Business Name</th><th>Technical Name</th><th>Type</th><th>Created By</th><th>Created On</th><th>Changed By</th><th>Changed On</th></tr> <tr> <td><input type="checkbox"/></td><td>PARTNER_001</td><td>PARTNER_001</td><td>Dimension (View)</td><td>SAPTechED ANA368_001</td><td>2023-03-08 10:00:00</td><td>SAPTechED ANA368_001</td><td>2023-03-08 10:00:00</td></tr> <tr> <td><input type="checkbox"/></td><td>PRODUCT_001</td><td>PRODUCT_001</td><td>Dimension (View)</td><td>SAPTechED ANA368_001</td><td>2023-03-08 10:00:00</td><td>SAPTechED ANA368_001</td><td>2023-03-08 10:00:00</td></tr> <tr> <td><input type="checkbox"/></td><td>SalesOrders-Users</td><td>SalesOrdersUsers</td><td>Relational Dataset (Local Table)</td><td>SAPTechED ANA368_001</td><td>2023-03-08 10:00:00</td><td>SAPTechED ANA368_001</td><td>2023-03-08 10:00:00</td></tr> <tr> <td><input type="checkbox"/></td><td>SalesOrderItems-Users</td><td>SalesOrderItemsUsers</td><td>Relational Dataset (Local Table)</td><td>SAPTechED ANA368_001</td><td>2023-03-08 10:00:00</td><td>SAPTechED ANA368_001</td><td>2023-03-08 10:00:00</td></tr> </table>		Business Name	Technical Name	Type	Created By	Created On	Changed By	Changed On	<input type="checkbox"/>	PARTNER_001	PARTNER_001	Dimension (View)	SAPTechED ANA368_001	2023-03-08 10:00:00	SAPTechED ANA368_001	2023-03-08 10:00:00	<input type="checkbox"/>	PRODUCT_001	PRODUCT_001	Dimension (View)	SAPTechED ANA368_001	2023-03-08 10:00:00	SAPTechED ANA368_001	2023-03-08 10:00:00	<input type="checkbox"/>	SalesOrders-Users	SalesOrdersUsers	Relational Dataset (Local Table)	SAPTechED ANA368_001	2023-03-08 10:00:00	SAPTechED ANA368_001	2023-03-08 10:00:00	<input type="checkbox"/>	SalesOrderItems-Users	SalesOrderItemsUsers	Relational Dataset (Local Table)	SAPTechED ANA368_001	2023-03-08 10:00:00	SAPTechED ANA368_001	2023-03-08 10:00:00
	Business Name	Technical Name	Type	Created By	Created On	Changed By	Changed On																																		
<input type="checkbox"/>	PARTNER_001	PARTNER_001	Dimension (View)	SAPTechED ANA368_001	2023-03-08 10:00:00	SAPTechED ANA368_001	2023-03-08 10:00:00																																		
<input type="checkbox"/>	PRODUCT_001	PRODUCT_001	Dimension (View)	SAPTechED ANA368_001	2023-03-08 10:00:00	SAPTechED ANA368_001	2023-03-08 10:00:00																																		
<input type="checkbox"/>	SalesOrders-Users	SalesOrdersUsers	Relational Dataset (Local Table)	SAPTechED ANA368_001	2023-03-08 10:00:00	SAPTechED ANA368_001	2023-03-08 10:00:00																																		
<input type="checkbox"/>	SalesOrderItems-Users	SalesOrderItemsUsers	Relational Dataset (Local Table)	SAPTechED ANA368_001	2023-03-08 10:00:00	SAPTechED ANA368_001	2023-03-08 10:00:00																																		


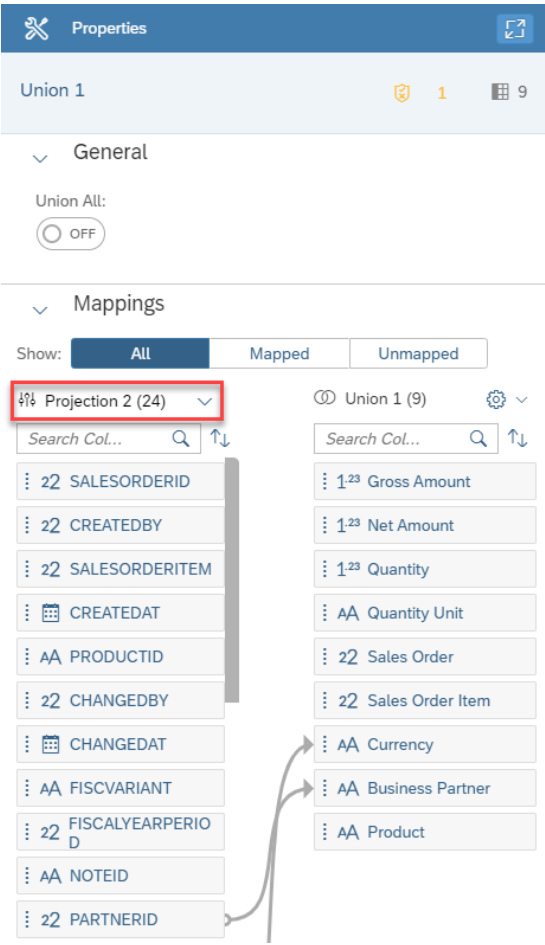
Explanation	Screenshot
<p>53. Still in the Data Builder for your LoB Space, click on <i>New Graphical View</i>.</p> <p>This view will combine the sales data that we imported into the LoB Space via flat file, with the sales data that we imported into our IT Space via BW/4HANA Model Transfer.</p>	 <p>The screenshot shows the SAP Data Builder interface for 'ANA368_001_LoB'. The 'New Graphical View' button, represented by a grid icon with a plus sign, is highlighted with a red rectangular box. Other buttons visible include 'New Table', 'Import CSV File', 'New SQL View', 'New Entity - Relationship Model', and 'New Data Flow'.</p>
<p>54. Drag and drop the <i>Sales Data (ANA368_XXX_IT)</i> table onto the canvas.</p>	 <p>The screenshot displays the 'View - New Graphical View' workspace. On the left, the 'Repository' pane is open, showing a tree structure of objects. The 'Sales Data (ANA368_001_IT)' table is selected and highlighted. The main canvas on the right is currently empty, with a zoom level of 100% indicated on the right side.</p>
<p>55. Mark the Sales Data table (BICVSALESDATA8) that you dragged onto the canvas and click on  to create a projection.</p>	 <p>The screenshot shows the canvas with a table component labeled 'BICVSALESDATA8' and '13' rows. A projection icon (three vertical bars with a plus sign) is highlighted with a red box in the top toolbar. A new 'View 1' component is being created, also showing '13' rows.</p>

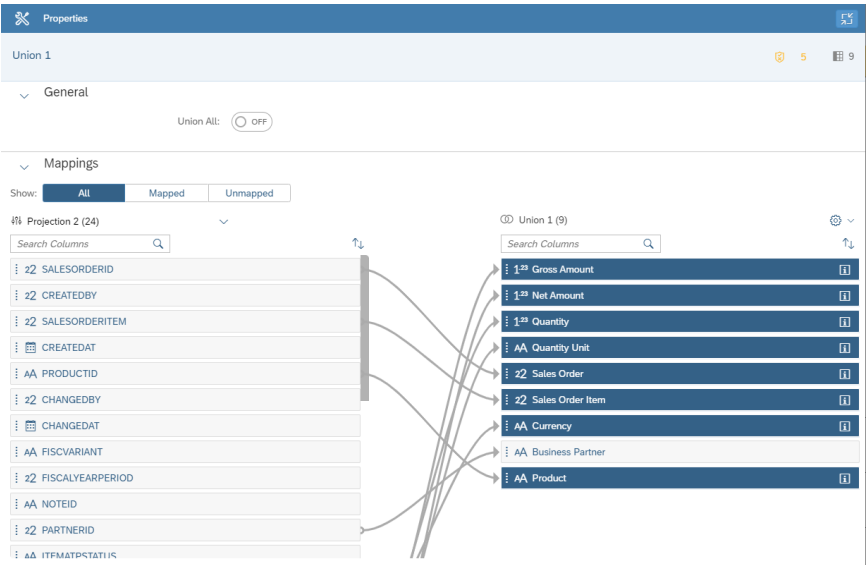
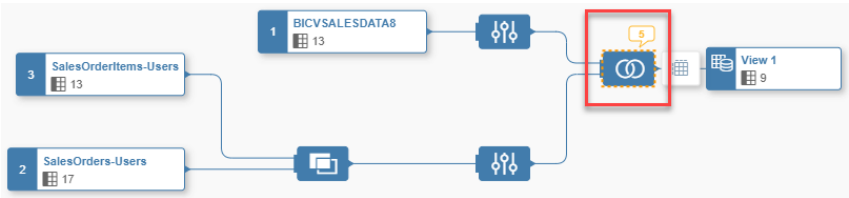
Explanation	Screenshot
<p>56. In the projection properties on the right, click on the three dots at the end of the columns mentioned below and exclude them:</p> <p>InfoProvider</p> <p>Request Transaction Sequence Number</p> <p>Number of Records</p> <p>Sales Order ID</p>	 <p>The screenshot shows the 'Projection Properties' dialog box. At the top, there's a header 'Projection Properties' with a search icon. Below it, 'Projection 1' is listed with a shield icon and a record count of 13. A toolbar contains a checkmark, 'Select All', a close icon, a refresh icon, and a sort icon. A 'Search Columns' input field is present. A list of columns follows: 'AA InfoProvider', 'AA Request Transaction Sequence Number', '1.23 Number of Records', '1.23 Gross Amount', '1.23 Net Amount', '1.23 Quantity', 'AA Quantity Unit', '22 Sales Order', '22 Sales Order Item', '22 Sales Order ID', 'AA Currency', 'AA Business Partner', and 'AA Product'. The '22 Sales Order ID' column is highlighted with a red box, and its context menu is open, showing 'Exclude Column' and 'Change Business Name' options.</p>
<p>57. After this, you can see that just 9 of the 13 columns from BICVSALESDATA8 are used in the new graphical view.</p>	 <p>The screenshot shows a graphical view of the data flow. It starts with a box labeled '1 BICVSALESDATA8' with a record count of 13. This is connected to a filter icon, which is then connected to a box labeled 'View 1' with a record count of 9. The 'View 1' box is highlighted with a red box.</p>

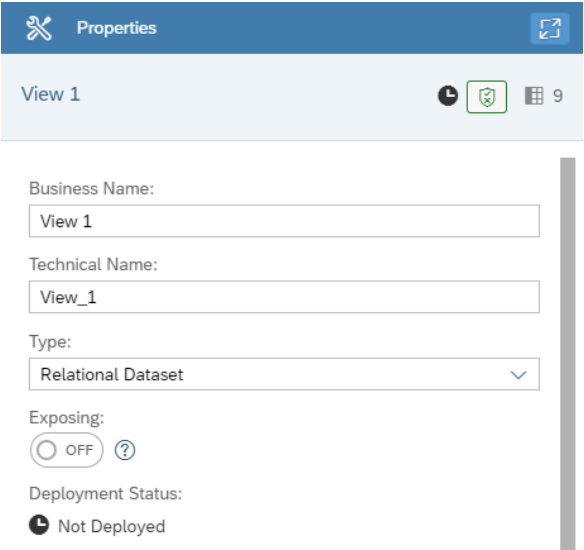
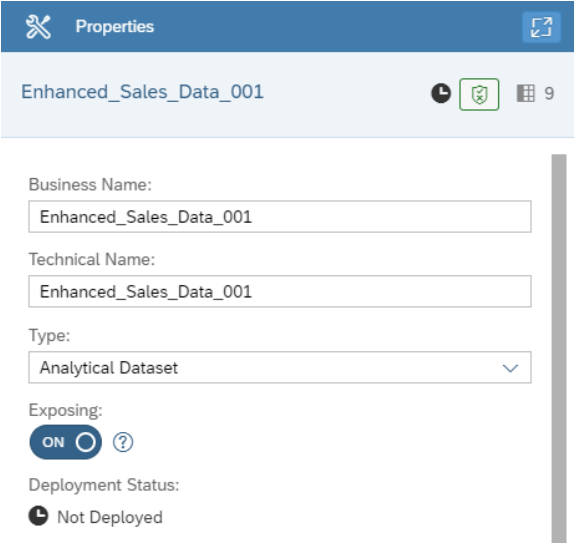
Explanation	Screenshot
<p>58. Drag the table SalesOrders-Users onto the canvas and drop it on top of the projection from BICVSALESDATA8 to create a UNION node.</p> <p>It is important that you drag it onto the projection and not the table itself, as this only gives you the option to JOIN the two.</p> <p>This step might be a bit challenging. We suggest you mark the table, drag it whilst keeping the left mouse button pressed, place it on top of the projection with the left mouse button still pressed, move your mouse to the Union option, and only then release the mouse button.</p>	<p>The screenshot shows a data model canvas with two tables: BICVSALESDATA8 (ID 13) and SalesOrders-Users (ID 17). A projection node (three circles) is connected to BICVSALESDATA8. A context menu is open over the projection node, showing 'UNION' and 'JOIN' options. The 'UNION' option is highlighted with a green border. To the right, 'View 1' (ID 9) is visible.</p>
<p>59. Drag the table SalesOrderItems-Users onto the canvas and drop it on top of SalesOrder-Users to create a JOIN of the two tables.</p>	<p>The screenshot shows a data model canvas with three tables: BICVSALESDATA8 (ID 13), SalesOrderItems-Users (ID 13), and SalesOrders-Users (ID 17). A projection node (three circles) is connected to BICVSALESDATA8. A JOIN node (two circles) is connected to SalesOrderItems-Users and SalesOrders-Users. The JOIN node is connected to the projection node. To the right, 'View 1' (ID 9) is visible.</p>

Explanation	Screenshot
60. Click on the JOIN node and ensure that the two tables have been joined on SALESORDERID.	

Explanation	Screenshot																				
<p>61. Click on the UNION node and change to <i>Projection 1</i> in the <i>Mapping</i> section.</p> <p>Since Projection 1 is the projection of table BICVSALESDATA8 to the view we are creating, the mapping between the source and target fields should be 1:1.</p>	<p>The screenshot shows the 'Properties' window for a 'Union 1' node. The 'General' tab is selected, showing 'Union All: OFF'. The 'Mappings' tab is also visible, showing a list of fields mapped from 'Projection 1 (9)' to 'Union 1 (9)'. The 'Projection 1 (9)' dropdown is highlighted with a red box. The mappings are:</p> <table><thead><tr><th>Source Field</th><th>Target Field</th></tr></thead><tbody><tr><td>1.23 Gross Amount</td><td>1.23 Gross Amount</td></tr><tr><td>1.23 Net Amount</td><td>1.23 Net Amount</td></tr><tr><td>1.23 Quantity</td><td>1.23 Quantity</td></tr><tr><td>AA Quantity Unit</td><td>AA Quantity Unit</td></tr><tr><td>22 Sales Order</td><td>22 Sales Order</td></tr><tr><td>22 Sales Order Item</td><td>22 Sales Order Item</td></tr><tr><td>AA Currency</td><td>AA Currency</td></tr><tr><td>AA Business Partner</td><td>AA Business Partner</td></tr><tr><td>AA Product</td><td>AA Product</td></tr></tbody></table>	Source Field	Target Field	1.23 Gross Amount	1.23 Gross Amount	1.23 Net Amount	1.23 Net Amount	1.23 Quantity	1.23 Quantity	AA Quantity Unit	AA Quantity Unit	22 Sales Order	22 Sales Order	22 Sales Order Item	22 Sales Order Item	AA Currency	AA Currency	AA Business Partner	AA Business Partner	AA Product	AA Product
Source Field	Target Field																				
1.23 Gross Amount	1.23 Gross Amount																				
1.23 Net Amount	1.23 Net Amount																				
1.23 Quantity	1.23 Quantity																				
AA Quantity Unit	AA Quantity Unit																				
22 Sales Order	22 Sales Order																				
22 Sales Order Item	22 Sales Order Item																				
AA Currency	AA Currency																				
AA Business Partner	AA Business Partner																				
AA Product	AA Product																				


Explanation	Screenshot
<p>62. In the <i>Mapping</i> section, change back to <i>Projection 2</i>.</p> <p>To get a better view for editing the mappings, click on  to expand the Properties view.</p>	











Explanation	Screenshot
<p>63. Map the following source fields to the mentioned target fields by using drag and drop:</p> <p>GROSSAMOUNT → Gross Amount</p> <p>NETAMOUNT → Net Amount</p> <p>QUANTITY → Quantity</p> <p>QUANTITYUNIT → Quantity Unit</p> <p>SALESORDERID → Sales Order</p> <p>SALESORDERITEM → Sales Order Item</p> <p>CURRENCY → Currency</p> <p>PARTNERID → Business Partner</p> <p>PRODUCTID → Product</p>	
<p>64. After mapping all the fields, you will see 5 warnings concerning the difference in data types of the fields from the BW/4HANA data, and the CSV data.</p> <p>These warnings can be ignored.</p>	

Explanation	Screenshot
<p>65. Mark the view <i>View 1</i> and adjust the properties as specified in the next step.</p>	
<p>66. Change the name of the view to Enhanced_Sales_Data_XXX, where XXX is your workshop user number.</p> <p>Change the <i>Type</i> of the view to an Analytical Dataset.</p> <p>Make sure to toggle <i>Exposing</i> to be ON. (Here it is not optional, since not exposing the view means we will not be able to add it to a Story in the next steps).</p>	

Explanation

Screenshot











67. In the view properties, go to the section Measures and click on  to edit the measure fields.

Measures (3)						Search	
<input type="checkbox"/>	Business Name	Technical Name	Data Type	Aggregation	Semantic Type	Unit Column	
<input type="checkbox"/>	Gross Amount	4SALESDATA...	Decimal(17, 2)	SUM 			<input checked="" type="checkbox"/>
<input type="checkbox"/>	Net Amount	4SALESDATA...	Decimal(17, 2)	SUM 			<input checked="" type="checkbox"/>
<input type="checkbox"/>	Quantity	4SALESDATA...	Decimal(31, 0)	SUM 	Quantity with Unit 		<input checked="" type="checkbox"/>

68. Please make the following adjustments to the measures:

Then click on

Close

Measures (3)						Search	
<input type="checkbox"/>	Business Name	Technical Name	Data Type	Aggregation	Semantic Type	Unit Column	
<input type="checkbox"/>	Gross Amount	4SALESDATA...	Decimal(17, 2)	SUM 	Amount with Currency 	Currency 	<input checked="" type="checkbox"/>
<input type="checkbox"/>	Net Amount	4SALESDATA...	Decimal(17, 2)	SUM 	Amount with Currency 	Currency 	<input checked="" type="checkbox"/>
<input type="checkbox"/>	Quantity	4SALESDATA...	Decimal(31, 0)	SUM 	Quantity with Unit 	Quantity Unit 	<input checked="" type="checkbox"/>

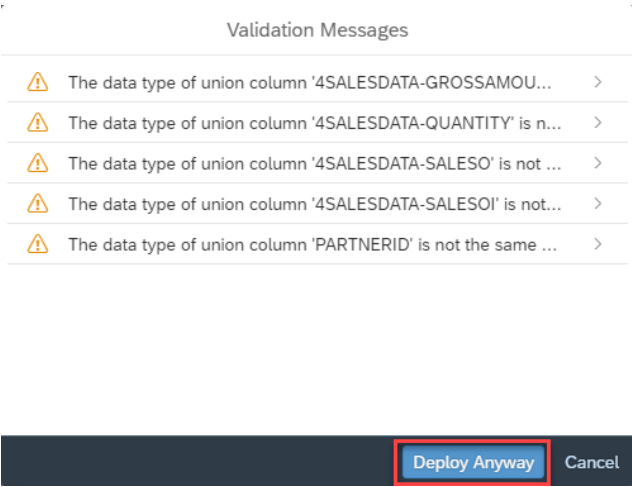
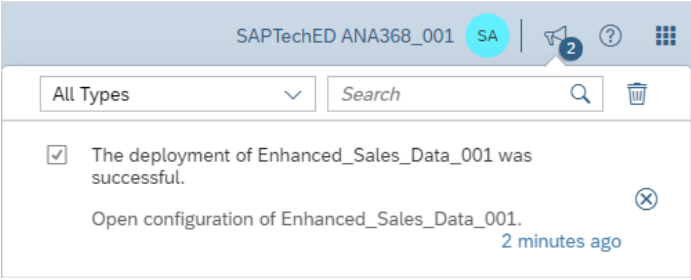
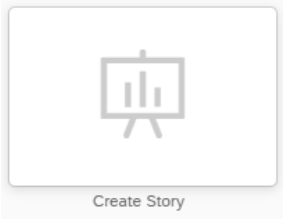
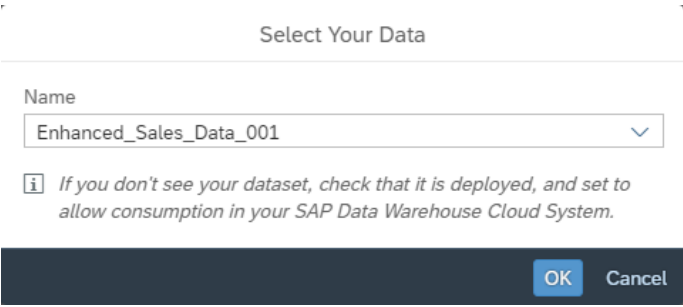
68. Please make the following adjustments to the measures:

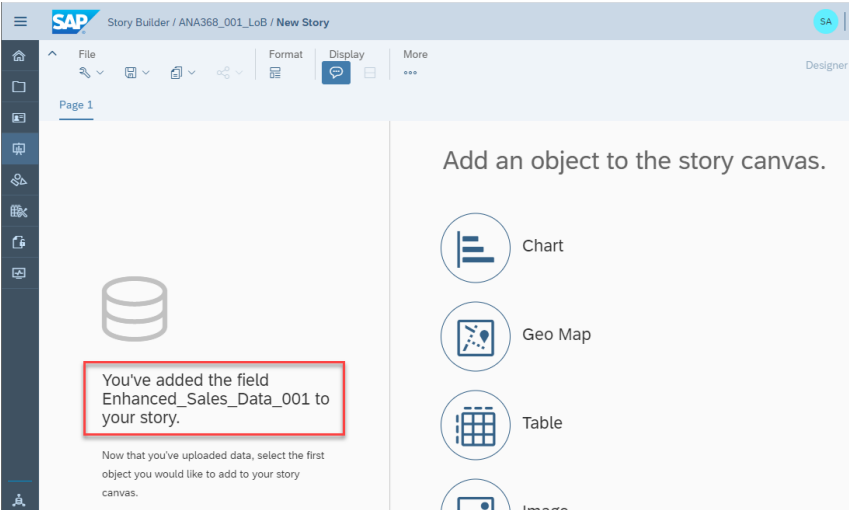

Then click on .

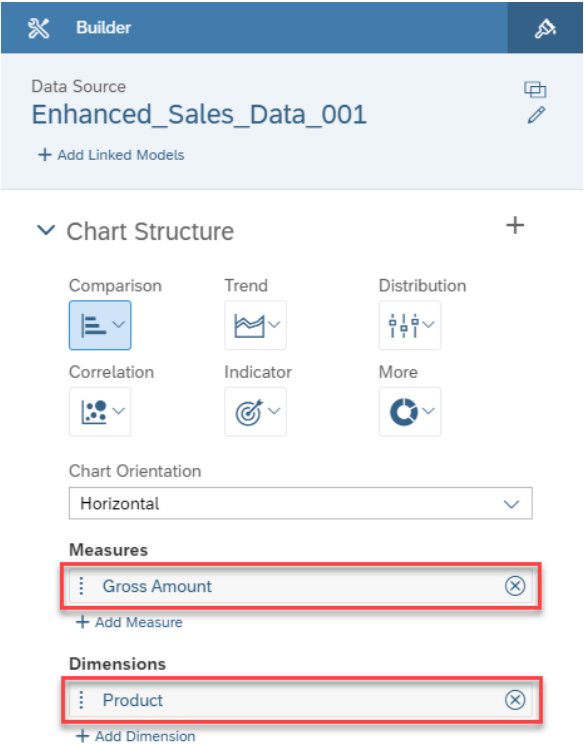
Measures (3)Search

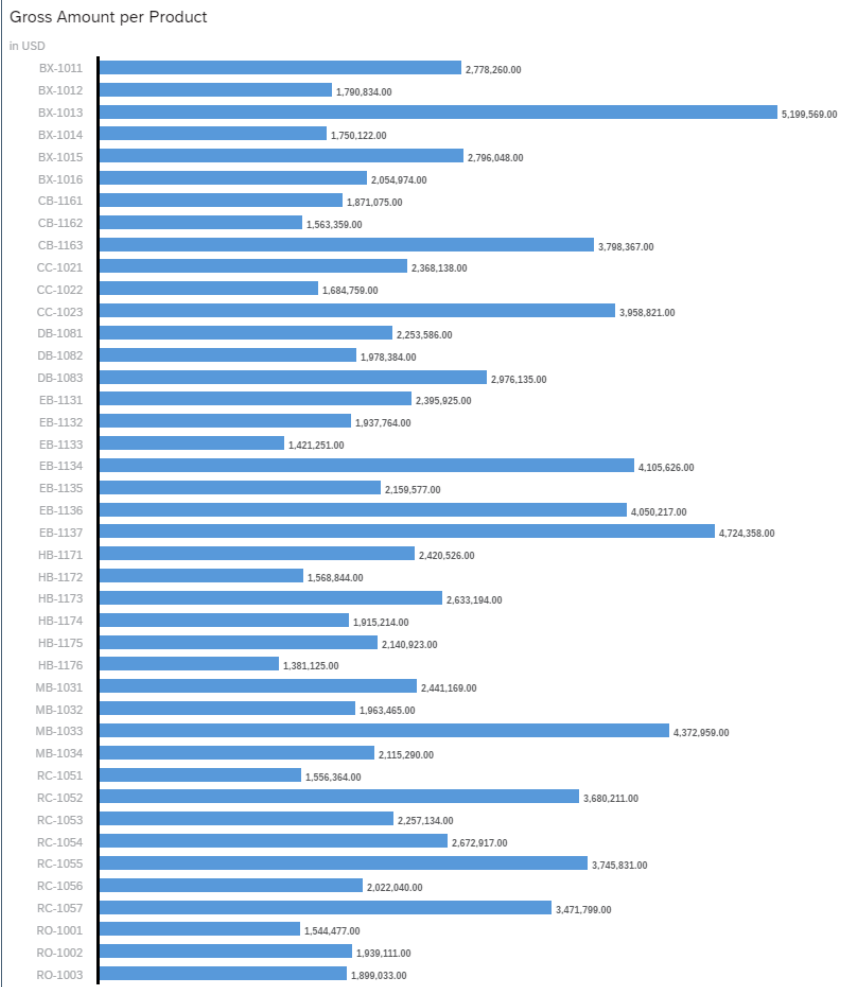
<input type="checkbox"/>	Business Name	Technical Name	Data Type	Aggregation	Semantic Type	Unit Column	
<input type="checkbox"/>	Gross Amount	4SALESDATA...	Decimal(17, 2)	SUM	Amount with Currency	Currency	<input checked="" type="checkbox"/>
<input type="checkbox"/>	Net Amount	4SALESDATA...	Decimal(17, 2)	SUM	Amount with Currency	Currency	<input checked="" type="checkbox"/>
<input type="checkbox"/>	Quantity	4SALESDATA...	Decimal(31, 0)	SUM	Quantity with Unit	Quantity Unit	<input checked="" type="checkbox"/>

Explanation	Screenshot																																				
<p>69. [FAKED] In the view properties, go to the section <i>Associations</i> at the bottom, and add the 2 Dimension Views you created earlier.</p> <p>The first association is to your dimension view PARTNER_XXX. Click + to add an association. In the pop-up, choose your view PARTNER_XXX and click on OK.</p> <p>Once you have added the view, you will see the JOIN field for the dimension view to your Enhanced_Sales_Data_XXX view. To get back to the view properties for your main view, click on the path at the top.</p> <p>Repeat this to add your view PRODUCT_XXX as an association as well.</p> <p>This feature is not yet available. Therefore, please deploy the view as it is. Then, create a new graphical view containing just this view, and add the associations there. Deploy, and use this view to create the upcoming Story!</p>	<div><div>Associations (0)<div><div>+</div><div></div></div><div>No data</div></div><div>Select Association Target</div><div><div>Search<div></div></div><div>Target TypeDimension</div><table><tr><th>Business Name</th><th>Technical Name</th><th>Type</th><th>Created By</th></tr><tr><td> PARTNER_001</td><td>PARTNER_001</td><td>Dimension (View)</td><td>ANA368_001</td></tr><tr><td> PRODUCT_001</td><td>PRODUCT_001</td><td>Dimension (View)</td><td>ANA368_001</td></tr><tr><td> DLPARTNERID (ANA368_001_IT)</td><td>DLPARTNERID</td><td>Dimension (View)</td><td>ANA368_001</td></tr><tr><td> Product (ANA368_001_IT)</td><td>TAPRODUCT</td><td>Dimension (View)</td><td>ANA368_001</td></tr><tr><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td></tr></table><div><div>OK</div><div>Cancel</div></div></div><div><div>Properties<div><div>Enhanced_Sales_Data_001 to PRODUCT_001</div><div><div>...</div><div>Enhanced_Sales_Data_001 to PRODUCT_001</div></div></div><div>General</div><div>Join<div>Show:AllMappedUnmapped</div><div><div> Enhanced_Sales_Data_...</div><div> PRODUCT_001 (5)</div></div><div><div>Search C...<div></div><div>↑↓</div></div><div>Search C...<div></div><div>↑↓</div></div></div><div><div>1.23 Gross Amount</div><div>1.23 Net Amount</div></div><div><div>AA Product</div><div>AA Short description</div></div></div></div></div></div>	Business Name	Technical Name	Type	Created By	PARTNER_001	PARTNER_001	Dimension (View)	ANA368_001	PRODUCT_001	PRODUCT_001	Dimension (View)	ANA368_001	DLPARTNERID (ANA368_001_IT)	DLPARTNERID	Dimension (View)	ANA368_001	Product (ANA368_001_IT)	TAPRODUCT	Dimension (View)	ANA368_001																
Business Name	Technical Name	Type	Created By																																		
PARTNER_001	PARTNER_001	Dimension (View)	ANA368_001																																		
PRODUCT_001	PRODUCT_001	Dimension (View)	ANA368_001																																		
DLPARTNERID (ANA368_001_IT)	DLPARTNERID	Dimension (View)	ANA368_001																																		
Product (ANA368_001_IT)	TAPRODUCT	Dimension (View)	ANA368_001																																		
<p>70. Once you have added both associations, they are visible under the Associations section of the properties for your enhanced sales data view.</p>	<div><div>Associations (2)<div><div>+</div><div></div></div><div><div> Enhanced_Sales_Data_001 to PARTNER...</div><div> Enhanced_Sales_Data_001 to PRODUC...</div></div></div></div>																																				

Explanation	Screenshot
<p>71. Deploy the view. Do not worry about the warnings.</p> <p>Click <i>Deploy Anyway</i>.</p>	 <p>The screenshot shows a 'Validation Messages' dialog box with five warning icons and messages about data types for union columns. At the bottom, the 'Deploy Anyway' button is highlighted with a red rectangle.</p>
<p>72. Once you get the confirmation that the deployment of your view was successful, please change to the Story Builder.</p>	 <p>The screenshot shows the SAP Tech ED interface for 'ANA368_001'. A notification message states: 'The deployment of Enhanced_Sales_Data_001 was successful. Open configuration of Enhanced_Sales_Data_001. 2 minutes ago'.</p>
<p>73. In the Story Builder, make sure that you are still in your LoB Space.</p> <p>In your LoB Space, click on <i>Create Story</i>.</p>	 <p>The screenshot shows a button with a bar chart icon and the text 'Create Story'.</p>
<p>74. In the pop-up, use the arrow to choose your Enhanced_Sales_Data_XXX view.</p> <p>Then click on <i>OK</i>.</p>	 <p>The screenshot shows a 'Select Your Data' dialog box. The 'Name' dropdown menu is set to 'Enhanced_Sales_Data_001'. Below the dropdown, there is an information icon and a note: 'If you don't see your dataset, check that it is deployed, and set to allow consumption in your SAP Data Warehouse Cloud System.' The 'OK' button is highlighted.</p>

Explanation	Screenshot
75. You will see on the left side, that you have added Enhanced_Sales_Data_XXX to the story.	
76. To build the second Story, please choose the object <i>Chart</i> .	

Explanation	Screenshot
<p>77. On the right, in the Designer, please click + Add Measure to add the Measure <i>Gross Amount</i>.</p> <p>Please click on + Add Dimension to add the Dimension <i>Product</i>.</p> <p>There are two Product dimensions to choose from. Choose the one with context menu <i>PRODUCT (Product)</i>, not <i>_PRODUCT_0 (Product)</i>.</p>	 <p>The screenshot shows the Power BI Builder interface. At the top, the 'Builder' tab is active. Below it, the data source is 'Enhanced_Sales_Data_001'. The 'Chart Structure' section is expanded, showing a grid of chart types: Comparison, Trend, Distribution, Correlation, Indicator, and More. Below the chart types is a 'Chart Orientation' dropdown set to 'Horizontal'. The 'Measures' section contains a list with 'Gross Amount', and the 'Dimensions' section contains a list with 'Product'. Both the 'Measures' and 'Dimensions' sections have a '+ Add Measure' and '+ Add Dimension' button respectively. The 'Gross Amount' and 'Product' items are highlighted with red boxes.</p>

Explanation	Screenshot																																																																																						
<p>78. You can manipulate the size of the chart by pulling it larger on the canvas.</p> <p>If everything has worked as expected, you should have the following chart in your Story.</p> <p>You have now built your second Story which combined the sales data imported from BW/4HANA and the sales data uploaded from a CSV file.</p>	 <p>Gross Amount per Product</p> <p>in USD</p> <table border="1"> <thead> <tr> <th>Product</th> <th>Gross Amount (USD)</th> </tr> </thead> <tbody> <tr><td>BX-1011</td><td>2,778,260.00</td></tr> <tr><td>BX-1012</td><td>1,790,834.00</td></tr> <tr><td>BX-1013</td><td>5,199,569.00</td></tr> <tr><td>BX-1014</td><td>1,750,122.00</td></tr> <tr><td>BX-1015</td><td>2,796,048.00</td></tr> <tr><td>BX-1016</td><td>2,054,974.00</td></tr> <tr><td>CB-1161</td><td>1,871,075.00</td></tr> <tr><td>CB-1162</td><td>1,563,359.00</td></tr> <tr><td>CB-1163</td><td>3,798,367.00</td></tr> <tr><td>CC-1021</td><td>2,368,138.00</td></tr> <tr><td>CC-1022</td><td>1,684,759.00</td></tr> <tr><td>CC-1023</td><td>3,958,821.00</td></tr> <tr><td>DB-1081</td><td>2,253,586.00</td></tr> <tr><td>DB-1082</td><td>1,978,384.00</td></tr> <tr><td>DB-1083</td><td>2,976,135.00</td></tr> <tr><td>EB-1131</td><td>2,395,925.00</td></tr> <tr><td>EB-1132</td><td>1,937,764.00</td></tr> <tr><td>EB-1133</td><td>1,421,251.00</td></tr> <tr><td>EB-1134</td><td>4,105,626.00</td></tr> <tr><td>EB-1135</td><td>2,159,577.00</td></tr> <tr><td>EB-1136</td><td>4,050,217.00</td></tr> <tr><td>EB-1137</td><td>4,724,358.00</td></tr> <tr><td>HB-1171</td><td>2,420,526.00</td></tr> <tr><td>HB-1172</td><td>1,568,844.00</td></tr> <tr><td>HB-1173</td><td>2,633,194.00</td></tr> <tr><td>HB-1174</td><td>1,915,214.00</td></tr> <tr><td>HB-1175</td><td>2,140,923.00</td></tr> <tr><td>HB-1176</td><td>1,381,125.00</td></tr> <tr><td>MB-1031</td><td>2,441,169.00</td></tr> <tr><td>MB-1032</td><td>1,963,465.00</td></tr> <tr><td>MB-1033</td><td>4,372,959.00</td></tr> <tr><td>MB-1034</td><td>2,115,290.00</td></tr> <tr><td>RC-1051</td><td>1,556,364.00</td></tr> <tr><td>RC-1052</td><td>3,680,211.00</td></tr> <tr><td>RC-1053</td><td>2,257,134.00</td></tr> <tr><td>RC-1054</td><td>2,672,917.00</td></tr> <tr><td>RC-1055</td><td>3,745,831.00</td></tr> <tr><td>RC-1056</td><td>2,022,040.00</td></tr> <tr><td>RC-1057</td><td>3,471,799.00</td></tr> <tr><td>RO-1001</td><td>1,544,477.00</td></tr> <tr><td>RO-1002</td><td>1,939,111.00</td></tr> <tr><td>RO-1003</td><td>1,899,033.00</td></tr> </tbody> </table>	Product	Gross Amount (USD)	BX-1011	2,778,260.00	BX-1012	1,790,834.00	BX-1013	5,199,569.00	BX-1014	1,750,122.00	BX-1015	2,796,048.00	BX-1016	2,054,974.00	CB-1161	1,871,075.00	CB-1162	1,563,359.00	CB-1163	3,798,367.00	CC-1021	2,368,138.00	CC-1022	1,684,759.00	CC-1023	3,958,821.00	DB-1081	2,253,586.00	DB-1082	1,978,384.00	DB-1083	2,976,135.00	EB-1131	2,395,925.00	EB-1132	1,937,764.00	EB-1133	1,421,251.00	EB-1134	4,105,626.00	EB-1135	2,159,577.00	EB-1136	4,050,217.00	EB-1137	4,724,358.00	HB-1171	2,420,526.00	HB-1172	1,568,844.00	HB-1173	2,633,194.00	HB-1174	1,915,214.00	HB-1175	2,140,923.00	HB-1176	1,381,125.00	MB-1031	2,441,169.00	MB-1032	1,963,465.00	MB-1033	4,372,959.00	MB-1034	2,115,290.00	RC-1051	1,556,364.00	RC-1052	3,680,211.00	RC-1053	2,257,134.00	RC-1054	2,672,917.00	RC-1055	3,745,831.00	RC-1056	2,022,040.00	RC-1057	3,471,799.00	RO-1001	1,544,477.00	RO-1002	1,939,111.00	RO-1003	1,899,033.00
Product	Gross Amount (USD)																																																																																						
BX-1011	2,778,260.00																																																																																						
BX-1012	1,790,834.00																																																																																						
BX-1013	5,199,569.00																																																																																						
BX-1014	1,750,122.00																																																																																						
BX-1015	2,796,048.00																																																																																						
BX-1016	2,054,974.00																																																																																						
CB-1161	1,871,075.00																																																																																						
CB-1162	1,563,359.00																																																																																						
CB-1163	3,798,367.00																																																																																						
CC-1021	2,368,138.00																																																																																						
CC-1022	1,684,759.00																																																																																						
CC-1023	3,958,821.00																																																																																						
DB-1081	2,253,586.00																																																																																						
DB-1082	1,978,384.00																																																																																						
DB-1083	2,976,135.00																																																																																						
EB-1131	2,395,925.00																																																																																						
EB-1132	1,937,764.00																																																																																						
EB-1133	1,421,251.00																																																																																						
EB-1134	4,105,626.00																																																																																						
EB-1135	2,159,577.00																																																																																						
EB-1136	4,050,217.00																																																																																						
EB-1137	4,724,358.00																																																																																						
HB-1171	2,420,526.00																																																																																						
HB-1172	1,568,844.00																																																																																						
HB-1173	2,633,194.00																																																																																						
HB-1174	1,915,214.00																																																																																						
HB-1175	2,140,923.00																																																																																						
HB-1176	1,381,125.00																																																																																						
MB-1031	2,441,169.00																																																																																						
MB-1032	1,963,465.00																																																																																						
MB-1033	4,372,959.00																																																																																						
MB-1034	2,115,290.00																																																																																						
RC-1051	1,556,364.00																																																																																						
RC-1052	3,680,211.00																																																																																						
RC-1053	2,257,134.00																																																																																						
RC-1054	2,672,917.00																																																																																						
RC-1055	3,745,831.00																																																																																						
RC-1056	2,022,040.00																																																																																						
RC-1057	3,471,799.00																																																																																						
RO-1001	1,544,477.00																																																																																						
RO-1002	1,939,111.00																																																																																						
RO-1003	1,899,033.00																																																																																						

Explanation	Screenshot																								
79. Save your Story.	<div><div>Save</div><div>ANA368_001_LOB<div>All files</div><div>Search</div></div><table><tr><th>Name</th><th>Description</th><th>Owner</th></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr></table><div><div>Name</div><div>Sales_Data_Combined_001</div></div><div><div>Description</div><div>Combined Sales Data from BW/4HANA and CSV file</div></div><div><div>OK</div><div>Cancel</div></div></div>	Name	Description	Owner																					
Name	Description	Owner																							

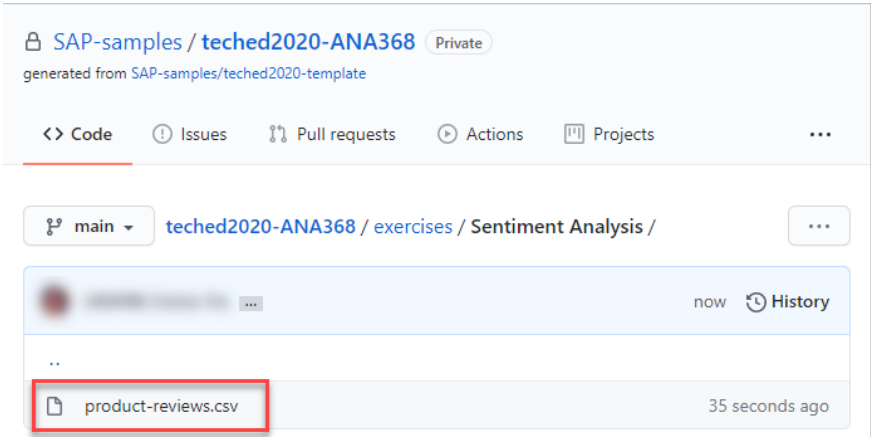

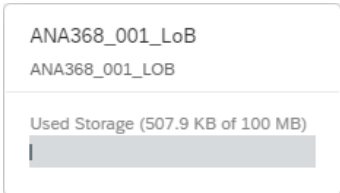

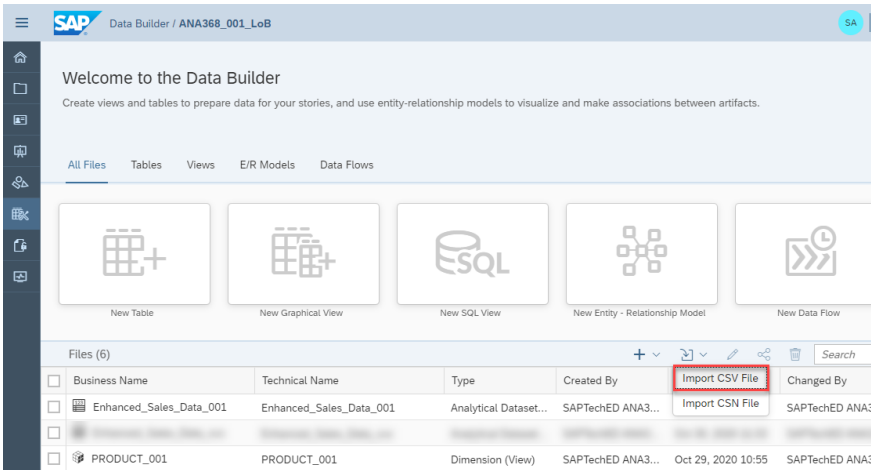
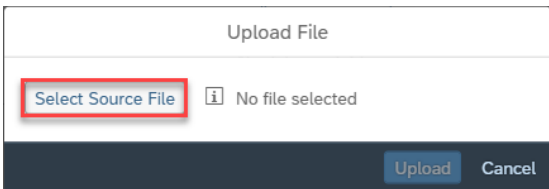
8. EXPAND THE DATA MODEL IN DWC WITH SENTIMENT ANALYSIS

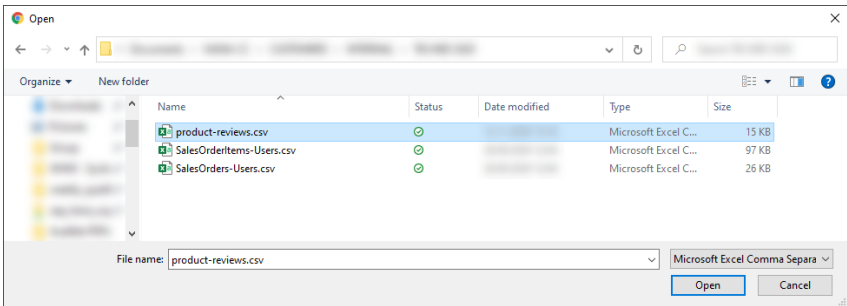
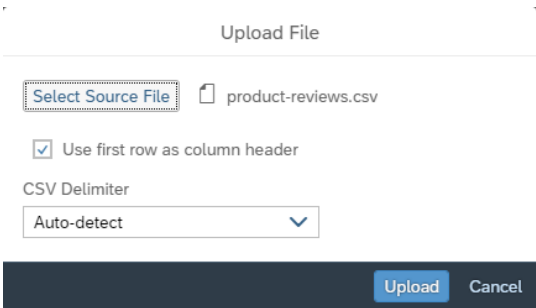
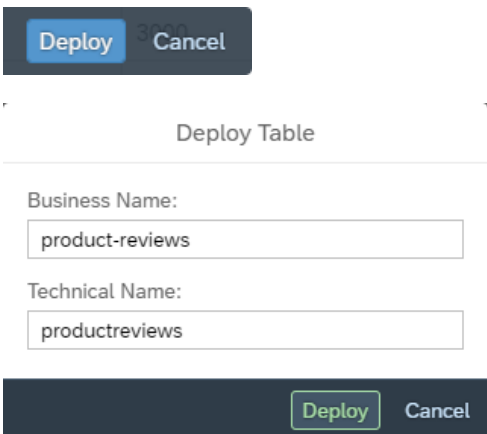
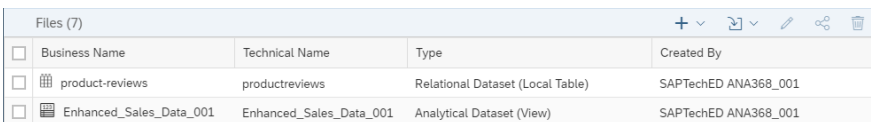

This last exercise is entirely optional for you, if you have time left over after completing the preceding exercises.

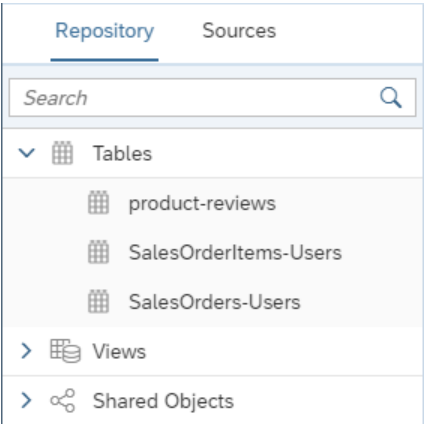

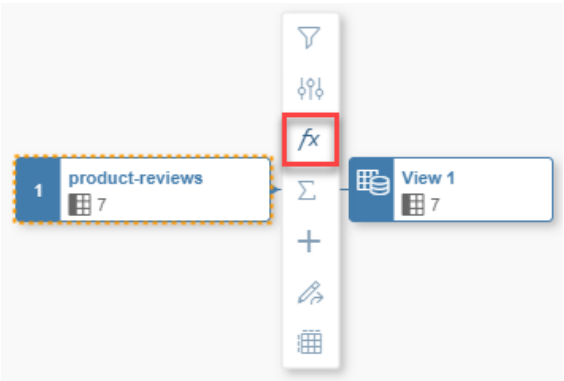
Exercise Description


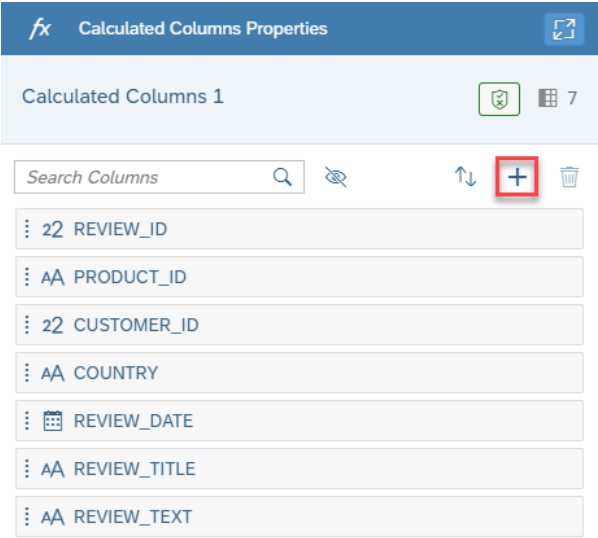
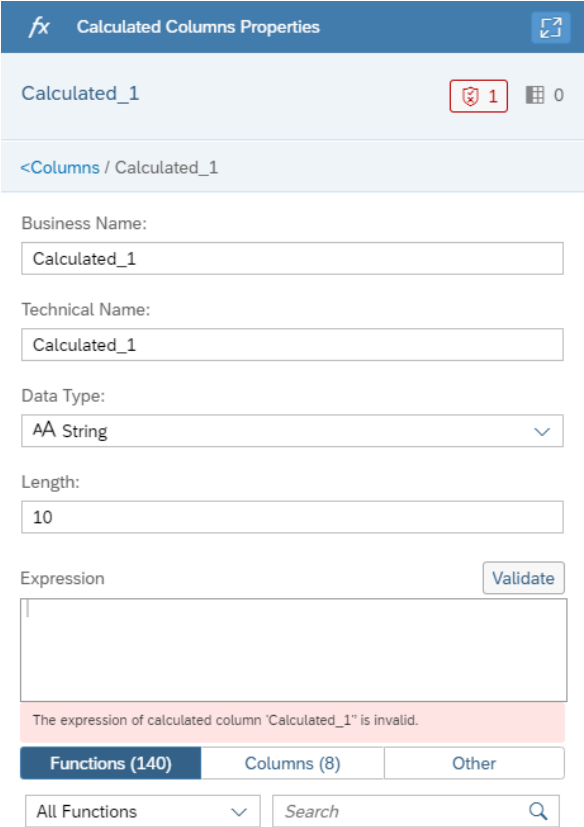
You will learn

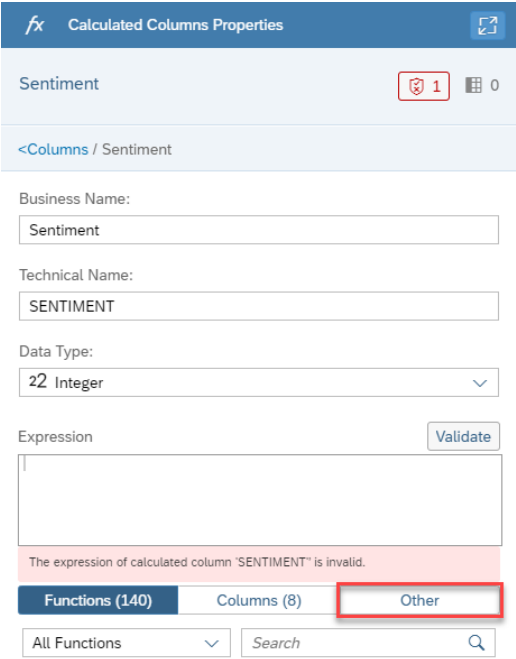
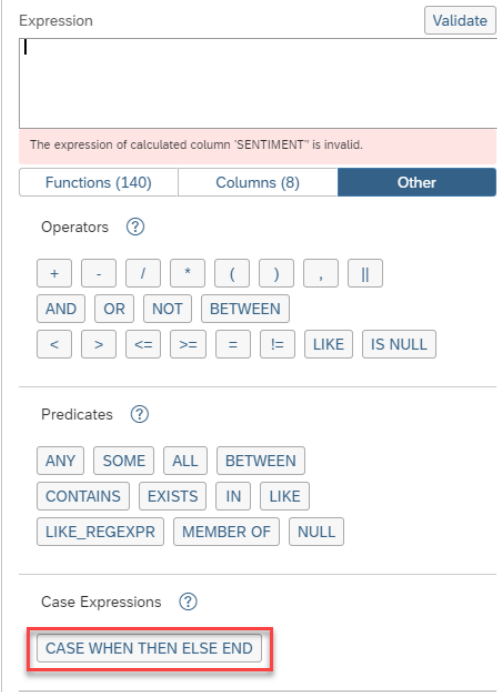
- To add sentiment analysis to your data model

Explanation	Screenshot																					
<p>80. To import the table needed for this exercise, you will be using the flat file import again, as you did already for exercise 5.</p> <p>Please go to the provided GitHub page for this workshop (teched2020-ANA368) and download the CSV file from the <i>Sentiment Analysis</i> folder.</p>																						
<p>81. Back in DWC, please go to the Data Builder.</p> <p> Data Builder</p> <p>In the Data Builder, make sure that you choose your LoB Space.</p>																						
<p>82. In your LoB Space, click the  button, and choose Import CSV File.</p>	 <table><thead><tr><th>Files (6)</th><th>Business Name</th><th>Technical Name</th><th>Type</th><th>Created By</th><th>Import CSV File</th><th>Changed By</th></tr></thead><tbody><tr><td><input type="checkbox"/></td><td>Enhanced_Sales_Data_001</td><td>Enhanced_Sales_Data_001</td><td>Analytical Dataset...</td><td>SAPTechED ANA3...</td><td>Import CSN File</td><td>SAPTechED ANA3</td></tr><tr><td><input type="checkbox"/></td><td>PRODUCT_001</td><td>PRODUCT_001</td><td>Dimension (View)</td><td>SAPTechED ANA3...</td><td></td><td>SAPTechED ANA3</td></tr></tbody></table>	Files (6)	Business Name	Technical Name	Type	Created By	Import CSV File	Changed By	<input type="checkbox"/>	Enhanced_Sales_Data_001	Enhanced_Sales_Data_001	Analytical Dataset...	SAPTechED ANA3...	Import CSN File	SAPTechED ANA3	<input type="checkbox"/>	PRODUCT_001	PRODUCT_001	Dimension (View)	SAPTechED ANA3...		SAPTechED ANA3
Files (6)	Business Name	Technical Name	Type	Created By	Import CSV File	Changed By																
<input type="checkbox"/>	Enhanced_Sales_Data_001	Enhanced_Sales_Data_001	Analytical Dataset...	SAPTechED ANA3...	Import CSN File	SAPTechED ANA3																
<input type="checkbox"/>	PRODUCT_001	PRODUCT_001	Dimension (View)	SAPTechED ANA3...		SAPTechED ANA3																
<p>83. Click Select Source File in the pop-up.</p>																						


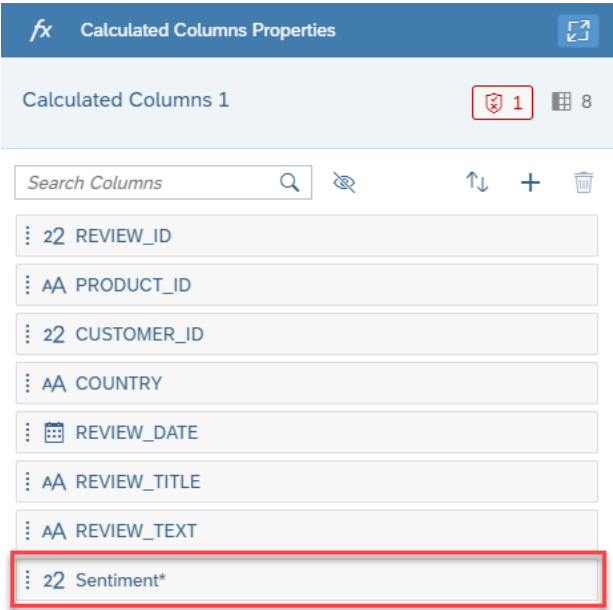
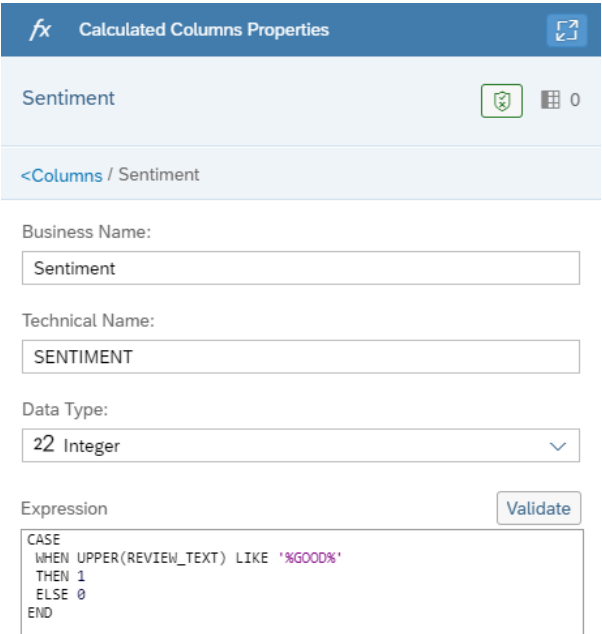
Explanation	Screenshot
<p>84. Choose the product-reviews.csv file from the directory where you downloaded it to.</p> <p>Click on <i>Open</i>.</p>	
<p>85. Tick the box to use the first row of the CSV file as the header column and set the CSV Delimiter to either auto-detect, or Comma delimited, as is the case in this file. Click on <i>Upload</i>.</p>	
<p>86. Once the data has loaded, a preview will be displayed and you will get the option to deploy the table.</p> <p>Click on <i>Deploy</i> at the bottom of the screen.</p> <p>Leave the default Business Name and Technical Name, and click on Deploy again in the pop-up.</p>	
<p>87. Once the deployment has completed, you will see the file in the list in the Data Builder.</p>	
<p>88. In the Data Builder, please click on <i>New Graphical View</i>.</p>	

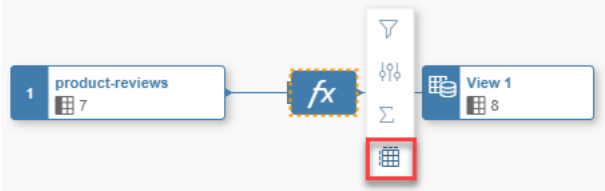
Explanation	Screenshot
89. In the graphical view editor, you will see your new table product-reviews under the <i>Repositories</i> tab, and <i>Tables</i> .	 The screenshot shows a software interface with two tabs: 'Repository' (selected) and 'Sources'. Below the tabs is a search bar labeled 'Search'. Under the 'Repository' tab, there is a section for 'Tables' which is expanded. It lists three tables: 'product-reviews', 'SalesOrderItems-Users', and 'SalesOrders-Users'. Below the 'Tables' section, there are two other sections: 'Views' and 'Shared Objects', both of which are collapsed.
90. Drag the product-reviews table onto the canvas.	 The screenshot shows a graphical view editor canvas. On the left, there is a blue rectangular icon representing the 'product-reviews' table. An orange line indicates it is being dragged towards the right. On the right side of the canvas, there is a box labeled 'View 1' which contains a table icon and the number '0'. A red speech bubble with the number '1' is next to the 'View 1' box.
91. With the table marked, click on <i>fx</i> to add a calculated column.	 The screenshot shows the graphical view editor canvas. On the left, there is a box labeled '1 product-reviews' which contains a table icon and the number '7'. An arrow points from this box to a central vertical toolbar. The toolbar contains several icons: a funnel, a filter icon, a red box around the 'fx' icon (highlighted), a summation symbol (Σ), a plus sign (+), a pencil icon, and a table icon. To the right of the toolbar is a box labeled 'View 1' which contains a table icon and the number '7'.

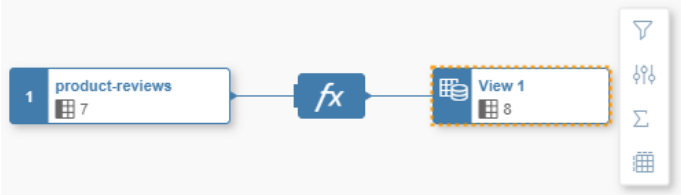
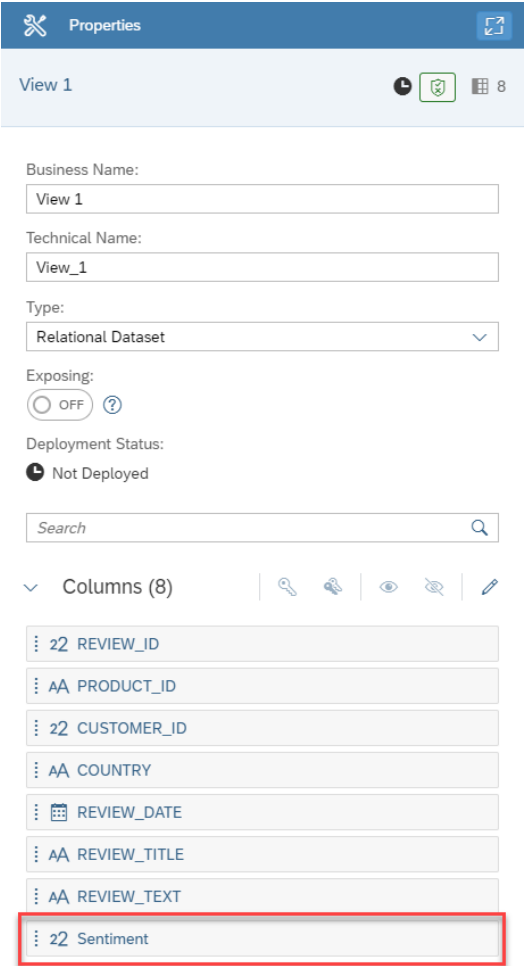
Explanation	Screenshot
<p>92. On the right, the properties for the calculated columns opens.</p> <p>Click on  to add a new column.</p>	
<p>93. The properties for the new calculated column open.</p>	

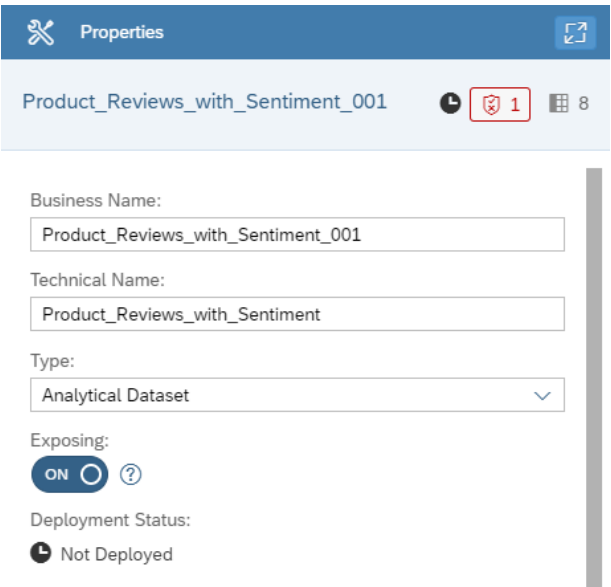

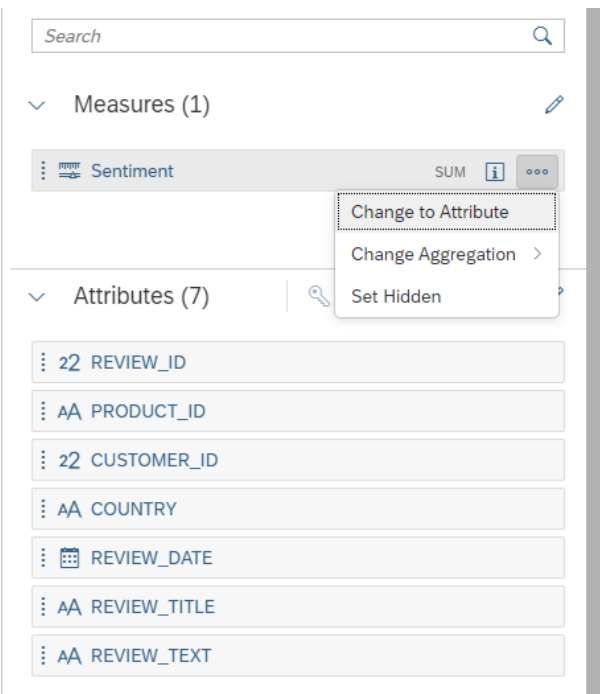
Explanation	Screenshot
<p>94. Change the names and data type as follows and click on the tab <i>Other</i>.</p> <p>Business Name: Sentiment</p> <p>Technical Name: SENTIMENT</p> <p>Data Type: Integer</p>	 <p>The screenshot shows the 'Calculated Columns Properties' dialog box. The 'Sentiment' column is selected. The 'Business Name' is 'Sentiment', 'Technical Name' is 'SENTIMENT', and 'Data Type' is '22 Integer'. The 'Expression' field is empty. A red box highlights the 'Other' tab at the bottom.</p>
<p>95. At the bottom, choose to add a Case Expression: <i>CASE WHEN THEN ELSE END</i></p> <p>(The Expression field also takes free text, so if you prefer to write the CASE WHEN expression yourself, feel very free)</p>	 <p>The screenshot shows the 'Calculated Columns Properties' dialog box, specifically the 'Other' tab. The 'Expression' field is empty. A red box highlights the 'CASE WHEN THEN ELSE END' option under the 'Case Expressions' section.</p>

Explanation	Screenshot																																																	
<p>96. The expression is copied to the <i>Expression</i> box.</p> <p>Here, you can format the CASE WHEN expression to look for positive and negative reviews in your product-reviews table.</p>																																																		
<p>97. To see what kind of review data you have in the product-reviews table, mark the table and click on to see a data preview at the bottom of the screen.</p> <p><i>Important:</i> if you do not get a data preview, you may still have marked the calculated column – make sure to mark the table on the canvas.</p>																																																		
<p>98. In this example, to get the sentiment information for the sentiment analysis, we use the CASE WHEN expression to read through the column <i>REVIEW_TEXT</i> of the table product-reviews.</p> <p>By looking at some of the reviews in the table, you can already see some of the words used to describe whether they are happy customers or not.</p> <p>(Do not take the text in the reviews too seriously, these are only example reviews)</p>	<table><tr><th>REVIEW_ID</th><th>PRODUCT_ID</th><th>CUSTOMER_ID</th><th>COUNTRY</th><th>REVIEW_DATE</th><th>REVIEW_TITLE</th><th>REVIEW_TEXT</th></tr><tr><td>1073</td><td>RC-1052</td><td>100000022</td><td>CA</td><td>2020-05-18</td><td>10/10 ... the best laptop in world. apple products are amazing, you will never regret it buying. They also have solved their battery problems</td><td></td></tr><tr><td>1074</td><td>RC-1052</td><td>100000023</td><td>DE</td><td>2021-05-18</td><td>Very fast</td><td>Fast Processor & user friendly Amazing Battery life!</td></tr><tr><td>1075</td><td>BX-1015</td><td>100000024</td><td>US</td><td>2022-05-18</td><td>Very good</td><td>Very good and light weight laptop. This is a perfect choice for bloggers. Excellent battery life.</td></tr><tr><td>1076</td><td>MB-1033</td><td>100000025</td><td>CA</td><td>2023-05-18</td><td>Very bad</td><td>Very bad product. The load delivered is not at all working this is not expected from such a reputed brand. Looking for an immediate replacement or return.</td></tr><tr><td>1077</td><td>EB-1136</td><td>100000026</td><td>DE</td><td>2024-05-18</td><td>Great product</td><td>Great product. timeless design but expensive. Has been great at making things which do what they are suppose to without much fuss and pump</td></tr><tr><td>1078</td><td>RC-1051</td><td>100000027</td><td>US</td><td>2025-05-18</td><td>5 stars</td><td>Great decision I have ever made. Great purchase.</td></tr></table>	REVIEW_ID	PRODUCT_ID	CUSTOMER_ID	COUNTRY	REVIEW_DATE	REVIEW_TITLE	REVIEW_TEXT	1073	RC-1052	100000022	CA	2020-05-18	10/10 ... the best laptop in world. apple products are amazing, you will never regret it buying. They also have solved their battery problems		1074	RC-1052	100000023	DE	2021-05-18	Very fast	Fast Processor & user friendly Amazing Battery life!	1075	BX-1015	100000024	US	2022-05-18	Very good	Very good and light weight laptop. This is a perfect choice for bloggers. Excellent battery life.	1076	MB-1033	100000025	CA	2023-05-18	Very bad	Very bad product. The load delivered is not at all working this is not expected from such a reputed brand. Looking for an immediate replacement or return.	1077	EB-1136	100000026	DE	2024-05-18	Great product	Great product. timeless design but expensive. Has been great at making things which do what they are suppose to without much fuss and pump	1078	RC-1051	100000027	US	2025-05-18	5 stars	Great decision I have ever made. Great purchase.
REVIEW_ID	PRODUCT_ID	CUSTOMER_ID	COUNTRY	REVIEW_DATE	REVIEW_TITLE	REVIEW_TEXT																																												
1073	RC-1052	100000022	CA	2020-05-18	10/10 ... the best laptop in world. apple products are amazing, you will never regret it buying. They also have solved their battery problems																																													
1074	RC-1052	100000023	DE	2021-05-18	Very fast	Fast Processor & user friendly Amazing Battery life!																																												
1075	BX-1015	100000024	US	2022-05-18	Very good	Very good and light weight laptop. This is a perfect choice for bloggers. Excellent battery life.																																												
1076	MB-1033	100000025	CA	2023-05-18	Very bad	Very bad product. The load delivered is not at all working this is not expected from such a reputed brand. Looking for an immediate replacement or return.																																												
1077	EB-1136	100000026	DE	2024-05-18	Great product	Great product. timeless design but expensive. Has been great at making things which do what they are suppose to without much fuss and pump																																												
1078	RC-1051	100000027	US	2025-05-18	5 stars	Great decision I have ever made. Great purchase.																																												

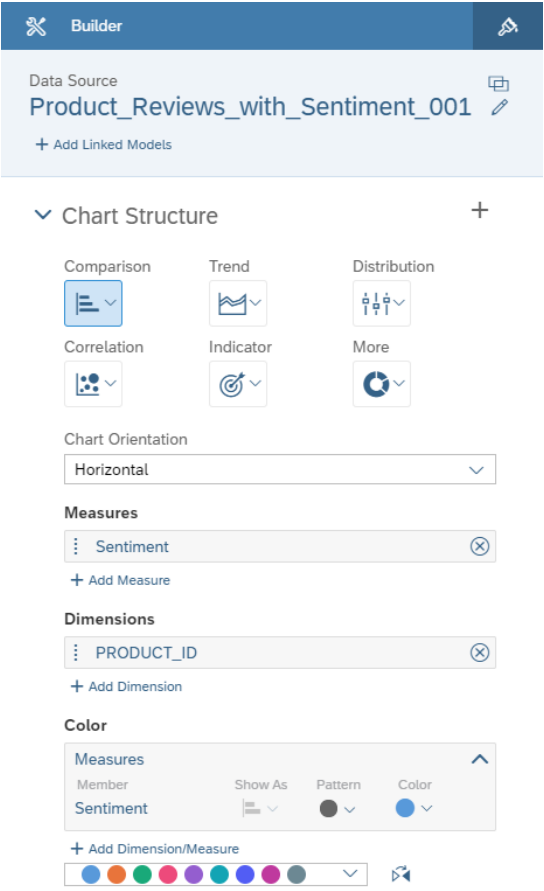
Explanation	Screenshot
<p>99. Go back to the calculated column by marking  on the canvas and clicking on your newly created Sentiment column in the <i>properties</i> box.</p> <p>(If your CASE WHEN expression has disappeared from the <i>Expression</i> box, just click it again)</p>	
<p>100. Format the CASE WHEN expression, and add a first case, to check if the expression is working as expected.</p> <p>You can create expressions faster by using the input help.</p> <p>The expression in the screenshot here reads the column REVIEW_TEXT, sets all characters to be upper case with the <i>UPPER()</i> function, and compares them to our word with the <i>LIKE</i> function. For this reason, we also write our search term in upper case.</p> <p>We also need to put the term in quotation marks to mark it as a <i>String</i>, and we add the wildcards (%) on each side to include words that contain the string 'good', without needing to be an exact match.</p>	

Explanation	Screenshot														
101. Now you can see the data preview directly on the calculated column node.															
102. If you do not have any syntax errors in your expression, the data preview opens, and you can see that the new column <i>Sentiment</i> has been filled with either ones or zeros.	<table border="1"> <thead> <tr> <th>REVIEW_TEXT</th><th>SENTIMENT</th></tr> </thead> <tbody> <tr> <td>No technical marvel but seems to be the best laptop in a price segment of Rs 55-60K.</td><td>0</td></tr> <tr> <td>Very disappointed as this seems to be a second hand product! Moreover the battery power is very low (stand by power is only 4 hour). May...</td><td>0</td></tr> <tr> <td>very bad. My product is not working what do I do ? I have paid everything! This is very very bad .</td><td>0</td></tr> <tr> <td>waste of money. Battery is draining out very quickly after 2-3 hours of usage. Also it's not lasting for more than 7 days once it's in a sleep m...</td><td>0</td></tr> <tr> <td>Good product. But we are not getting on line support for any operation issue in ipad.</td><td>1</td></tr> <tr> <td>One star. scanner not working... tried 2 contact amazon.. not picking</td><td>0</td></tr> </tbody> </table>	REVIEW_TEXT	SENTIMENT	No technical marvel but seems to be the best laptop in a price segment of Rs 55-60K.	0	Very disappointed as this seems to be a second hand product! Moreover the battery power is very low (stand by power is only 4 hour). May...	0	very bad. My product is not working what do I do ? I have paid everything! This is very very bad .	0	waste of money. Battery is draining out very quickly after 2-3 hours of usage. Also it's not lasting for more than 7 days once it's in a sleep m...	0	Good product. But we are not getting on line support for any operation issue in ipad.	1	One star. scanner not working... tried 2 contact amazon.. not picking	0
REVIEW_TEXT	SENTIMENT														
No technical marvel but seems to be the best laptop in a price segment of Rs 55-60K.	0														
Very disappointed as this seems to be a second hand product! Moreover the battery power is very low (stand by power is only 4 hour). May...	0														
very bad. My product is not working what do I do ? I have paid everything! This is very very bad .	0														
waste of money. Battery is draining out very quickly after 2-3 hours of usage. Also it's not lasting for more than 7 days once it's in a sleep m...	0														
Good product. But we are not getting on line support for any operation issue in ipad.	1														
One star. scanner not working... tried 2 contact amazon.. not picking	0														
<p>103. Now that this simple expression is working, you can add either your own terms that you would like to evaluate by, or you can use the following expression which we prepared →</p> <p>In this expression, we add an additional WHEN THEN to the CASE statement to deduct negative sentiments from the collective score.</p>	<pre> CASE WHEN UPPER(REVIEW_TITLE) LIKE '%GOOD%' OR UPPER(REVIEW_TITLE) LIKE '%GREAT%' OR UPPER(REVIEW_TITLE) LIKE '%EXCELLENT%' OR UPPER(REVIEW_TITLE) LIKE '%HAPPY%' OR UPPER(REVIEW_TITLE) LIKE '%SUPER%' THEN 1 WHEN UPPER(REVIEW_TITLE) LIKE '%BAD%' OR UPPER(REVIEW_TITLE) LIKE '%FAKE%' OR UPPER(REVIEW_TITLE) LIKE '%WASTE%' OR UPPER(REVIEW_TITLE) LIKE '%EXPENSIVE%' OR UPPER(REVIEW_TITLE) LIKE '%BROKE%' OR UPPER(REVIEW_TITLE) LIKE '%NOT%' THEN -1 ELSE 0 END </pre> <p>Expression Validate</p> <pre> CASE WHEN UPPER(REVIEW_TITLE) LIKE '%GOOD%' OR UPPER(REVIEW_TITLE) LIKE '%GREAT%' OR UPPER(REVIEW_TITLE) LIKE '%EXCELLENT%' OR UPPER(REVIEW_TITLE) LIKE '%HAPPY%' </pre>														
104. When you click on <i>data preview</i> again, you should be able to see that the <i>Sentiment</i> column is now evaluating both positive, negative, and neutral reviews.	<table border="1"> <thead> <tr> <th>REVIEW_TEXT</th><th>Sentiment</th></tr> </thead> <tbody> <tr> <td>No technical marvel but seems to be the best laptop in a price segment of Rs 55-60K.</td><td>0</td></tr> <tr> <td>Very disappointed as this seems to be a second hand product! Moreover the battery power is very L...</td><td>0</td></tr> <tr> <td>very bad. My product is not working what do I do ? I have paid everything! This is very very bad .</td><td>-1</td></tr> <tr> <td>waste of money. Battery is draining out very quickly after 2-3 hours of usage. Also it's not lasting for ...</td><td>-1</td></tr> <tr> <td>Good product. But we are not getting on line support for any operation issue in ipad.</td><td>1</td></tr> <tr> <td>One star. scanner not working... tried 2 contact amazon.. not picking</td><td>0</td></tr> </tbody> </table>	REVIEW_TEXT	Sentiment	No technical marvel but seems to be the best laptop in a price segment of Rs 55-60K.	0	Very disappointed as this seems to be a second hand product! Moreover the battery power is very L...	0	very bad. My product is not working what do I do ? I have paid everything! This is very very bad .	-1	waste of money. Battery is draining out very quickly after 2-3 hours of usage. Also it's not lasting for ...	-1	Good product. But we are not getting on line support for any operation issue in ipad.	1	One star. scanner not working... tried 2 contact amazon.. not picking	0
REVIEW_TEXT	Sentiment														
No technical marvel but seems to be the best laptop in a price segment of Rs 55-60K.	0														
Very disappointed as this seems to be a second hand product! Moreover the battery power is very L...	0														
very bad. My product is not working what do I do ? I have paid everything! This is very very bad .	-1														
waste of money. Battery is draining out very quickly after 2-3 hours of usage. Also it's not lasting for ...	-1														
Good product. But we are not getting on line support for any operation issue in ipad.	1														
One star. scanner not working... tried 2 contact amazon.. not picking	0														

Explanation	Screenshot
105. Ensure that the data type of your <i>Sentiment</i> column is still set to integer and mark the view on the canvas.	
106. In the Properties pane on the right, you should be able to see that your <i>Sentiment</i> column is added.	

Explanation	Screenshot
<p>107. Change the names and type of the view.</p> <p>Business Name: Product_Reviews_with_Sentiment_XXX</p> <p>Technical Name: Product_Reviews_with_Sentiment</p> <p>Type: Analytical Dataset</p> <p>Exposing: ON</p> <p>If you get an error saying that the view cannot be deployed without a Measure, then do not be worried.</p>	 <p>The screenshot shows the 'Properties' panel for a view. The title bar says 'Properties'. Below it, the view name is 'Product_Reviews_with_Sentiment_001'. There are icons for a clock, a shield with a red '1', and a grid with '8'. The panel contains the following fields:</p> <ul style="list-style-type: none"> Business Name: Product_Reviews_with_Sentiment_001 Technical Name: Product_Reviews_with_Sentiment Type: Analytical Dataset (dropdown menu) Exposing: ON (toggle switch) Deployment Status: Not Deployed (clock icon)
<p>108. Move the <i>Sentiment</i> column to the Measures by either dragging and dropping it, or by clicking the  button at the end of the column and choosing Change to Measure.</p> <p>As well, check to make sure that the aggregation type is SUM, as it is here in the screenshot.</p>	 <p>The screenshot shows the 'Measures' and 'Attributes' panels. The 'Measures' panel has a search bar and a list of measures. One measure is 'Sentiment' with an aggregation of 'SUM'. A context menu is open over the 'Sentiment' measure, showing options: 'Change to Attribute', 'Change Aggregation', and 'Set Hidden'. The 'Attributes' panel has a search bar and a list of attributes: REVIEW_ID, PRODUCT_ID, CUSTOMER_ID, COUNTRY, REVIEW_DATE, REVIEW_TITLE, and REVIEW_TEXT.</p>

Explanation	Screenshot
109. Deploy your view.	
110. After your view has successfully deployed, you will be able to see it in the overview in the Data Builder for your LoB Space.	
111. In your LoB Space, change to the Story Builder, and click on <i>New Story</i> . In the pop-up, choose your newly created Product_Reviews_with_Sentiment_XXX view.	

Explanation	Screenshot
<p>112. Choose to create another Story of type <i>Chart</i>.</p> <p>In the <i>Builder</i> dialog on the right, add your column Sentiment as a measure, and the column PRODUCT_ID as the dimension.</p>	 <p>The screenshot shows the Tableau Builder interface. At the top, the Data Source is 'Product_Reviews_with_Sentiment_001'. Below this, the 'Chart Structure' section is expanded, showing various chart types: Comparison (selected), Trend, Distribution, Correlation, Indicator, and More. The 'Chart Orientation' is set to 'Horizontal'. In the 'Measures' section, 'Sentiment' is listed. In the 'Dimensions' section, 'PRODUCT_ID' is listed. The 'Color' section shows 'Sentiment' as the member, with 'Show As' set to 'Line', 'Pattern' set to 'None', and 'Color' set to 'Blue'. At the bottom, there is a color palette and a 'Show As' dropdown.</p>

Explanation	Screenshot																																																																
113. Now you can see in your Story which products have been rated positively, and which have been rated negatively.	<div><p>Sentiment per PRODUCT_ID</p><table><thead><tr><th>PRODUCT_ID</th><th>Sentiment</th></tr></thead><tbody><tr><td>(No Value)</td><td>0</td></tr><tr><td>BX-1011</td><td>-1</td></tr><tr><td>BX-1012</td><td>0</td></tr><tr><td>BX-1013</td><td>0</td></tr><tr><td>BX-1014</td><td>0</td></tr><tr><td>BX-1015</td><td>1</td></tr><tr><td>BX-1016</td><td>0</td></tr><tr><td>CB-1161</td><td>0</td></tr><tr><td>CB-1162</td><td>-2</td></tr><tr><td>CB-1163</td><td>-1</td></tr><tr><td>CC-1021</td><td>0</td></tr><tr><td>CC-1022</td><td>-1</td></tr><tr><td>CC-1023</td><td>-1</td></tr><tr><td>DB-1081</td><td>2</td></tr><tr><td>DB-1082</td><td>0</td></tr><tr><td>EB-1131</td><td>-1</td></tr><tr><td>EB-1132</td><td>-1</td></tr><tr><td>EB-1133</td><td>0</td></tr><tr><td>EB-1134</td><td>0</td></tr><tr><td>EB-1135</td><td>-1</td></tr><tr><td>EB-1136</td><td>2</td></tr><tr><td>EB-1137</td><td>-1</td></tr><tr><td>HB-1171</td><td>0</td></tr><tr><td>HB-1172</td><td>-1</td></tr><tr><td>HB-1174</td><td>0</td></tr><tr><td>HB-1175</td><td>-1</td></tr><tr><td>HB-1176</td><td>-1</td></tr><tr><td>MB-1031</td><td>0</td></tr><tr><td>MB-1032</td><td>-1</td></tr><tr><td>MB-1033</td><td>-1</td></tr><tr><td>MB-1034</td><td>0</td></tr></tbody></table></div>	PRODUCT_ID	Sentiment	(No Value)	0	BX-1011	-1	BX-1012	0	BX-1013	0	BX-1014	0	BX-1015	1	BX-1016	0	CB-1161	0	CB-1162	-2	CB-1163	-1	CC-1021	0	CC-1022	-1	CC-1023	-1	DB-1081	2	DB-1082	0	EB-1131	-1	EB-1132	-1	EB-1133	0	EB-1134	0	EB-1135	-1	EB-1136	2	EB-1137	-1	HB-1171	0	HB-1172	-1	HB-1174	0	HB-1175	-1	HB-1176	-1	MB-1031	0	MB-1032	-1	MB-1033	-1	MB-1034	0
PRODUCT_ID	Sentiment																																																																
(No Value)	0																																																																
BX-1011	-1																																																																
BX-1012	0																																																																
BX-1013	0																																																																
BX-1014	0																																																																
BX-1015	1																																																																
BX-1016	0																																																																
CB-1161	0																																																																
CB-1162	-2																																																																
CB-1163	-1																																																																
CC-1021	0																																																																
CC-1022	-1																																																																
CC-1023	-1																																																																
DB-1081	2																																																																
DB-1082	0																																																																
EB-1131	-1																																																																
EB-1132	-1																																																																
EB-1133	0																																																																
EB-1134	0																																																																
EB-1135	-1																																																																
EB-1136	2																																																																
EB-1137	-1																																																																
HB-1171	0																																																																
HB-1172	-1																																																																
HB-1174	0																																																																
HB-1175	-1																																																																
HB-1176	-1																																																																
MB-1031	0																																																																
MB-1032	-1																																																																
MB-1033	-1																																																																
MB-1034	0																																																																

www.sap.com/contactsap

© 2020 SAP SE or an SAP affiliate company. All rights reserved.

No part of this publication may be reproduced or transmitted in any form or for any purpose without the express permission of SAP SE or an SAP affiliate company.

The information contained herein may be changed without prior notice. Some software products marketed by SAP SE and its distributors contain proprietary software components of other software vendors. National product specifications may vary.

These materials are provided by SAP SE or an SAP affiliate company for informational purposes only, without representation or warranty of any kind, and SAP or its affiliated companies shall not be liable for errors or omissions with respect to the materials. The only warranties for SAP or SAP affiliate company products and services are those that are set forth in the express warranty statements accompanying such products and services, if any. Nothing herein should be construed as constituting an additional warranty.

In particular, SAP SE or its affiliated companies have no obligation to pursue any course of business outlined in this document or any related presentation, or to develop or release any functionality mentioned therein. This document, or any related presentation, and SAP SE's or its affiliated companies' strategy and possible future developments, products, and/or platform directions and functionality are all subject to change and may be changed by SAP SE or its affiliated companies at any time for any reason without notice. The information in this document is not a commitment, promise, or legal obligation to deliver any material, code, or functionality. All forward-looking statements are subject to various risks and uncertainties that could cause actual results to differ materially from expectations. Readers are cautioned not to place undue reliance on these forward-looking statements, and they should not be relied upon in making purchasing decisions.

SAP and other SAP products and services mentioned herein as well as their respective logos are trademarks or registered trademarks of SAP SE (or an SAP affiliate company) in Germany and other countries. All other product and service names mentioned are the trademarks of their respective companies. See www.sap.com/copyright for additional trademark information and notices.