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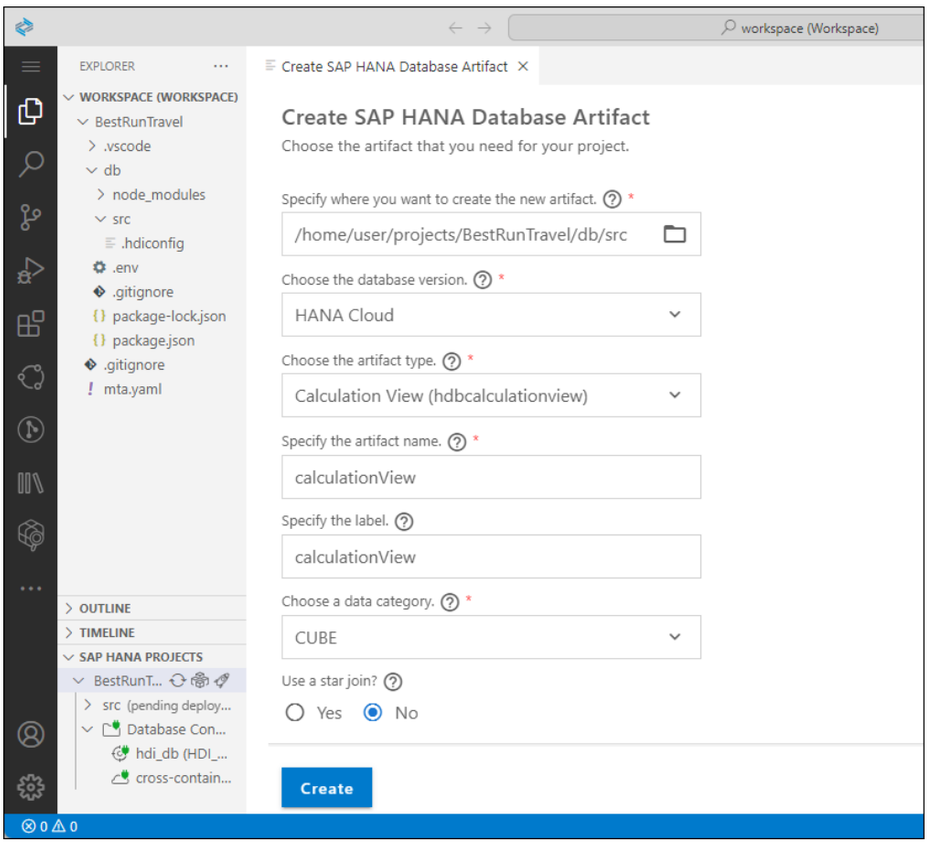
Matkul : Enterprise Development Software

Getting Started with SAP HANA Cloud

7. Modul 7 : Create a Calculation View

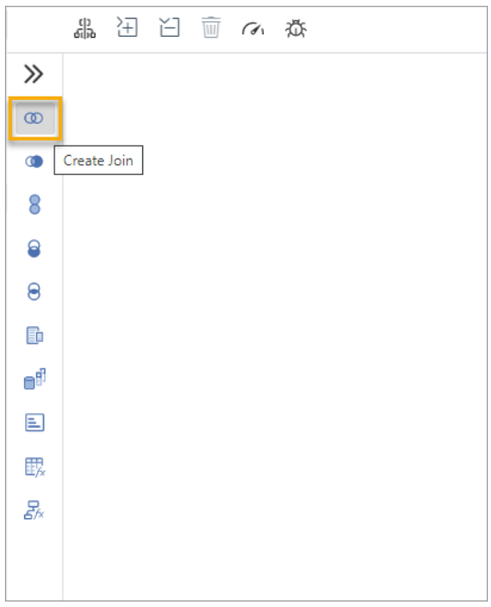
- Create the calculation view

Within your project in the SAP Business Application Studio, click on View from the side menu. Then click on Command Palette. Type SAP HANA: Create HANA database artifact and press `Enter` or click on the right option. Under Path, change the path so the calculation view is created in the `src` folder of your project. You will see a form appear on the right-side of the screen. Select Calculation View as your artifact type. Type a name for your calculation view, such as `calculationView`. Leave the rest of the options as they are. Finally, click on Create.

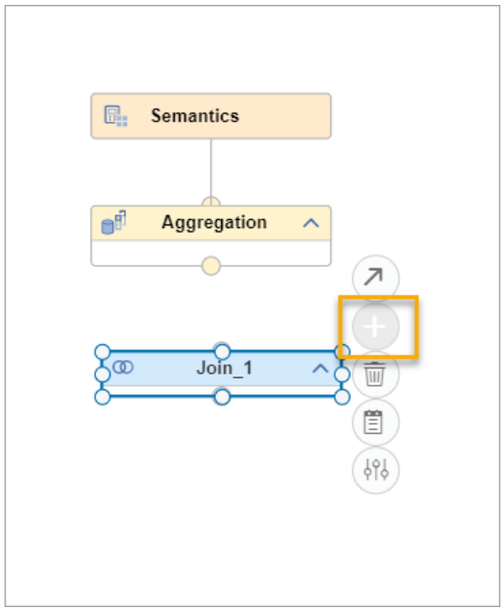


- Create a Join Node

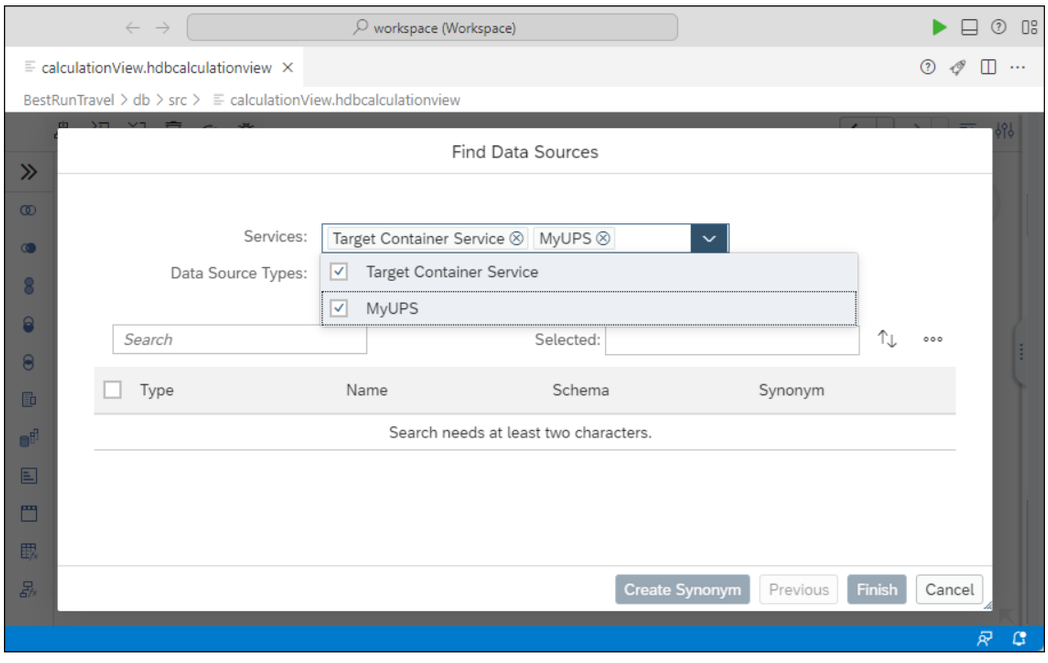
The calculation view will open automatically upon creation. In this example, start with a join node to join two tables. Click on the join icon on the sidebar of the editor and then click anywhere on the canvas.



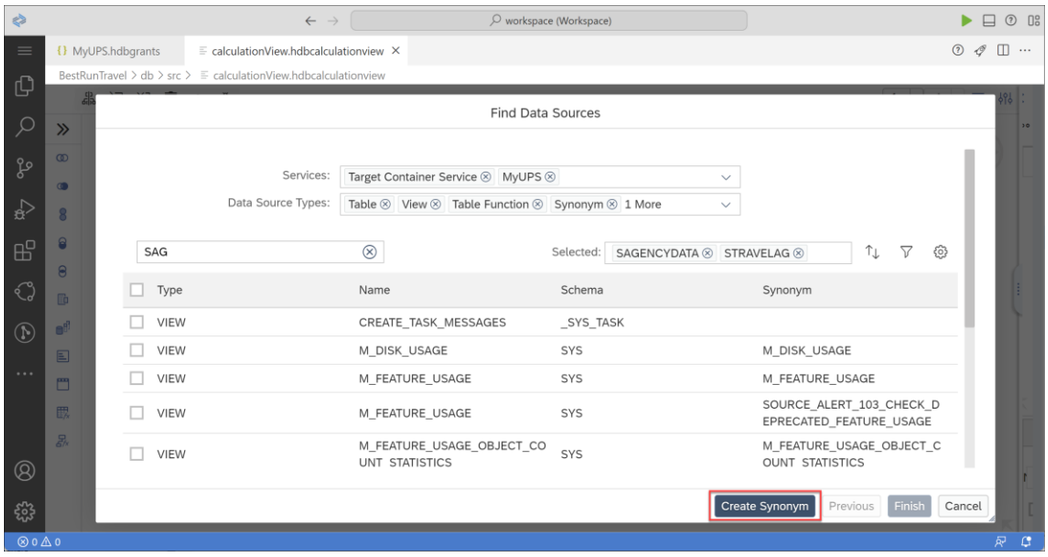
The join node appears. Next to the node, click on the plus icon to add the tables.



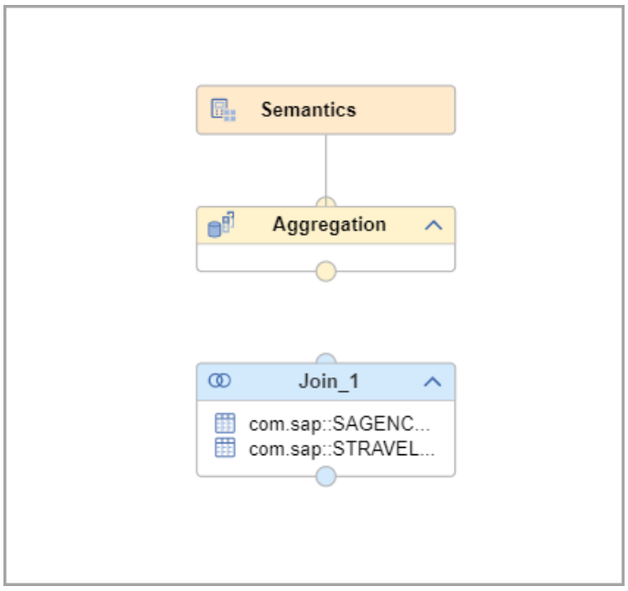
On the pop-up, start by selecting the user-provided service on the Services drop-down list.



Search for the SAGENCYDATA table, which we created in a previous tutorial. We can find the top 5 partners for Best Run Travel by joining the SAGENCY table with the STRAVELAG table. Add the STRAVELAG table to the join node. Once both objects are selected, click on Create Synonym.

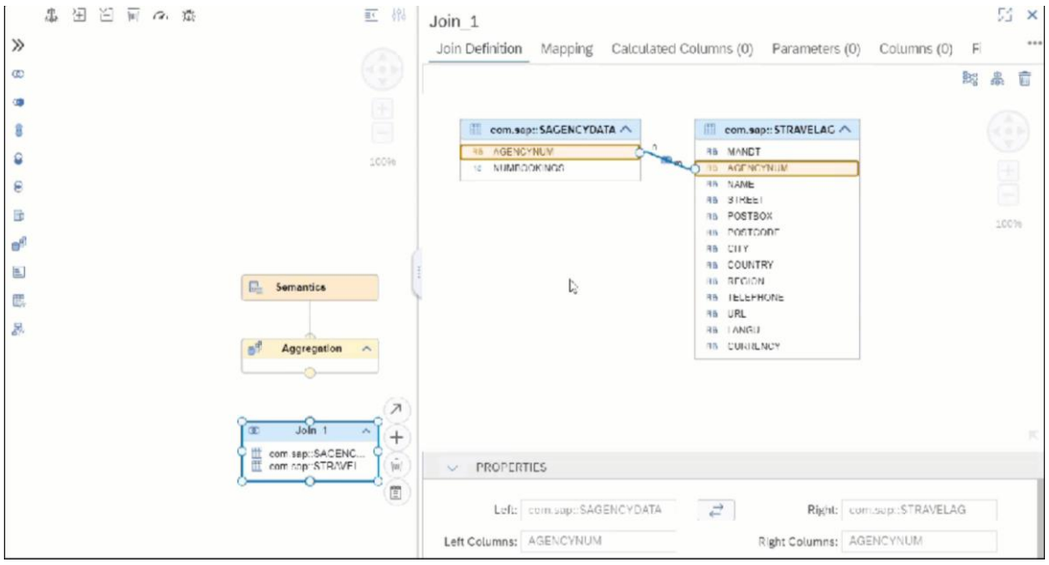


Click on Finish without selecting any other options. In your file explorer, a new file will appear ending with .hdbsynonym. In this file, your synonyms are defined and stored. Go back to the calculation view editor and you should see the two tables in the join node.

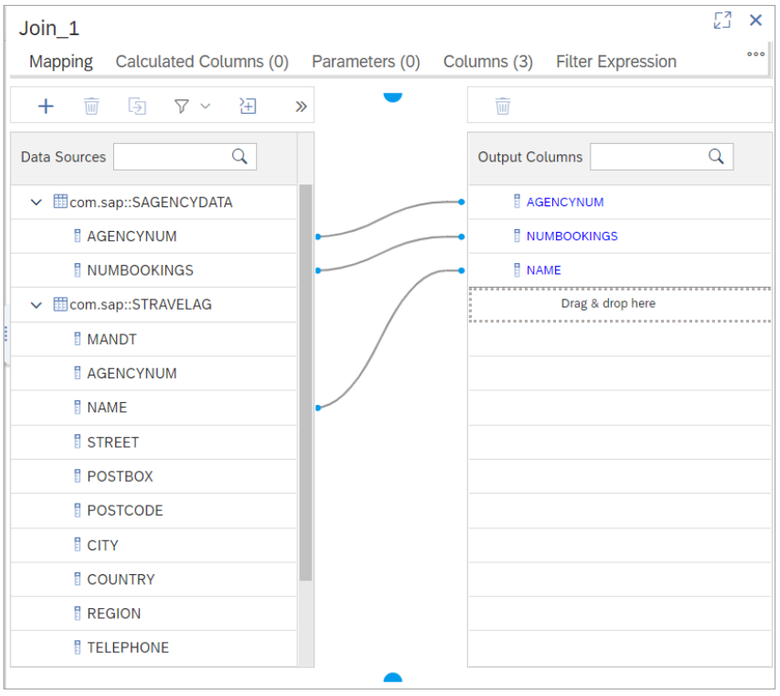


- Define the mapping of the join node

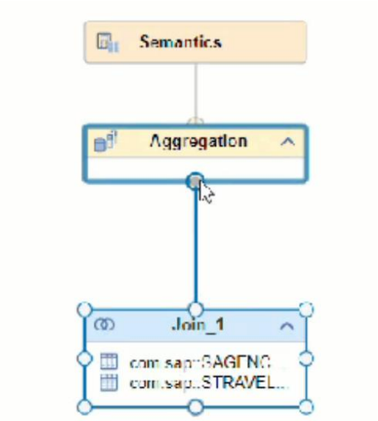
To properly join the two tables, you need to define how they relate to each other. This is done by editing the join node. Double click the join node to open the settings. Under Join Definition, click on the column AGENCYNUM from one of the tables and drag and drop it on top of the same column from the second table. This determines the key column.



Click on the Mapping tab. Here you can select which columns will be part of the output. Select the columns AGENCYNUM, NUMBOOKING, and NAME by double clicking on them. You can see they are added to the output section on the right.

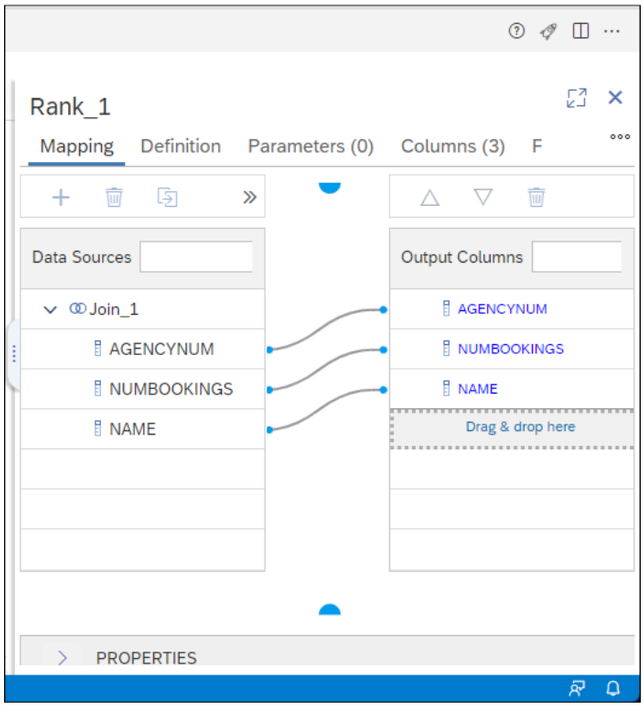


Close the join settings by clicking on the X icon at the top right corner. Now connect the join node to the aggregation node above it. Just click on the arrow icon of the join node and drag and drop it on the aggregation node.



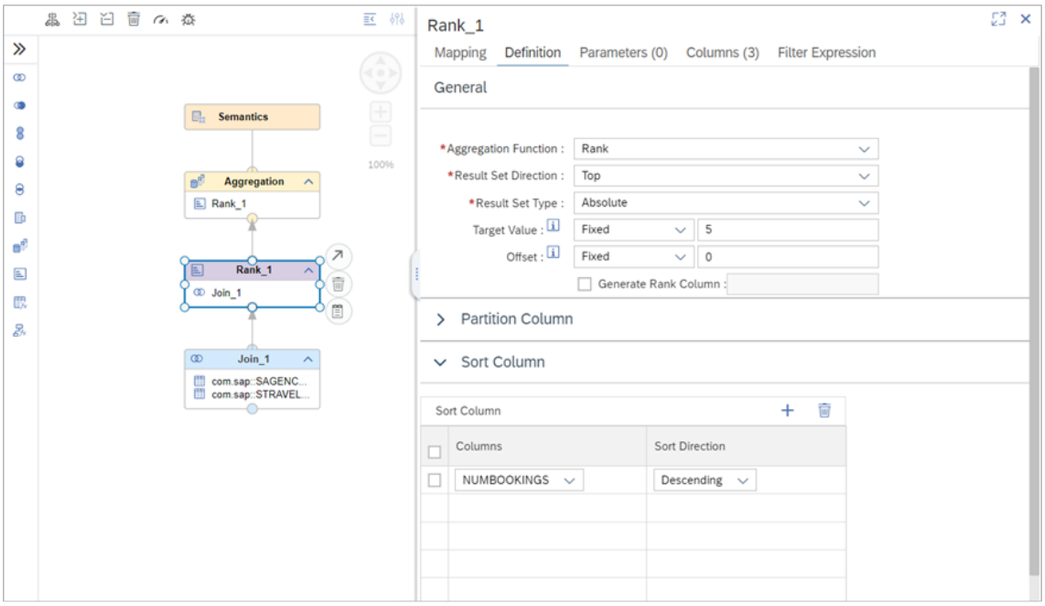
- Add a rank node

Since we want to see the top 5 results from this join, we will add a Rank node next. Click on the rank icon then click on the link between Join node and Aggregation node. This will add a Rank node in between them. Next, double click the Rank node to open the settings. Under Mapping, make sure all 3 columns are included in the output.

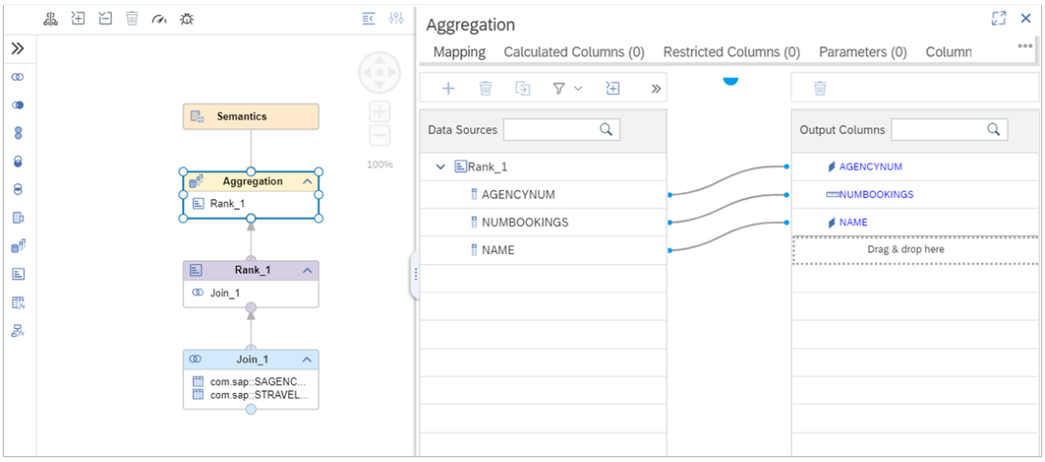


Click on Definition. Choose the Aggregation Function as `Rank`. Set the Result Set Direction as `Top`. This will order the results descending from highest to lowest. Set the Result Set Type as `Absolute`. This setting determines the unit of values given out by the rank. You could, for example, also select `Percentage` here to get the top 10% of results. On the Target Value, type `5`. This will determine the number of values given out as a result. The Offset should be `0`. Offset determines a number of values that are skipped in the result, for example, with an `Offset = 1` the first value of the rank result would not be reported.

Then click on Sort Column to expand this area. Click on the plus icon to add a Sort Setting. Select the column NUMBOOKINGS and the direction as Descending.

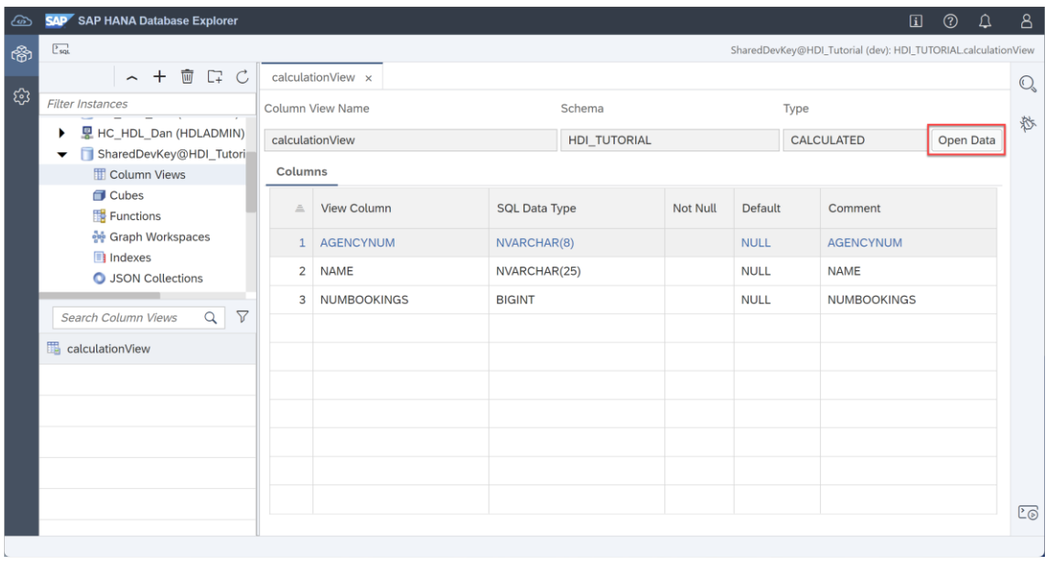


Now close the Rank node panel and double click on the Aggregation node. Under Mapping, make sure all columns are selected as part of the output. If a column is not mapped to the output, double click it to add it.

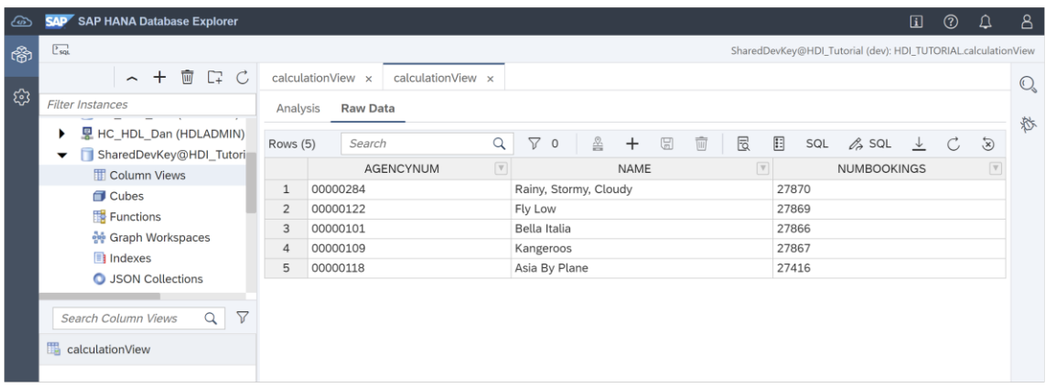


- Deploy the Calculation View

In the SAP HANA Project panel next to the calculation view name or on the top right corner of the screen, click on the deploy icon. This will deploy the calculation view. Once this is successfully completed, it's time to check the output so far. To access the data preview, click on the HDI container icon next to the name of the project. On the list of databases, you will now see the HDI container that represents your calculation view. Expand the catalog of that HDI container, then click on Column Views. Next, click on the name of your calculation view on the panel below the catalog and click on Open Data.

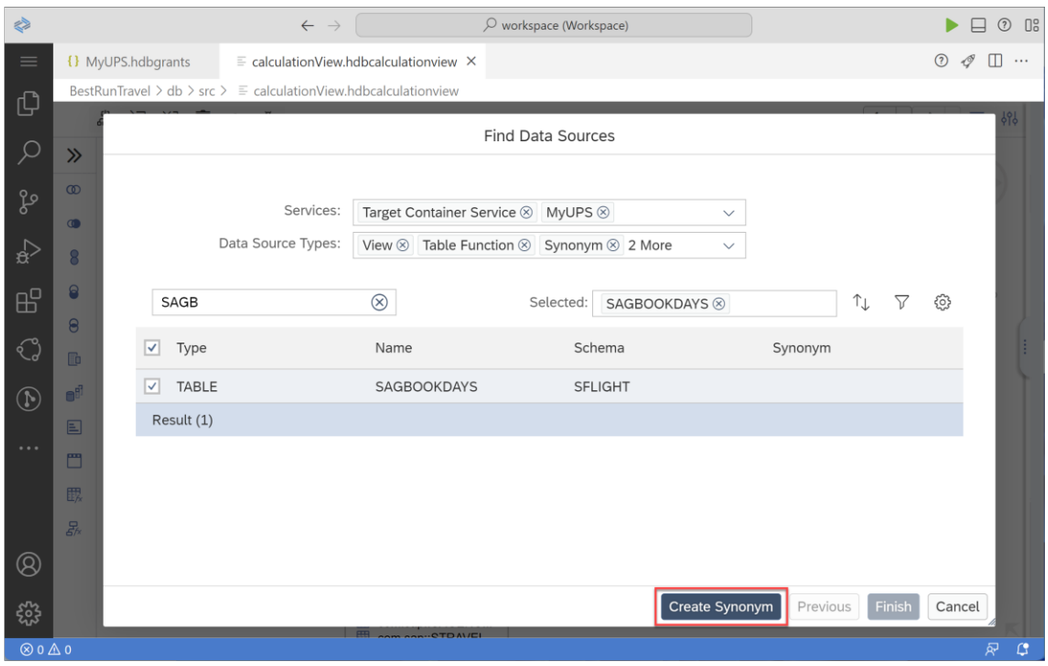


Then, click on Raw Data to see the output of this calculation view so far. This shows you the top 5 partners of Best Run Travel.

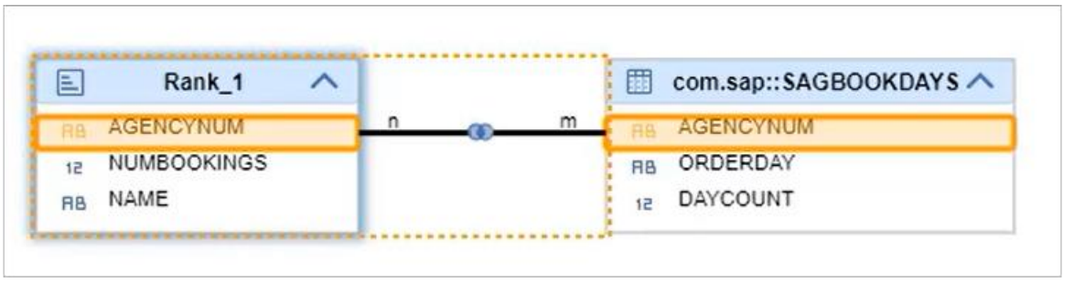


- Add a third table to the view

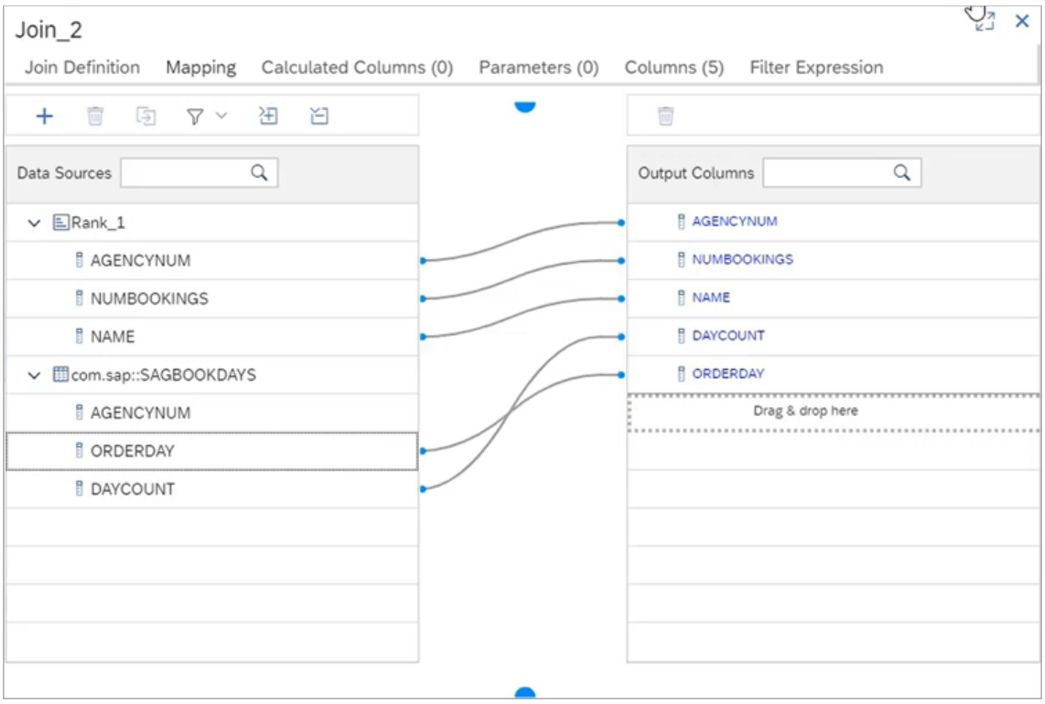
Now that we know the top 5 partners, we need to next find out on which days the top 5 travel agencies have the most bookings. To achieve this, we will add the table SAGBOOKDAYS to our view. We will join the output of our rank node to the table SAGBOOKDAYS, which we previously created. Add a join node between the rank node and the aggregation node. Since the Join node is connected to Rank 1, its output is already added to the join node. So, you only need to add the SAGBOOKDAYS table by clicking on the plus icon. Follow the steps you previously took to add a table and create a synonym.



After the table is there, double click on the second join node. Under Join Definition, connect the column AGENCYNUM from Rank 1 to the AGENCYNUM column from the SAGBOOKDAYS table.

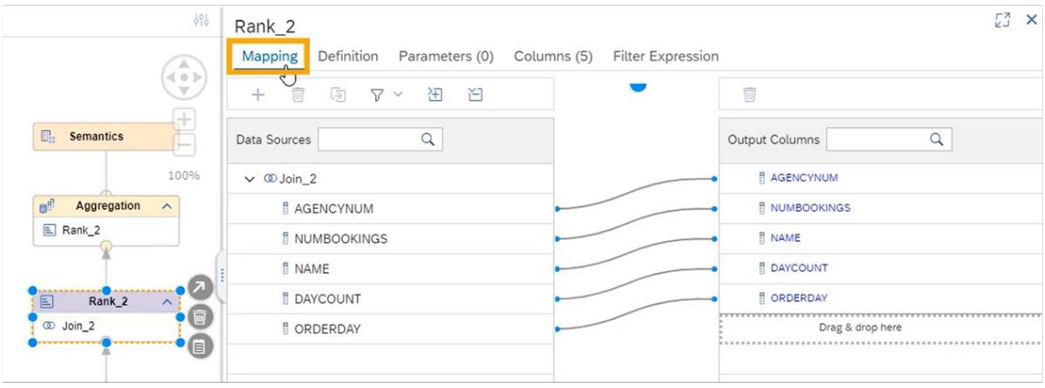


On the same panel, under Mapping, make sure the following columns are selected for the output: AGENCYNUM , NUMBOOKING , NAME , ORDERDAY and DAYCOUNT .



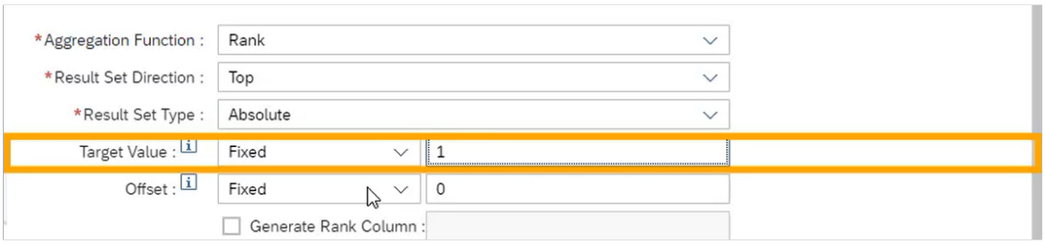
- Add another rank node

To find the days with the most bookings, add another rank node between Join 2 and the Aggregation node. Click on the rank icon and then on the connection between the Join 2 and the Aggregation nodes. Double click the rank node to open it. Under Mapping, make sure all 5 columns appear in the Output Columns. If not, double click to add them.



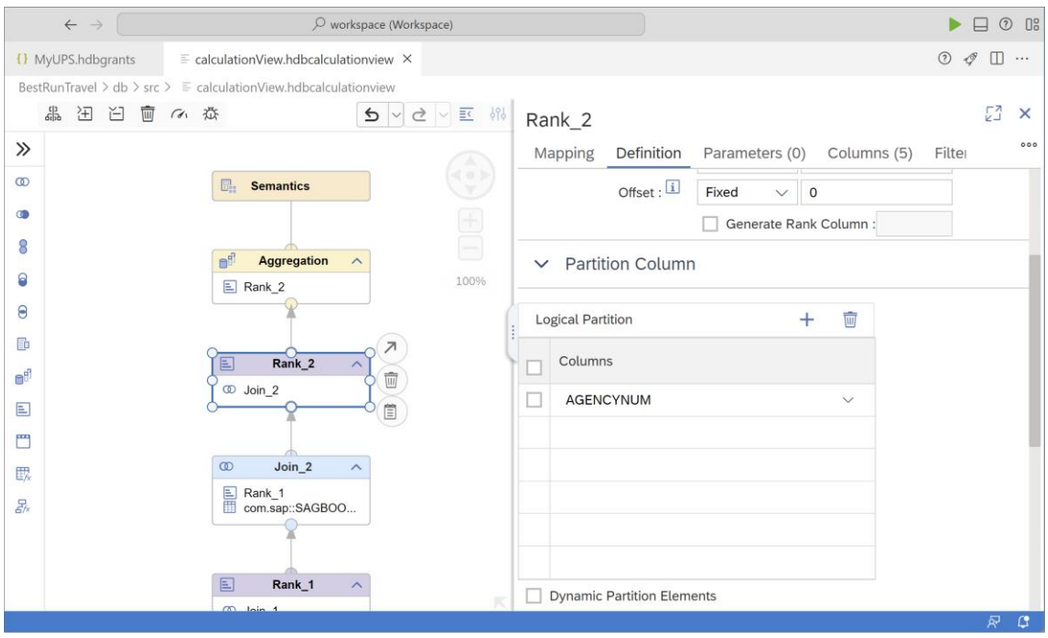
Then, click on Definition. Adjust the settings:

- Aggregation Function: Rank
- Result Set Direction: Top
- Result Set Type: Absolute
- Target Value: 1
- Offset: 0

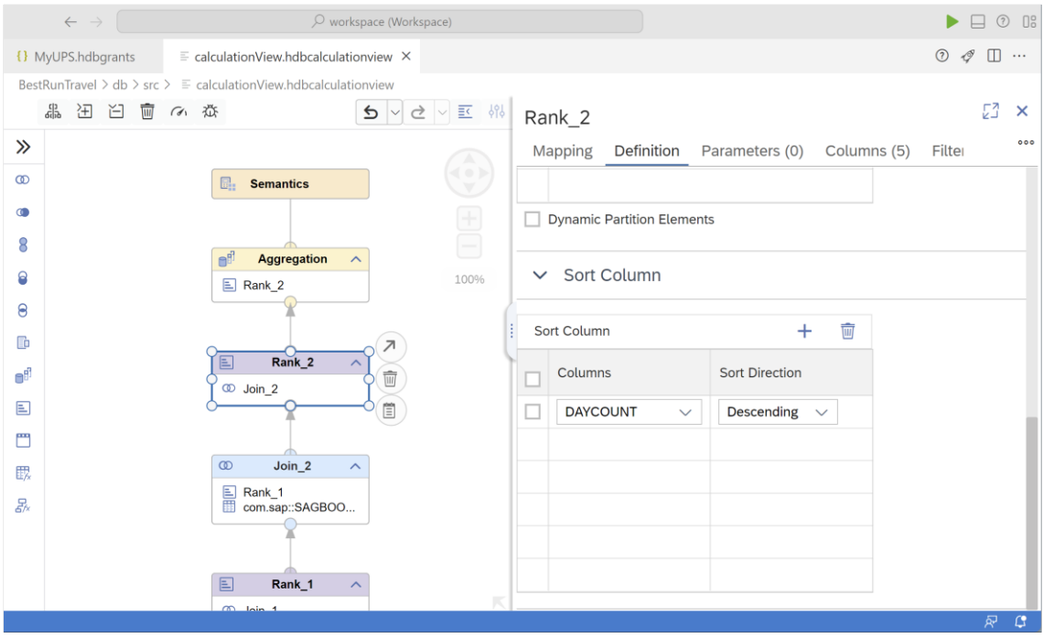


Now click on the Partition Column area, and then click on the plus icon. What does a partition column do? Defining a partition column will group the rows of the output based on a specific column.

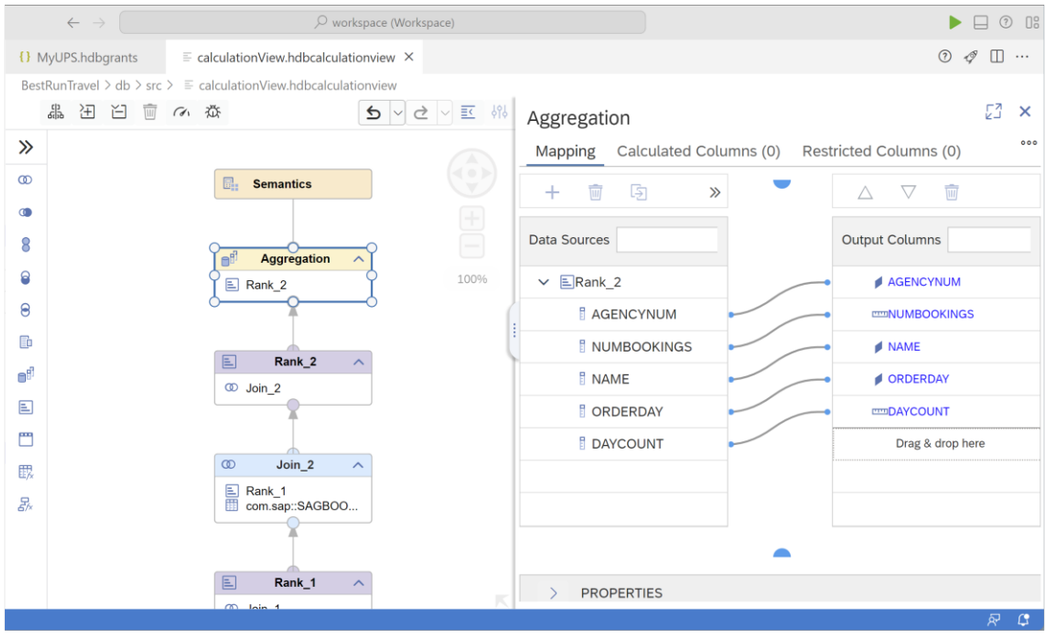
Add the column AGENCYNUM to group the rows based on this column.



Click on Sort Column and click on the plus icon. Add the column DAYCOUNT and select the sort direction as Descending. You can now close the rank settings.

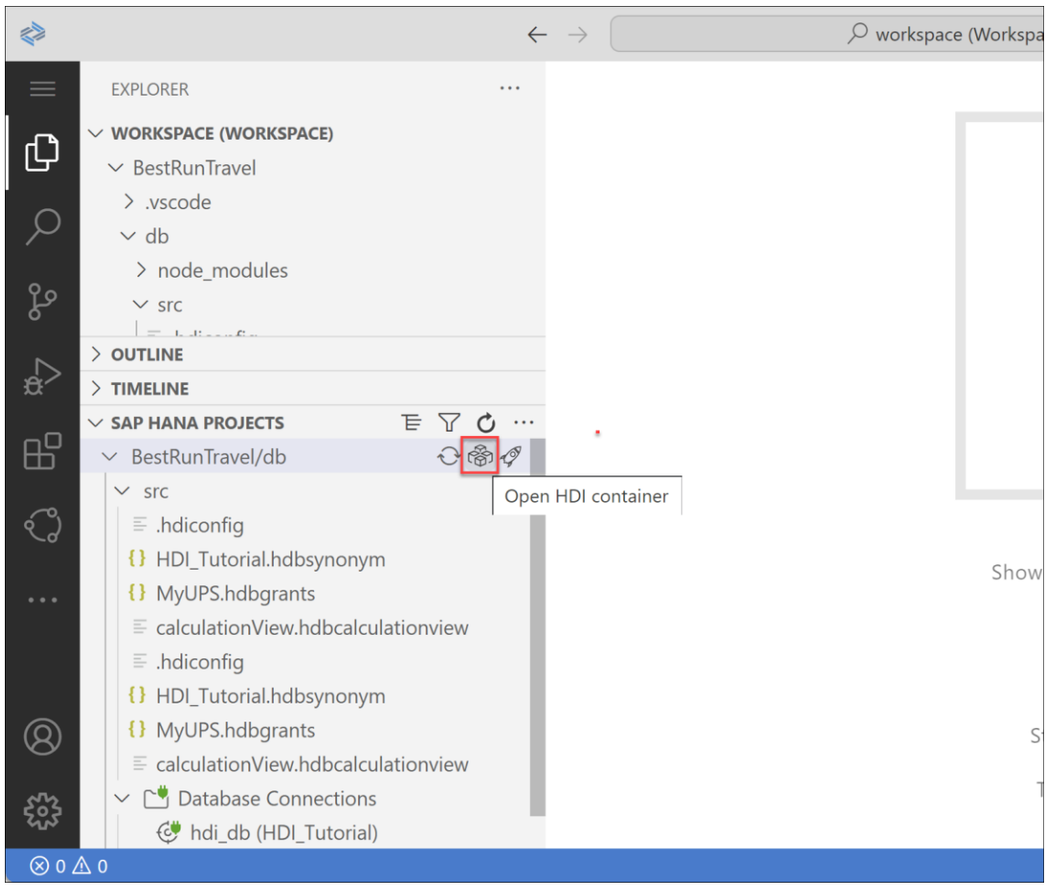


Double click the Aggregation node. Under Mapping, make sure all the columns under the Rank are selected for the output. To add a column to the output, simply double click it.

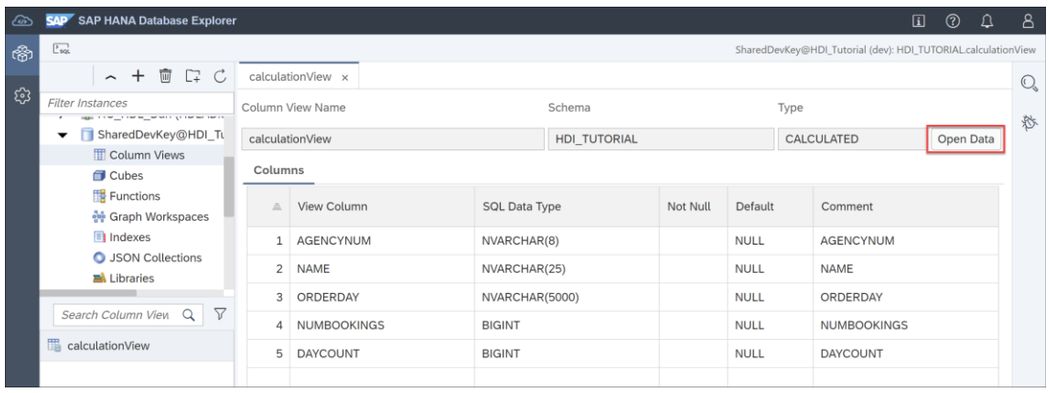


- Deploy the view and access the output

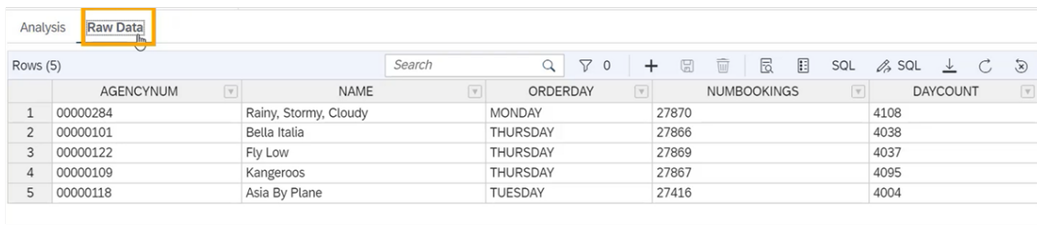
On the SAP HANA Project panel, click on the deploy icon next to the calculation view name. This will deploy the calculation view. Once this is successfully completed, it's time to check the output again. To access the Data Preview in the SAP HANA database explorer, click on the HDI container icon next to the name of the project or access it directly.



On the list of databases, you will now see the HDI container that represents your project. Expand the catalog of that HDI container, then click on Column Views to find your calculation view. Next, click on the name of your calculation view on the panel below the catalog. Then click on Open Data.



From here, you can click on Raw Data to see the output of this calculation view. This shows you the top 5 partners of Best Run Travel and the day in which they have the most bookings.



	AGENCYNUM	NAME	ORDERDAY	NUMBOOKINGS	DAYCOUNT
1	00000284	Rainy, Stormy, Cloudy	MONDAY	27870	4108
2	00000101	Bella Italia	THURSDAY	27866	4038
3	00000122	Fly Low	THURSDAY	27869	4037
4	00000109	Kangeroos	THURSDAY	27867	4095
5	00000118	Asia By Plane	TUESDAY	27416	4004