

HANDS-ON ANA367: INTEGRATING CLOUD SOLUTIONS INTO SAP DATA WAREHOUSE CLOUD

SAP TechEd 2020

Exercises / Solutions

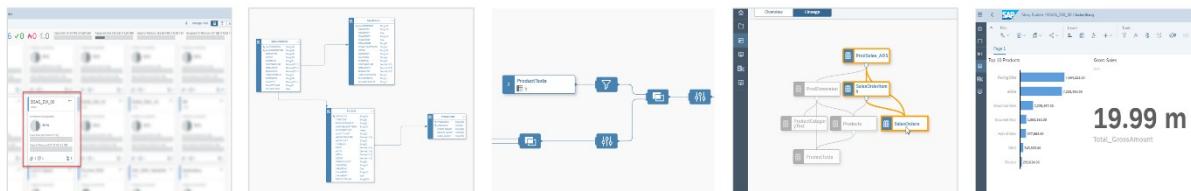
Gordon Witzel, Daniel Felsmann / SAP SE

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Integrate Cloud Solution with SAP Data Warehouse Cloud

In this hands-on session we will realize a simple end-to-end scenario with the main objective to introduce the different functions and options. The main focus of the session is the Data Integration of Cloud Sources and Data Modelling in SAP Data Warehouse Cloud along with visualizing the data models in a SAP Analytics Cloud Story.



Different use cases and different business strategies require tailored business needs. Spaces allow you to create an environment that meets your particular requirements. You can assign users and connections to a specific space and adjust the storage capacity.

Define relations between entities and add metadata to enable the creation of graphical views with the Entity-Relationship Modeler.

In the Data Builder an connect tables and views via joins and unions in a graphical environment.

The business catalog gives you an overview of all the models you can use, across all the Spaces such as Data Sets, Dimensions and Facts you are authorized for.

Stories let you explore data interactively to find insights, visualize information with charts and tables, and share, present, and comment on your findings with colleagues.

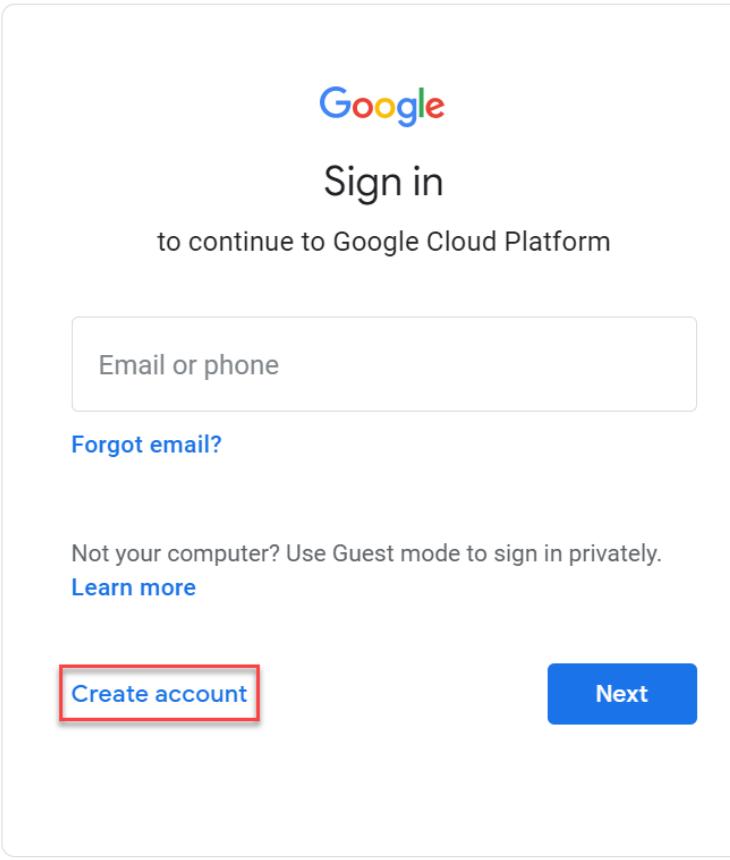
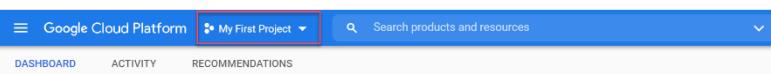
You will learn:

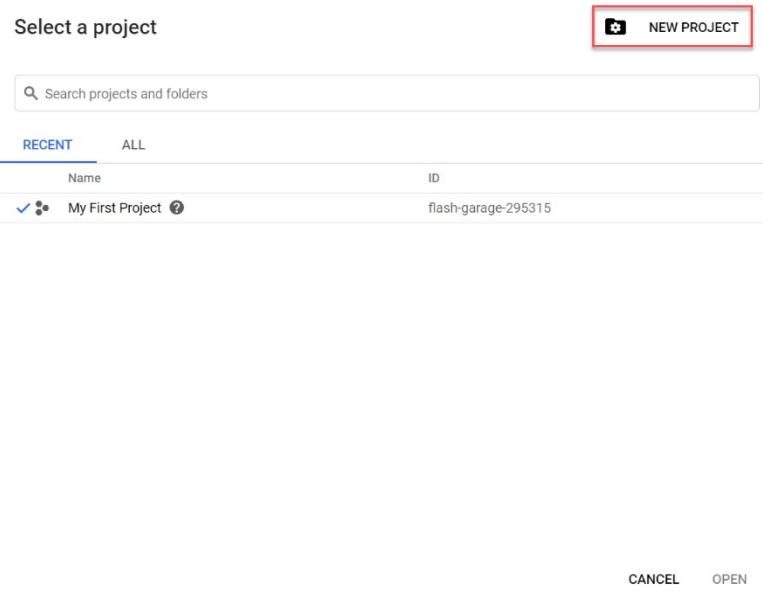
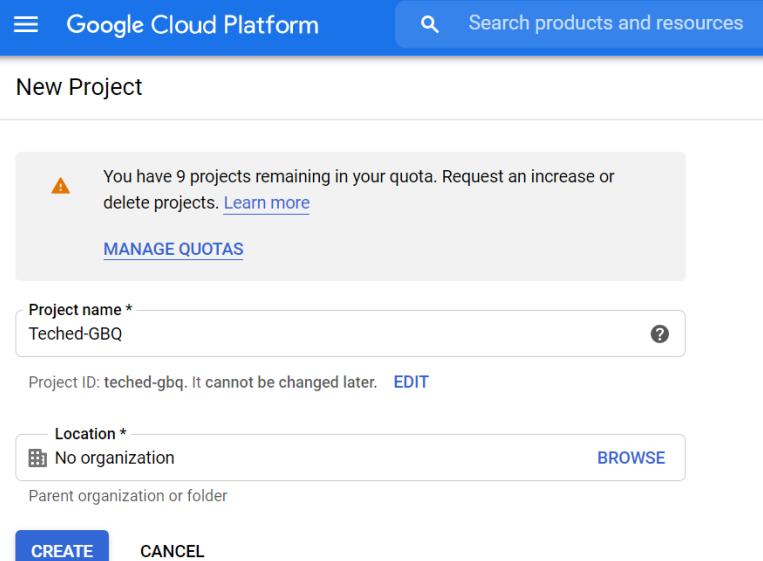
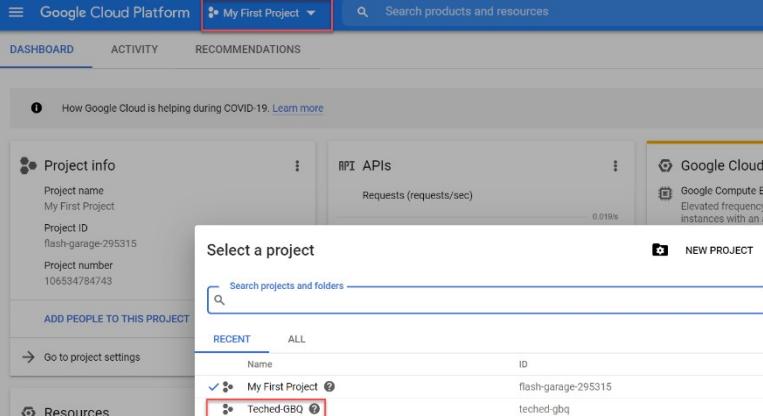
- how to manage user and connections within your own space.
- How to intergrate Cloud solutions into SAP Data Warehosue Cloud
- We will create multiple new graphical models. Within this view we will transfer the knowledge of how to use the Filter, Projection, Join and Data Preview option.
- We introduce the usage data flow and data flow monitoring and build-in assistance and feedback options.
- Based on the created models a stunning SAP Analytic Cloud story will be created and updated with data coming from different cloud sources.

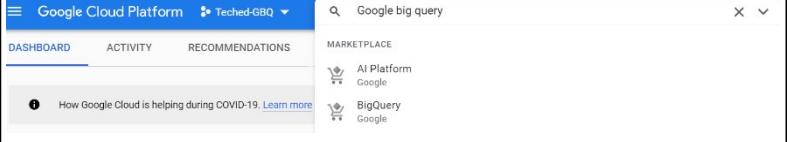
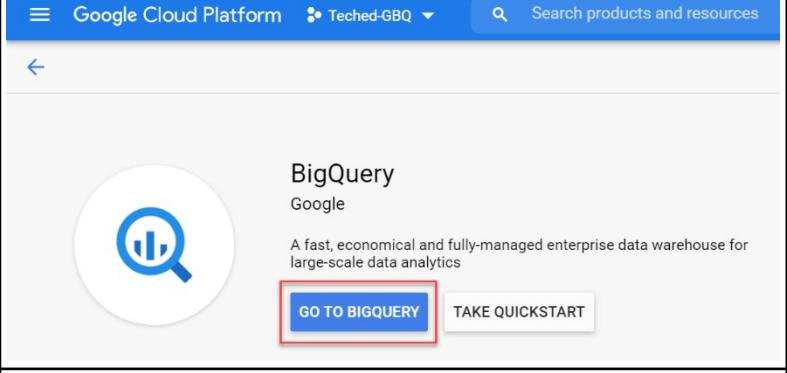
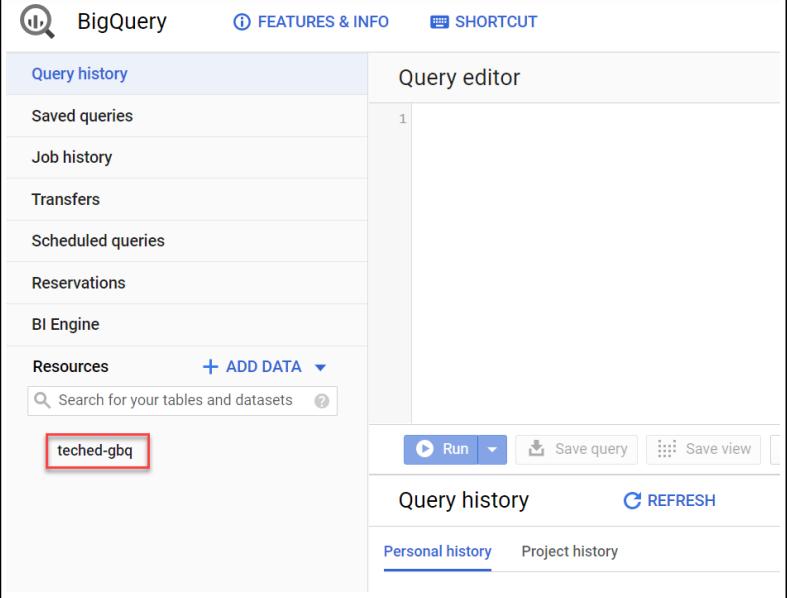
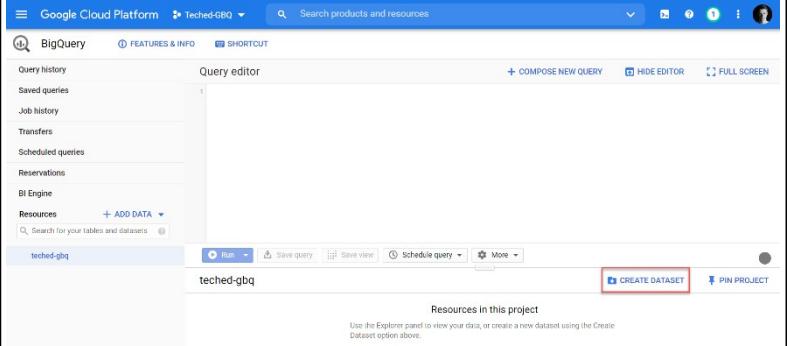
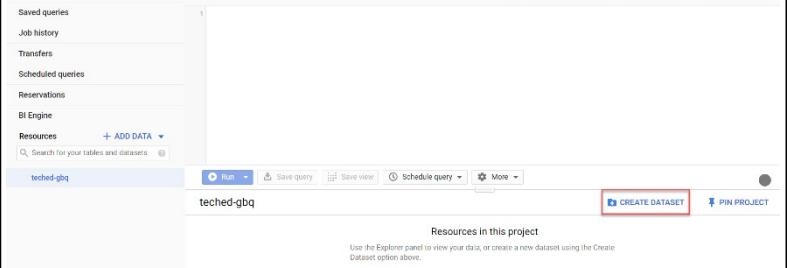
Reading Guidelines

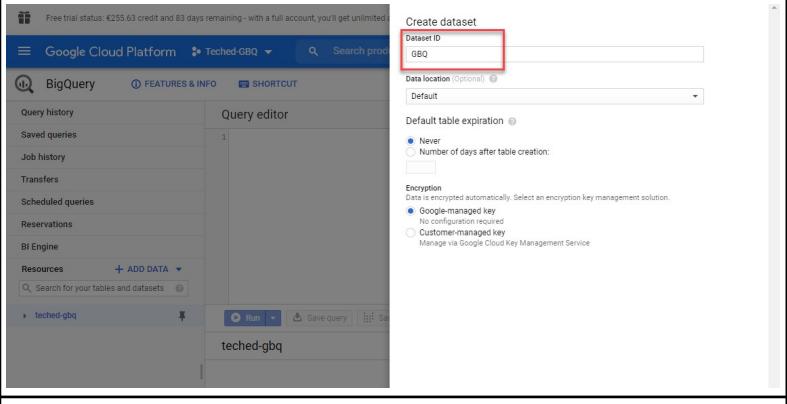
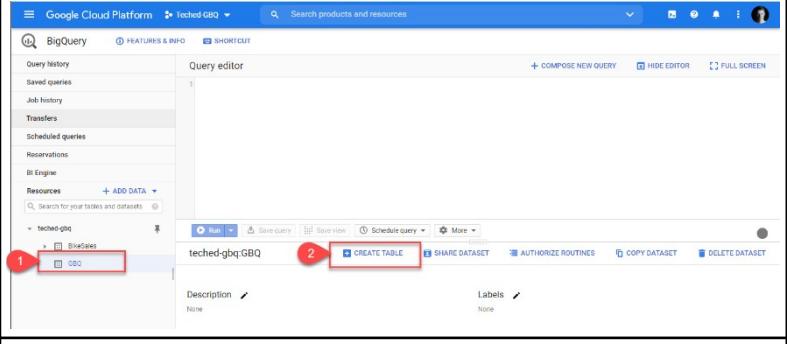
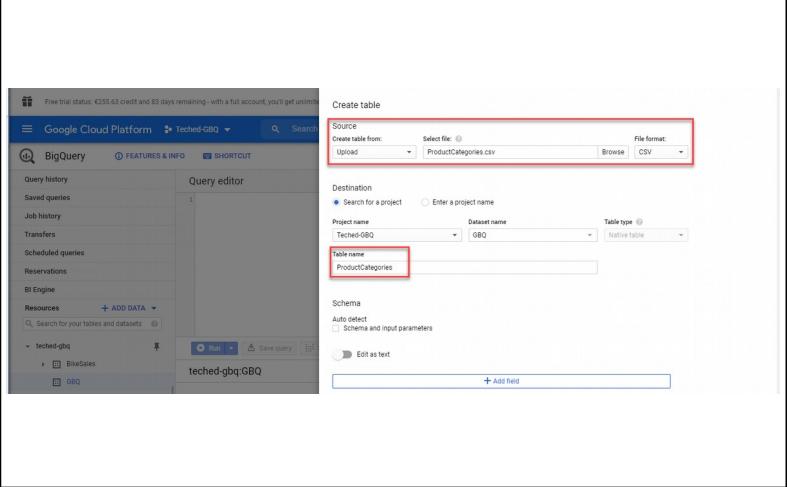
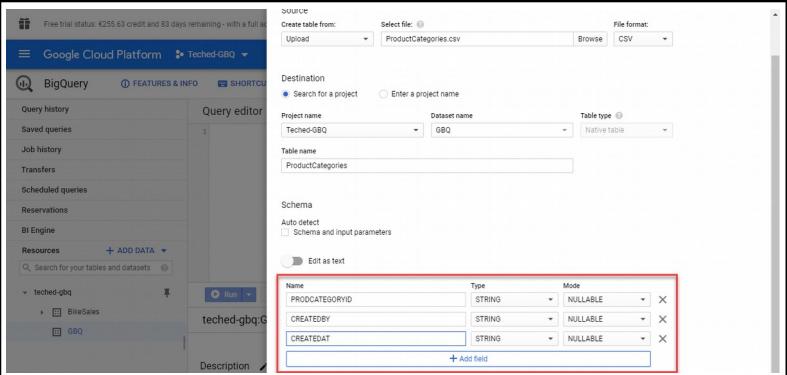
	Explanation
Bold	In bold we mark actions and titles which you need to follow during the script
	Red arrows and markings will help you to locate the button within the SAP Data Warehouse Cloud
	The information icon will should you an important hint

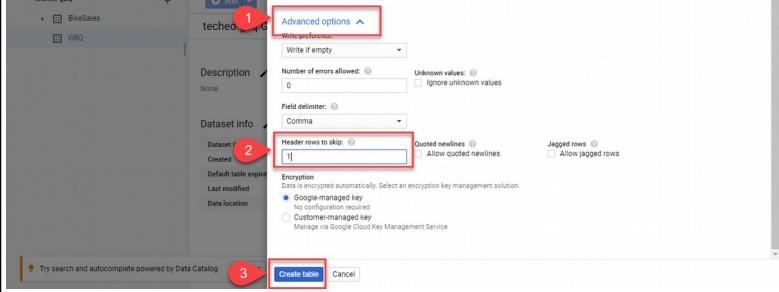
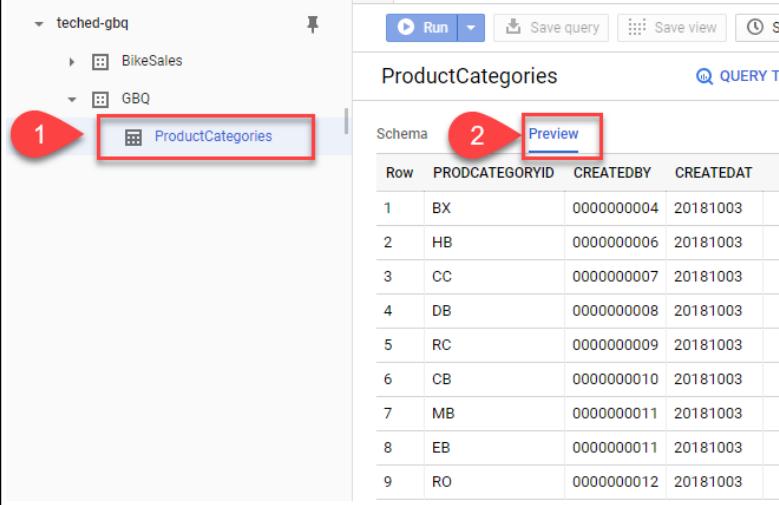
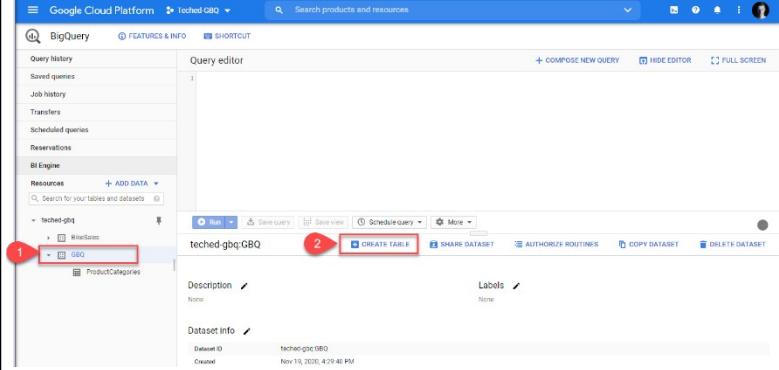
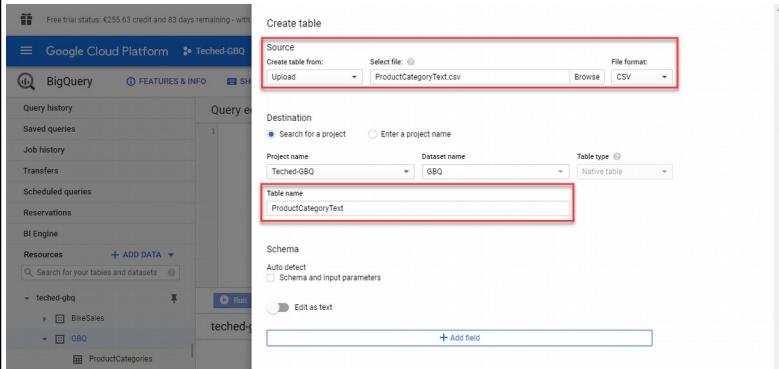
Connection to Google Big Query

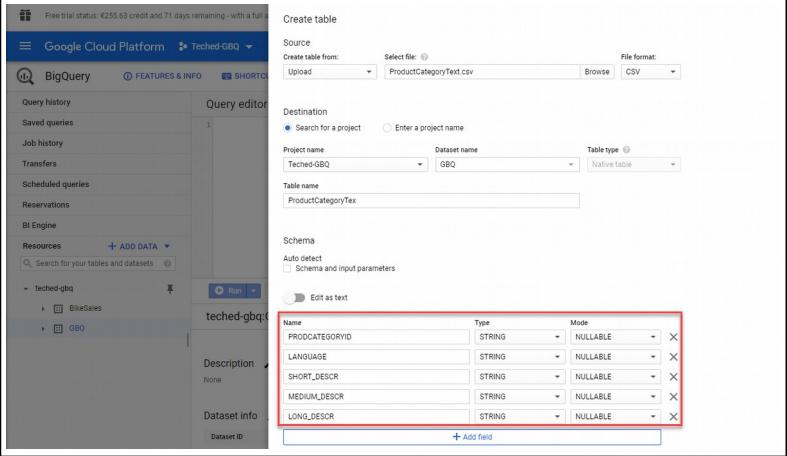
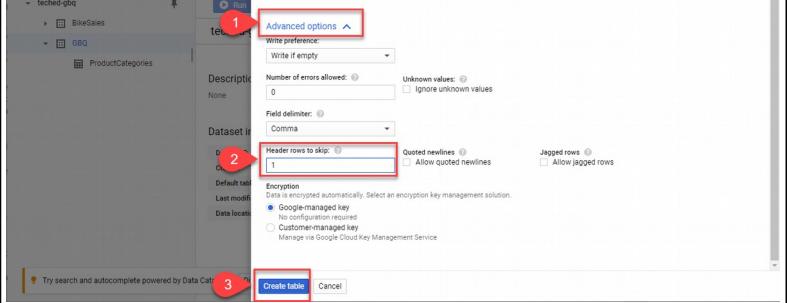
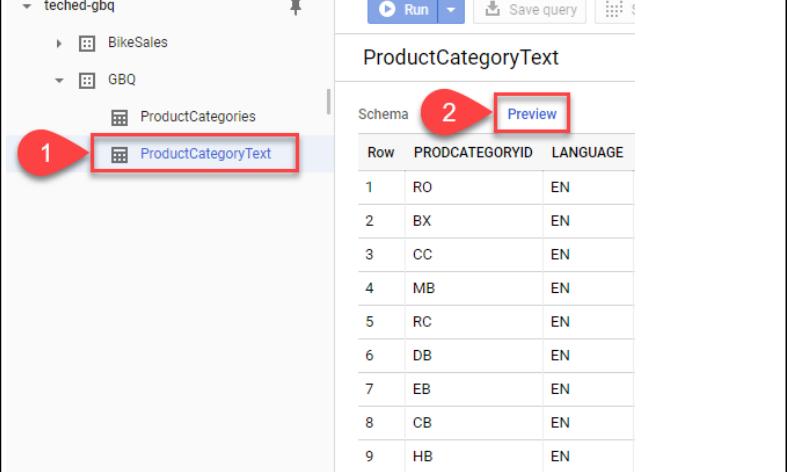
Explanation	Screenshot
<p> Before we start can start to connect Cloud Solutions with SAP Data Warehouse Cloud, we need to create the Trial Account for Google Big Query.</p> <p> Please be aware, that your credit card is required to activate the trial account.</p> <p>Therefore please navigate to the Google Cloud Console following this link: https://tinyurl.com/y595n5bu</p> <p>Either you connect to your existing account or you simply create a new account by clicking on “Create account”</p> <p>Activate the Google Cloud Platform free trial and receive a credit of 300 \$ for the next 90 days</p>	 <p>The screenshot shows the Google Cloud Platform sign-in page. It features the Google logo and a "Sign in" button. Below it, text reads "to continue to Google Cloud Platform". There is an input field for "Email or phone" and a "Forgot email?" link. A note says "Not your computer? Use Guest mode to sign in privately." with a "Learn more" link. At the bottom, there are "Create account" and "Next" buttons. The "Create account" button is highlighted with a red box. Below the form, there are links for "English (United States) ▾", "Help", "Privacy", and "Terms".</p>
<p>As soon as your Google Cloud Platform Account is running, please create a new project by clicking on the “My First Project” button</p>	 <p>The screenshot shows the Google Cloud Platform dashboard. The top navigation bar includes "Google Cloud Platform", "My First Project", and a search bar. Below the bar, there are three tabs: "DASHBOARD" (which is selected), "ACTIVITY", and "RECOMMENDATIONS".</p>

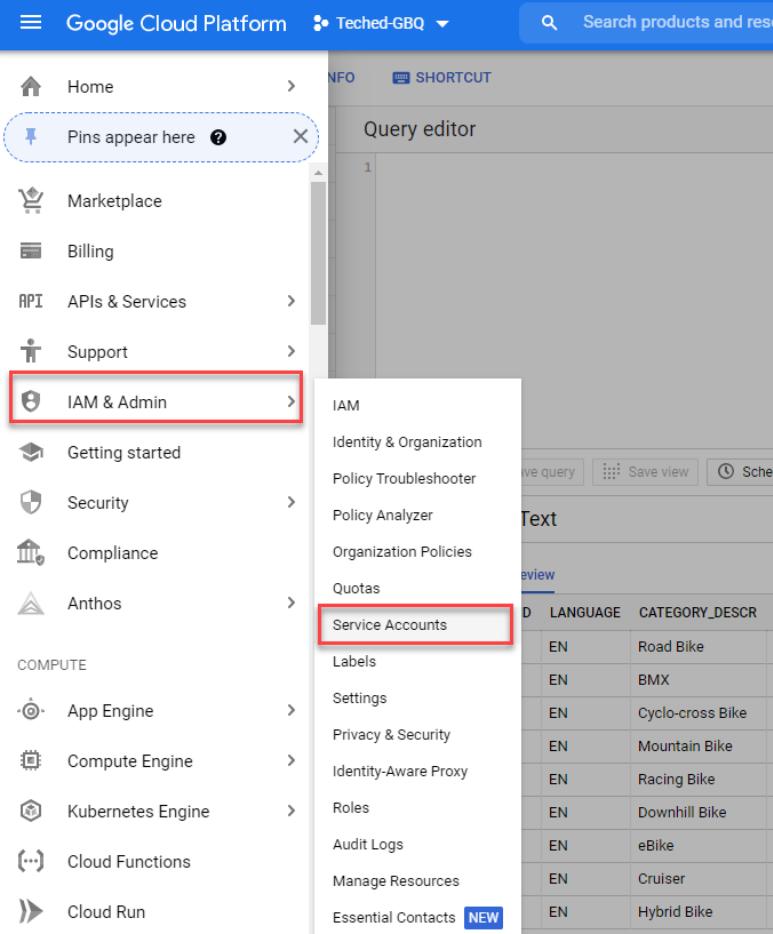
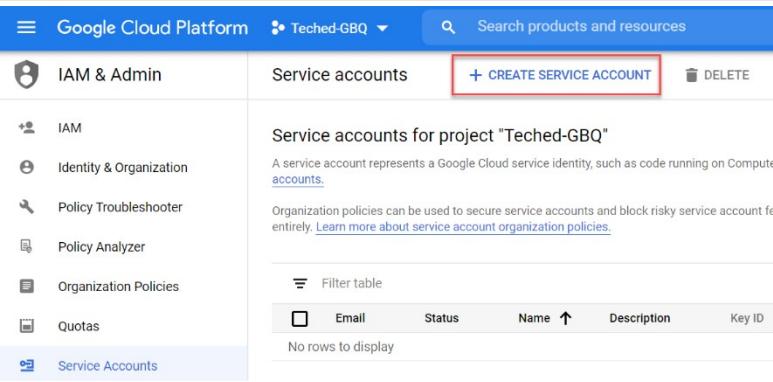
Explanation	Screenshot						
Create a “New Project”	 <p>Select a project</p> <p>RECENT ALL</p> <table border="1"> <thead> <tr> <th>Name</th> <th>ID</th> </tr> </thead> <tbody> <tr> <td>My First Project</td> <td>flash-garage-295315</td> </tr> </tbody> </table> <p>CANCEL OPEN</p>	Name	ID	My First Project	flash-garage-295315		
Name	ID						
My First Project	flash-garage-295315						
<p>In the new project creation screen, please enter the project TechEd-GBQ</p> <p> Please keep in mind that the project ID cannot be changed later.</p> <p>Click on the “Create” button</p>	 <p>New Project</p> <p>You have 9 projects remaining in your quota. Request an increase or delete projects. Learn more</p> <p>MANAGE QUOTAS</p> <p>Project name * Teched-GBQ</p> <p>Project ID: teched-gbq. It cannot be changed later. EDIT</p> <p>Location * No organization BROWSE</p> <p>Parent organization or folder</p> <p>CREATE CANCEL</p>						
<p>Please switch from the default project to the newly created project while clicking on the “my First Project” button in the top navigation bar.</p> <p>Secondly please select the newly created project by clicking on the lineitem.</p> <p> With this, all ongoing activities will be performed in context of this project</p>	 <p>Google Cloud Platform My First Project Search products and resources</p> <p>DASHBOARD ACTIVITY RECOMMENDATIONS</p> <p>Project info</p> <ul style="list-style-type: none"> Project name: My First Project Project ID: flash-garage-295315 Project number: 106534784743 <p>APIs Requests (requests/sec): 0.019s</p> <p>Select a project</p> <p>Search projects and folders</p> <p>RECENT ALL</p> <table border="1"> <thead> <tr> <th>Name</th> <th>ID</th> </tr> </thead> <tbody> <tr> <td>My First Project</td> <td>flash-garage-295315</td> </tr> <tr> <td>Teched-GBQ</td> <td>teched-gbq</td> </tr> </tbody> </table> <p>NEW PROJECT</p>	Name	ID	My First Project	flash-garage-295315	Teched-GBQ	teched-gbq
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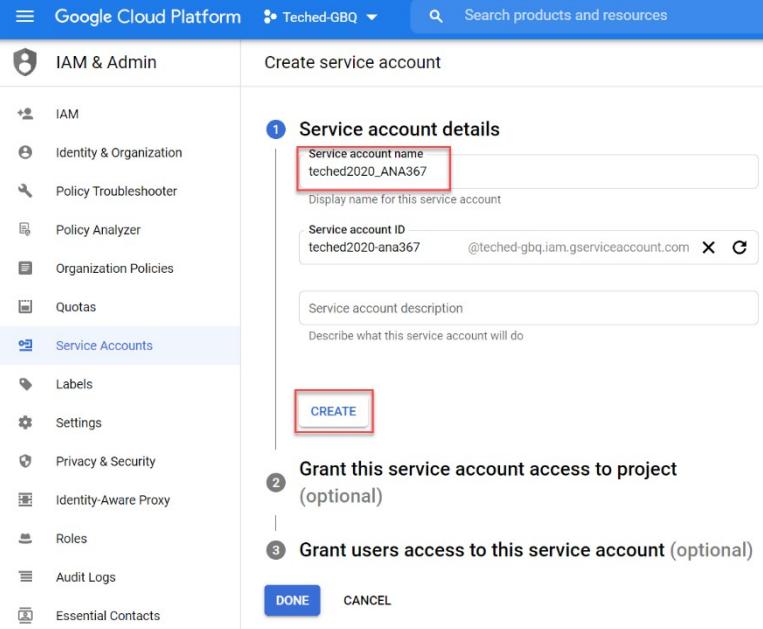
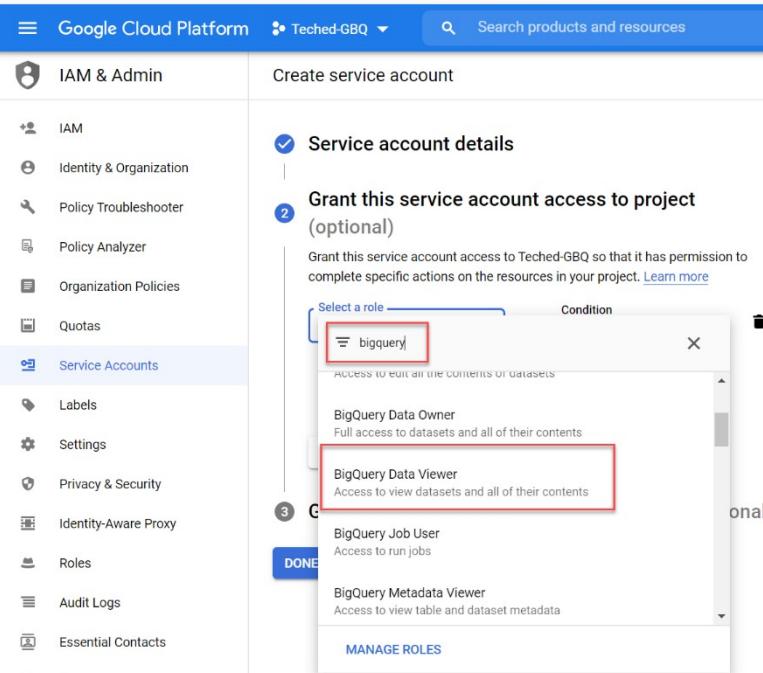
Explanation	Screenshot
<p>Search and select Google BigQuery in the Google Marketplace.</p>	
<p>Here you can simply use the search bar beside to your project,</p>	
<p>In the overview page, navigate to Google Big Query by pressing on the button “Go to BigQuery”</p>	
<p>Open your project in the left navigation bar by clicking on it</p>	
<p>Create new data sets within the project while clicking on the “Create dataset” button</p>	

Explanation	Screenshot												
<p>Enter the Dataset ID GBQ and click on the create dataset button on the bottom of the screen</p>													
<p>1) Navigate to the newly created data set and 2) click on the create table</p>													
<p>i Download both files ProductCategories and ProductCategoryTexts from the TechEd GitHub repository for this Hands-On Session to your local machine.</p> <p>Create a table from Upload. Select the file ProductCategories on your local machine and change the file format to CSV</p> <p>Enter the table name: ProductCategories</p>													
<p>Click 3 times on + Add Field.</p> <p>Enter 3 new fields with type String, mode Nullable:</p> <ul style="list-style-type: none"> - PRODCATEGORYID - CREATEDBY - CREATEDAT 	 <table border="1"> <thead> <tr> <th>Name</th> <th>Type</th> <th>Mode</th> </tr> </thead> <tbody> <tr> <td>PRODCATEGORYID</td> <td>STRING</td> <td>NULLABLE</td> </tr> <tr> <td>CREATEDBY</td> <td>STRING</td> <td>NULLABLE</td> </tr> <tr> <td>CREATEDAT</td> <td>STRING</td> <td>NULLABLE</td> </tr> </tbody> </table>	Name	Type	Mode	PRODCATEGORYID	STRING	NULLABLE	CREATEDBY	STRING	NULLABLE	CREATEDAT	STRING	NULLABLE
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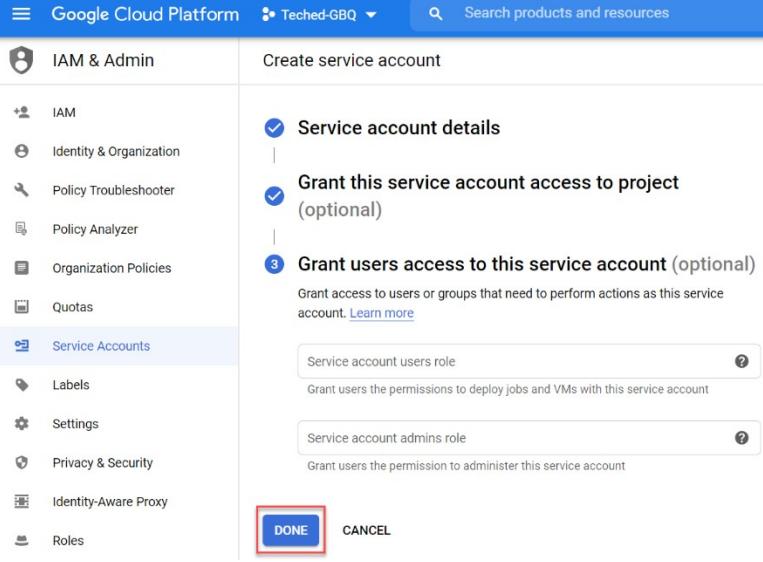
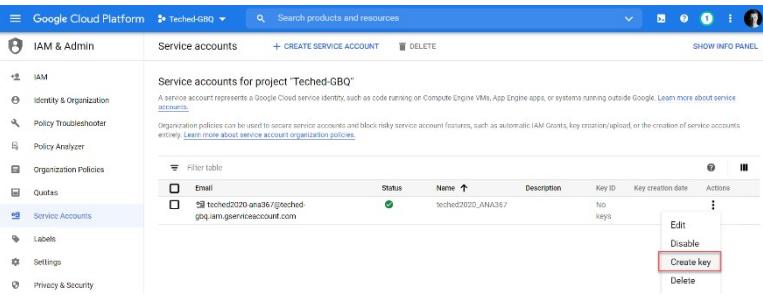
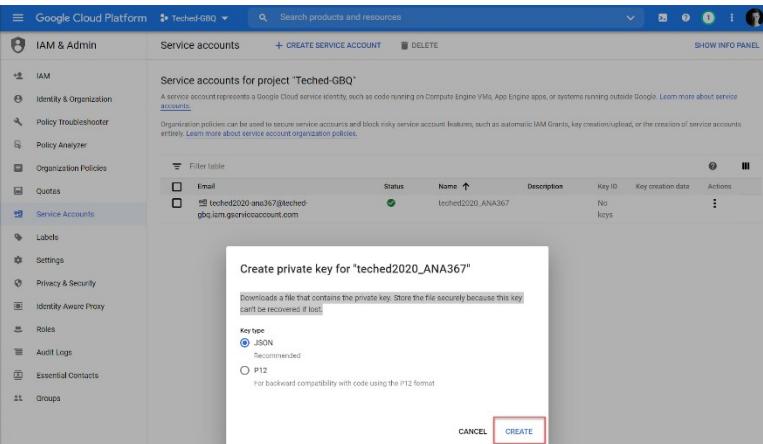
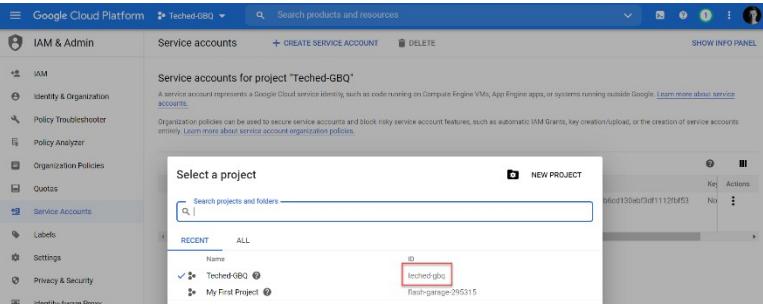
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<p>1) Open the advanced options.</p> <p> Enter the number of rows to skip from the top of the CSV file.</p> <p>2) Enter a 1 in the field Header rows to skip</p> <p>3) Please leave the other default values untouched and trigger the table creation by clicking on create table button on bottom of the screen</p>																																									
<p>Check the table ProductCategories content while you navigate to the table in the navigation pane</p> <p>Please select "Preview"</p>	 <table border="1"> <thead> <tr> <th>Row</th> <th>PRODCATEGORYID</th> <th>CREATEDBY</th> <th>CREATEDAT</th> </tr> </thead> <tbody> <tr><td>1</td><td>BX</td><td>0000000004</td><td>20181003</td></tr> <tr><td>2</td><td>HB</td><td>0000000006</td><td>20181003</td></tr> <tr><td>3</td><td>CC</td><td>0000000007</td><td>20181003</td></tr> <tr><td>4</td><td>DB</td><td>0000000008</td><td>20181003</td></tr> <tr><td>5</td><td>RC</td><td>0000000009</td><td>20181003</td></tr> <tr><td>6</td><td>CB</td><td>0000000010</td><td>20181003</td></tr> <tr><td>7</td><td>MB</td><td>0000000011</td><td>20181003</td></tr> <tr><td>8</td><td>EB</td><td>0000000011</td><td>20181003</td></tr> <tr><td>9</td><td>RO</td><td>0000000012</td><td>20181003</td></tr> </tbody> </table>	Row	PRODCATEGORYID	CREATEDBY	CREATEDAT	1	BX	0000000004	20181003	2	HB	0000000006	20181003	3	CC	0000000007	20181003	4	DB	0000000008	20181003	5	RC	0000000009	20181003	6	CB	0000000010	20181003	7	MB	0000000011	20181003	8	EB	0000000011	20181003	9	RO	0000000012	20181003
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<p>Click 3 times on + Add Field.</p> <p>Enter 5 new fields with type String, mode Nullable:</p> <ul style="list-style-type: none"> - PRODCATEGORYID - LANGUAGE - SHORT_DESCR - MEDIUM_DESCR - LONG_DESCR 	 <table border="1" data-bbox="889 550 1302 685"> <thead> <tr> <th>Name</th> <th>Type</th> <th>Mode</th> </tr> </thead> <tbody> <tr> <td>PRODCATEGORYID</td> <td>STRING</td> <td>NULLABLE</td> </tr> <tr> <td>LANGUAGE</td> <td>STRING</td> <td>NULLABLE</td> </tr> <tr> <td>SHORT_DESCR</td> <td>STRING</td> <td>NULLABLE</td> </tr> <tr> <td>MEDIUM_DESCR</td> <td>STRING</td> <td>NULLABLE</td> </tr> <tr> <td>LONG_DESCR</td> <td>STRING</td> <td>NULLABLE</td> </tr> </tbody> </table>	Name	Type	Mode	PRODCATEGORYID	STRING	NULLABLE	LANGUAGE	STRING	NULLABLE	SHORT_DESCR	STRING	NULLABLE	MEDIUM_DESCR	STRING	NULLABLE	LONG_DESCR	STRING	NULLABLE												
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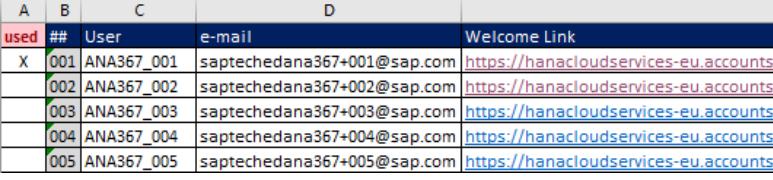
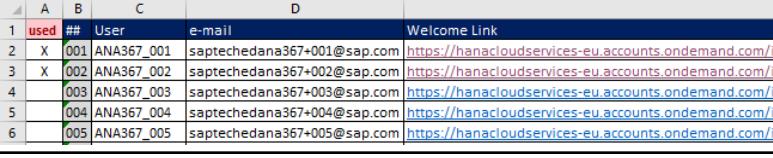
Explanation	Screenshot
<p>Next we require service accounts so that you can access your GBQ data from SAP Data Warehouse Cloud</p> <p>Navigate to IAM & Admin in the navigation pane, and select Service Accounts</p> <p> A service account represents a Google Cloud service identity, such as code running on Compute Engine VMs, App Engine apps, or systems running outside Google.</p>	 <p>The screenshot shows the Google Cloud Platform navigation pane with 'IAM & Admin' selected. In the main content area, under 'Service Accounts', the '+ CREATE SERVICE ACCOUNT' button is highlighted with a red box. Below it, a table lists various service accounts with columns for Email, Status, Name, Description, and Key ID. All rows show 'EN' in the Email column and 'Road Bike' in the Description column.</p>
<p>Create a new service account by clicking on the Create Service Account button</p>	 <p>The screenshot shows the same 'Service accounts' page as above, but the '+ CREATE SERVICE ACCOUNT' button is explicitly highlighted with a red box.</p>

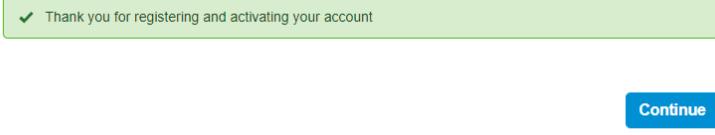
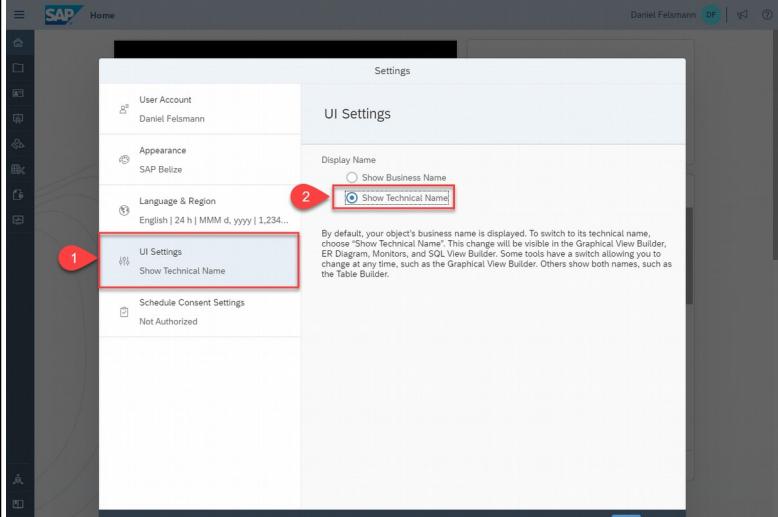
Explanation	Screenshot
<p>Enter the service account name: teched2020_ANA367</p> <p>Click on the CREATE button to move on to the second step</p>	
<p>In the second step you grant this service account access to Teched-GBQ so that it has permission to complete specific actions on the resources in your project.</p> <p>Please select and assign the role: BigQuery Data Viewer</p>	
<p>Add another role and select the BigQuery User</p> <p>Continue with the next step</p>	

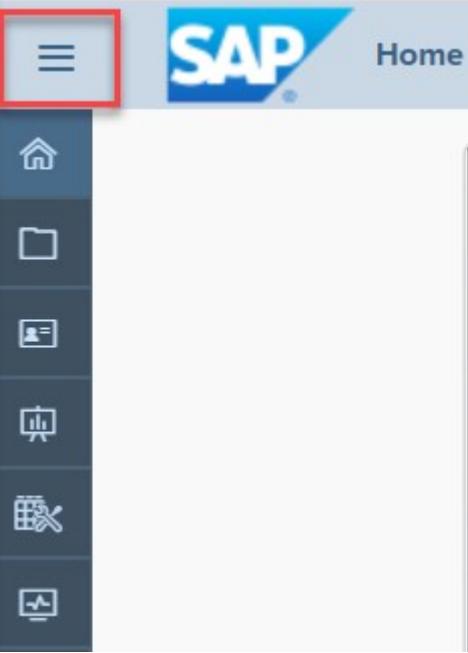
ANA367 - Integrating Cloud Solutions into SAP Data Warehouse Cloud

Explanation	Screenshot
<p>Skip the 3rd step and click directly on Done.</p> <p>With that the service account is generated in the background</p>	
<p>Now we need to generate the key for that is used in SAP Data Warehouse Cloud when you create the connection</p> <p>Simply select dots in the action column and select the option Create key</p>	
<p>Download the key by clicking Create</p> <p>Downloads a file that contains the private key. Store the file securely because this key can't be recovered if lost.</p> <p>Close the window as soon as the download is finished.</p> <p>That is basically all what we need to do on the Google Cloud side.</p>	
<p>As a last step, please notice the project ID by clicking on the project</p>	

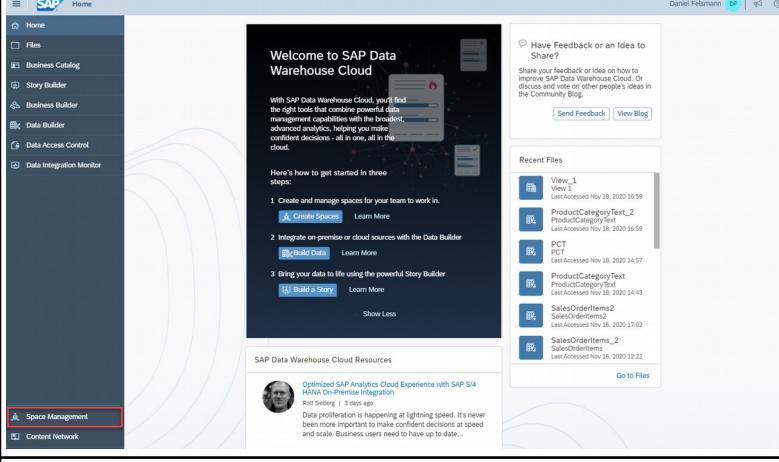
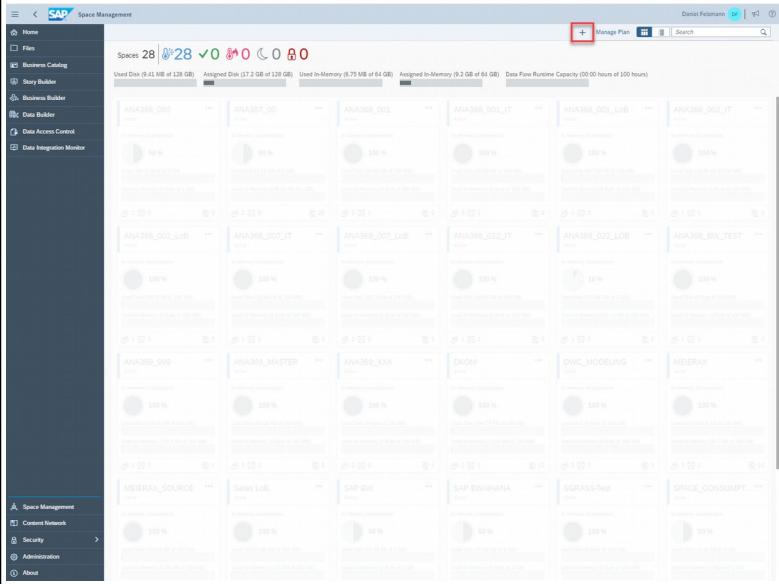
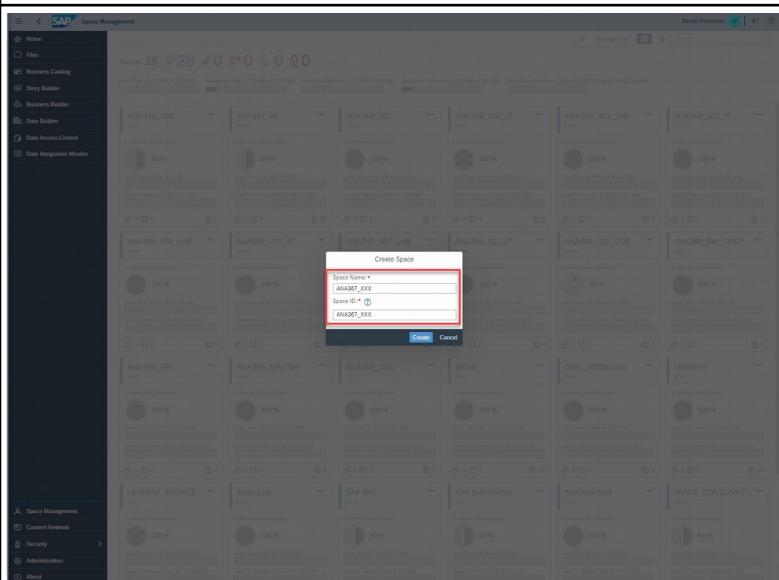
Getting a User & Access to SAP Data Warehouse Cloud

Explanation	Screenshot										
<p> For this session, you need to activate your user account yourself.</p> <p>Please navigate to the google sheets https://tinyurl.com/y6yqneyh to receive your user.</p> <p>Pick a unused user of your choice and select the according activation link</p> <p> Please note the ## number as this will be required in the upcoming steps of this exercise</p>											
<p>Afterwards please mark your selected user in column A used with X</p>											
<p>Activate your account by setting a password of your choice.</p> <p>Save your changes</p> <p> If you have problems activating your account, please reach out to saptechedana367@sap.com</p>	<h3>Activate Your Account</h3> <p>An account has been created for you with SAP Cloud Platform Identity Authentication for use with dwc-teched2020. The account information we already have for you is below.</p> <p>To begin using your account for dwc-teched2020, set a password below.</p> <p>Tell Us About Yourself</p> <table border="0"> <tr> <td style="vertical-align: top;">First Name *</td> <td><input type="text" value="SAPTechED"/></td> </tr> <tr> <td style="vertical-align: top;">Last Name *</td> <td><input type="text" value="ANA367_002"/></td> </tr> <tr> <td style="vertical-align: top;">E-Mail *</td> <td><input type="text" value="saptechedana367+002@sap.com"/></td> </tr> </table> <p>Set Password</p> <table border="0"> <tr> <td style="vertical-align: top;">Password *</td> <td><input type="password"/></td> </tr> <tr> <td style="vertical-align: top;">Re-Enter Password *</td> <td><input type="password"/></td> </tr> </table> <p style="text-align: right;">Save</p> <p>SAP HANA Cloud Services</p>	First Name *	<input type="text" value="SAPTechED"/>	Last Name *	<input type="text" value="ANA367_002"/>	E-Mail *	<input type="text" value="saptechedana367+002@sap.com"/>	Password *	<input type="password"/>	Re-Enter Password *	<input type="password"/>
First Name *	<input type="text" value="SAPTechED"/>										
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Re-Enter Password *	<input type="password"/>										

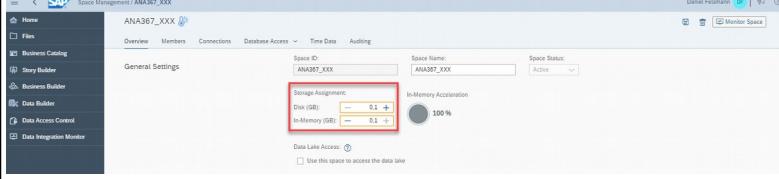
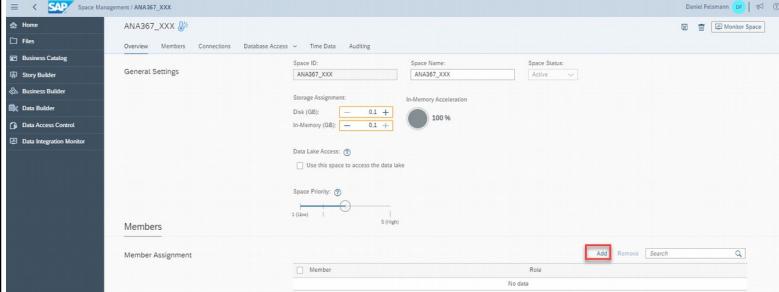
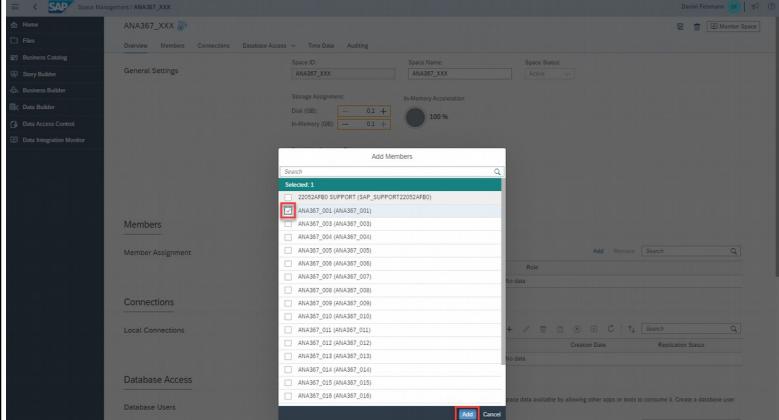
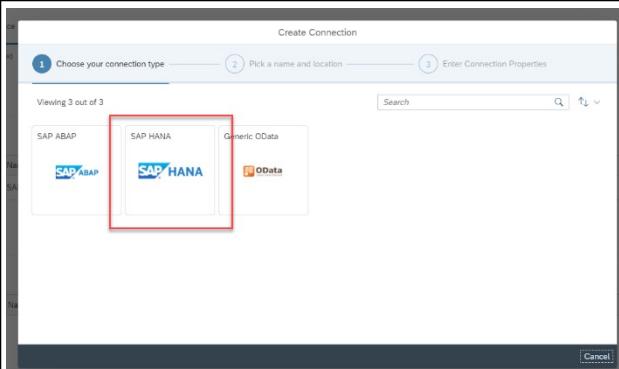
Explanation	Screenshot
<p>Click on Continue</p> <p>Automatically you will be logon to the SAP Data Warehouse Cloud</p>	<p>Account Successfully Activated</p>  <p>SAP HANA Cloud Services</p>
<p>After the logon, if you are forwarded to the Home Screen of SAP Analytics Cloud, Open the App Switcher and click on Data Warehouse to open SAP Data Warehouse Cloud.</p> <p>If by default, Data Warehouse Cloud Home Screen opens, you can skip this step.</p> <p>Info: SAP Analytics Cloud is embedded in SAP Data Warehouse Cloud and consumes SAP Data Warehouse Cloud content. Nevertheless it is recommended in the SAP Help Portal to use the Live Connection for productive usage.</p>	
<p>Navigate to your profile settings</p>	
<p>Next, navigate to the UI Settings and switch the settings to Show Technical Name</p> <p>Please Save your changes.</p>	 <p>1. UI Settings Show Technical Name</p> <p>2. Show Technical Name (radio button selected)</p>

Explanation	Screenshot
<p>In order to see descriptions for the navigation menu please click</p> 	 A screenshot of the SAP Home screen. At the top right, the SAP logo and the word "Home" are visible. On the far left, there is a vertical navigation menu with a red box highlighting the first item, which is a three-line icon. Below this are six other icons: a house, a folder, a person, a chart, a bar chart, and a line graph.

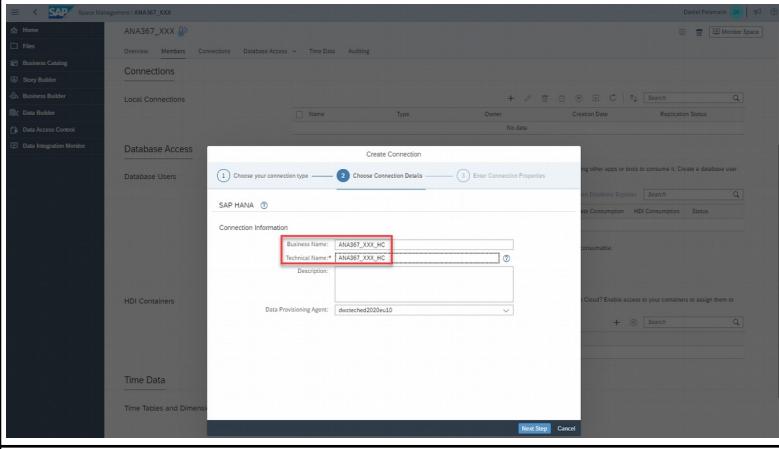
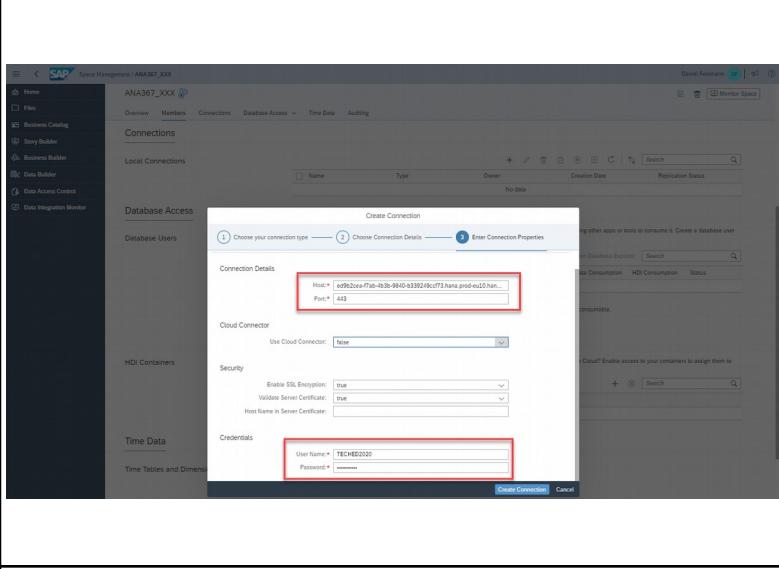
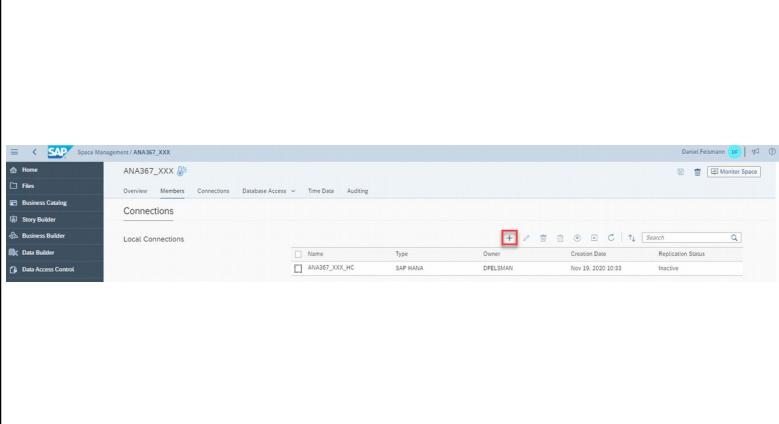
Space Management

Explanation	Screenshot
<p> Connect to different sources is a typical activity in the so-called space management. With Spaces, you can bring data models and connections into a secured and governed place</p> <p> On the bottom of the navigation pane, the administration tasks are located.</p> <p>From the left pane, click on the Space Management icon to open the space administration.</p>	
<p> Different use cases and different business strategies require tailored business needs. Spaces allow you to create an environment that meets your particular requirements. You can assign users and connections to a specific space and adjust the storage capacity.</p> <p> Click  to create a new Space either in the space overview section or in the sub-menu bar.</p>	
<p>Create the new space with the name ANA367_XXX and click on Create.</p> <p> Please replace the xx with your unique number</p> <p>The Space ID cannot be changed after creation.</p>	

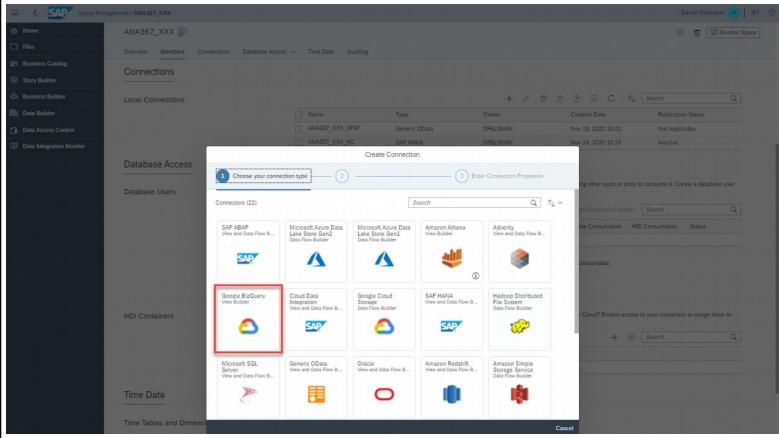
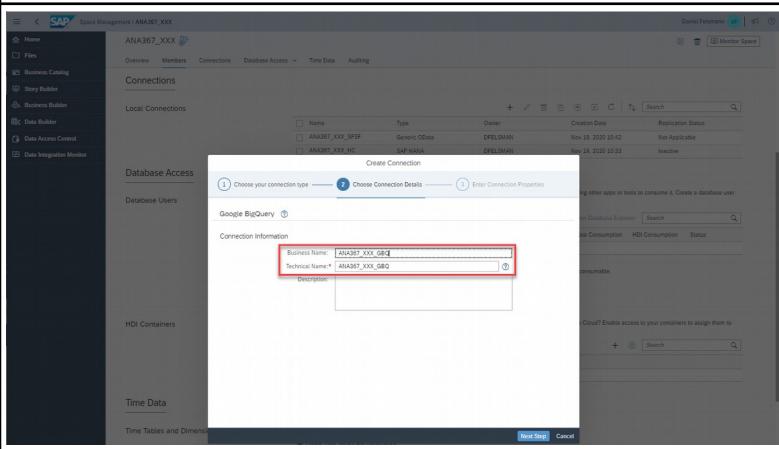
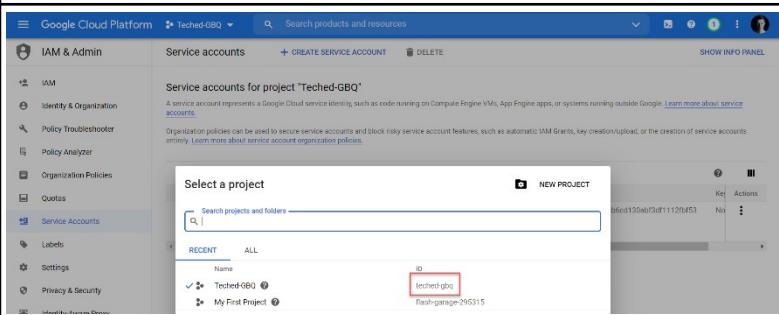
AIN367 - Integration Cloud Solution with SAP Data Warehouse Cloud

Explanation	Screenshot
<p> In Space Management, you can add users to your space. If you are assigned to a space, you can create objects such as tables and views inside the space.</p> <p>Please reduce the Disk (GB) size to 0,1 GB</p>	
<p>In the Members section, click on the + button to add your user to the newly created space.</p>	
<p>Select your user from the available list which would be in the format ANA367_XXX where XXX stands for your unique number.</p>	
<p> Connections provide access to data from a remote source, such as an SAP HANA Cloud or a SAP S/4HANA Cloud system.</p> <p>Under the Connections section, click on the + sign to add new connection to the space.</p>	
<p>On the new connection screen, click on SAP HANA tile. We will now create a connection to a SAP HANA Cloud system provided by SAP.</p>	

ANA367 - Integrating Cloud Solutions into SAP Data Warehouse Cloud

Explanation	Screenshot
<p>Set the Technical Name as ANA367_XX_HC where XX stands for your number.</p> <p>Then click the Next Step button to go to the next step.</p> <p> The field Technical Name doesn't accept any spaces, so please ensure that you follow the naming convention in the above example.</p>	
<p>Enter the host name: ed9b2cea-f7ab-4b3b-9840-b339249ccf73.hana.prod-eu10.hanacloud.ondemand.com</p> <p>Port number: 443</p> <p>User: TECHED2020</p> <p>Password: TechEd2020</p> <p>Click on Create Connection to finalize the creation of the connection.</p>	
<p>As we would like to join Data from two cloud sources, we need to add another connection.</p> <p> In the SAP Data Warehouse Cloud Administration the SSL certificate has been already successfully uploaded. There is nothing to do from your side.</p> <p>Under the Connections section, click on the + sign to add new connection to the space.</p>	

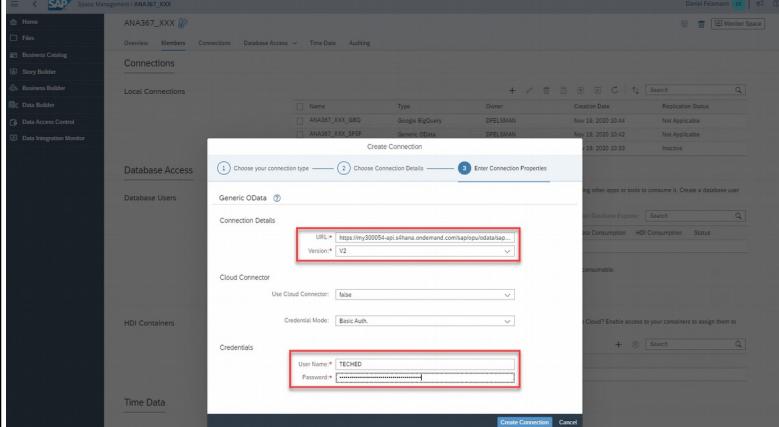
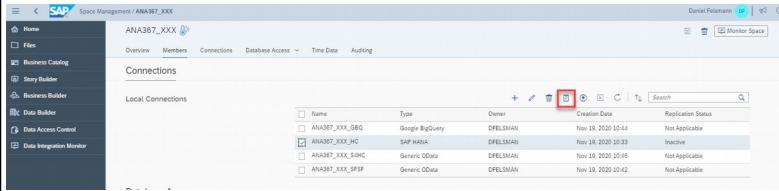
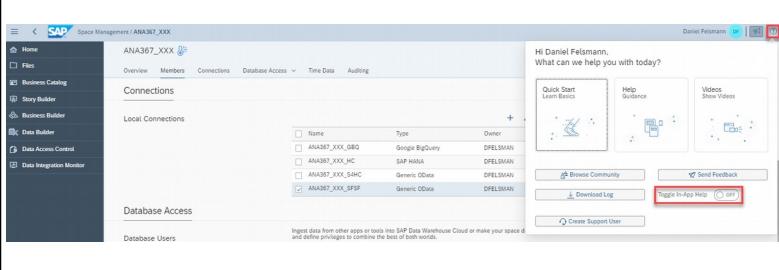
AIN367 - Integration Cloud Solution with SAP Data Warehouse Cloud

Explanation	Screenshot
<p>Select the tile for Google BigQuery</p>	
<p>Enter the Business Name ANA367_XXX_GBQ</p> <p>Enter the Technical Name: ANA367_XXX_GBO</p> <p>XX is your unique number</p>	
<p>Side Remark: Important for the next step you require the technical ID from your GBQ project</p>	

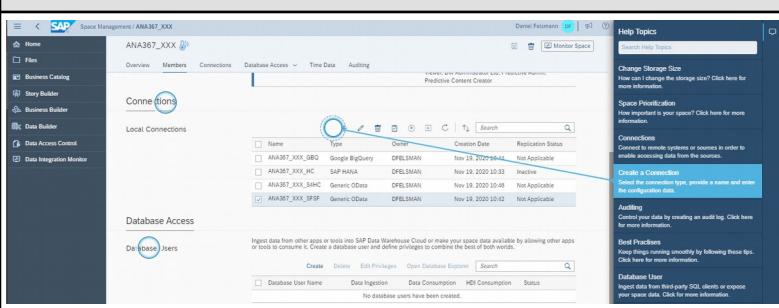
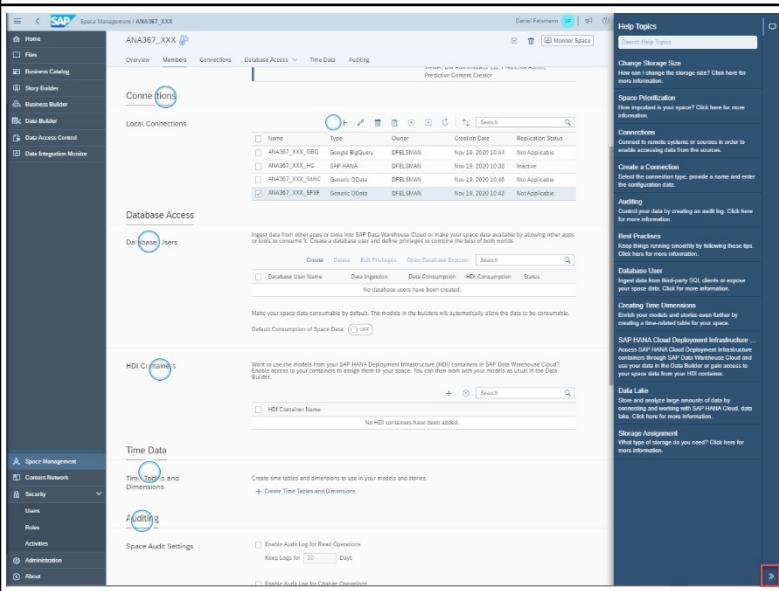
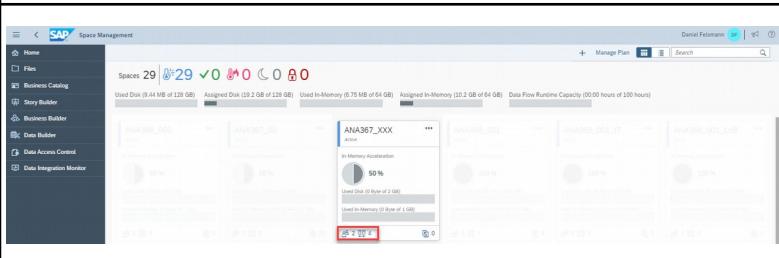
ANA367 - Integrating Cloud Solutions into SAP Data Warehouse Cloud

Explanation	Screenshot
<p>Enter the technical ID from your GBQ project in the project name from SAP Data Warehouse Cloud</p> <p>teched-gbq</p> <p>Select the key, which you have downloaded from Google BigQuery</p> <p>Finalize the step by pressing create connection</p>	
<p>Next create the SAP S/4 HANA Cloud Connection</p> <p>Under the Connections section, click on the + sign to add new connection to the space.</p>	
<p>Select the Generic OData tile</p>	
<p>Enter the Business Name, same as the Technical Name: ANA367_XXX_S4HC and navigate to the next step</p>	

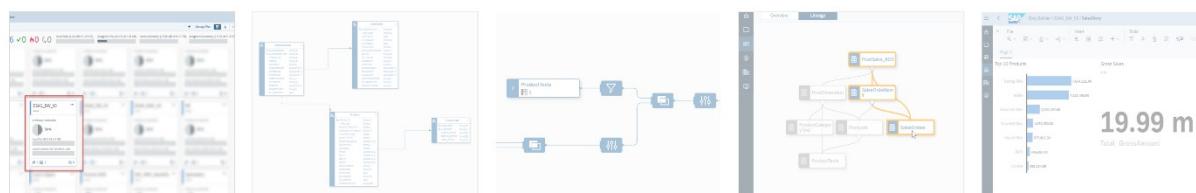
AIN367 - Integration Cloud Solution with SAP Data Warehouse Cloud

Explanation	Screenshot
<p>Enter the following URL</p> <p>https://my300054-api.s4hana.ondemand.com/sap/opu/odata/sap/API_BUSINESS_PARTNER</p> <p>Version: V2</p> <p>User: TECHED</p> <p>Password: WKYoPwGQzBkLAPKytnau2]mcwaEJKqMTEJYsBVj</p> <p>Click on Create Connection to finalize the connection creation.</p>	
<p>Once the connections are successfully added, select the newly added Connections and then click on the Validate Connection icon. Repeat this step for all connections.</p> <p>If the connections are valid, you are good to continue.</p> <p>If the connection is not yet valid, you should verify the credentials that you have used for creating the connection. It might help if you type in the USERNAME and PASSWORD instead of copying it.</p>	
<p> SAP Data Warehouse Cloud has integrated in-app help. The in-app help is context sensitive.</p> <p> When you click on the  on the upper right hand corner, the help center opens. When you switch Toggle In-App Help on, you get help for the specific screen.</p> <p>You can also access the in-app help directly without opening the help center by choosing F1 and closing it by choosing F1 again.</p>	

ANA367 - Integrating Cloud Solutions into SAP Data Warehouse Cloud

Explanation	Screenshot
<p>A short description gives you a general idea what can be done on this screen. When you click on this short description, you get a longer text with conceptual information or a step by step procedure. There can also be guided tours for more complex tasks.</p>	 <p>The screenshot shows the SAP Space Management interface for space XXX. It displays a list of connections and database users. A blue arrow points from the top right corner of the interface towards the help panel.</p>
<p>Deactivate the built-in assistance by clicking on the  on the upper right hand corner, the help center opens. Switch the Toggle In-App Help from ON to OFF</p> <p>Once done, click on the arrow in the bottom-right corner of the screen to hide the panel.</p>	 <p>The screenshot shows the SAP Space Management interface with the help panel open. The 'Space Management' section is highlighted in the left sidebar. The in-app help toggle is turned off. A red box highlights the bottom-right corner where the close button is located.</p>
<p>Click on the Space Management icon from the left pane and check the space that we have just created.</p> <p>Once the user and connection are added, both of them are visible in the space administration screen</p>	 <p>The screenshot shows the SAP Space Management interface with the 'Space Management' section selected. A new space named 'ANA367_XXX' is listed under 'Spaces'. The space details show it has 29 tables and 0 dimensions.</p>

Now you have create your space, assigned users and connection and can start modeling.



Different use cases and different business strategies require tailored business needs. Spaces allow you to create an environment that meets your particular requirements. You can assign users and connections to a specific space and adjust the storage capacity.

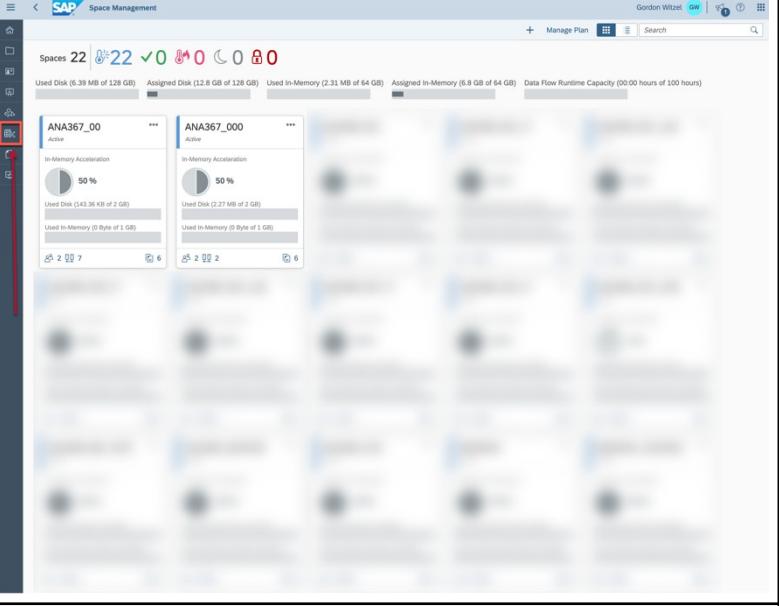
Define relations between entities and add metadata to enable the creation of graphical views with the Entity-Relationship Modeler.

In the Data Builder an connect tables and views via joins and unions in a graphical environment.

The business catalog gives you an overview of all the models you can use, across all the Spaces such as Data Sets, Dimensions and Facts you are authorized for.

Stories let you explore data interactively to find insights, visualize information with charts and tables, and share, present, and comment on your findings with colleagues.

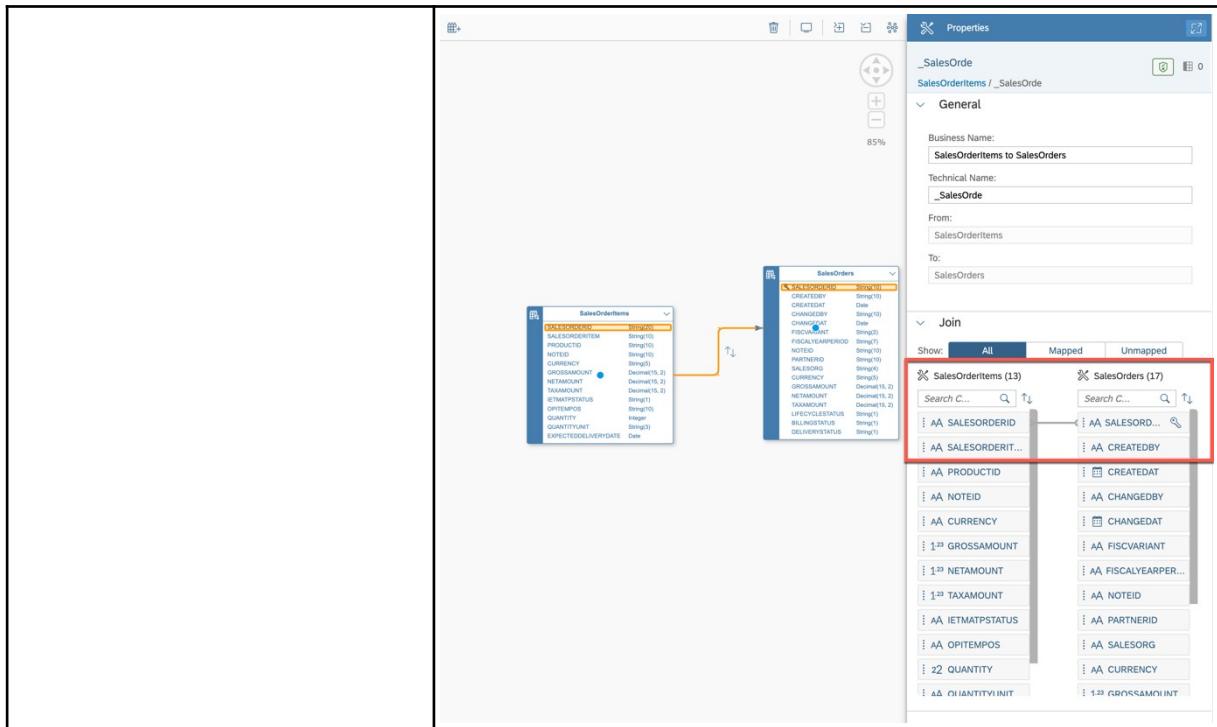
Create a Entity-Relationship Model

<p> In the Data Builder, you can create data models that you can use for stories.</p> <p>Click on the Data Builder in the navigation bar</p>	
<p> Define relations between entities and add metadata to enable the creation of graphical views with the Entity-Relationship Modeler.</p> <p>Create a Entity-Relationship Model by clicking on the tile with the name New Entity – Relationship Model</p>	<p>Welcome to the Data Builder</p> <p>Create views and tables to prepare data for your stories, and use entity-relationship models to visualize and make associations between artifacts.</p> <p>All Files Tables Views E/R Models Data Flows</p> 
<p> The repository gives you an overview of all objects that have already been created in the system.</p> <p>Click Sources (1) and under the Connections, expand the connection that you have created for SAP Hana Cloud (2). Expand the schema TECHED2020 (3). Drag the object SalesOrderItems table (4) and drop it on the canvas.</p>	

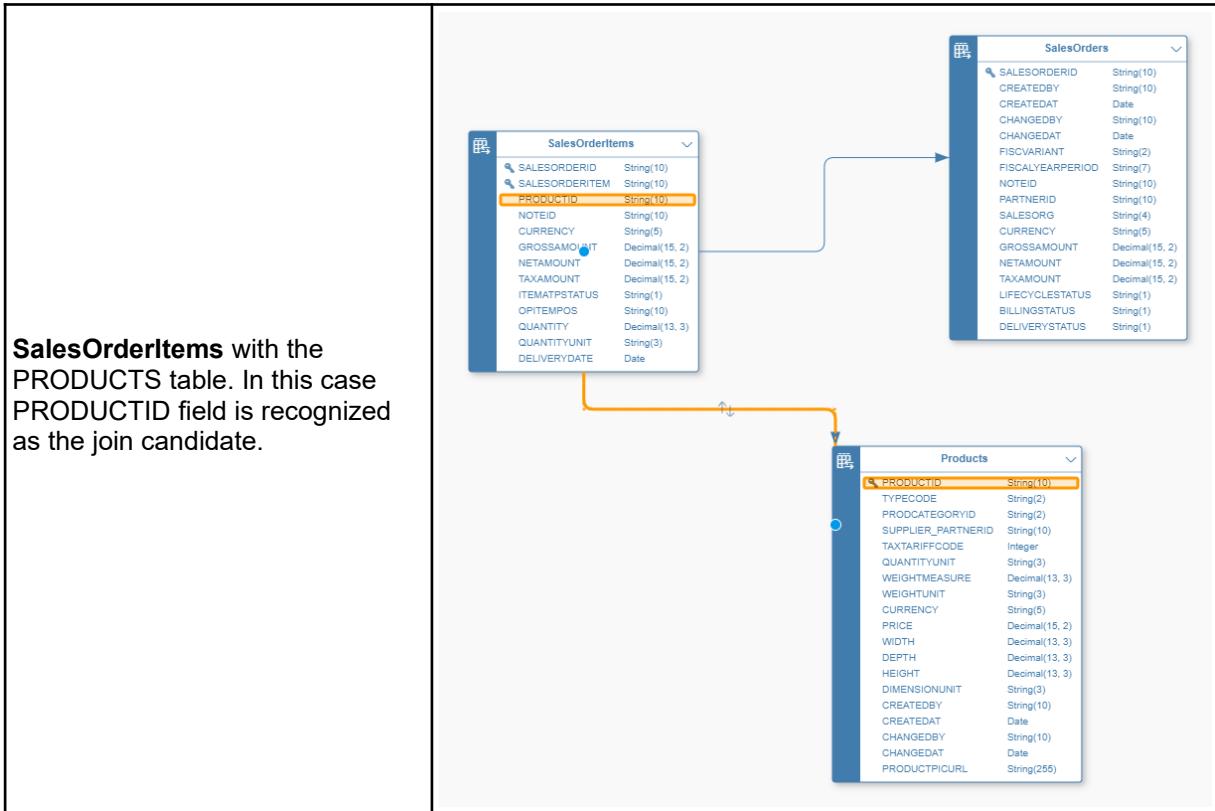
	<p>The screenshot shows the SAP Data Builder interface with the following steps highlighted:</p> <ol style="list-style-type: none"> Step 1: Sources tab is selected. Step 2: Connections folder is expanded. Step 3: TECHED2020 connection is selected. Step 4: SalesOrderItems table is selected.
<p>Import and Deploy the dragged object with the name SalesOrderItems</p> <p>REPEAT Import and Deploy for each table if this required later.</p>	<p>The screenshot shows the SAP Data Builder canvas with the SalesOrderItems table imported. A modal dialog titled "Import Table" is open, displaying the following fields:</p> <ul style="list-style-type: none"> Business Name: SalesOrderItems Technical Name: SalesOrderItems <p>The "Import and Deploy" button is highlighted with a red box.</p>
<p>Similarly drag and drop the object SalesOrders onto the canvas besides the SalesOrderItems table.</p>	

	<p>TECHED2020</p> <ul style="list-style-type: none"> Tables <ul style="list-style-type: none"> Addresses BusinessPartners CostCenter CostCenterHierarchy Countries CountryRegion Delivery Employees InternalOrders ProductCategories ProductCategoryTexts Products ProductTexts Regions SalesOrderItems SalesOrders SalesQuota 	<p>The screenshot shows the SAP Data Warehouse Cloud interface. On the left, there's a navigation tree with 'TECHED2020' expanded, showing various tables like Addresses, BusinessPartners, etc. A red box highlights the 'SalesOrders' table in the middle section. On the right, the 'SalesOrderItems' table is displayed in a detailed view with its schema: SALESORDERID (String(20)), SALESORDERITEM (String(10)), PRODUCTID (String(10)), NOTEID (String(10)), CURRENCY (String(5)), GROSSAMOUNT (Decimal(15, 2)), NETAMOUNT (Decimal(15, 2)), TAXAMOUNT (Decimal(15, 2)), IETMATPSTATUS (String(1)), OPITEMPOS (String(10)), QUANTITY (Integer), QUANTITYUNIT (String(3)), and EXPECTEDDELIVERYDATE (Date).</p>
	<p>Click on the SalesOrderItems table. Drag the arrow from the SalesOrdersItems table and drop it on the table SalesOrders.</p>	<p>The screenshot shows the SAP Data Warehouse Cloud interface. The 'SalesOrderItems' table is selected (indicated by a dashed border). A red box highlights the arrow icon next to the 'SalesOrders' table on the right, indicating the action to be performed.</p>
	<p>The process of connecting the two tables has been shown in the screenshot</p>	<p>The screenshot shows the SAP Data Warehouse Cloud interface after the connection has been established. An orange arrow connects the 'SALESORDERID' field in the 'SalesOrderItems' table to the 'SALESORDERID' field in the 'SalesOrders' table. Both tables are now shown with their schemas side-by-side.</p>
	<p>Once connected, the diagram would look similar to this.</p> <p>The field SALESORDERID from both the tables is automatically recognized as a join candidate</p>	

AIN367 - Integration Cloud Solution with SAP Data Warehouse Cloud



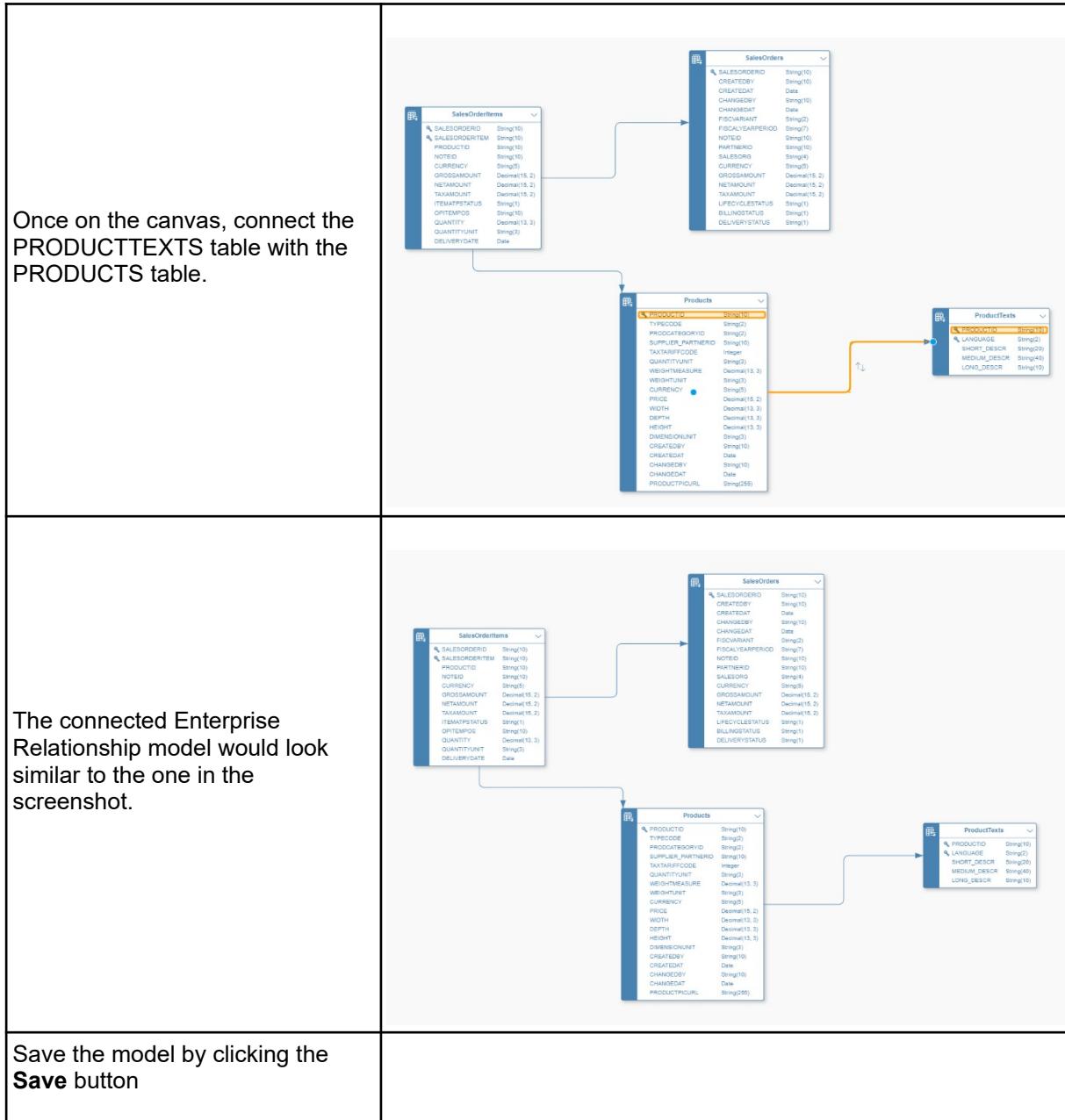
	<p>HC</p> <p>> _SYS_BI</p> <p>> _SYS_DI</p> <p>> _SYS_SQL_ANALYZER</p> <p>> _SYS_TASK</p> <p>> SYS</p> <p>> TECHED2020</p> <p>> Tables</p> <ul style="list-style-type: none"> Addresses BusinessPartners CostCenter CostCenterHierarchy Countries CountryRegion Delivery Employees InternalOrders ProductCategories ProductCategoryTexts Products ProductTexts
Similarly drag and drop the Products table on the canvas.	Connect the arrow from



SalesOrderItems with the **PRODUCTS** table. In this case **PRODUCTID** field is recognized as the join candidate.

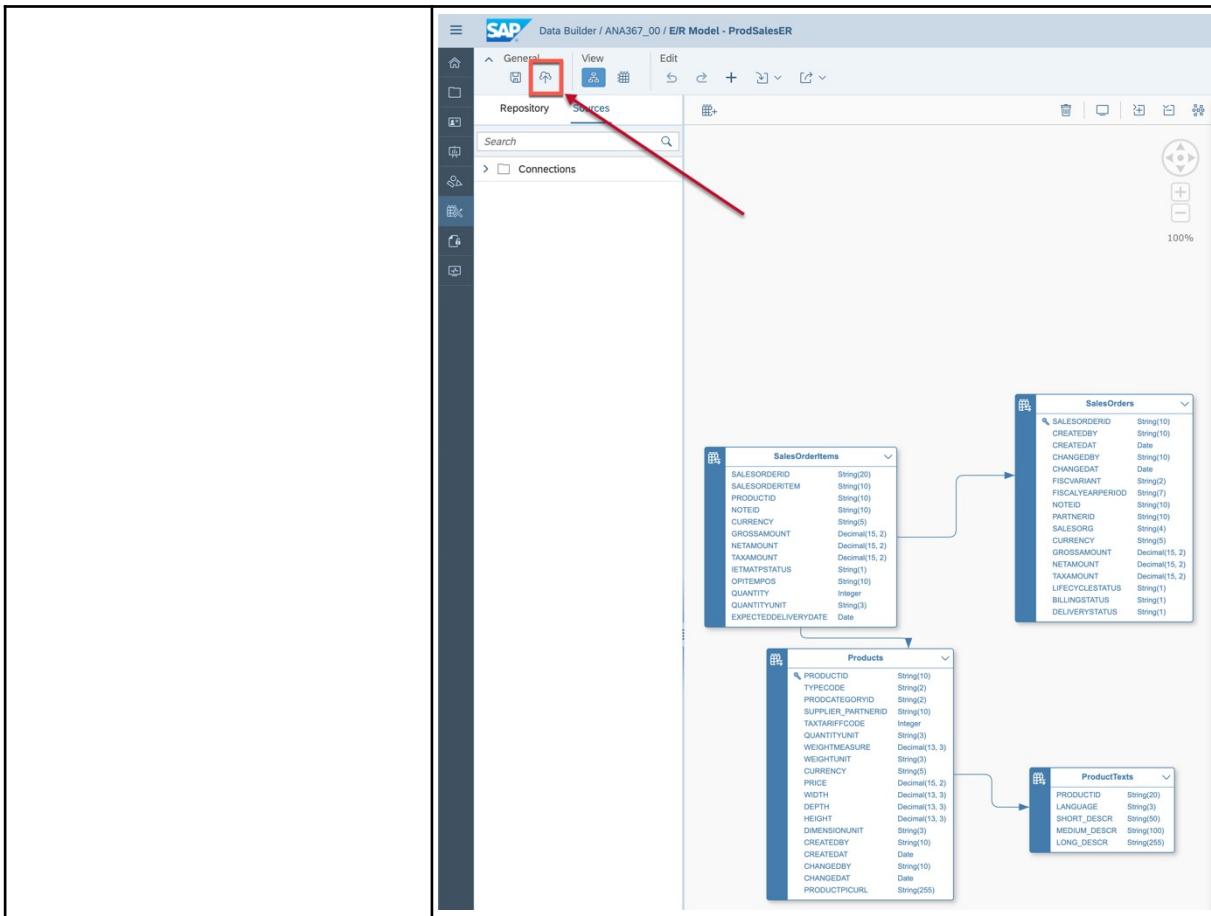
Repeat the drag and drop process for the **ProductTexts** table

- HC
- _SYS_BI
- _SYS_DI
- _SYS_SQL_ANALYZER
- _SYS_TASK
- SYS
- TECHED2020
- Tables
 - Addresses
 - BusinessPartners
 - CostCenter
 - CostCenterHierarchy
 - Countries
 - CountryRegion
 - Delivery
 - Employees
 - InternalOrders
 - ProductCategories
 - ProductCategoryTexts
 - Products
 - ProductTexts** [Hand cursor]
 - Regions
 - SalesOrderItems

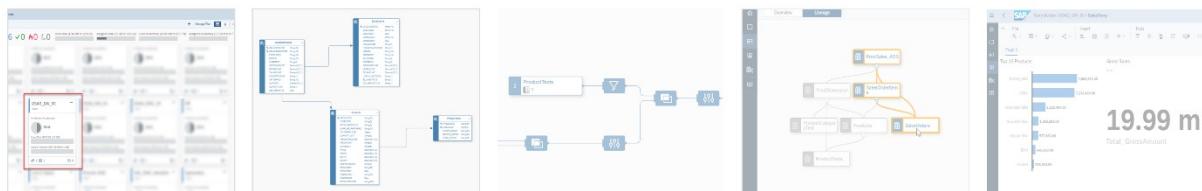


<p>Save the model with the name ProdSalesER_XX (your unique number for this Hands-On session)</p> <p>Click on Save</p>	
<p>Once saved, click the Deploy icon to deploy the created model.</p> <p> If you depoy it will automatically save your changes too</p>	

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Now you have create your entity-relationship model.



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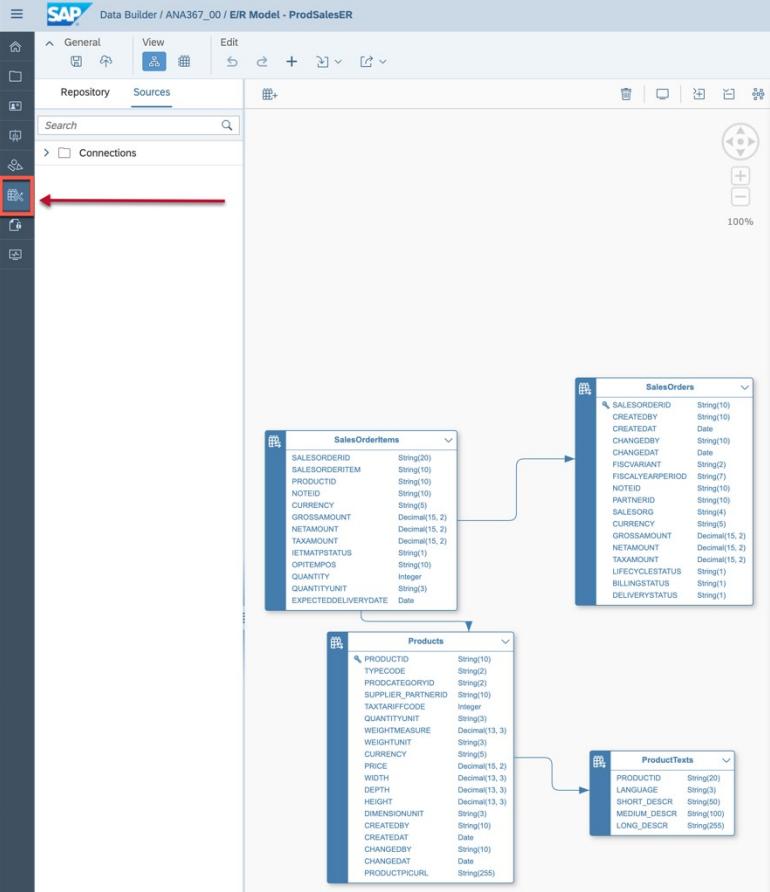
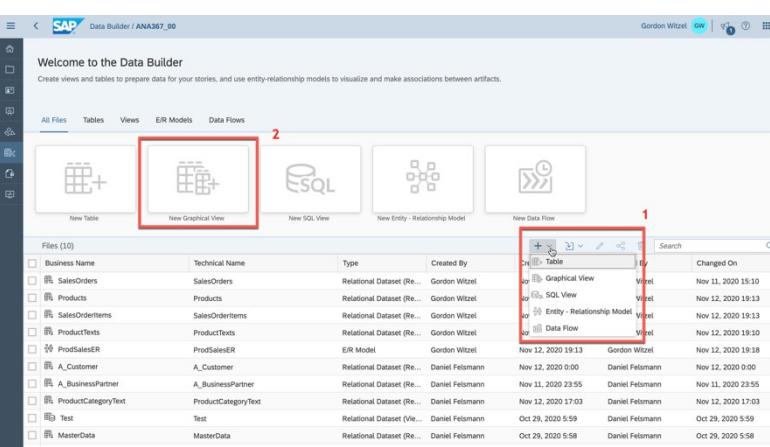
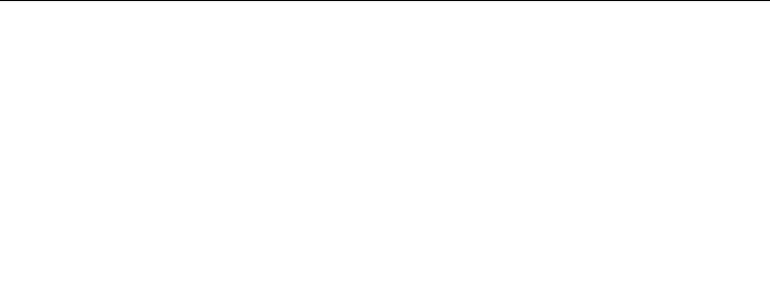
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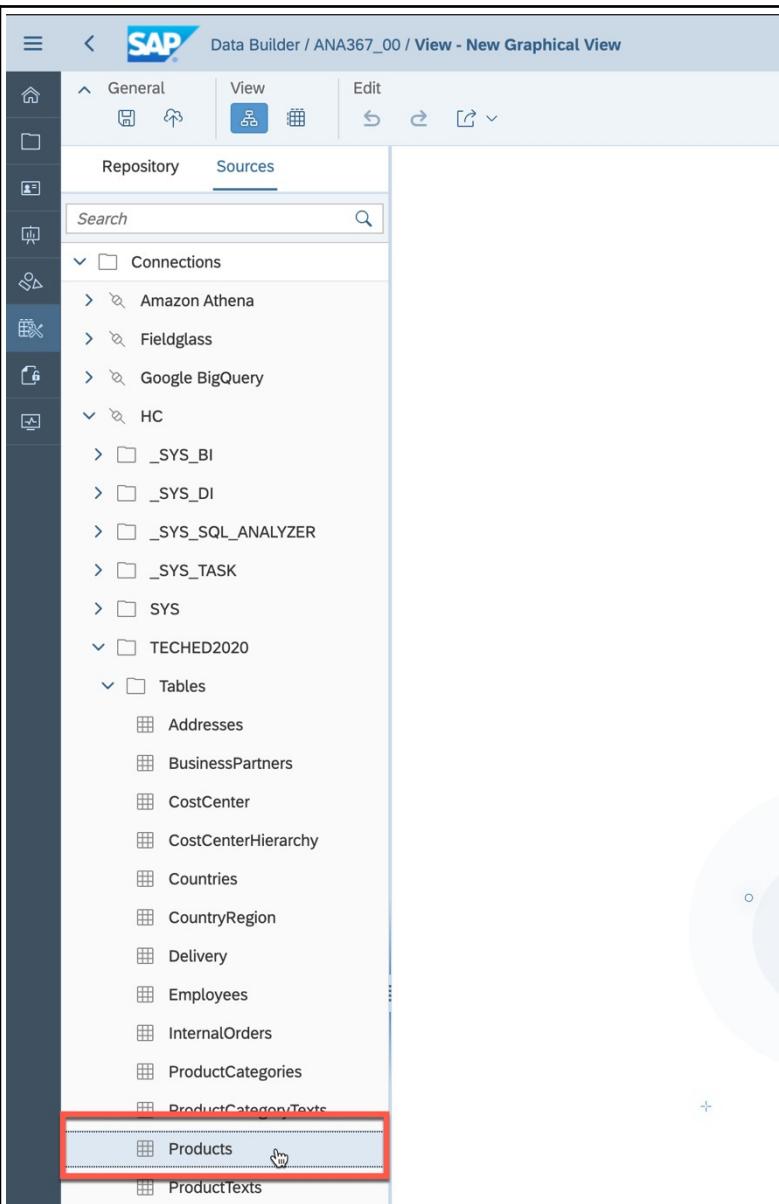
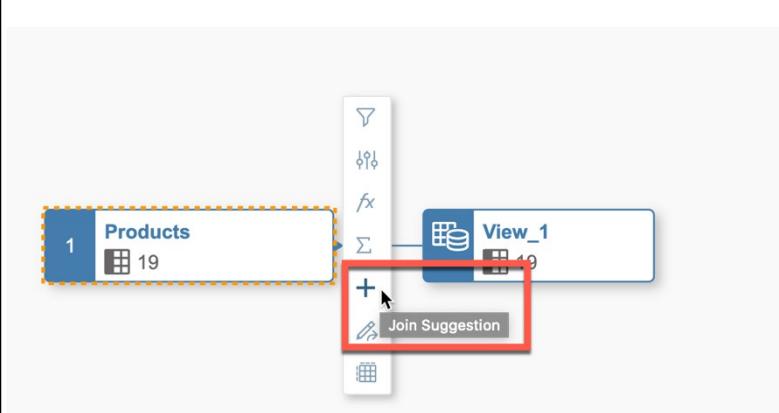
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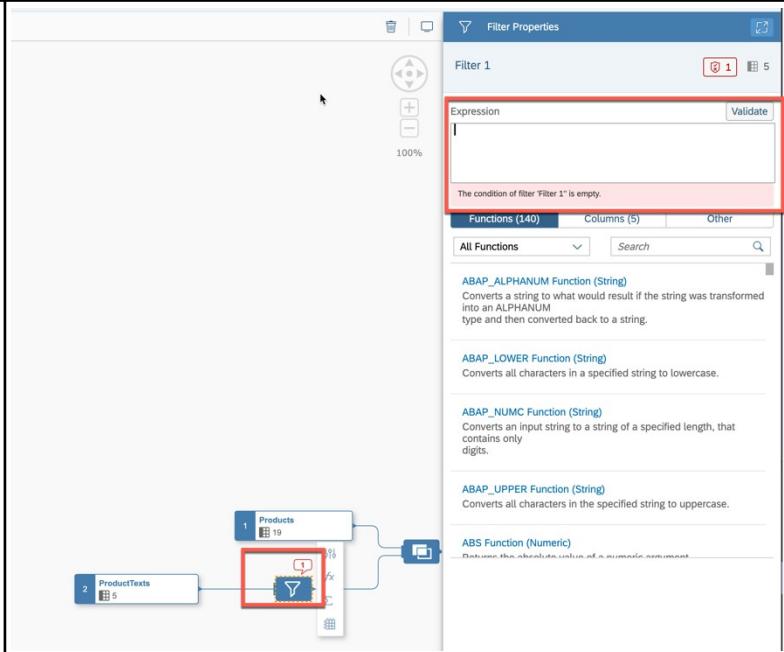
Build a new Graphical View based on the SAP HANA Cloud tables

<p>Navigate to Data Builder overview by clicking the icon</p>	
<p>In the Data Builder you can connect tables and views via joins and unions in a graphical environment.</p> <p>On the Data Builder overview screen, you can click on the + sign and choose the New Graphical View option (1) from the list</p> <p>Alternatively you can click the tile to create the new Graphical View (2)</p>	
<p>Under Sources and under the Connections, expand the connection to SAP Hana Cloud you created in your space. Expand the schema TECHED2020 in the connected SAP Hana Cloud (HC).</p> <p>Drag and drop Products table on the canvas</p>	

AIN367 - Integration Cloud Solution with SAP Data Warehouse Cloud

	 <p>The screenshot shows the SAP Data Builder interface with the title "Data Builder / ANA367_00 / View - New Graphical View". The left sidebar has a tree view under "Sources" with categories like Connections, HC, and Tables. Under Tables, the "Products" table is highlighted with a red box. Other tables listed include Addresses, BusinessPartners, CostCenter, CostCenterHierarchy, Countries, CountryRegion, Delivery, Employees, InternalOrders, ProductCategories, ProductCategoryTexts, and ProductTexts.</p>
Once the table is added on the canvas, click on the table and then click on the + sign which displays the Join Suggestions for the selected data source.	 <p>The screenshot shows the SAP Data Builder graphical view canvas. Two entities are present: "Products" (with 19 rows) and "View_1" (with 19 rows). A connection line connects them. Between the entities is a plus sign (+) icon, which is highlighted with a red box. A tooltip labeled "Join Suggestion" is displayed below the icon.</p>
From the Related Entities screen, select the object ProductTexts .  The join suggestions would only be available if you have already created an Entity-	

<p>Relationship model in the previous steps.</p>																																																			
<p>Once you add the object ProductTexts, it would Join the two entities automatically.</p>																																																			
<p>Click on the Data Preview icon for the ProductTexts table. There are values for English and German in the provided dataset available. We want to proceed only with Texts in English, therefore we have to clean up the dataset.</p>	<table border="1"> <thead> <tr> <th>PRODUCTID</th> <th>LANGUAGE</th> <th>SHORT_DESCR</th> <th>MEDIUM_DESCR</th> <th>LONG_DESCR</th> </tr> </thead> <tbody> <tr><td>RC-1051</td><td>EN</td><td>Tornado I</td><td>Tornado I</td><td>-</td></tr> <tr><td>RC-1052</td><td>EN</td><td>Tornado II</td><td>Tornado II</td><td>-</td></tr> <tr><td>RC-1053</td><td>EN</td><td>Stream I</td><td>Stream I</td><td>-</td></tr> <tr><td>RC-1054</td><td>EN</td><td>Stream II</td><td>Stream II</td><td>-</td></tr> <tr style="outline: 2px solid red;"><td>RC-1055</td><td>EN</td><td>Veloflash</td><td>Veloflash</td><td>-</td></tr> <tr style="outline: 2px solid red;"><td>RC-1055</td><td>DE</td><td>Rennsemmel</td><td>Rennsemmel</td><td>-</td></tr> <tr><td>RC-1056</td><td>EN</td><td>Rennsemmel SE</td><td>Veloflash Second Edition</td><td>-</td></tr> <tr><td>RC-1056</td><td>DE</td><td>Rennsemmel 2</td><td>Rennsemmel 2</td><td>-</td></tr> <tr><td>RC-1057</td><td>EN</td><td>Veloflash Ultimate</td><td>Veloflash Ultimate</td><td>-</td></tr> </tbody> </table>	PRODUCTID	LANGUAGE	SHORT_DESCR	MEDIUM_DESCR	LONG_DESCR	RC-1051	EN	Tornado I	Tornado I	-	RC-1052	EN	Tornado II	Tornado II	-	RC-1053	EN	Stream I	Stream I	-	RC-1054	EN	Stream II	Stream II	-	RC-1055	EN	Veloflash	Veloflash	-	RC-1055	DE	Rennsemmel	Rennsemmel	-	RC-1056	EN	Rennsemmel SE	Veloflash Second Edition	-	RC-1056	DE	Rennsemmel 2	Rennsemmel 2	-	RC-1057	EN	Veloflash Ultimate	Veloflash Ultimate	-
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RC-1057	EN	Veloflash Ultimate	Veloflash Ultimate	-																																															
<p>Click on the table ProductTexts (1) and the filter icon (2) to add and see filters.</p>																																																			

<p>In the canvas as well as in the Filter Properties pane on the right side an error icon is shown.</p> <p>By clicking on the error icon in the filter properties pane the error message appears.</p>	 <p>The screenshot shows the SAP Data Warehouse Cloud interface. On the left is a canvas with two boxes: 'Products' (ID 1) and 'ProductTexts' (ID 2). An arrow points from 'ProductTexts' to 'Products'. Between them is a blue Y-shaped connector with a red border and a small red error icon. To the right is a 'Filter Properties' pane titled 'Filter 1'. The 'Expression' field is empty, and a red box highlights the error message: 'The condition of filter 'Filter 1'' is empty.' Below the expression field is a search bar and a list of functions categorized by type: Functions (140), Columns (5), and Other. The first function listed is 'ABAP_ALPHANUM Function (String)'.</p>
<p>From the Filter Properties pane on the right side, click on the Columns and then click on the column Language.</p> <p>By clicking on the Language column will be filled automatically added to the expression.</p>	

	<p>The screenshot shows the 'Filter Properties' dialog box. At the top, it says 'Filter 1' with a count of 1. Below that is an 'Expression' input field containing 'LANGUAGE'. A red box highlights this field. A message below it says 'The condition of filter 'Filter 1'' is empty. There are tabs for 'Functions (140)', 'Columns (5)' (which is selected), and 'Other'. A search bar is also present.</p> <table border="1"> <thead> <tr> <th>AA</th> <th>PRODUCTID</th> </tr> </thead> <tbody> <tr> <td>AA</td> <td>PRODUCTID</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th>AA</th> <th>LANGUAGE</th> </tr> </thead> <tbody> <tr> <td>AA</td> <td>LANGUAGE</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th>AA</th> <th>SHORT_DESCR</th> </tr> </thead> <tbody> <tr> <td>AA</td> <td>SHORT_DESCR</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th>AA</th> <th>MEDIUM_DESCR</th> </tr> </thead> <tbody> <tr> <td>AA</td> <td>MEDIUM_DESCR</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th>AA</th> <th>LONG_DESCR</th> </tr> </thead> <tbody> <tr> <td>AA</td> <td>LONG_DESCR</td> </tr> </tbody> </table>	AA	PRODUCTID	AA	PRODUCTID	AA	LANGUAGE	AA	LANGUAGE	AA	SHORT_DESCR	AA	SHORT_DESCR	AA	MEDIUM_DESCR	AA	MEDIUM_DESCR	AA	LONG_DESCR	AA	LONG_DESCR
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<p>Click on the Others tab (1) and then select the = (Equal To) operator from the list (2).</p> <p>The expression is updated automatically. Type in the blank single quotes at the end to complete the expression like:</p> <p>LANGUAGE='EN'</p> <p>This expression would filter out all the products that have no description in English in the table. Furthermore, the error message is solved as well.</p>																					

Filter Properties

Filter 1

Expression LANGUAGE='EN' 3

Validate

5

1

Functions (140) Columns (5) Other

Operators 2

+ - / * () , ||
AND OR NOT BETWEEN
< > <= >= = != LIKE IS NULL

Predicates 2

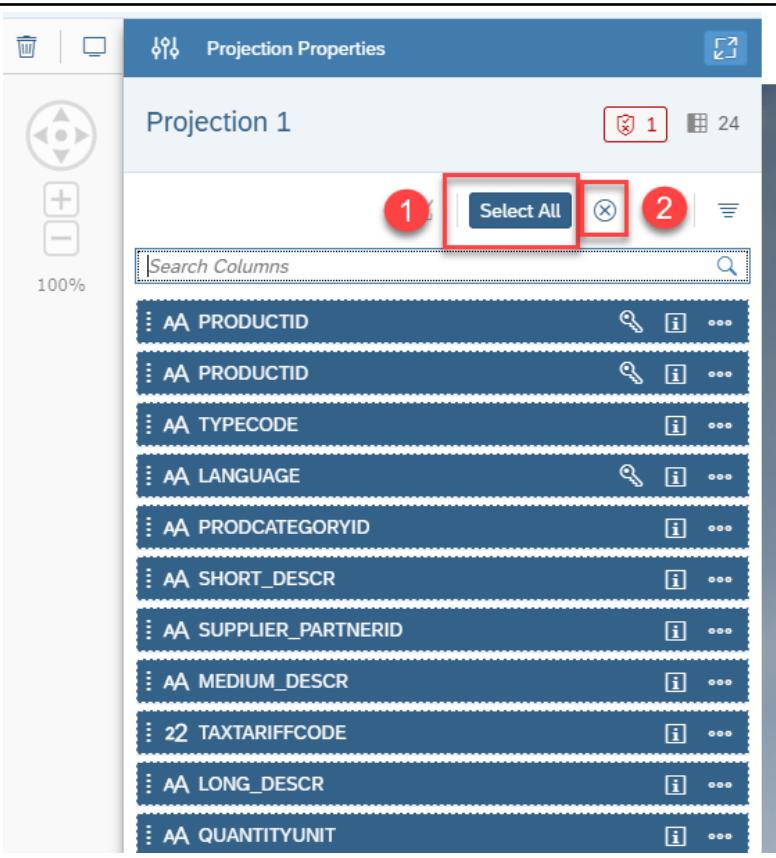
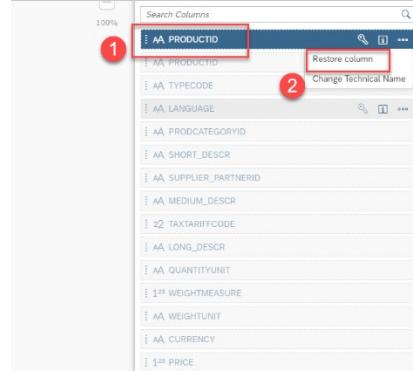
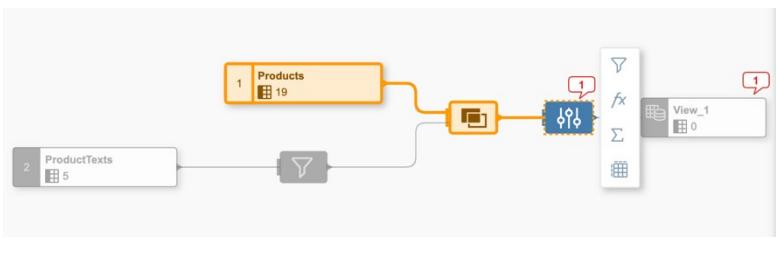
ANY SOME ALL BETWEEN
CONTAINS EXISTS IN LIKE
LIKE_REGEXPR MEMBER OF NULL

Case Expressions 2

CASE WHEN THEN ELSE END

The screenshot shows the 'Filter Properties' dialog box. At the top, it displays 'Filter 1' and a shield icon with the number '5'. Below this is an 'Expression' field containing 'LANGUAGE='EN''. A red box labeled '3' highlights this field. To the right of the expression is a 'Validate' button. Further down, there are tabs for 'Functions (140)', 'Columns (5)', and a red-highlighted 'Other' tab. The 'Other' tab contains sections for 'Operators' and 'Predicates'. The 'Operators' section includes common operators like +, -, /, *, (), , and ||, along with logical operators AND, OR, NOT, and BETWEEN, and comparison operators <, >, <=, >=, =, !=, LIKE, and IS NULL. A red box labeled '2' highlights the '=' operator. The 'Predicates' section includes ANY, SOME, ALL, BETWEEN, CONTAINS, EXISTS, IN, LIKE, LIKE_REGEXPR, MEMBER OF, and NULL. A red box labeled '2' also highlights the 'IN' predicate. At the bottom, there is a 'Case Expressions' section with a single entry: CASE WHEN THEN ELSE END. Annotations are present: '1' is above the 'Other' tab; '2' is above the '=' operator and the 'IN' predicate; and '3' is above the 'LANGUAGE='EN'' expression.

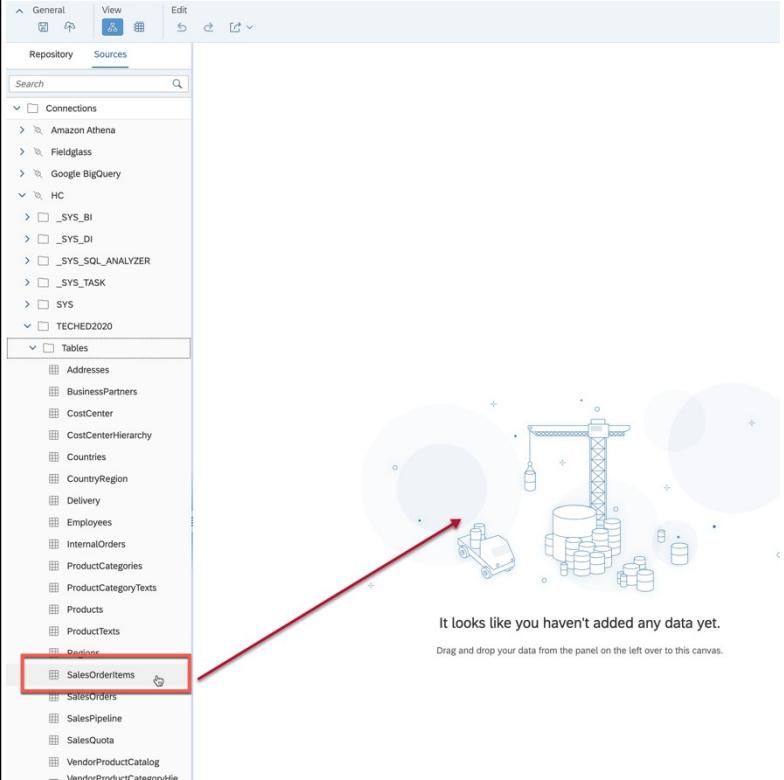
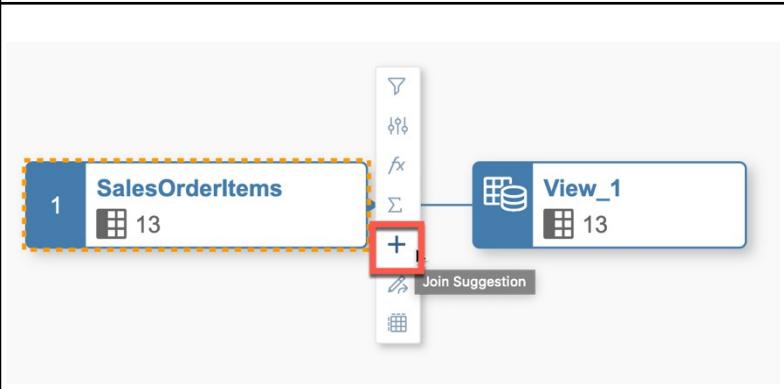
	<p>Click on the Filter operator (1) in the view and then click on the Data Preview icon (2)</p> <p></p> <p>As we can see in the preview, the data is now available for EN Language only. All the other languages are filtered out (3).</p> <p></p>
<p>When building a graphical view, you can rename, exclude or restore columns. It allows you to select the required data.</p> <p>Click on the Projection operator in the canvas.</p>	
<p>From the Projection Properties in the right pane, click on the button with the title Select All (1) to select all the columns and then click the Exclude Selected Column button (2)</p>	

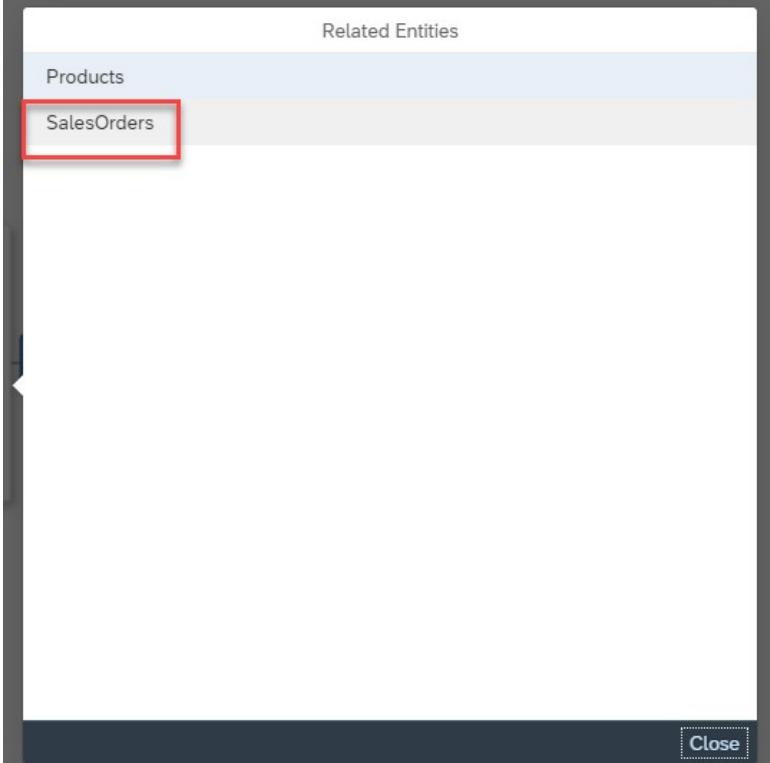
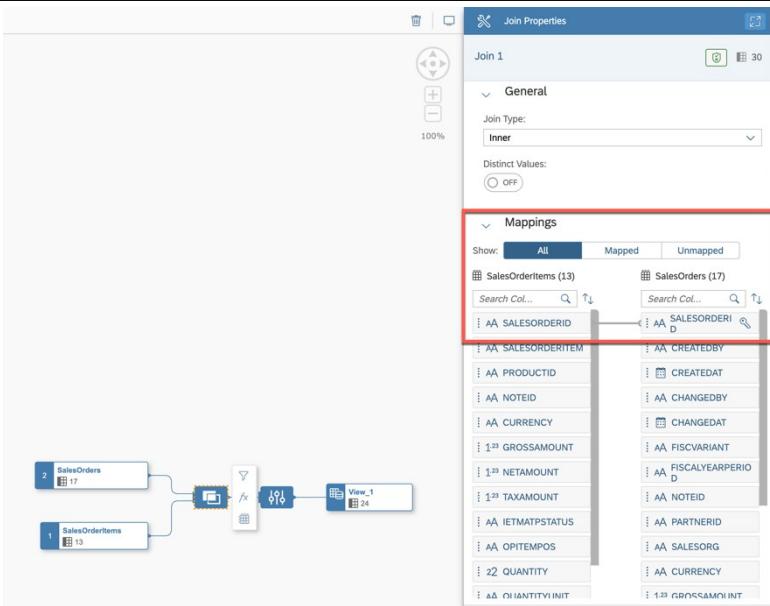
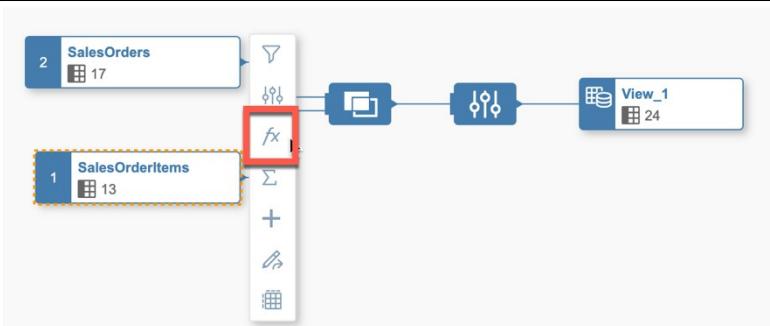
	
<p>Click on the PRODUCTID column (1) from the highlighted list.</p> <p>Info: The view on the canvas would then highlight the lineage of the column.</p> <p>If the column originates from the PRODUCTS table.</p> <p>Click on the Actions menu (...) of the Projection Properties pane and select Restore Column (2)</p>	 

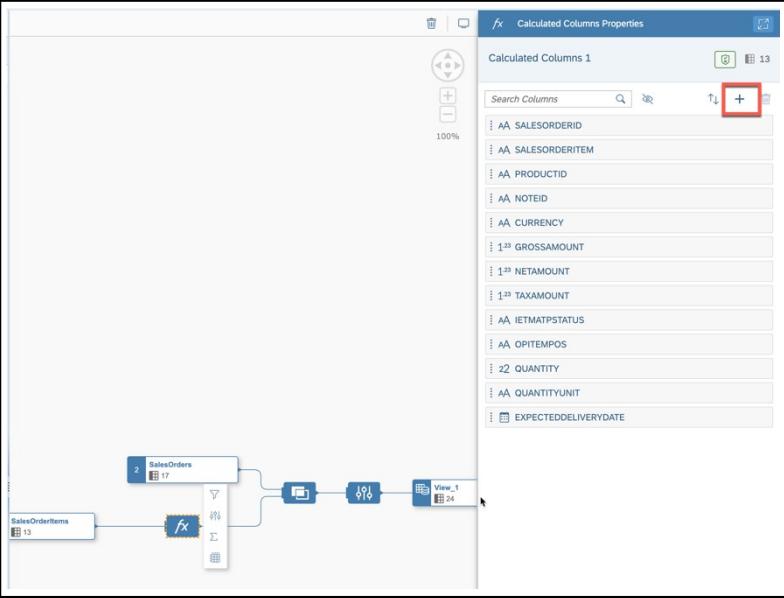
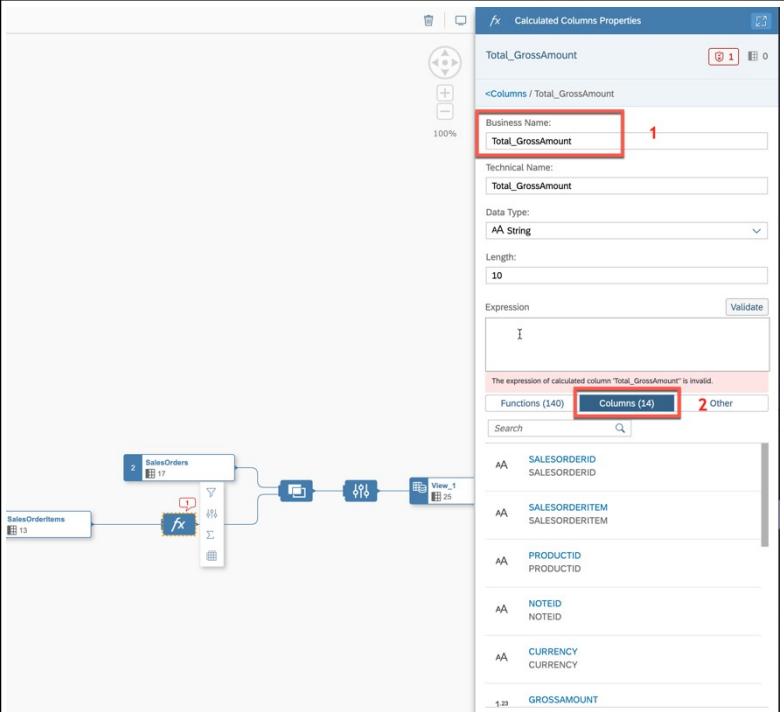
<p>Repeat this steps for the column MEDIUM_DESCR</p>	
<p>Click anywhere on the canvas (1). Then from the Properties pane, change the Type of the view to Dimension (2).</p> <p>Info: In a perfect scenario, you would model all the dimensions in your organization once and then reuse them in different Analytical Data Sets which are associated with it. Therefore, we will create a Product dimension which is used by the ProdSales_ADS later.</p>	

<p>Click on the Save button (1).</p> <p>Enter the name of the view as ProdDimension (2) and Click Save (3).</p> <p>Once the model is saved, click on the Deploy icon (4)</p>																
<p>Return back to the Data Builder and create a New Graphical View by clicking on the tile for the New Graphical View.</p>	<table border="1"> <thead> <tr> <th>File</th> <th>Tables</th> <th>Views</th> <th>ER Models</th> <th>Data Flows</th> </tr> </thead> <tbody> <tr> <td>All Files</td> <td>SalesOrders</td> <td>SalesOrderItems</td> <td>Products</td> <td>SalesOrderItems</td> </tr> <tr> <td>+</td> <td>+</td> <td>+</td> <td>+</td> <td>+</td> </tr> </tbody> </table>	File	Tables	Views	ER Models	Data Flows	All Files	SalesOrders	SalesOrderItems	Products	SalesOrderItems	+	+	+	+	+
File	Tables	Views	ER Models	Data Flows												
All Files	SalesOrders	SalesOrderItems	Products	SalesOrderItems												
+	+	+	+	+												
<p>Under Sources and under the Connections, expand the connection for SAP HANA Cloud (HC). Expand the schema TECHED2020.</p> <p>Drag the table SalesOrderItems onto the canvas</p>																

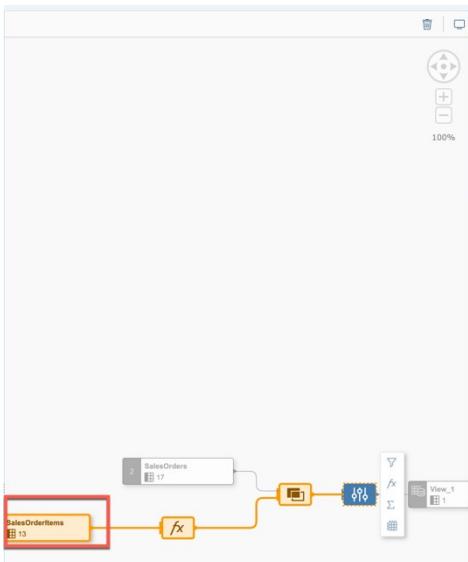
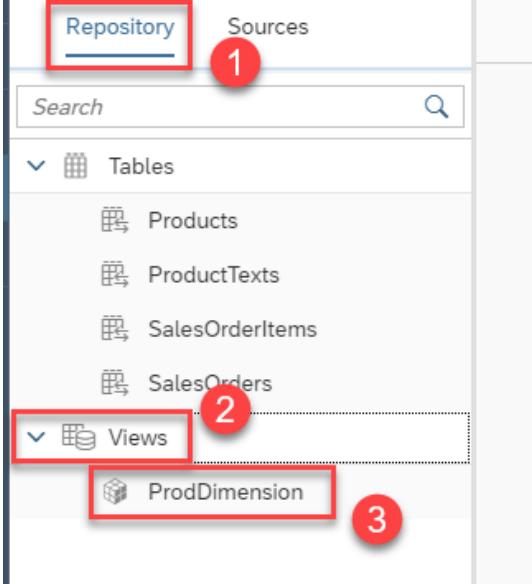
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	 <p>It looks like you haven't added any data yet. Drag and drop your data from the panel on the left over to this canvas.</p>
<p>Click on the table name and then click on the + sign that would provide the Join Suggestions</p>	 <p>1 SalesOrderItems 13</p> <p>+ Join Suggestion</p> <p>View_1 13</p>

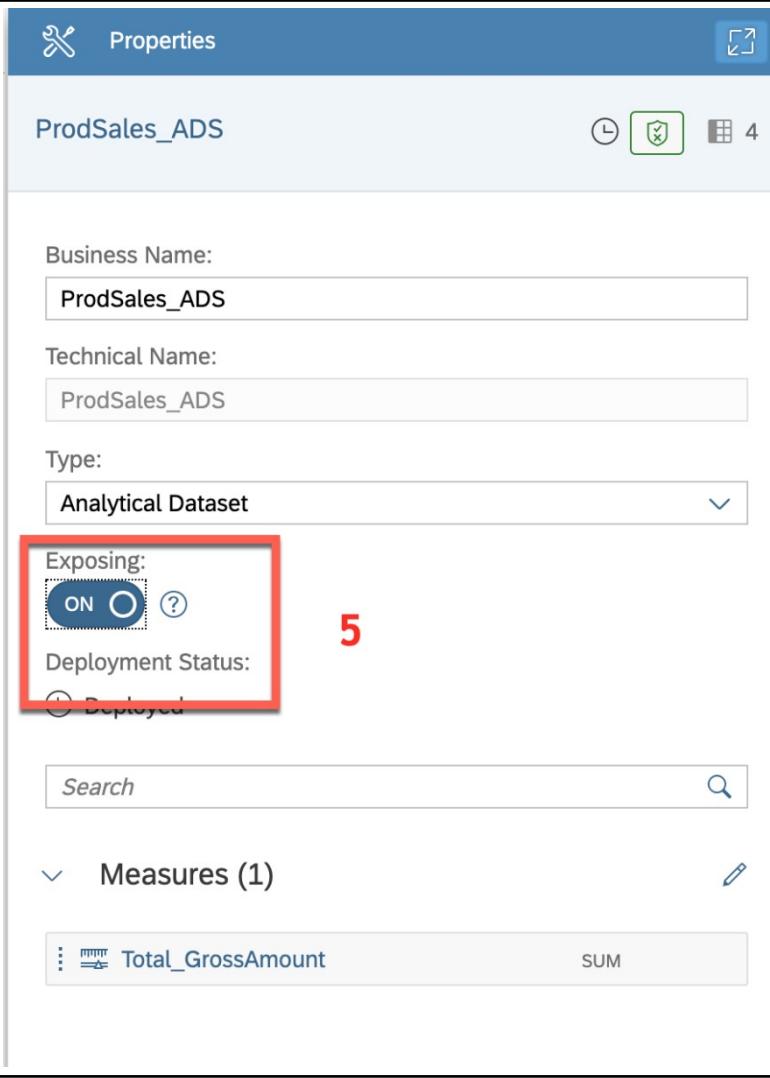
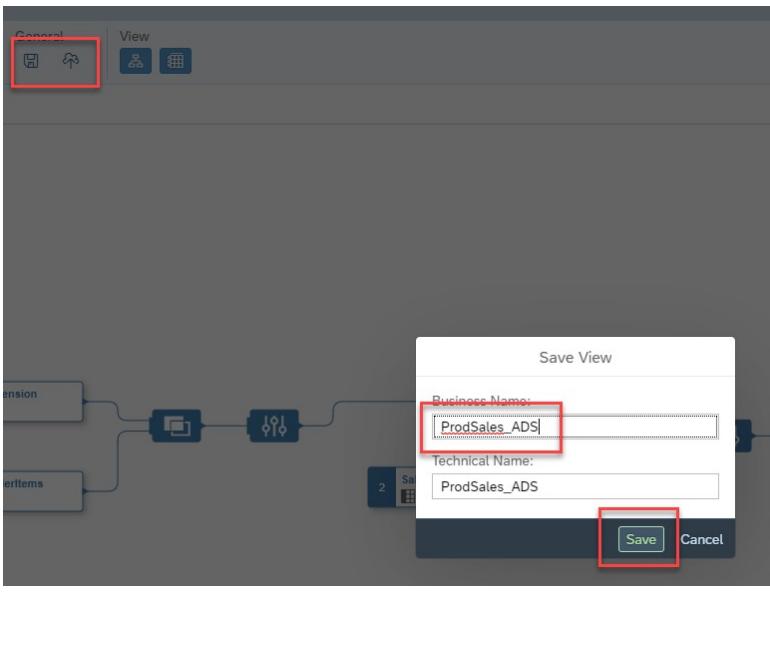
<p>Select the table SalesOrders from the Related Entities list.</p>	
<p>Check if the Join column is set to SALESORDERID</p>	
<p>Click on the newly added SALESORDERITEMS table and click on the Calculated Column icon </p>	

	 <p>Click on the + button in the Calculated Columns Properties pane to add a new calculated column</p>
	 <p>Enter the name of the new column to Total_GrossAmount (1). Then click on the Columns tab (2)</p>
<p>Select the Data Type: Decimal(prec,scale)</p> <p>From the Columns list, select the column GROSSAMOUNT</p> <p>From the Operators list, select the operator * (Multiplication)</p> <p>From the Columns list, select the column QUANTITY</p> <p>The correct Expression is: GROSSAMOUNT*QUANTITY</p>	

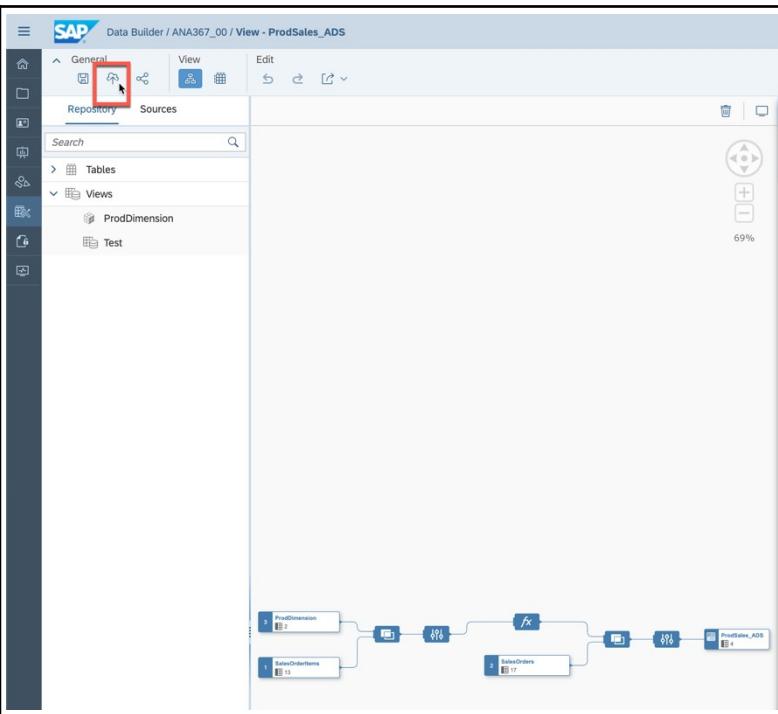
	<p>The screenshot shows the SAP Data Warehouse Cloud interface. A calculated column named 'Total_GrossAmount' is being defined. The 'Data Type' is set to '123 Decimal'. The 'Expression' field contains the formula 'GROSSAMOUNT*QUANTITY'. A validation message indicates that the expression is invalid.</p>
<p>Click on the Projection Operator from the view (1). It would bring up the Projection Properties pane.</p> <p>From the Projection Properties pane on the left, click on Select All (2) and then Exclude Selected Columns button (3)</p>	<p>The screenshot shows the SAP Data Warehouse Cloud interface with the 'Projection Properties' pane open for 'View_1'. Step 1 highlights the projection operator in the flow. Step 2 highlights the 'Select All' button. Step 3 highlights the 'Exclude Selected Columns' button.</p>
<p>Use the Search to Search the columns SalesOrderID</p>	<p>The screenshot shows the SAP Data Warehouse Cloud interface with the 'Projection Properties' pane open for 'Projection 1'. The search bar at the bottom has 'SalesOrderID' typed into it. Two results for 'AA SALESORDERID' are listed below.</p>

	<p>Click on the column SalesOrderId, check the lineage to ensure if the column originates from the SalesOrderItems table</p> <p>Click the More actions button, and then Restore the column.</p> 
	<p>Repeat the above steps for Total_GrossAmount column by using the search or sorting function</p> 
<p>Select the Repository tab (1) on the left hand side, and expand the Views (2) so that you see ProdDimension (3)</p>	

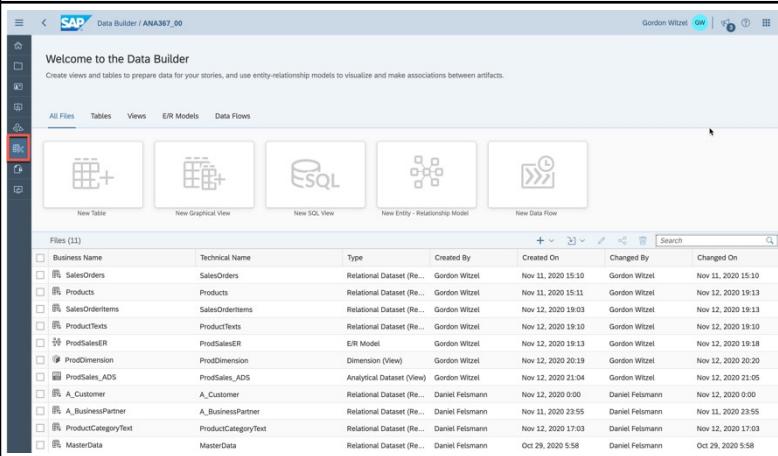
<p>Drop the ProdDimension view on the SalesOrderItems table on the canvas. This would Join the two entities</p>	
<p>Click anywhere on the canvas (1), change the type of the view in the Properties to Analytical Dataset (2) pane.</p> <p>For an Analytical Dataset, we need Measures.</p> <p>Click the More Actions button (3) for Total_GrossAmount (3) and change it to Measure (4)</p> <p>Allow Exposing (5) to consume the data model in the Story Builder. This is an important setting – without this setting you are NOT able to use the data model in the SAP Analytics Cloud Story Builder.</p>	

	 <p>ProdSales_ADS</p> <p>Business Name: ProdSales_ADS</p> <p>Technical Name: ProdSales_ADS</p> <p>Type: Analytical Dataset</p> <p>Exposing: ON 5</p> <p>Deployment Status: Deployed</p> <p>Search</p> <p>Measures (1)</p> <ul style="list-style-type: none"> Total_GrossAmount SUM
<p>Once done, click the Save button. Set the name of the view as ProdSales_ADS_XX (your unique UserId).</p> <p>To create a view in SAP HANA, click the Deploy button once the artefact has been saved successfully.</p>	 <p>Save View</p> <p>Business Name: ProdSales_ADS</p> <p>Technical Name: ProdSales_ADS</p> <p>Save Cancel</p>

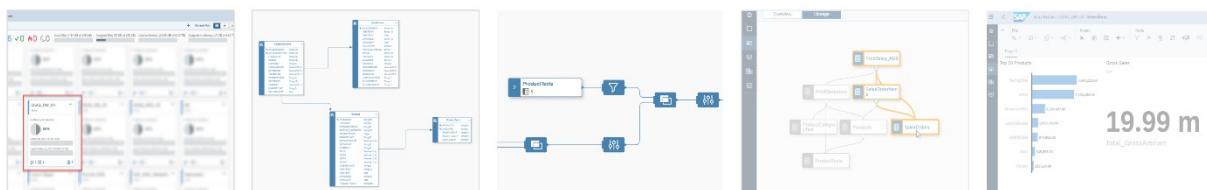
AIN367 - Integration Cloud Solution with SAP Data Warehouse Cloud



Navigate back to the **Data Builder** (1).
Here you would see all the artefacts that we have created so far and the tables which are used in the models. (2)



In this section you have create your graphical models, and can start to build the analytics story.



Different use cases and different business strategies require tailored business needs. Spaces allow you to create an environment that meets your particular requirements. You can assign users and connections to a specific space and adjust the storage capacity.

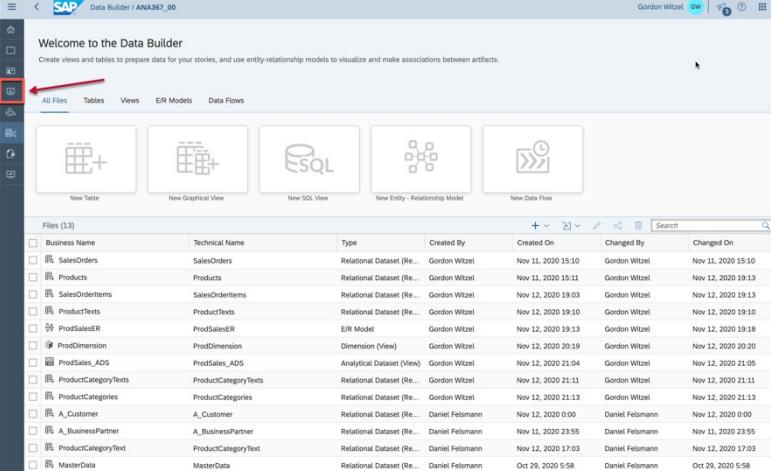
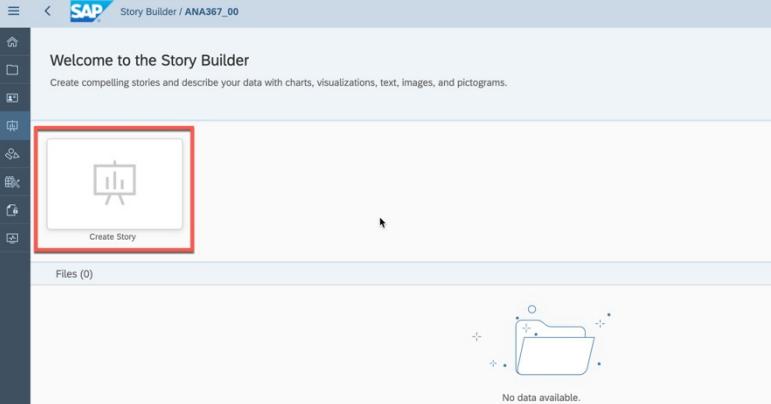
Define relations between entities and add metadata to enable the creation of graphical views with the Entity-Relationship Modeler.

In the Data Builder an connect tables and views via joins and unions in a graphical environment.

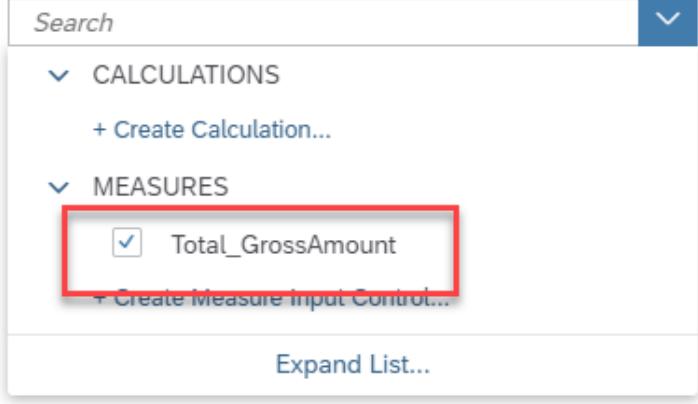
The business catalog gives you an overview of all the models you can use, across all the Spaces such as Data Sets, Dimensions and Facts you are authorized for.

Stories let you explore data interactively to find insights, visualize information with charts and tables, and share, present, and comment on your findings with colleagues.

Create a SAP Analytics Cloud Story

<p> Stories let you explore data interactively to find insights, visualize information with charts and tables, and share, present, and comment on your findings with colleagues.</p> <p>Click on the Story Builder from the left navigation pane</p>	
<p>Click on the tile Create Story</p>	
<p>This takes you to the SAP Analytics Cloud UI.</p> <p>Select the data source as ProdSales_ADS, the Analytical Data Source that we have created earlier.</p> <p>Click on OK</p> <p>If you do not see the Analytical Dataset here, make sure that you have deployed it within the Data Builder section and Allow Exposing in the data model is enabled.</p>	<p>Add an object to the story canvas.</p> <p> Chart</p> <p> Geo Map</p> <div data-bbox="624 1635 1208 1904"> <p>Select Your Data</p> <p>Name <input type="text" value="Select Analytical Data Set"/></p> <p><small>If you don't see your dataset, check that it is deployed, and set to allow consumption in your SAP Data Warehouse Cloud System.</small></p> <p>OK Cancel</p> </div>

	<p>Select Your Data</p> <p>Name <input type="text" value="ProdSales_ADS"/> ProdSales_ADS</p> <p><i>allow consumption in your SAP Data Warehouse Cloud System ANA367_0</i></p> <p>OK Cancel</p>
<p>From the object list, click on the Chart to add it to our story canvas</p>	<p>Add an object to the story canvas.</p> <p>Chart Chart Geo Map Text</p>
<p>From the Builder panel on the right, click on Add Measure</p>	<p>Builder</p> <p>Data Source ProdSales_ADS</p> <p>+ Add Linked Models</p> <p>Chart Structure</p> <p>Comparison Trend Distribution Correlation Indicator More</p> <p>Chart Orientation Horizontal</p> <p>Measures</p> <p>+ Add Measure + Add Measure</p> <p>Dimensions</p> <p>+ Add Dimension</p>

<p>From the Measures list, select our measure Total_GrossAmount.</p> <p> This will update the Chart that you have added to the canvas</p>	<p>Measures</p>  <p>Search</p> <p>▼ CALCULATIONS + Create Calculation...</p> <p>▼ MEASURES <input checked="" type="checkbox"/> Total_GrossAmount + Create Measure Input Control...</p> <p>Expand List...</p>
<p>From the Builder pane, now click on Add Dimension</p>	<p>Builder</p> <p>Data Source ProdSales_ADS + Add Linked Models</p> <p>▼ Chart Structure +</p> <p>Comparison  Trend  Distribution </p> <p>Correlation  Indicator  More </p> <p>Chart Orientation Horizontal</p> <p>Measures + Add Measure</p> <p>Dimensions + Add Dimension </p>

From the list of dimensions, select the dimension **MEDIUM_DESCR**

The chart gets updated with the measures and dimensions.

Builder

Data Source
ProdSales_ADS

+ Add Linked Models

Chart Structure

Comparison

Trend

Distribution

Correlation

Indicator

More

Chart Orientation
Horizontal

Measures
Total_GrossAmount

+ Add Measure

Dimensions

Search

+ Create Calculated Dimension...

DIMENSIONS

- MEDIUM_DESCR
- Product ID
- SALESORDERID

+ Create Dimension Input Control...

Expand List...

Properties

View Mode
 Enable Explorer

Configure Measures & Dimensions

Click in the Chart and then on the **More Actions** button for the chart.

Total_GrossAmount per MEDIUM_DESCR

Mountain Discovery Basic	17,560,960.24
Mountain Discovery Drive	38,178,414.16
Mountain Discovery Rush	107,343,151.80
BMX Jump 1012	9,173,203.20
BMX Optima	6,778,960.12
BMX Optima II	7,967,377.54
BMX Vintage 1011	6,105,878.34
BWM Jump Luxury I	13,966,193.52
BWM Jump Luxury II	19,697,041.86
Capricorn	31,924,687.50
Capricorn II	29,601,055.90
Cyclone Basic	30,144,114.00
Cyclone III	38,660,898.86
Cyclone Speed	31,511,700.00
Flash Drive	41,303,250.00
Flash Drive II	62,355,150.00
La Plage	10,259,031.92
La Plage Gold	7,497,036.00

Under the **Rank** menu, click on **Top N options**

Story Builder / ANA367_00 / New Story

Page 1

Total_GrossAmount per MEDIUM_DESCR

1

2

3

Sort >

Rank >

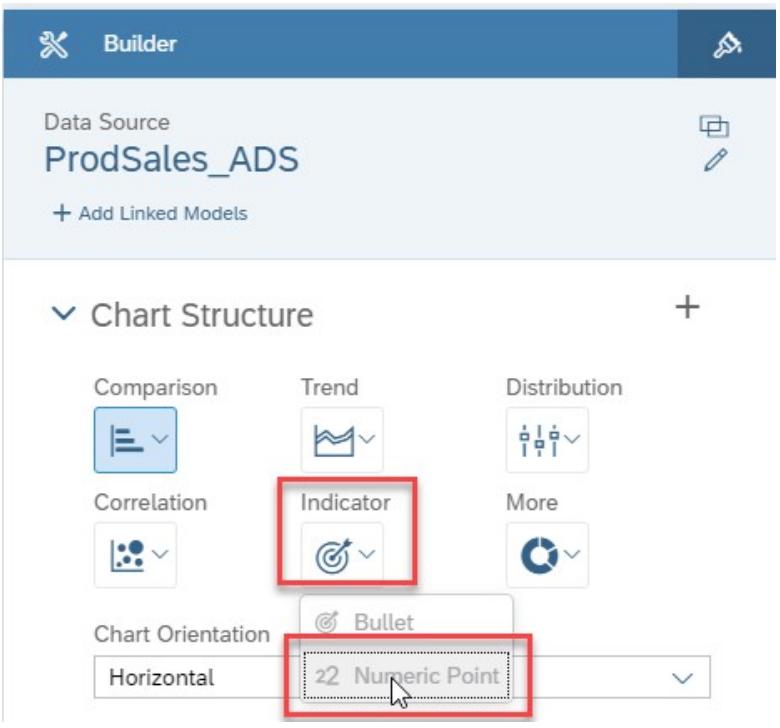
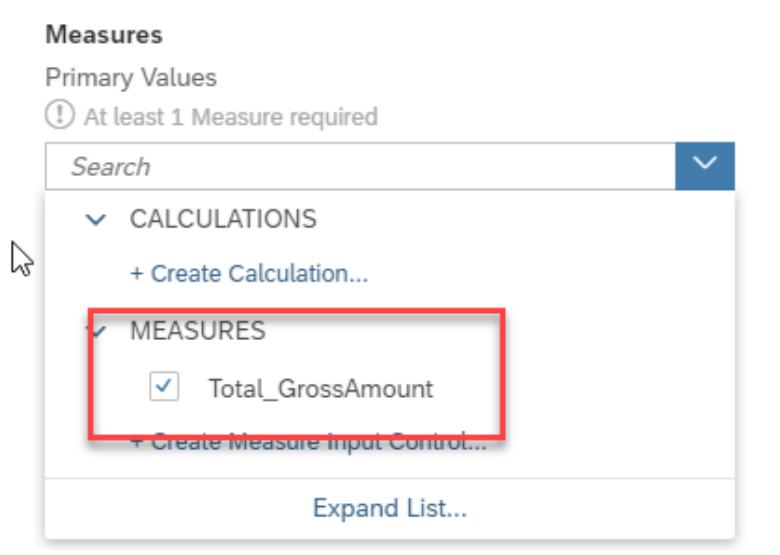
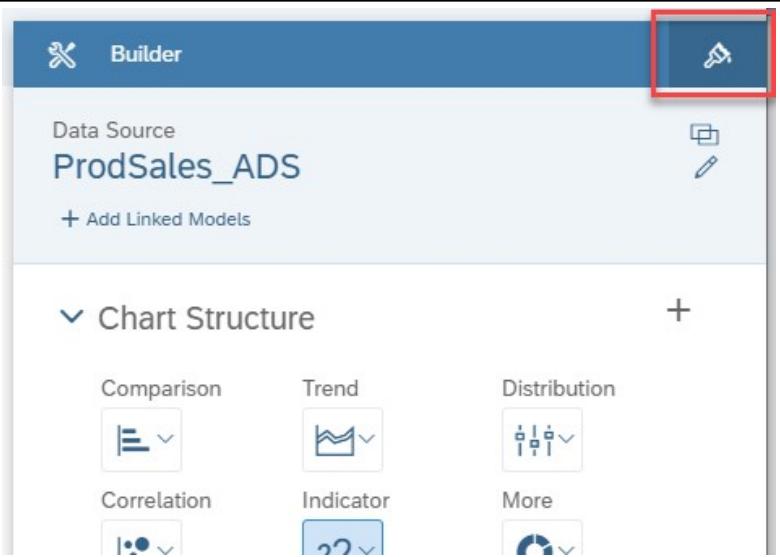
Top 5

Bottom 5

Top N Options

Top N Options

<p>Set the value to 10 and click on Apply</p>	<p>Top N Options</p> <p>Mode: Top</p> <p>Value: 10</p> <p>Measure: Total_GrossAmount</p> <p>Apply Cancel</p>																						
<p>Check out the updated chart.</p> <p>Click on Insert Chart button</p>	<p>Story Builder / ANA367_00 / New Story</p> <p>File Insert Chart Display More</p> <p>Total_GrossAmount per MEDIUM_DESCR Top 10</p> <table border="1"><thead><tr><th>MEDIUM_DESCR</th><th>Total_GrossAmount</th></tr></thead><tbody><tr><td>Speedeon Cross</td><td>209,327,287.50</td></tr><tr><td>Stream II</td><td>141,272,052.94</td></tr><tr><td>Speedeon Light</td><td>140,411,250.00</td></tr><tr><td>Veloflash Ultimate</td><td>125,249,313.86</td></tr><tr><td>Stream I</td><td>121,736,098.33</td></tr><tr><td>Lazy Cat II</td><td>120,538,800.00</td></tr><tr><td>Mountain Discovery Rush</td><td>107,343,151.80</td></tr><tr><td>Tornado II</td><td>103,991,489.41</td></tr><tr><td>Speedeon</td><td>74,030,625.00</td></tr><tr><td>Tornado I</td><td>67,582,637.50</td></tr></tbody></table>	MEDIUM_DESCR	Total_GrossAmount	Speedeon Cross	209,327,287.50	Stream II	141,272,052.94	Speedeon Light	140,411,250.00	Veloflash Ultimate	125,249,313.86	Stream I	121,736,098.33	Lazy Cat II	120,538,800.00	Mountain Discovery Rush	107,343,151.80	Tornado II	103,991,489.41	Speedeon	74,030,625.00	Tornado I	67,582,637.50
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<p>From the Builder menu, set the indicator to Numeric Point</p>	
<p>Add the Measure Total_GrossAmount to our newly added Numeric Point chart</p>	
<p>Click on the Styling button in the top right corner of the Builder pane</p>	

Now we will change the way the numeric point looks on the canvas.

Change the **Scale** within the Number Format section to **Million**

Styling

Show Styling Options For
Chart

Widget

Background Color

Border

Actions

Order

Font

Text Selection

Font Size Color

Style

Number Format

Measure Selection

Scale

Scale Format

Data Label
 Show Currency and Unit
 Show Scale

Decimal Places Show Sign As

Change the **Scale Format** within the Number Format section to to **k, m, bn**.

The screenshot shows the SAP Styling interface for a chart. The left sidebar has a note: "Change the **Scale Format** within the Number Format section to to **k, m, bn**." The main area has tabs for 'Styling' and 'Preview'. Under 'Chart', there are sections for 'Widget' (Background Color, Border), 'Actions' (Order), 'Font' (Text Selection, Font, Size, Color, Style), and 'Number Format' (Measure Selection, Scale, Scale Format, Data Label, Decimal Places, Show Sign As). A red box highlights the 'Scale Format' dropdown in the 'Number Format' section, which contains the value 'k, m, bn'.

Show Styling Options For
Chart

Widget

Background Color

Border

No Border

Actions

Order

Font

Text Selection

All Text

Font Default Size Default Color Default

Style B I U T

Number Format

Measure Selection All

Scale Billion

Scale Format k, m, bn

Data Label

Show Currency and Unit

Show Scale

Decimal Places Default

Show Sign As Default

The screenshot shows the SAP Styling interface for a Chart widget. The left sidebar contains a note: "Change the Decimal Places to 2 and show sign as to +/-". The styling options are organized into sections: Widget, Actions, Font, Number Format, and a summary section.

Widget

- Background Color: A color picker set to black.
- Border: Set to "No Border".

Actions

- Order: Four reordering icons.

Font

- Text Selection: Set to "All Text".
- Font: Default.
- Size: Default.
- Color: Default (black).
- Style: Bold (B), Italic (I), Underline (U), and Text Transformation (T) icons.

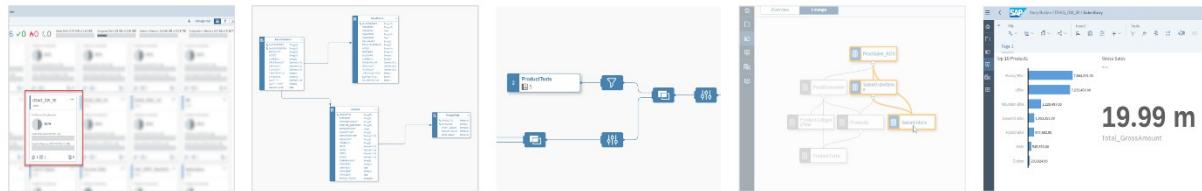
Number Format

- Measure Selection: All.
- Scale: Billion.
- Scale Format: k, m, bn.
- Data Label:
 - Show Currency and Unit
 - Show Scale
- Decimal Places: 2.
- Show Sign As: +/-.

<p>Double click on the title of the chart and change it to Gross Sales</p>	<p>Gross Sales</p> <p>+2.09 bn</p> <p>Total_GrossAmount</p>
<p>Similarly, change the title of the first chart to Top 10 Products</p>	<p>Top 10 Products</p> <p>+2.09 bn</p> <p>Total_GrossAmount</p>
<p>Save our SAC Story by the name SalesStory_ XX (your specific UserId) and press OK.</p>	<p>Sales Story</p> <p>OK</p>

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Now you have created your own story by leveraging the models which you have created beforehand.



Different use cases and different business strategies require tailored business needs. Spaces allow you to create an environment that meets your particular requirements. You can assign users and connections to a specific space and adjust the storage capacity.

Define relations between entities and add metadata to enable the creation of graphical views with the Entity-Relationship Modeler.

In the Data Builder an connect tables and views via joins and unions in a graphical environment.

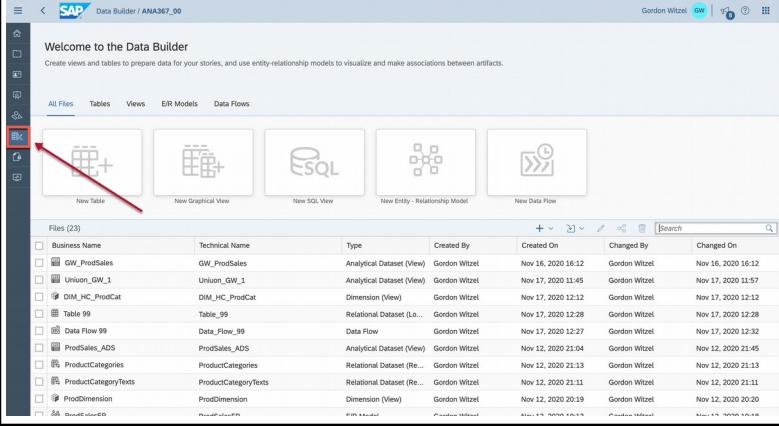
The business catalog gives you an overview of all the models you can use, across all the Spaces such as Data Sets, Dimensions and Facts you are authorized for.

Stories let you explore data interactively to find insights, visualize information with charts and tables, and share, present, and comment on your findings with colleagues.

Integrating Data from Google Cloud

Imagine there is some further information (Product Hierarchy) located in Google Cloud. The business will use this data therefore we add this information to the data model.

Navigate to the **Data Builder** by clicking the icon in the left pane and open your Space **ANA367_XXX**.

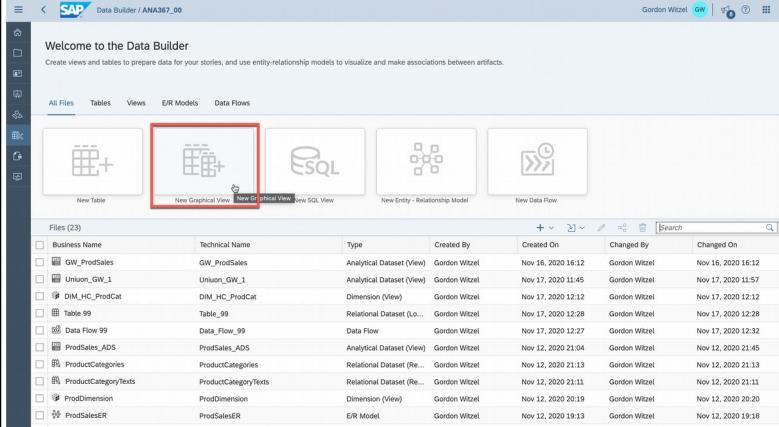


Welcome to the Data Builder
Create views and tables to prepare data for your stories, and use entity-relationship models to visualize and make associations between artifacts.

All Files Tables Views E/R Models Data Flows

New Table New Graphical View New SQL View New Entity - Relationship Model New Data Flow

File	Technical Name	Type	Created By	Created On	Changed By	Changed On
Business Name						
GW_ProdSales	GW_ProdSales	Analytical Dataset (View)	Gordon Witzel	Nov 16, 2020 16:12	Gordon Witzel	Nov 16, 2020 16:12
Union_GW_1	Union_GW_1	Analytical Dataset (View)	Gordon Witzel	Nov 17, 2020 11:45	Gordon Witzel	Nov 17, 2020 11:57
DIM_HC_ProdCat	DIM_HC_ProdCat	Dimension (View)	Gordon Witzel	Nov 17, 2020 12:12	Gordon Witzel	Nov 17, 2020 12:12
Table_99	Table_99	Relational Dataset (Lo...)	Gordon Witzel	Nov 17, 2020 12:28	Gordon Witzel	Nov 17, 2020 12:28
Data_Flow_99	Data_Flow_99	Data Flow	Gordon Witzel	Nov 17, 2020 12:27	Gordon Witzel	Nov 17, 2020 12:32
ProdSales_ADS	ProdSales_ADS	Analytical Dataset (View)	Gordon Witzel	Nov 12, 2020 21:04	Gordon Witzel	Nov 12, 2020 21:45
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ProdDimension	ProdDimension	Dimension (View)	Gordon Witzel	Nov 12, 2020 20:19	Gordon Witzel	Nov 12, 2020 20:20
ProdSalesER	ProdSalesER	E/R Model	Gordon Witzel	Nov 12, 2020 19:13	Gordon Witzel	Nov 12, 2020 19:18

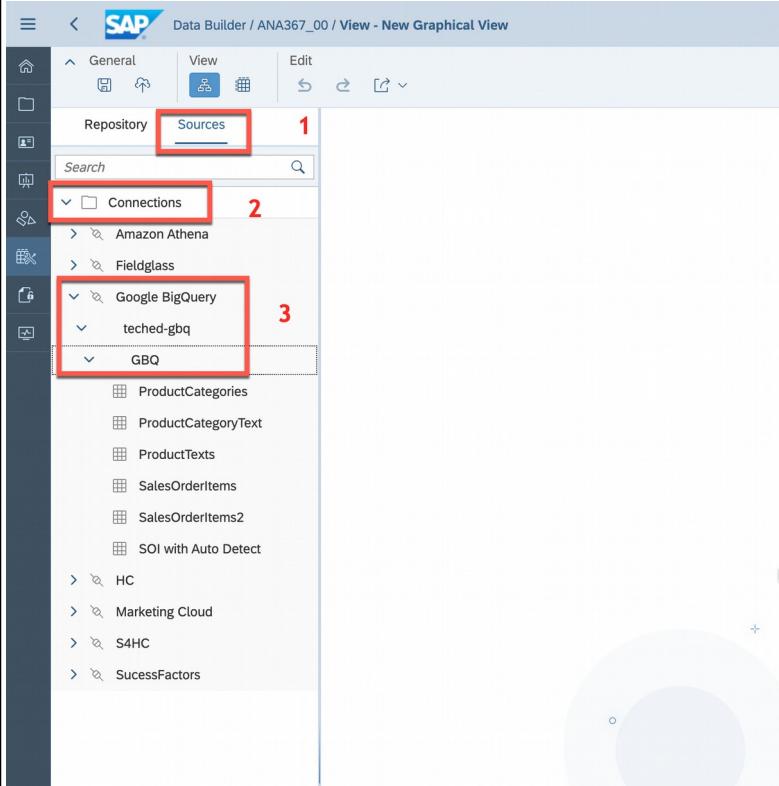
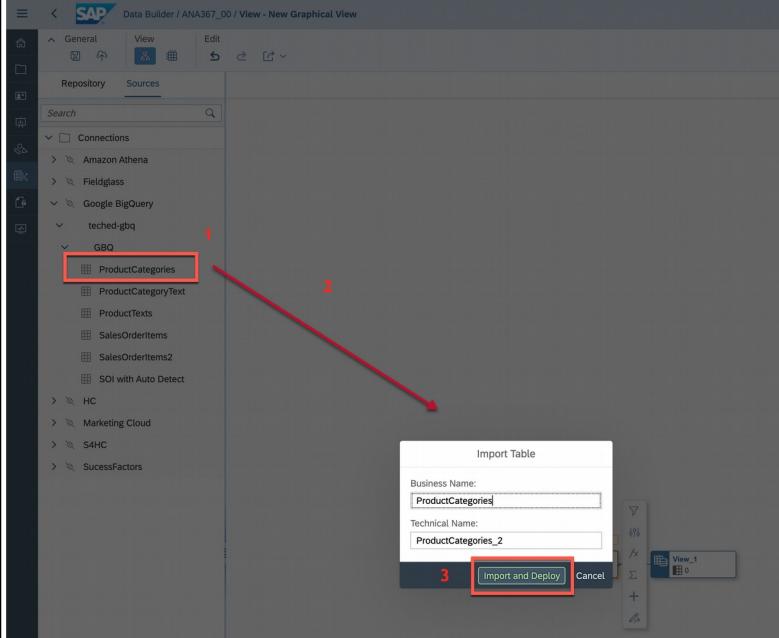


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<p>Open Sources -> Connections -> teched-gbq -> GBQ. This is your Google Big Query Account with the tables you created in the beginning of this exercise.</p>	
<p>Insert table ProductCategories into the new graphical view via dragging the table into the modeling canvas. Press Import and deploy if needed. Wait until the table is deployed successfully.</p>	

<p>Join the ProductCategories table with the ProductCategoryTexts table. Therefore drag the table ProductCategoryTexts table on the ProductCategories and use the Join.</p>	<p>The screenshot shows the SAP Data Builder interface with the title "Data Builder / ANA367_00 / View - New Graphical View". On the left, the "Repository" sidebar lists various connections and tables. A red box highlights the "ProductCategoryTexts" table under the "ProductCategories" category. A red arrow points from this table to a "JOIN" node in the main canvas area, which is part of a larger query structure involving "ProductCategoryTexts" and "Union" nodes.</p>
<p>Check if the Join (Inner Join) is based on PRODCATEGORYID. If not please the delete the Join and create a Join between PRODCATEGORYID.</p>	<p>The screenshot shows the "Join Properties" dialog for "Join 1". The "General" tab is selected, showing "Join Type: Inner" and "Distinct Values: OFF". The "Mappings" tab is also visible. A red box highlights the "ProductCategoryTexts" mapping section, specifically focusing on the join condition where "PRODCATEGORYID" from the left table is joined with "PRODCATEGORYID" from the right table. This join condition is highlighted with a red box.</p>

<p>In the Projection (press 1) Hide the following fields by pressing Exclude Column :</p> <ul style="list-style-type: none"> • CREATEDBY • LANGUAGE • CREATEDAT • MEDIUM_DESCR • LONG_DESCR 	
<p>Go to the Output Node and Change the Type from Relational Dataset to Dimension</p>	
<p>Add PRODCAT_DIM_XX in the business name and save the View.</p>	

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Deploy the View PRODCAT_DIM_XX

Run a Data Preview.

PRODUCTCATEGORYID	SHORT_DESCR
BX	BMX
HB	Hybrid Bike
CC	Cyclo-cross Bike
DB	Downhill Bike
RC	Racing Bike
CB	Cruiser
MB	Mountain Bike
EB	eBike
RO	Road Bike

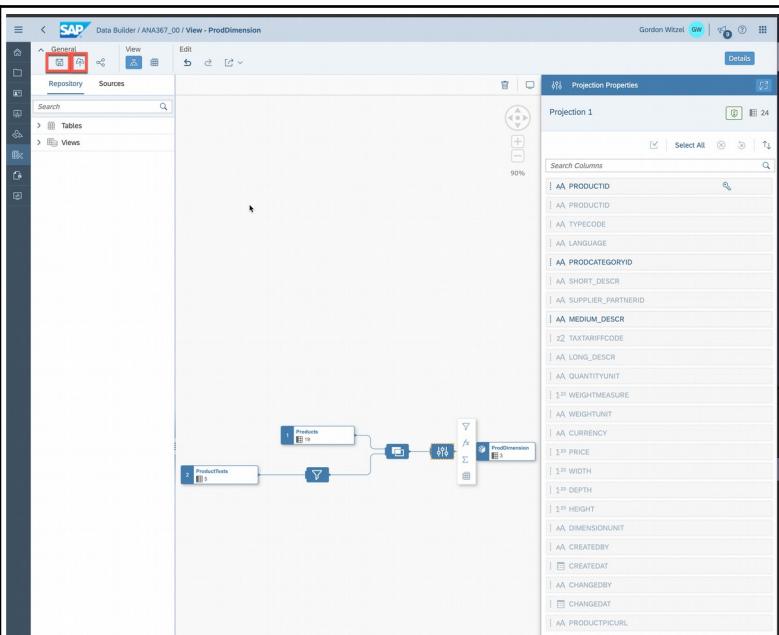
Go back to the Data Builder

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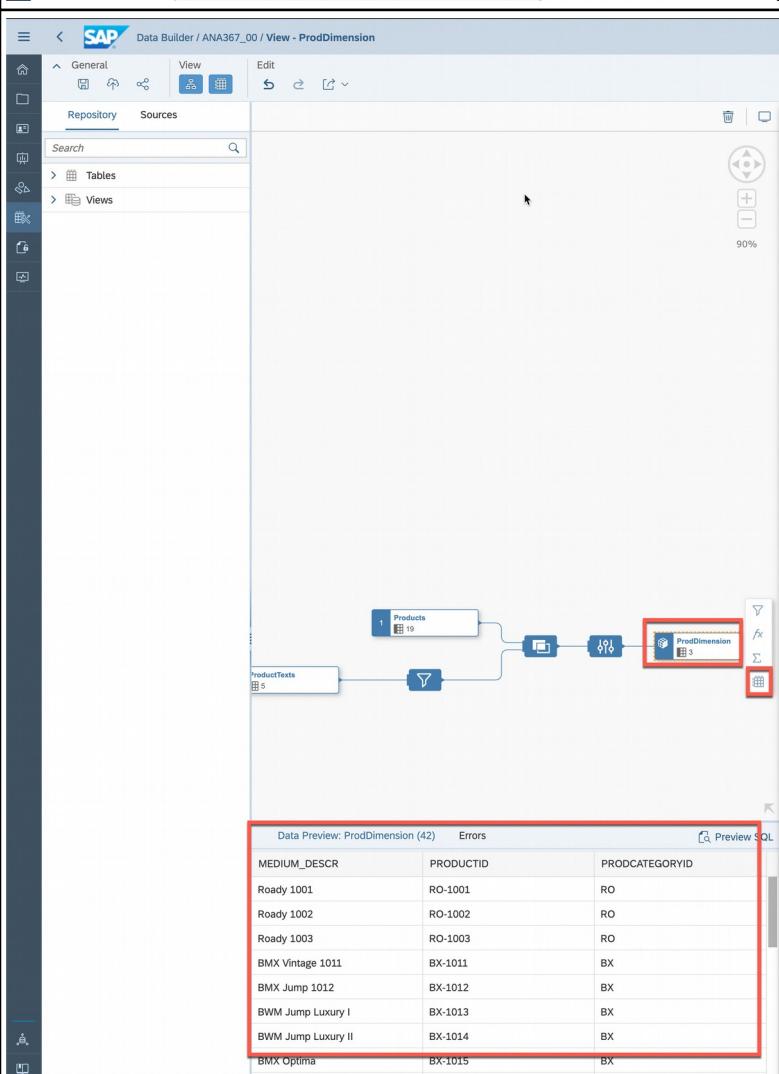
<p>Open your Dimension for Product – ProductDimension_XXX.</p>	<p>Welcome to the Data Builder Create views and tables to prepare data for your stories, and use entity-relationship models to visualize and make associations between artifacts.</p> <p>All Files Tables Views ER Models Data Flows</p> <p>Files (25)</p> <ul style="list-style-type: none"> Business Name Technical Name Type Created By Created On Changed By Changed On <table border="1"> <tbody> <tr><td>GW_ProdSales</td><td>GW_ProdSales</td><td>Analytical Dataset (View)</td><td>Gordon Witzel</td><td>Nov 16, 2020 16:12</td><td>Gordon Witzel</td><td>Nov 16, 2020 16:12</td></tr> <tr><td>Union_GW_1</td><td>Union_GW_1</td><td>Analytical Dataset (View)</td><td>Gordon Witzel</td><td>Nov 17, 2020 11:45</td><td>Gordon Witzel</td><td>Nov 17, 2020 11:57</td></tr> <tr><td>DIM_HC_ProdCat</td><td>DIM_HC_ProdCat</td><td>Dimension (View)</td><td>Gordon Witzel</td><td>Nov 17, 2020 12:12</td><td>Gordon Witzel</td><td>Nov 17, 2020 12:12</td></tr> <tr><td>Table_99</td><td>Table_99</td><td>Relational Dataset (LO...</td><td>Gordon Witzel</td><td>Nov 17, 2020 12:28</td><td>Gordon Witzel</td><td>Nov 17, 2020 12:28</td></tr> <tr><td>Data_Flow_99</td><td>Data_Flow_99</td><td>Data Flow</td><td>Gordon Witzel</td><td>Nov 17, 2020 12:27</td><td>Gordon Witzel</td><td>Nov 17, 2020 12:32</td></tr> <tr><td>ProductCategories</td><td>ProductCategories_2</td><td>Relational Dataset (Re...</td><td>Gordon Witzel</td><td>Nov 17, 2020 18:22</td><td>Gordon Witzel</td><td>Nov 17, 2020 18:22</td></tr> <tr><td>PRODCAT_DIM_XX</td><td>PRODCAT_DIM_XX</td><td>Dimension (View)</td><td>Gordon Witzel</td><td>Nov 17, 2020 20:39</td><td>Gordon Witzel</td><td>Nov 17, 2020 20:39</td></tr> <tr><td>ProdSalesADS</td><td>ProdSalesADS</td><td>Analytical Dataset (View)</td><td>Gordon Witzel</td><td>Nov 12, 2020 21:04</td><td>Gordon Witzel</td><td>Nov 12, 2020 21:45</td></tr> <tr><td>ProductCategories</td><td>ProductCategories</td><td>Relational Dataset (Re...</td><td>Gordon Witzel</td><td>Nov 12, 2020 21:13</td><td>Gordon Witzel</td><td>Nov 12, 2020 21:13</td></tr> <tr><td>ProductCategoryTexts</td><td>ProductCategoryTexts</td><td>Relational Dataset (Re...</td><td>Gordon Witzel</td><td>Nov 12, 2020 21:11</td><td>Gordon Witzel</td><td>Nov 12, 2020 21:11</td></tr> <tr><td>ProdDimension</td><td>ProdDimension</td><td>Dimension (View)</td><td>Gordon Witzel</td><td>Nov 12, 2020 20:19</td><td>Gordon Witzel</td><td>Nov 12, 2020 20:20</td></tr> <tr><td>ProdSalesER</td><td>ProdSalesER</td><td>E/R Model</td><td>Gordon Witzel</td><td>Nov 12, 2020 19:13</td><td>Gordon Witzel</td><td>Nov 12, 2020 19:18</td></tr> <tr><td>ProductTexts</td><td>ProductTexts</td><td>Relational Dataset (Re...</td><td>Gordon Witzel</td><td>Nov 12, 2020 19:10</td><td>Gordon Witzel</td><td>Nov 12, 2020 19:10</td></tr> <tr><td>SalesOrderItems</td><td>SalesOrderItems</td><td>Relational Dataset (Re...</td><td>Gordon Witzel</td><td>Nov 12, 2020 19:03</td><td>Gordon Witzel</td><td>Nov 12, 2020 19:13</td></tr> <tr><td>Products</td><td>Products</td><td>Relational Dataset (Re...</td><td>Gordon Witzel</td><td>Nov 11, 2020 19:11</td><td>Gordon Witzel</td><td>Nov 12, 2020 19:13</td></tr> </tbody> </table>	GW_ProdSales	GW_ProdSales	Analytical Dataset (View)	Gordon Witzel	Nov 16, 2020 16:12	Gordon Witzel	Nov 16, 2020 16:12	Union_GW_1	Union_GW_1	Analytical Dataset (View)	Gordon Witzel	Nov 17, 2020 11:45	Gordon Witzel	Nov 17, 2020 11:57	DIM_HC_ProdCat	DIM_HC_ProdCat	Dimension (View)	Gordon Witzel	Nov 17, 2020 12:12	Gordon Witzel	Nov 17, 2020 12:12	Table_99	Table_99	Relational Dataset (LO...	Gordon Witzel	Nov 17, 2020 12:28	Gordon Witzel	Nov 17, 2020 12:28	Data_Flow_99	Data_Flow_99	Data Flow	Gordon Witzel	Nov 17, 2020 12:27	Gordon Witzel	Nov 17, 2020 12:32	ProductCategories	ProductCategories_2	Relational Dataset (Re...	Gordon Witzel	Nov 17, 2020 18:22	Gordon Witzel	Nov 17, 2020 18:22	PRODCAT_DIM_XX	PRODCAT_DIM_XX	Dimension (View)	Gordon Witzel	Nov 17, 2020 20:39	Gordon Witzel	Nov 17, 2020 20:39	ProdSalesADS	ProdSalesADS	Analytical Dataset (View)	Gordon Witzel	Nov 12, 2020 21:04	Gordon Witzel	Nov 12, 2020 21:45	ProductCategories	ProductCategories	Relational Dataset (Re...	Gordon Witzel	Nov 12, 2020 21:13	Gordon Witzel	Nov 12, 2020 21:13	ProductCategoryTexts	ProductCategoryTexts	Relational Dataset (Re...	Gordon Witzel	Nov 12, 2020 21:11	Gordon Witzel	Nov 12, 2020 21:11	ProdDimension	ProdDimension	Dimension (View)	Gordon Witzel	Nov 12, 2020 20:19	Gordon Witzel	Nov 12, 2020 20:20	ProdSalesER	ProdSalesER	E/R Model	Gordon Witzel	Nov 12, 2020 19:13	Gordon Witzel	Nov 12, 2020 19:18	ProductTexts	ProductTexts	Relational Dataset (Re...	Gordon Witzel	Nov 12, 2020 19:10	Gordon Witzel	Nov 12, 2020 19:10	SalesOrderItems	SalesOrderItems	Relational Dataset (Re...	Gordon Witzel	Nov 12, 2020 19:03	Gordon Witzel	Nov 12, 2020 19:13	Products	Products	Relational Dataset (Re...	Gordon Witzel	Nov 11, 2020 19:11	Gordon Witzel	Nov 12, 2020 19:13
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<p>Open the Projection</p>	<p>Projection Properties</p> <p>Projection 1</p> <p>Search Columns</p> <ul style="list-style-type: none"> AA_PRODUCTID AA_PRODUCTID AA_TYPECODE AA_LANGUAGE AA_PRODCATEGORYID AA_SHORT_DESCR AA_SUPPLIER_PARTNERID AA_MEDIUM_DESCR x2 TAXARTIFFCODE AA_LONG_DESCR AA_QUANTITYUNIT 1st WEIGHTMEASURE AA_WEIGHTUNIT AA_CURRENCY 1st PRICE 1st WIDTH 1st DEPTH 1st HEIGHT AA_DIMENSIONUNIT AA_CREATEDBY CREATEDAT AA_CHANGEDBY CHANGEDAT AA_PRODUCTPCURL 																																																																																																									
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Save and Activate the View.
First press **Save** and then
DEPLOY.

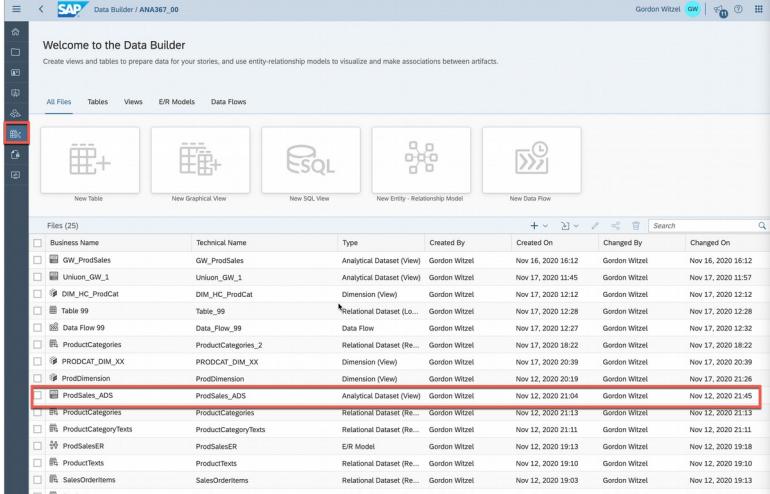
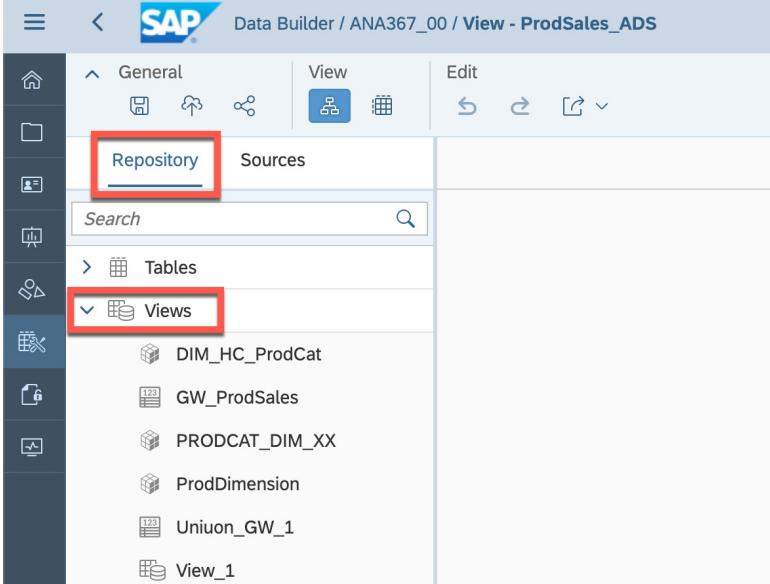


Execute a Data Preview



MEDIUM_DESCR	PRODUCTID	PRODCATEGORYID
Roady 1001	RO-1001	RO
Roady 1002	RO-1002	RO
Roady 1003	RO-1003	RO
BMX Vintage 1011	BX-1011	BX
BMX Jump 1012	BX-1012	BX
BWM Jump Luxury I	BX-1013	BX
BWM Jump Luxury II	BX-1014	BX
BMX Optima	BX-1015	BX

AIN367 - Integration Cloud Solution with SAP Data Warehouse Cloud

<p>Go back to the Data Builder and open (double click on the object) your Analytical Dataset ProdSales_ADS_XX</p>	 <p>Welcome to the Data Builder Create views and tables to prepare data for your stories, and use entity-relationship models to visualize and make associations between artifacts.</p> <p>All Files Tables Views E/R Models Data Flows</p> <p>New Table New Graphical View New SQL View New Entity - Relationship Model New Data Flow</p> <p>Files (25)</p> <table border="1"><thead><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></thead><tbody><tr><td>1</td><td>GW_ProdSales</td><td>GW_ProdSales</td><td>Analytical Dataset (View)</td><td>Gordon Witzel</td><td>Nov 16, 2020 16:12</td><td>Gordon Witzel</td><td>Nov 16, 2020 16:12</td></tr><tr><td>2</td><td>Union_GW_1</td><td>Union_GW_1</td><td>Analytical Dataset (View)</td><td>Gordon Witzel</td><td>Nov 17, 2020 11:45</td><td>Gordon Witzel</td><td>Nov 17, 2020 11:57</td></tr><tr><td>3</td><td>DIM_HC_ProdCat</td><td>DIM_HC_ProdCat</td><td>Dimension (View)</td><td>Gordon Witzel</td><td>Nov 17, 2020 12:12</td><td>Gordon Witzel</td><td>Nov 17, 2020 12:12</td></tr><tr><td>4</td><td>Table_99</td><td>Table_99</td><td>Relational Dataset (Locally)</td><td>Gordon Witzel</td><td>Nov 17, 2020 12:28</td><td>Gordon Witzel</td><td>Nov 17, 2020 12:28</td></tr><tr><td>5</td><td>Data_Flow_99</td><td>Data_Flow_99</td><td>Data Flow</td><td>Gordon Witzel</td><td>Nov 17, 2020 12:27</td><td>Gordon Witzel</td><td>Nov 17, 2020 12:32</td></tr><tr><td>6</td><td>ProductCategories</td><td>ProductCategories_2</td><td>Relational Dataset (Relational)</td><td>Gordon Witzel</td><td>Nov 17, 2020 18:22</td><td>Gordon Witzel</td><td>Nov 17, 2020 18:22</td></tr><tr><td>7</td><td>PRODCAT_DIM_XX</td><td>PRODCAT_DIM_XX</td><td>Dimension (View)</td><td>Gordon Witzel</td><td>Nov 17, 2020 20:39</td><td>Gordon Witzel</td><td>Nov 17, 2020 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<p>Open the Views in the Repository.</p>	 <p>General View Edit</p> <p>Repository Sources</p> <p>Search</p> <p>Tables</p> <p>Views</p> <ul style="list-style-type: none">DIM_HC_ProdCatGW_ProdSalesPRODCAT_DIM_XXProdDimensionUnion_GW_1View_1																																																																																																																																																																

<p>Join the PRODCAT_DIM_XX (data is coming from Google Big Query) to the Dataset. Therefore add the View PRODCAT_DIM_XX to the view ProdDimension.</p>	
<p>Check if the Join is correct. Otherwise delete the existing Join and create a new one. Join Productcategoryid with Productcategoryid.</p>	
<p>Arrange the View.</p>	

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The screenshot shows the SAP Data Builder interface for a view named 'ProdSales_ADS'. The top navigation bar includes 'SAP Data Builder / ANA367_00 / View - ProdSales_ADS', 'General' (with tabs for Repository and Sources), 'View' (with icons for Home, Refresh, Undo, Redo, Save, Print, and Help), and 'Edit' (with icons for Undo, Redo, Cut, Copy, Paste, Delete, and Insert). A search bar is also present.

The main workspace displays a data flow diagram with various nodes: 'FACT_SALES', 'Dimensions', 'Joiner', 'Dimensions', 'Joiner', 'Dimensions', and a final node labeled 'ProdSales_ADS'. The 'ProdSales_ADS' node is highlighted with a red box. To its right, there is a small icon with a red border and a cursor-like symbol.

A data preview table is displayed at the bottom of the workspace, titled 'Data Preview: ProdSales_ADS (1000)'. It contains the following data:

SALESORDE...	Total_GrossA...	MEDIUM_DE...	PRODUCTID	PRODCATEG...	SHORT_DES...
0500003382	8971.85	BMX Optima II	BX-1016	BX	BMX
0500003355	18184.50	BWM Jump L...	BX-1013	BX	BMX
0500003346	4546.11	BWM Jump L...	BX-1013	BX	BMX
0500003289	4546.11	BWM Jump L...	BX-1013	BX	BMX
0500003260	2521.11	BMX Vintage ...	BX-1011	BX	BMX
0500003255	18184.50	BWM Jump L...	BX-1013	BX	BMX
0500003242	4546.11	BWM Jump L...	BX-1013	BX	BMX
0500003209	4546.11	BWM Jump L...	BX-1013	BX	BMX
0500003186	4546.11	BWM Jump L...	BX-1013	BX	BMX
0500003066	48438.00	BMX Optima	BX-1015	BX	BMX
0500003050	4546.11	BWM Jump L...	BX-1013	BX	BMX

Execute a Data Preview.

We have now combined data from SAP HANA Cloud with a Dimension coming from Google Big Query.
Go back to the Data Builder.

Persist data with the Data Flow in the Data Builder

<p>Navigate to the Data Builder by clicking the icon in the left pane and open your Space ANA367_XX if needed.</p>	
<p>Create a New Data Flow by pressing the New Data Flow Tile.</p>	
<p>Open the Hana Cloud Tables via Sources -> Connections -> HC -> TECHED2020</p>	

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The image consists of two vertically stacked screenshots of the SAP Data Builder interface.

Top Screenshot: This screenshot shows the "Sources" tab of the SAP Data Builder repository. A red arrow points from the text "Add Table Sales_Orders to the Modeling Canvas." to the "SalesOrders - Sales orders" item in the list, which is highlighted with a red box. The "SalesOrders Source" icon is visible on the modeling canvas to the right.

Bottom Screenshot: This screenshot shows the "Operators" tab of the SAP Data Builder repository. A red arrow points from the text "Insert a Join Operator to the canvas" to the "Join" operator icon in the list, which is also highlighted with a red box. The "Join 1" operator icon is visible on the modeling canvas to the right.

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Add table BusinessPartner to the Modeling Canvas.

The screenshot shows the SAP Data Builder interface with the 'Sources' tab selected in the top navigation bar. In the left sidebar, under 'Connections', there is a section for 'TECHED2020' which contains several tables. One table, 'BusinessPartners - Business Partners', is highlighted with a red box and has a red arrow pointing from it towards the modeling canvas. On the modeling canvas, there is a 'BusinessPartners Source' node (ID 14) and a 'SalesOrders Source' node (ID 17). A 'Join 1' node (ID 25) is also present. The 'Properties' panel on the right is open, showing details for 'Join 1'.

Connect the Sources SalesOrderItems and BusinessPartner to the Join. Connect the arrows from the tables to the Join.

The screenshot shows the SAP Data Builder interface with the 'Sources' tab selected. Two source nodes, 'BusinessPartners Source' (ID 14) and 'SalesOrders Source' (ID 17), are connected by arrows to a 'Join 1' node (ID 25). The 'Properties' panel on the right is open, showing the 'Join Definition' section where columns from both tables are mapped to each other. A red box highlights the 'Join 1' node.

Click on the Join Conditions

The screenshot shows the SAP Data Builder interface with the 'Sources' tab selected. The 'Join 1' node (ID 25) is selected, and its properties are displayed in the 'Properties' panel. The 'Join Definition' section is expanded, showing the mapping between columns of the 'BusinessPartners' and 'SalesOrders' tables. A red box highlights the 'Join 1' node.

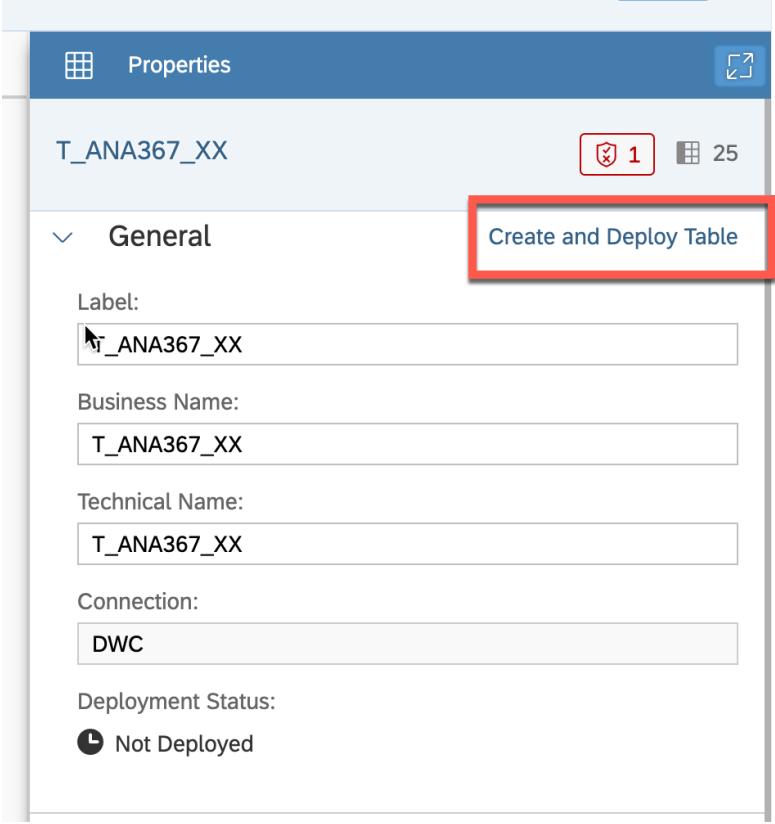
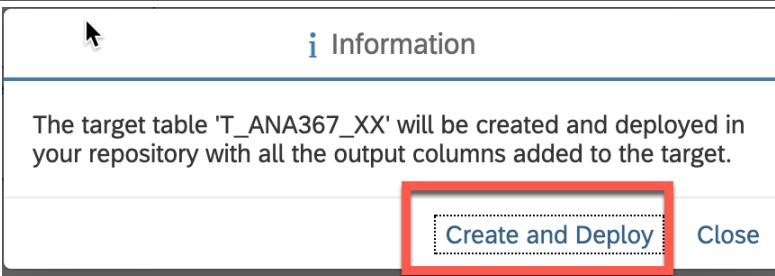
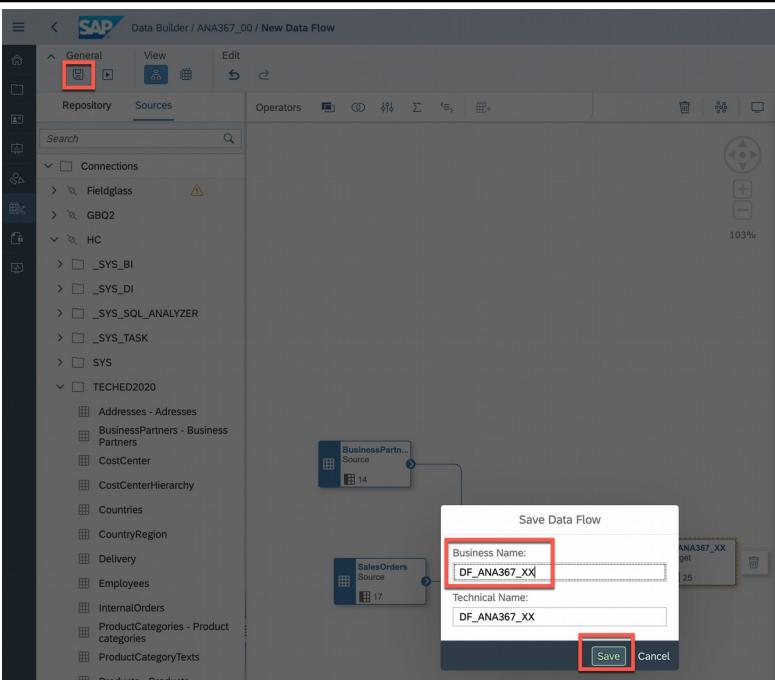
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<p>Edit the Join Conditions</p>	
<p>Open the Join Conditions</p>	
<p>Mark and delete all conditions with the exception of Partnerid.</p>	

<p>PartnerId -> PartnerId is the one and only Join condition in this example</p>	
<p>Go back to the Data Flow Modeling View.</p>	
<p>Add a Table as an Output Structure.</p>	

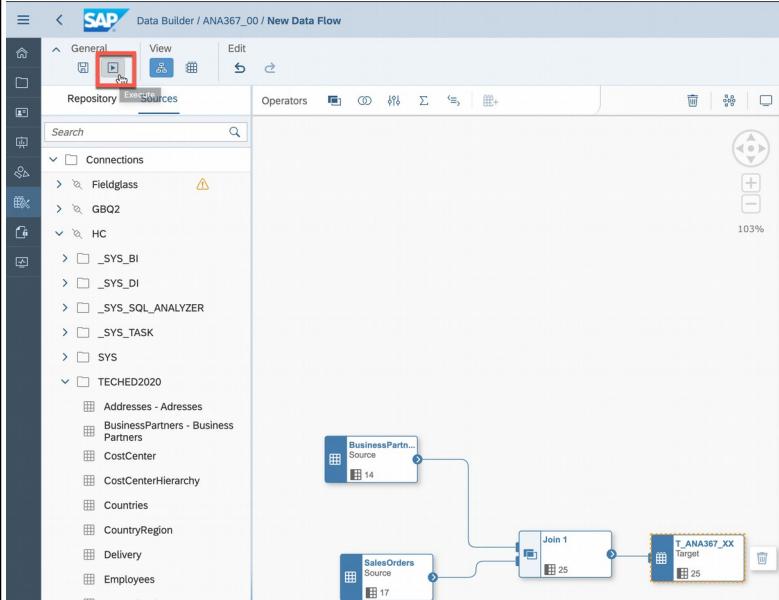
Connect the Join to the Table

Maintain the Label, the Business Name and the Technical Name. Use T_ANA367_XX (XX is your unique user number)

Create and deploy the table	 <p>T_ANA367_XX</p> <p>General</p> <p>Label: <input type="text" value="T_ANA367_XX"/></p> <p>Business Name: <input type="text" value="T_ANA367_XX"/></p> <p>Technical Name: <input type="text" value="T_ANA367_XX"/></p> <p>Connection: <input type="text" value="DWC"/></p> <p>Deployment Status: Not Deployed</p> <p>Create and Deploy Table</p>
Confirm the information with Create and Deploy.	 <p>i Information</p> <p>The target table 'T_ANA367_XX' will be created and deployed in your repository with all the output columns added to the target.</p> <p>Create and Deploy Close</p>
Save the Data Flow. Enter DF_ANA367_XX (XX is your unique user number)	 <p>Data Builder / ANA367_00 / New Data Flow</p> <p>Save Data Flow</p> <p>Business Name: <input type="text" value="DF_ANA367_XX"/></p> <p>Technical Name: <input type="text" value="DF_ANA367_XX"/></p> <p>Save Cancel</p>

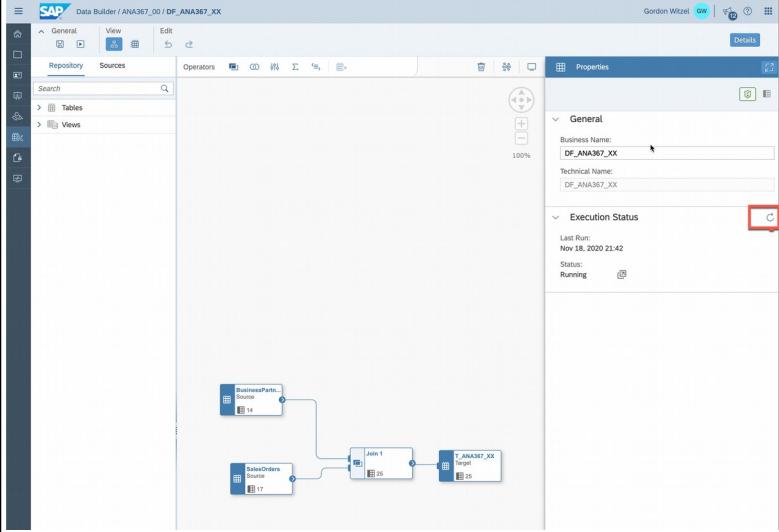
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Execute the Data Flow.

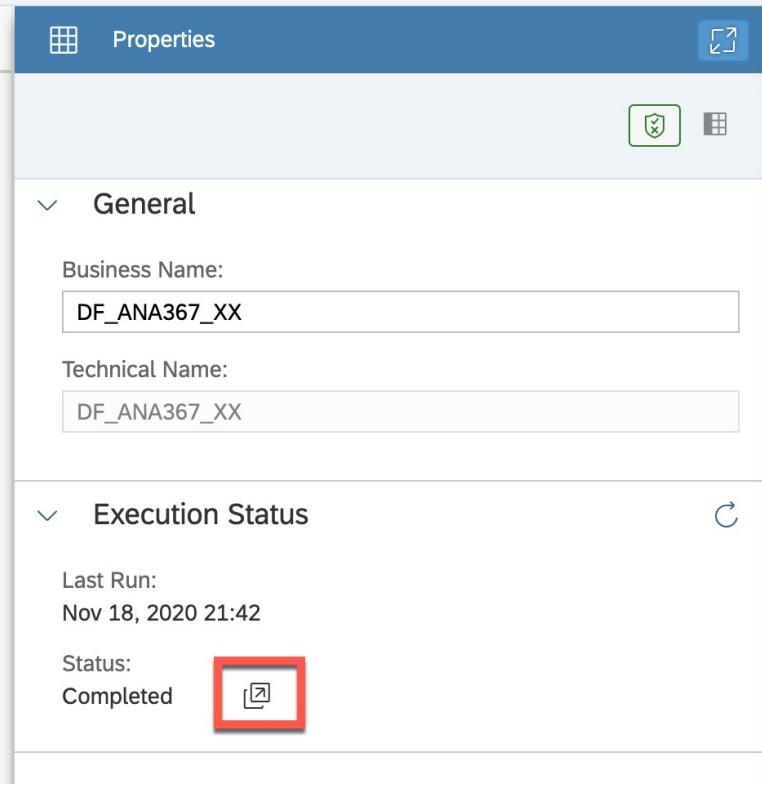
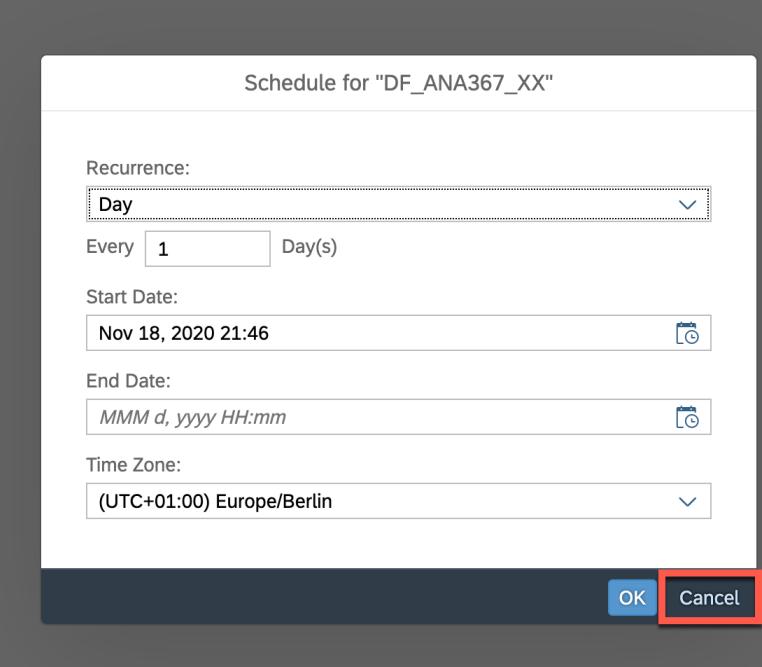


The screenshot shows the SAP Data Builder interface for a project named 'ANA367_00'. The 'Sources' tab is selected. On the left, the repository tree shows various connections like Fieldglass, GBQ2, HC, and TECHED2020, each containing multiple data sources. On the right, a data flow diagram is displayed. It starts with a 'BusinessPartners Source' (ID 14) and a 'SalesOrders Source' (ID 17). These two sources are connected to a 'Join 1' operator (ID 25). The output of 'Join 1' is then connected to a 'T_ANA367_XX Target' (ID 25). A red box highlights the 'Execute' button in the top toolbar.

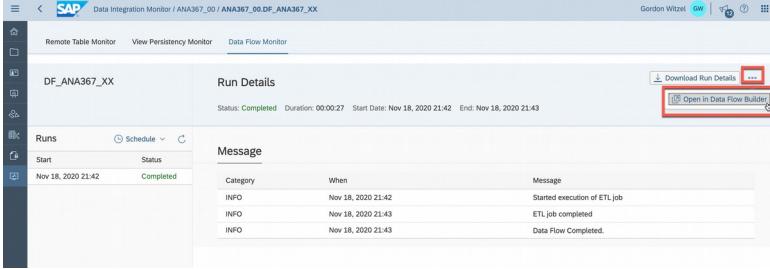
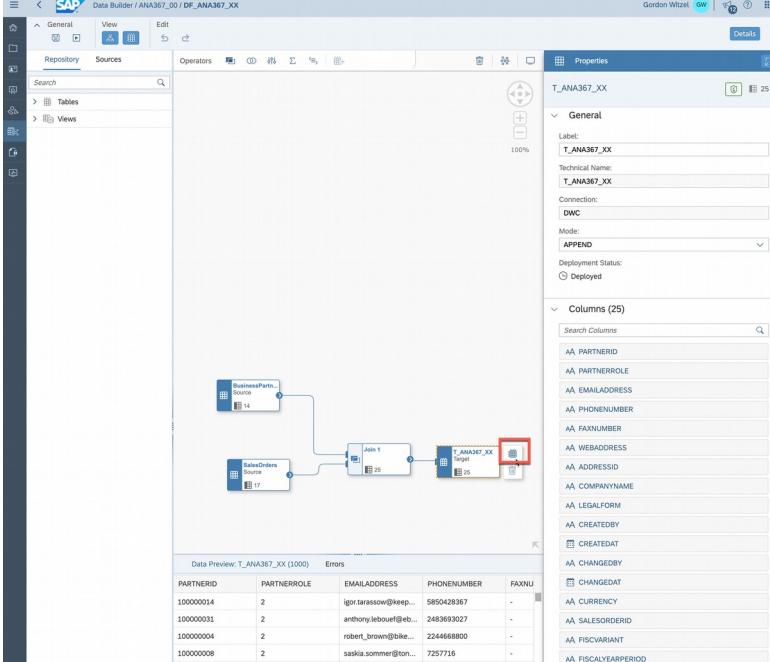
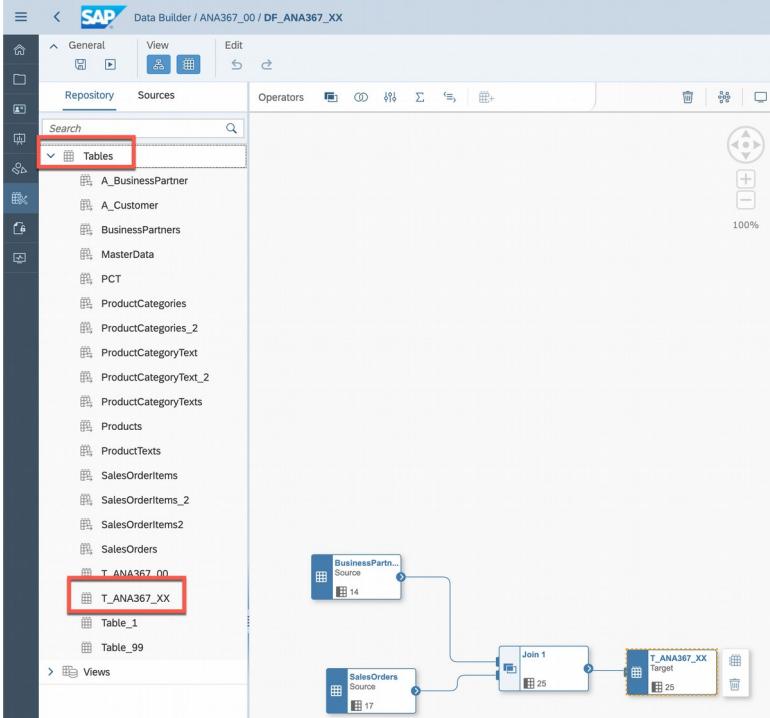
Check the Execution Status by pressing Refresh



The screenshot shows the SAP Data Builder interface for the same project. The 'Sources' tab is selected. On the right, there is a 'Properties' panel. Under the 'General' section, it shows the Business Name as 'DF_ANA367_XX' and the Technical Name as 'DF_ANA367_XX'. Under the 'Execution Status' section, it shows the Last Run date as 'Nov 18, 2020 21:42' and the Status as 'Running'. A red box highlights the 'refresh' icon in the top right corner of the properties panel.

<p>If the Execution is Completed open the Data Flow Monitor.</p>	 <p>Properties</p> <p>General</p> <p>Business Name: DF_ANA367_XX</p> <p>Technical Name: DF_ANA367_XX</p> <p>Execution Status</p> <p>Last Run: Nov 18, 2020 21:42</p> <p>Status: Completed</p>												
<p>It is possible to Create a Schedule for the Execution of the DataFlow. Open Schedule -> Create Schedule</p>	 <p>SAP Data Integration Monitor / ANA367_00 / ANA367_00_DF_ANA367_XX</p> <p>Run Details</p> <p>Status: Completed Duration: 00:00:27 Start Date: Nov 18, 2020 21:42 End: Nov 18, 2020 21:43</p> <p>Runs</p> <ul style="list-style-type: none"> Start: Nov 18, 2020 21:42 Edit Schedule Delete Schedule <p>Create Schedule</p> <p>Message</p> <table border="1"> <thead> <tr> <th>Category</th> <th>When</th> <th>Message</th> </tr> </thead> <tbody> <tr> <td>INFO</td> <td>Nov 18, 2020 21:42</td> <td>Started execution of ETL job</td> </tr> <tr> <td>INFO</td> <td>Nov 18, 2020 21:43</td> <td>ETL job completed</td> </tr> <tr> <td>INFO</td> <td>Nov 18, 2020 21:43</td> <td>Data Flow Completed.</td> </tr> </tbody> </table>	Category	When	Message	INFO	Nov 18, 2020 21:42	Started execution of ETL job	INFO	Nov 18, 2020 21:43	ETL job completed	INFO	Nov 18, 2020 21:43	Data Flow Completed.
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INFO	Nov 18, 2020 21:43	Data Flow Completed.											
<p>It would be possible to create a schedule for the execution of the Data Flow based on the requirements. In this exercise we will not schedule the DataFlow Execution. Therefore press Cancel.</p>	 <p>Schedule for "DF_ANA367_XX"</p> <p>Recurrence:</p> <p>Day</p> <p>Every 1 Day(s)</p> <p>Start Date:</p> <p>Nov 18, 2020 21:46</p> <p>End Date:</p> <p>MMM d, yyyy HH:mm</p> <p>Time Zone:</p> <p>(UTC+01:00) Europe/Berlin</p> <p>OK Cancel</p>												

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Go back to the Data Flow Builder	
Execute the Preview on your new created table	
The table with data coming from a external cloud source is now available in the Repository of SAP Data Warehouse Cloud and available for new data models.	

Data Lineage and Feedback

The screenshot shows two views of the SAP Business Catalog interface.

Top View: Shows the main catalog view with a sidebar on the left containing icons for Home, Create, Filter, and Search. A red box highlights the 'Space' icon, which is being clicked by a red arrow. The main area displays a grid of items under 'Items (26)'. Each item card includes a thumbnail, name, type, space, data type, and a preview icon.

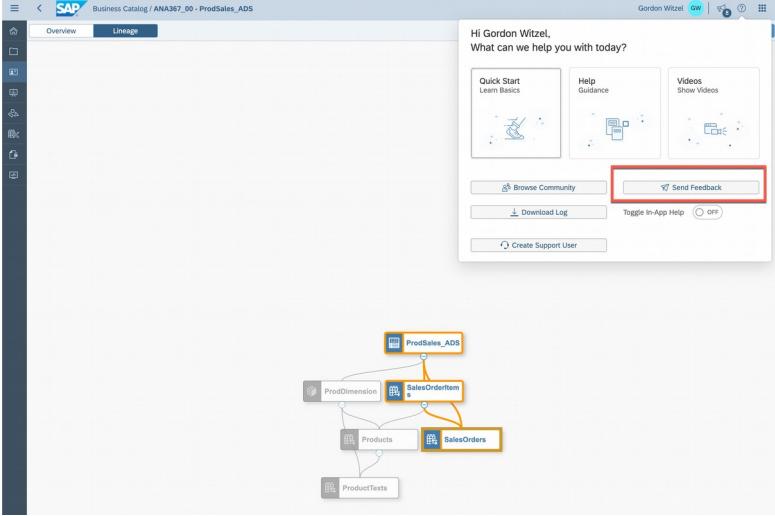
Name	Type	Space	Data Type
Employee_T	Relational Dataset	ANA367_000	Local Table
Employee	Relational Dataset	ANA367_000	View
EmpJob	Relational Dataset	ANA367_000	Remote Table
EmpEmployment	Relational Dataset	ANA367_000	Remote Table
test	Relational Dataset	ANA367_000	View
BuyingCenterCollection	Relational Dataset	ANA367_000	Remote Table
GW_ProdSales	Analytical Dataset	ANA367_00	View
Uniunion_GW_1	Analytical Dataset	ANA367_00	View

Bottom View: Shows a filtered catalog view for the space 'DSAG_DW_00'. The sidebar now shows a count of 7 items. The main area displays a grid of items under 'Filtered by: Relational Data Sets'.

Name	Type	Space	Data Type
ProdDimension	Dimension	DSAG_DW_00	View
ProductCategoryText	Relational Data Set	DSAG_DW_00	View
ProdSales_ADS	Analytical Data Set	DSAG_DW_00	View
ProductTexts	Relational Data Set	DSAG_DW_00	Remote Table
Products	Relational Data Set	DSAG_DW_00	Remote Table
SalesOrders	Relational Data Set	DSAG_DW_00	Remote Table

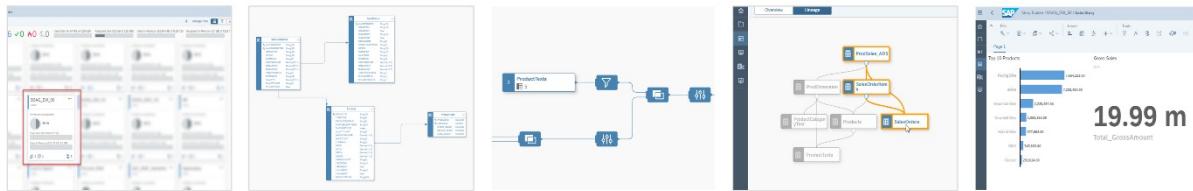
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<p>From the list of models, click on ProdSales_ADS_XXX (your unique user number)</p>	
<p>The overview page displays the information about the model like Fields, Tags, Purpose, Dependencies</p> <p>Click on Lineage from the top-left corner</p>	
<p>Info: By switching to the lineage view, you can trace the data provisioning and flow of a model. You can try clicking on the different nodes to see the lineage.</p>	<pre> graph TD PS[ProdSales_ADS] --> PD[ProdDimension] PS --> SOI[SalesOrderItems] PD --> P[Products] SOI --> P SOI --> SO[SalesOrders] P --> PT[ProductTexts] SO --> PT </pre>

<p>From the top-right corner click on the  icon to open the help center. In order to leave feedback, click on Send Feedback.</p>	
<p> Do you have any suggestions for us? Any features that you would like to see added?</p> <p>We take your feedback seriously at SAP. It enables us to improve the product experience for you as a user. Delivering satisfactory products and experiences to you is our top concern. Thank you for helping us realize it!</p> <p>What happens next?</p> <p>Our Product Management team reviews and consolidate your responses. Based on your feedback we will identify focus areas and prioritizes new features and enhancements accordingly.</p>	<p>Share Feedback</p> <p>How would you rate your experience? ★★★★★</p> <p>What do you like? <i>We appreciate your feedback. Please do not enter any personal data here.</i></p> <p>1000 characters remaining</p> <p>What could we improve? <i>We appreciate your feedback. Please do not enter any personal data here.</i></p> <p>1000 characters remaining</p> <p> By providing feedback, you permit SAP to use it to improve its products.</p> <p>Send Cancel</p>

The build business model can be adjusted using a CSV file or combine with different other sources. The business catalog gives you an overview of all the models you can use, across all the Spaces such as Data Sets, Dimensions and Facts you are authorized for.

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Different use cases and different business strategies require tailored business needs. Spaces allow you to create an environment that meets your particular requirements. You can assign users and connections to a specific space and adjust the storage capacity.

Define relations between entities and add metadata to enable the creation of graphical views with the Entity-Relationship Modeler.

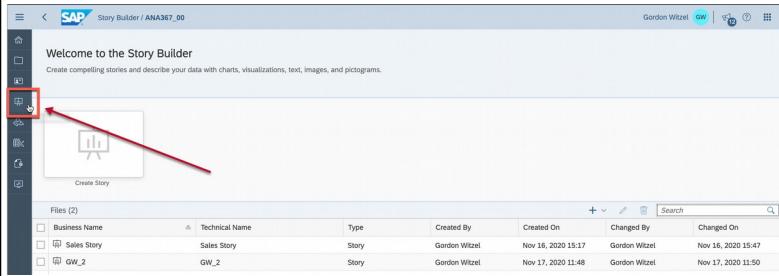
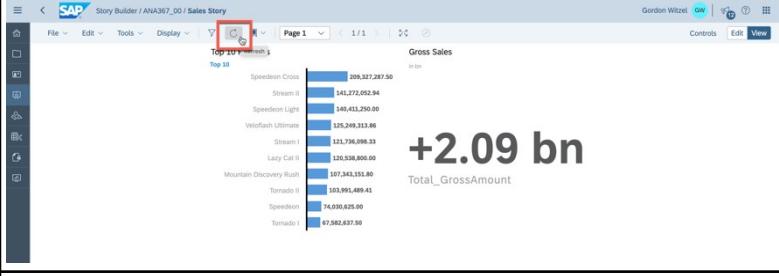
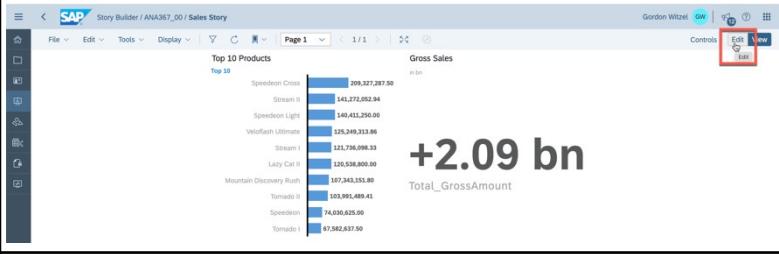
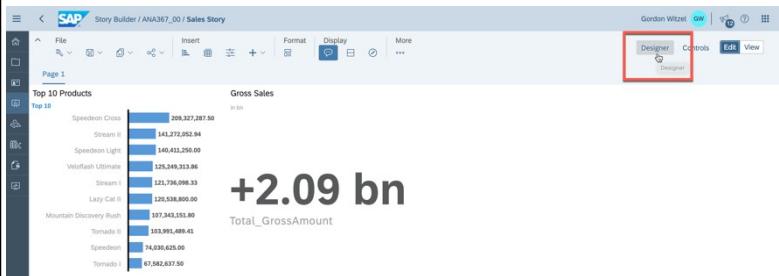
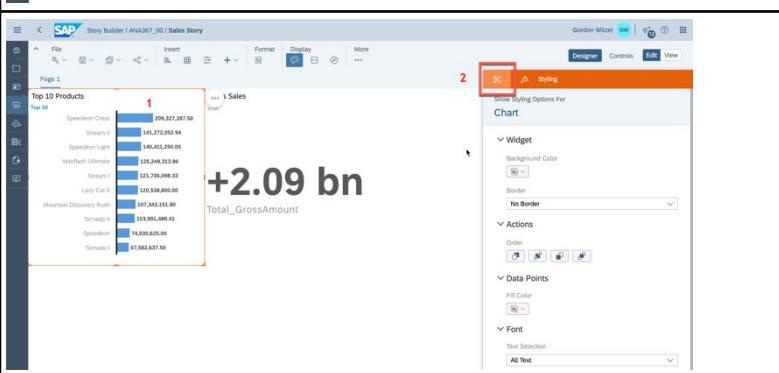
In the Data Builder an connect tables and views via joins and unions in a graphical environment.

The business catalog gives you an overview of all the models you can use, across all the Spaces such as Data Sets, Dimensions and Facts you are authorized for.

Stories let you explore data interactively to find insights, visualize information with charts and tables, and share, present, and comment on your findings with colleagues.

In the next chapter you will learn how you can adjust your created story.

Update the SAP Analytics Cloud Story and add the ProductCategory Short Text (data is coming from Google Big Query)

<p>Go to the Story Builder.</p>	
<p>Open your Sales Story (Sales Story XXX). Therefore double click on your created story.</p>	
<p>On Data – click Refresh</p>	
<p>Press Edit to maintain the Story.</p>	
<p>Press Designer.</p>	
<p>Click in the Top 10 Product Chart and open the Builder View.</p>	

<p>In the Edit mode, click on the Top 10 Products chart (1)</p> <p>From the configuration pane, click on Add Dimension (2)</p>	<p>The screenshot shows the SAP Story Builder interface. On the left, there's a chart titled "Top 10 Products" with a list of products and their sales amounts. On the right, the "Builder" pane is open, showing the configuration for the chart. A red box highlights the "Add Dimension" button under the "Dimensions" section.</p>
<p>Add SHORT_DESCR to see the newly added Product Category (data is coming from GBQ)</p>	<p>The screenshot shows the "Dimensions" configuration pane. It lists "CALCULATED DIMENSIONS" and "DIMENSIONS". Under "DIMENSIONS", "MEDIUM_DESCR" is checked, and "SHORT_DESCR" is highlighted with a red box. A red box also highlights the "Expand List..." button at the bottom.</p>
<p>The charts gets updated immediately and looks similar to the one in the screenshot.</p>	<p>The screenshot shows the SAP Story Builder interface again, but the chart has been updated. The "Top 10 Products" chart now includes categories like "eBike" and "Racing Bike" under the product names, indicating the addition of the "SHORT_DESCR" dimension.</p>

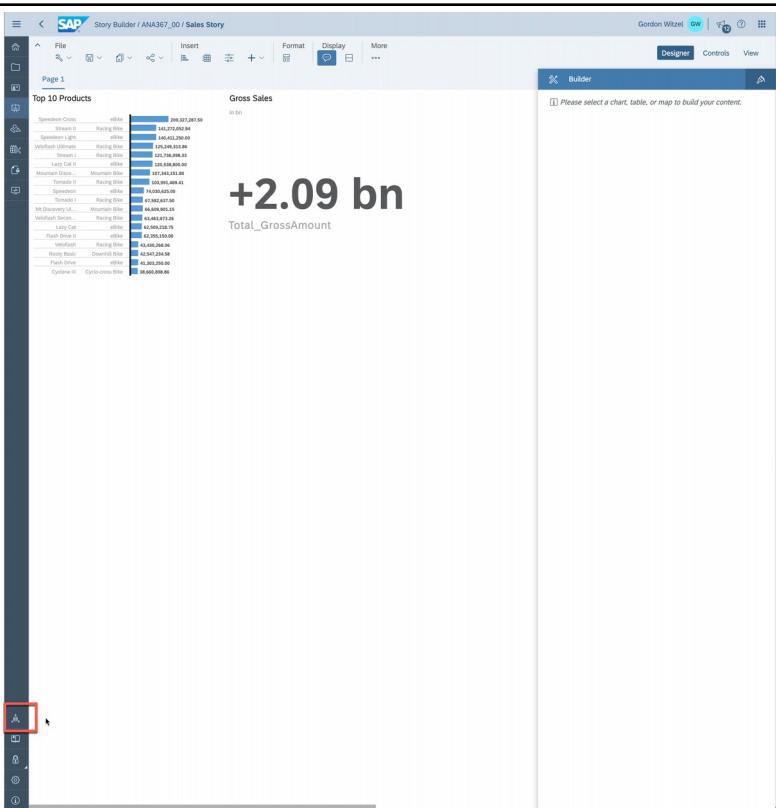
<p>Click on the More Action (1) for the chart and Rank (2) and delete the Top10 Option.</p>																																		
<p>Click on the More Action (1) for the chart and Sort (2) the chart on Total_GrossAmount (3) as Highest to Lowest (4)</p>																																		
<p>The updated chart now looks similar to the one in the screenshot.</p>	<table border="1"> <thead> <tr> <th>Product</th> <th>Type</th> <th>Total_GrossAmount</th> </tr> </thead> <tbody> <tr><td>Speedeon Cross</td><td>eBike</td><td>209,327,287.50</td></tr> <tr><td>Stream II</td><td>Racing Bike</td><td>141,272,052.94</td></tr> <tr><td>Speedeon Light</td><td>eBike</td><td>140,411,250.00</td></tr> <tr><td>Veloflash Ultimate</td><td>Racing Bike</td><td>125,249,313.86</td></tr> <tr><td>Stream I</td><td>Racing Bike</td><td>121,736,098.33</td></tr> <tr><td>Lazy Cat II</td><td>eBike</td><td>120,538,800.00</td></tr> <tr><td>Mountain Disco...</td><td>Mountain Bike</td><td>107,343,151.80</td></tr> <tr><td>Tornado II</td><td>Racing Bike</td><td>103,991,489.41</td></tr> <tr><td>Speedeon</td><td>eBike</td><td>74,030,625.00</td></tr> <tr><td>Tornado I</td><td>Racing Bike</td><td>67,582,637.50</td></tr> </tbody> </table>	Product	Type	Total_GrossAmount	Speedeon Cross	eBike	209,327,287.50	Stream II	Racing Bike	141,272,052.94	Speedeon Light	eBike	140,411,250.00	Veloflash Ultimate	Racing Bike	125,249,313.86	Stream I	Racing Bike	121,736,098.33	Lazy Cat II	eBike	120,538,800.00	Mountain Disco...	Mountain Bike	107,343,151.80	Tornado II	Racing Bike	103,991,489.41	Speedeon	eBike	74,030,625.00	Tornado I	Racing Bike	67,582,637.50
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<p>Edit the Chart Text – Change it from Top 10 Products to Products</p>	<p>The chart displays the top 10 products by sales amount. The data is as follows:</p> <table border="1"> <thead> <tr> <th>Product</th> <th>Type</th> <th>Total_GrossAmount (in bn)</th> </tr> </thead> <tbody> <tr><td>Speedeon Cross</td><td>eBike</td><td>209,327.287.50</td></tr> <tr><td>Stream II</td><td>Racing Bike</td><td>141,272,052.94</td></tr> <tr><td>Speedeon Light</td><td>eBike</td><td>140,411,250.00</td></tr> <tr><td>Veloflash Ultimate</td><td>Racing Bike</td><td>125,249,313.86</td></tr> <tr><td>Stream I</td><td>Racing Bike</td><td>121,736,098.33</td></tr> <tr><td>Lazy Cat II</td><td>eBike</td><td>120,538,800.00</td></tr> <tr><td>Mountain Disco...</td><td>Mountain Bike</td><td>107,343,151.80</td></tr> <tr><td>Tornado II</td><td>Racing Bike</td><td>103,991,489.41</td></tr> <tr><td>Speedeon</td><td>eBike</td><td>74,030,625.00</td></tr> <tr><td>Mt Discovery U...</td><td>Mountain Bike</td><td>66,469,901.15</td></tr> <tr><td>Veloflash Secon...</td><td>Racing Bike</td><td>63,463,973.26</td></tr> <tr><td>Lazy Cat</td><td>eBike</td><td>62,509,218.75</td></tr> <tr><td>Flash Drive II</td><td>eBike</td><td>62,355,150.00</td></tr> <tr><td>Veloflash</td><td>Racing Bike</td><td>43,430,268.06</td></tr> <tr><td>Roody Basic</td><td>Downhill Bike</td><td>42,547,234.58</td></tr> <tr><td>Flash Drive</td><td>eBike</td><td>41,303,250.00</td></tr> <tr><td>Cyclone III</td><td>Cyclo-cross Bike</td><td>38,660,898.86</td></tr> </tbody> </table> <p>+2.09 bn Total_GrossAmount</p>	Product	Type	Total_GrossAmount (in bn)	Speedeon Cross	eBike	209,327.287.50	Stream II	Racing Bike	141,272,052.94	Speedeon Light	eBike	140,411,250.00	Veloflash Ultimate	Racing Bike	125,249,313.86	Stream I	Racing Bike	121,736,098.33	Lazy Cat II	eBike	120,538,800.00	Mountain Disco...	Mountain Bike	107,343,151.80	Tornado II	Racing Bike	103,991,489.41	Speedeon	eBike	74,030,625.00	Mt Discovery U...	Mountain Bike	66,469,901.15	Veloflash Secon...	Racing Bike	63,463,973.26	Lazy Cat	eBike	62,509,218.75	Flash Drive II	eBike	62,355,150.00	Veloflash	Racing Bike	43,430,268.06	Roody Basic	Downhill Bike	42,547,234.58	Flash Drive	eBike	41,303,250.00	Cyclone III	Cyclo-cross Bike	38,660,898.86
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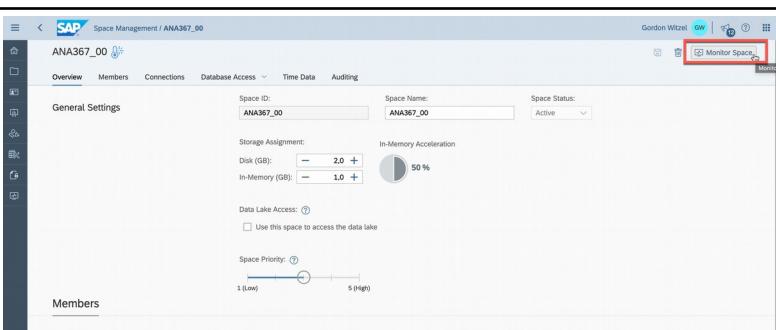
Housekeeping

As we are through with the hands-on, we would be performing some housekeeping tasks.

From the left-bottom corner of the pane, click on the **Space Management** icon



The screenshot shows the SAP Story Builder interface with a chart titled "Top 10 Products". The chart displays "Gross Sales in bn" for various products. A large value "+2.09 bn" is highlighted in the center of the chart area. The chart includes data for items like Speedster Cross, Speedster Light, Speedster Ultimate, etc., with their respective sales figures.



The screenshot shows the SAP Space Management interface for the space "ANA367_00". It displays general settings for the space, including storage assignment (Disk: 2.0 GB, In-Memory: 1.0 GB), in-memory acceleration (50%), and data lake access options. A red box highlights the "Monitor Space" button in the top right corner of the header.

If the details for your space are automatically opened, click on the **Monitor Space** to see the Space Details.

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<p>Check the details and you back to your Space ANA367_XXX once you are finished.</p>	
<p>If the details for your space are automatically opened, click on the Delete Button to delete the entire Space.</p> <p>Please be careful and delete no other Spaces. If you are not sure about your Space DO NOT DELETE IT.</p>	
<p>Confirm the deletion of the space by clicking Yes.</p>	
<p> Your Space is deleted and you finished the Hands-On Session.</p>	

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