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Kelas : EDS KOM-A

Sebagai lanjutan dari tahapan sebelumnya, sekarang kita akan mencoba untuk membuat virtual object dari table GKG, EVENT, dan MENTIONS sebagai persiapan pada tahap-tahap selanjutnya.

- Buka terlebih dahulu SAP HANA Database Explorer dari Database Instance sebelumnya. Kemudian cari Tables, dan show tables untuk memastikan table yang sebelumnya di-create sudah ada.

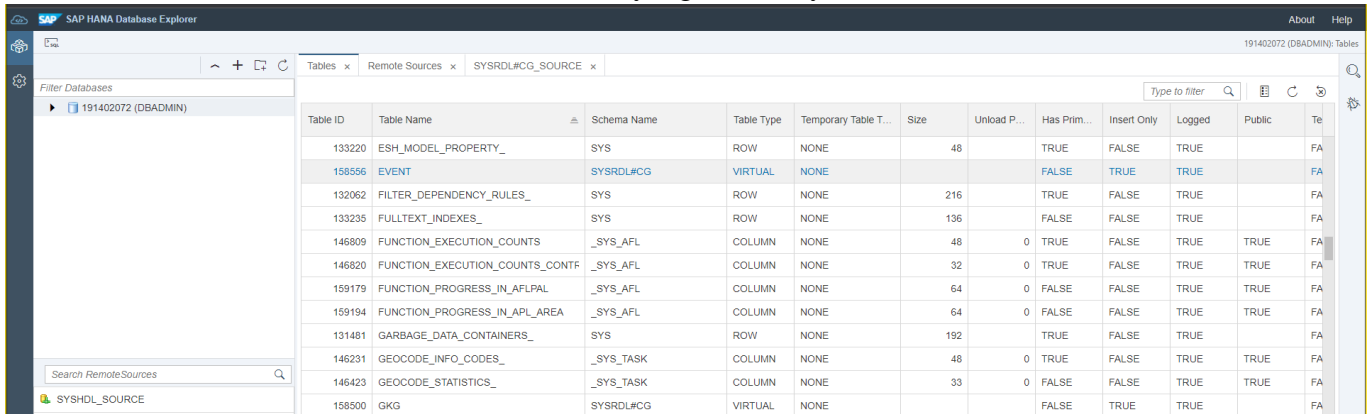


Table ID	Table Name	Schema Name	Table Type	Temporary Table T...	Size	Unload P...	Has Prim...	Insert Only	Logged	Public	Te
133220	ESH_MODEL_PROPERTY_	SYS	ROW	NONE	48		TRUE	FALSE	TRUE		FA
158556	EVENT	SYSRDL#CG	VIRTUAL	NONE			FALSE	TRUE	TRUE		FA
132062	FILTER_DEPENDENCY_RULES_	SYS	ROW	NONE	216		TRUE	FALSE	TRUE		FA
133235	FULLTEXT_INDEXES_	SYS	ROW	NONE	136		FALSE	FALSE	TRUE		FA
146809	FUNCTION_EXECUTION_COUNTS	_SYS_AFL	COLUMN	NONE	48	0	TRUE	FALSE	TRUE	TRUE	FA
146820	FUNCTION_EXECUTION_COUNTS_CONF	_SYS_AFL	COLUMN	NONE	32	0	TRUE	FALSE	TRUE	TRUE	FA
159179	FUNCTION_PROGRESS_IN_AFLPAL	_SYS_AFL	COLUMN	NONE	64	0	FALSE	FALSE	TRUE	TRUE	FA
159194	FUNCTION_PROGRESS_IN_APL_AREA	_SYS_AFL	COLUMN	NONE	64	0	FALSE	FALSE	TRUE	TRUE	FA
131481	GARBAGE_DATA_CONTAINERS_	SYS	ROW	NONE	192		TRUE	FALSE	TRUE		FA
146231	GEOCODE_INFO_CODES_	_SYS_TASK	COLUMN	NONE	48	0	TRUE	FALSE	TRUE	TRUE	FA
146423	GEOCODE_STATISTICS_	_SYS_TASK	COLUMN	NONE	33	0	FALSE	FALSE	TRUE	TRUE	FA
158500	GKG	SYSRDL#CG	VIRTUAL	NONE			FALSE	TRUE	TRUE		FA

- Lalu pada bagian Remote Source, right-click dan pilih show remote sources.

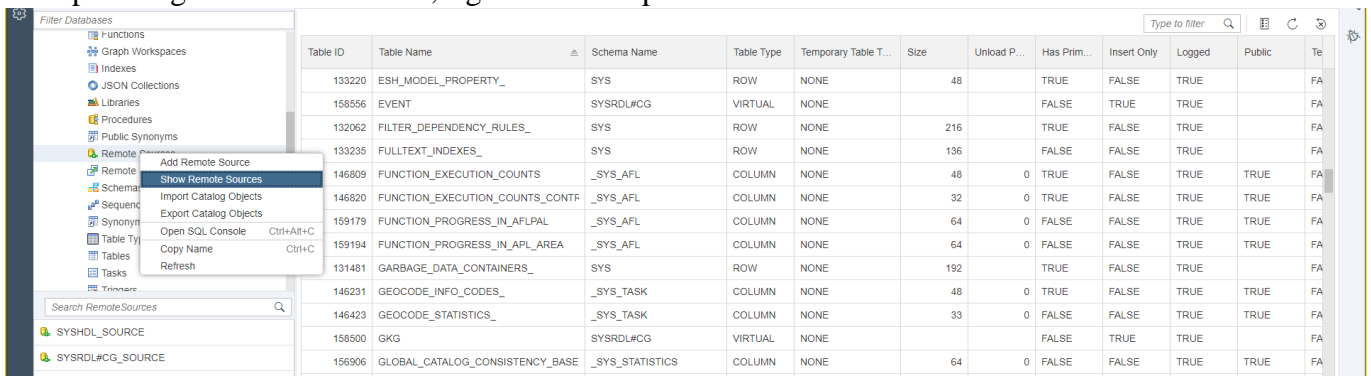
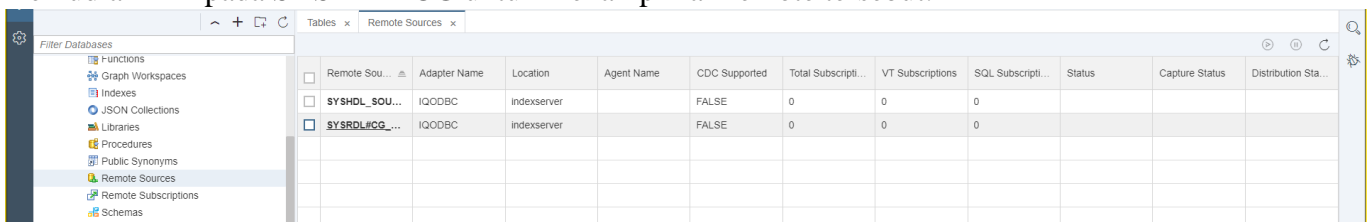


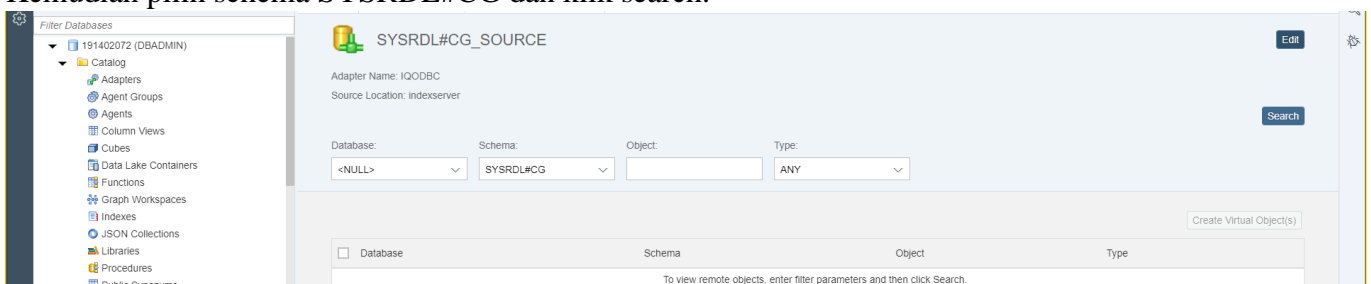
Table ID	Table Name	Schema Name	Table Type	Temporary Table T...	Size	Unload P...	Has Prim...	Insert Only	Logged	Public	Te
133220	ESH_MODEL_PROPERTY_	SYS	ROW	NONE	48		TRUE	FALSE	TRUE		FA
158556	EVENT	SYSRDL#CG	VIRTUAL	NONE			FALSE	TRUE	TRUE		FA
132062	FILTER_DEPENDENCY_RULES_	SYS	ROW	NONE	216		TRUE	FALSE	TRUE		FA
133235	FULLTEXT_INDEXES_	SYS	ROW	NONE	136		FALSE	FALSE	TRUE		FA
146809	FUNCTION_EXECUTION_COUNTS	_SYS_AFL	COLUMN	NONE	48	0	TRUE	FALSE	TRUE	TRUE	FA
146820	FUNCTION_EXECUTION_COUNTS_CONF	_SYS_AFL	COLUMN	NONE	32	0	TRUE	FALSE	TRUE	TRUE	FA
159179	FUNCTION_PROGRESS_IN_AFLPAL	_SYS_AFL	COLUMN	NONE	64	0	FALSE	FALSE	TRUE	TRUE	FA
159194	FUNCTION_PROGRESS_IN_APL_AREA	_SYS_AFL	COLUMN	NONE	64	0	FALSE	FALSE	TRUE	TRUE	FA
131481	GARBAGE_DATA_CONTAINERS_	SYS	ROW	NONE	192		TRUE	FALSE	TRUE		FA
146231	GEOCODE_INFO_CODES_	_SYS_TASK	COLUMN	NONE	48	0	TRUE	FALSE	TRUE	TRUE	FA
146423	GEOCODE_STATISTICS_	_SYS_TASK	COLUMN	NONE	33	0	FALSE	FALSE	TRUE	TRUE	FA
158500	GKG	SYSRDL#CG	VIRTUAL	NONE			FALSE	TRUE	TRUE		FA
156906	GLOBAL_CATALOG_CONSISTENCY_BASE	_SYS_STATISTICS	COLUMN	NONE	64	0	FALSE	FALSE	TRUE	TRUE	FA

- Kemudian klik pada SYSRDL#CG untuk menampilkan remote tersebut.



Remote Sou...	Adapter Name	Location	Agent Name	CDC Supported	Total Subscrip...	VT Subscriptions	SQL Subscrip...	Status	Capture Status	Distribution Sta...
<input type="checkbox"/> SYSRDL#SOU...	IQODBC	indexserver		FALSE	0	0	0			
<input type="checkbox"/> SYSRDL#CG...	IQODBC	indexserver		FALSE	0	0	0			

- Kemudian pilih schema SYSRDL#CG dan klik search.



SYSRDL#CG_SOURCE

Adapter Name: IQODBC
Source Location: indexserver

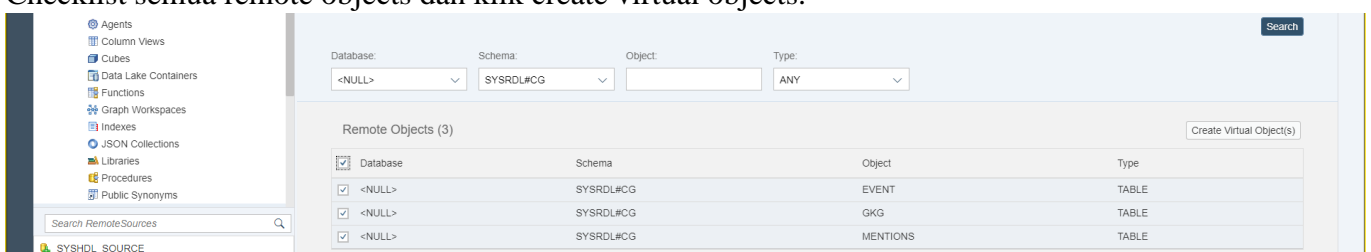
Database: <NULL> Schema: SYSRDL#CG Object: Type: ANY

Create Virtual Object(s)

Database Schema Object Type

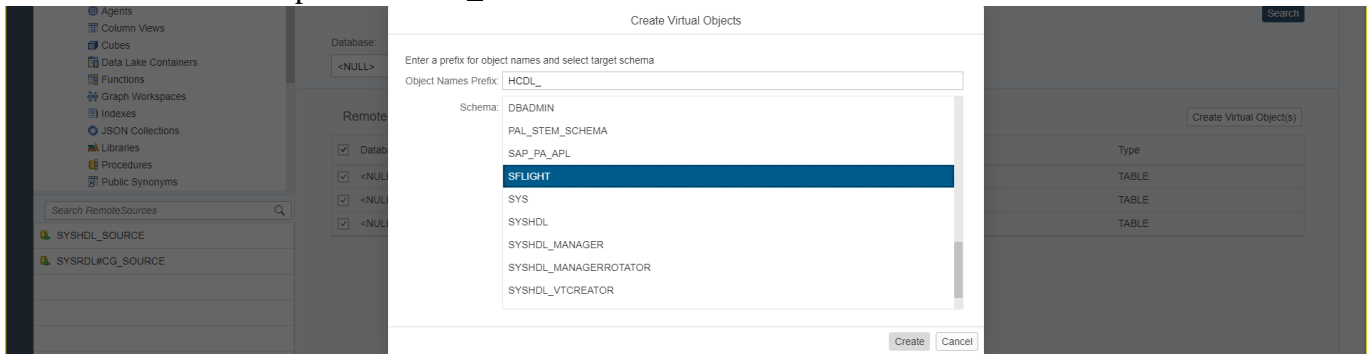
To view remote objects, enter filter parameters and then click Search.

- Checklist semua remote objects dan klik create virtual objects.

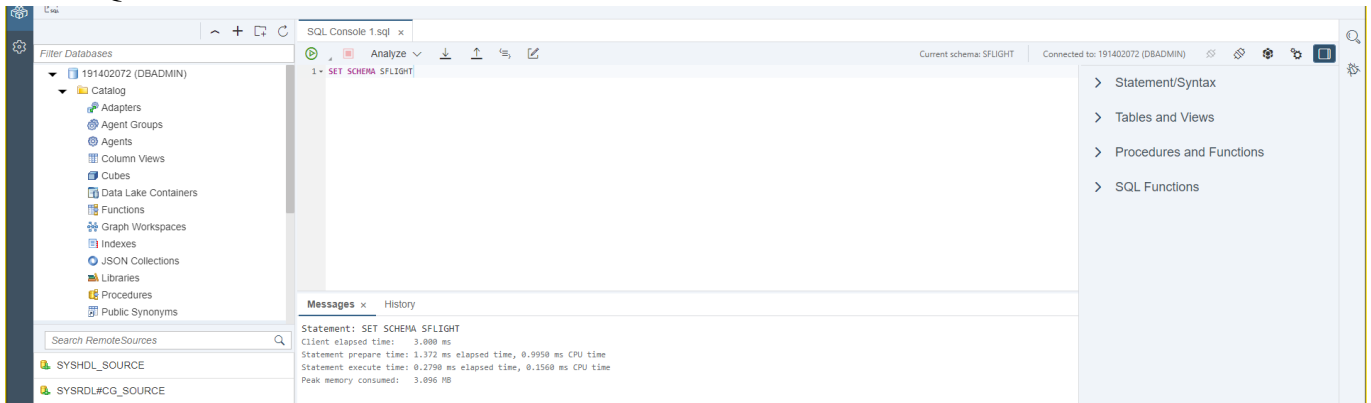


Database	Schema	Object	Type
<input checked="" type="checkbox"/> <NULL>	SYSRDL#CG	EVENT	TABLE
<input checked="" type="checkbox"/> <NULL>	SYSRDL#CG	GKG	TABLE
<input checked="" type="checkbox"/> <NULL>	SYSRDL#CG	MENTIONS	TABLE

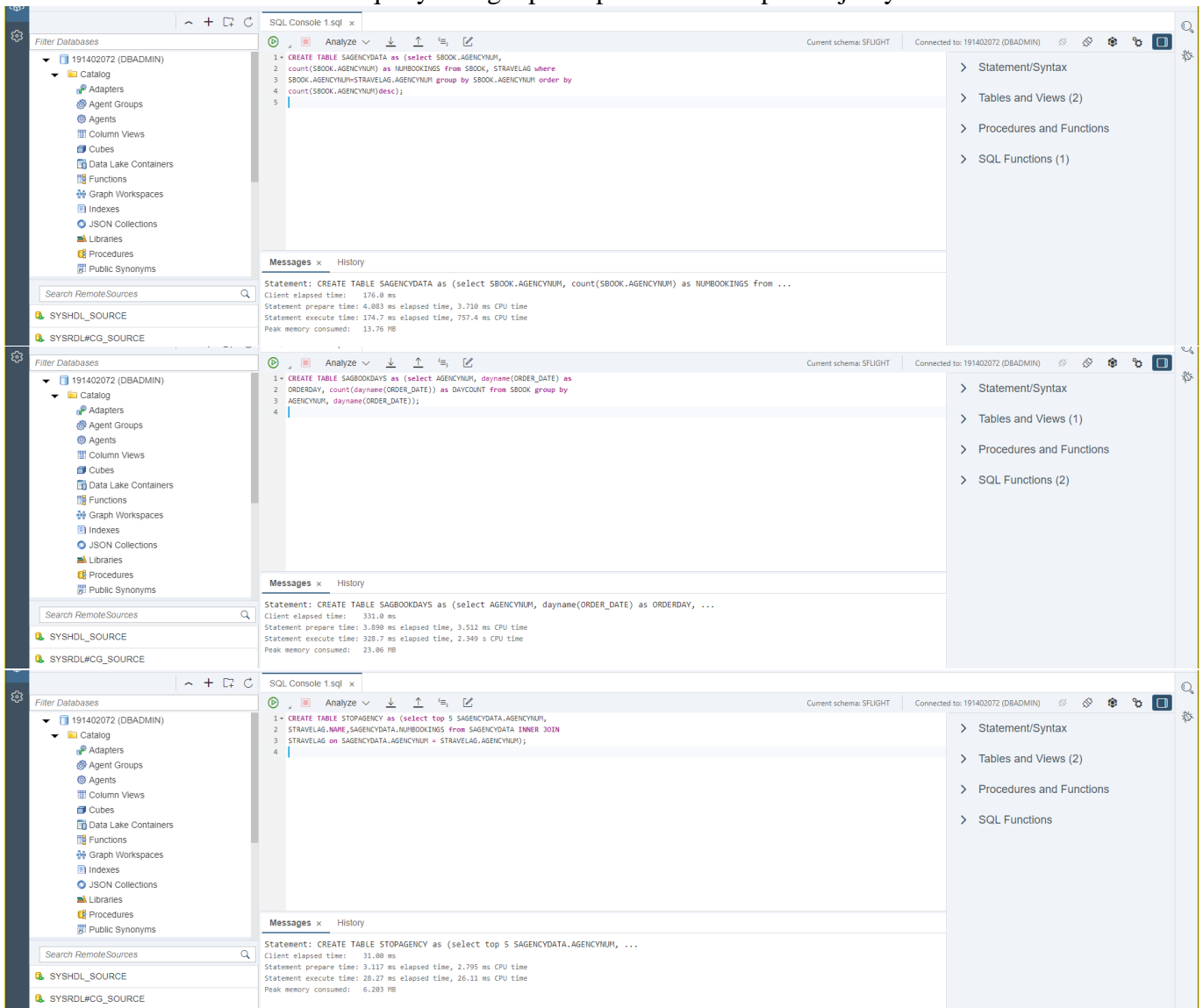
- Kemudian tambahkan prefix HCDL_ dan set schema ke SFLIGHT.

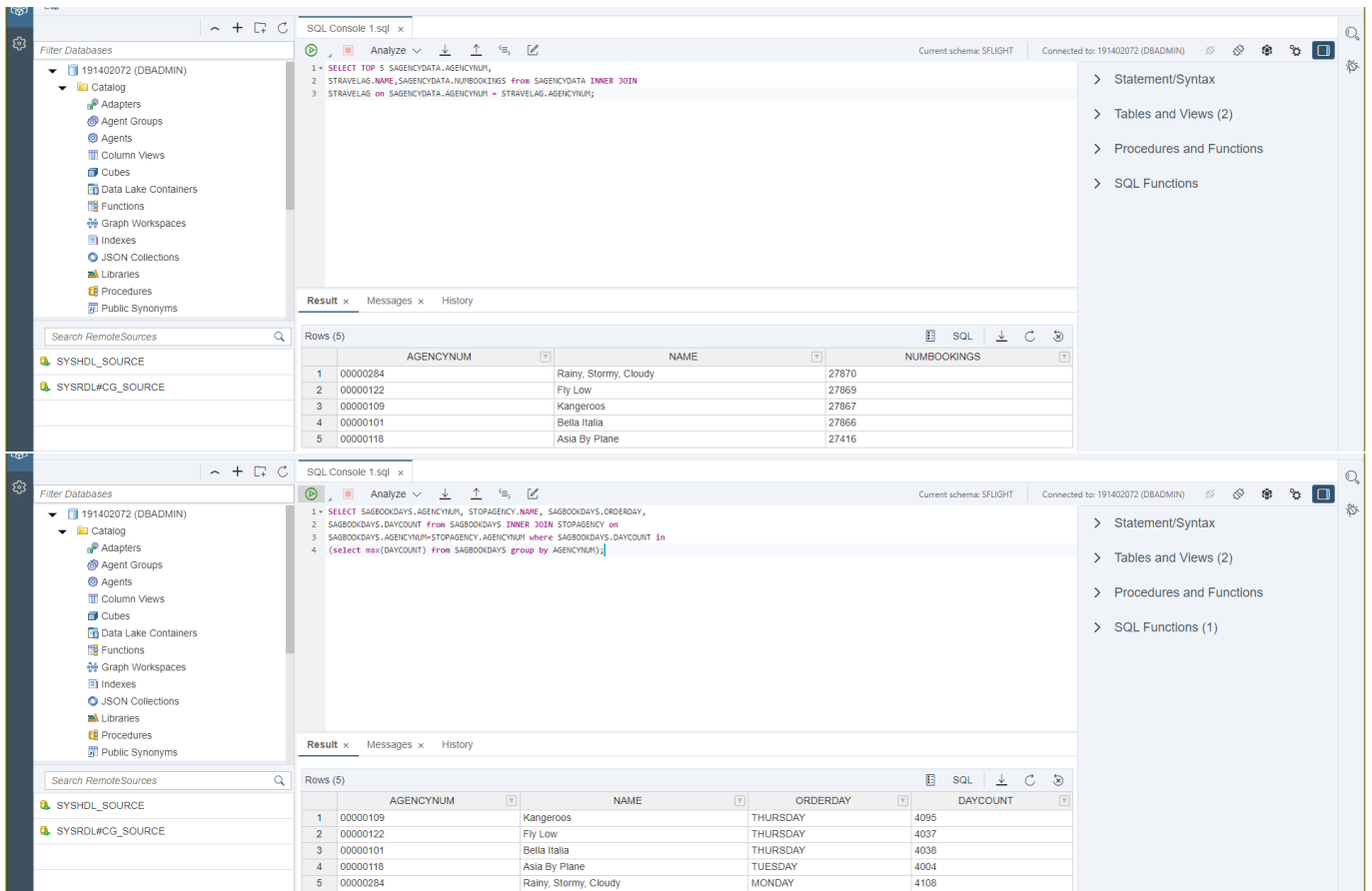


- Buka SQL Console dan kemudian set chema ke SFLIGHT.



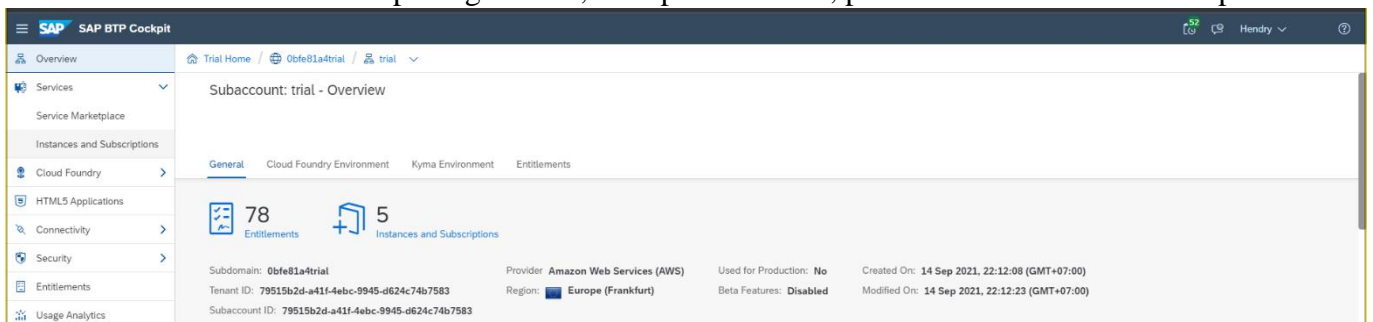
- Kita akan mencoba melakukan query sebagai persiapan untuk tahap selanjutnya.



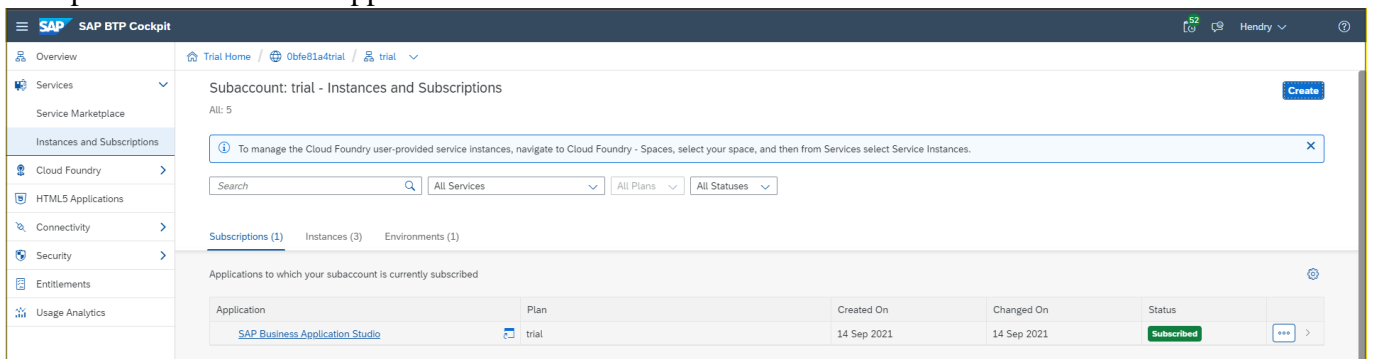


Untuk tahap selanjutnya kita akan mencoba aplikasi pada SAP HANA Business Application Studio.

- Pada halaman SAP BTP Cockpit bagian trial, lihat pada side bar, pilih service dan klik Subscriptions.



- Klik pada SAP Business Application Studio.



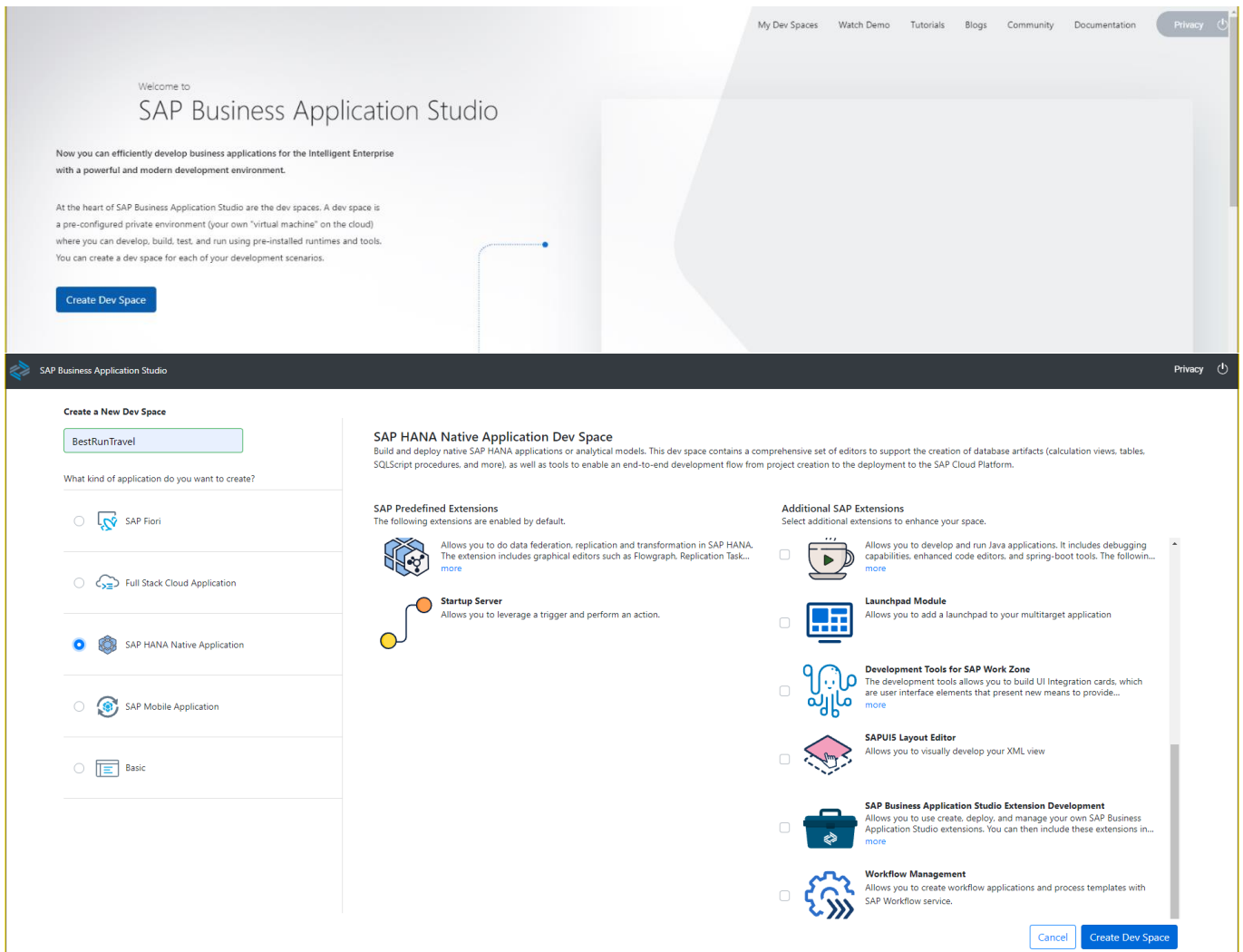
- Sekarang kita akan membuat Dev Space yang baru, berikan nama Dev Space, dan pilih SAP HANA Native Application.

Explore the SAP Business Application Studio

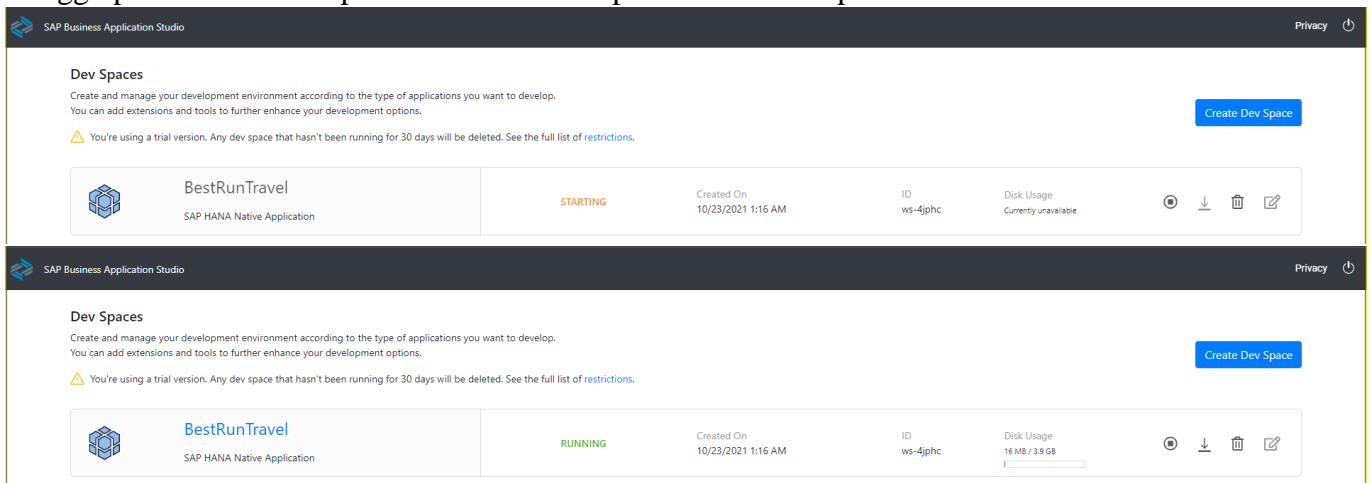
This site is governed by the [SAP Business Application Studio Trial Privacy Statement](#).

☐ Do not show this message again

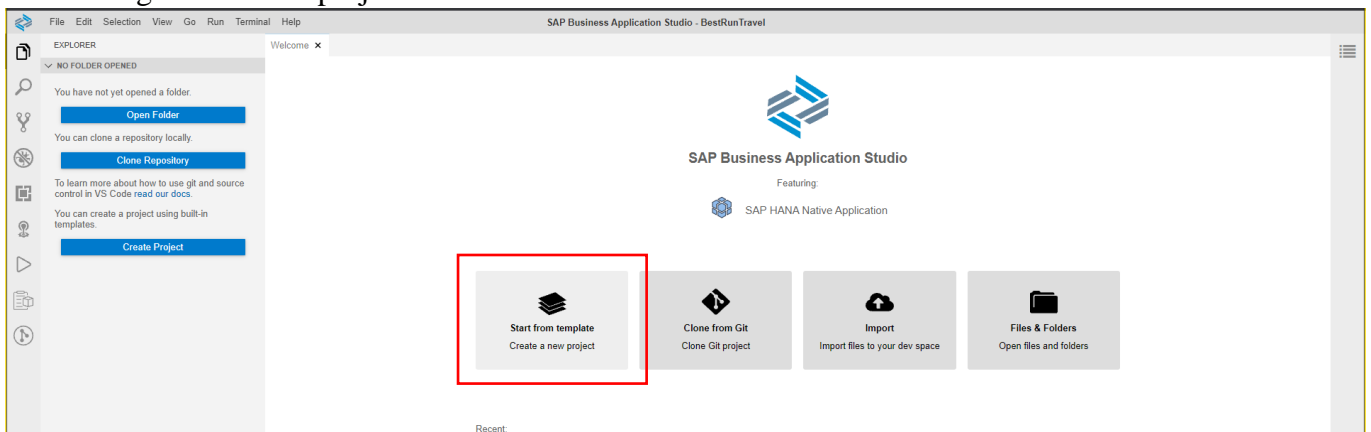
OK



- Tunggu pembuatan Dev Space selesai dan klik pada nama Dev Space.



- Mulai dengan membuat project baru.



Open Folder

You can clone a repository locally.

Clone Repository

To learn more about how to use git and source control in VS Code [read our docs](#).

You can create a project using built-in templates.

Create Project

SAP HANA PROJECTS

Select Template and Target Location

Select the template that best fits the type of application you want to develop.
The template will be generated in the folder specified below and it will contain the relevant files and configurations that will help you create a project quickly and easily.

Specify a target folder path [Preferences](#)
/home/user/projects


Where do you want to open the project? [Preferences](#)
Open the project in a multi-root workspace

Templates ☐ *

SAP HANA Database Project

Creates a new SAP HANA database project


[More information](#)



Basic Multitarget Application

Create a project for developing a multitarget application (MTA). MTAs are comprised of multiple software modules that are created with different technologies, yet share the same development lifecycle.

[More information](#)



START

EXPLORER

NO FOLDER OPENED

You have not yet opened a folder.

Open Folder

You can clone a repository locally.

Clone Repository

To learn more about how to use git and source control in VS Code [read our docs](#).

You can create a project using built-in templates.

Create Project

Welcome

Project From Template

New Project From Template

Select Template and Target Location

Add Basic Information

Set Basic Properties

Set Database Information

Bind to HDI Container Service

Add Basic Information

Provide basic project information

Project Name

You must provide a project name in order to continue.

EXPLORER

NO FOLDER OPENED

You have not yet opened a folder.

Open Folder

You can clone a repository locally.

Clone Repository

To learn more about how to use git and source control in VS Code [read our docs](#).

You can create a project using built-in templates.

Create Project

Welcome

Project From Template

New Project From Template

Select Template and Target Location

Add Basic Information

Set Basic Properties

Set Database Information

Bind to HDI Container Service

Set Basic Properties

Enter the module name

db

EXPLORER

NO FOLDER OPENED

You have not yet opened a folder.

Open Folder

You can clone a repository locally.

Clone Repository

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You can create a project using built-in templates.

Create Project

Welcome

Project From Template

New Project From Template

Select Template and Target Location

Add Basic Information

Set Basic Properties

Set Database Information

Bind to HDI Container Service

Set Database Information

Define details of your application's database module.

Namespace

Schema Name

SAP HANA Database Version *

HANA Cloud

Bind the database module to a Cloud Foundry service instance? [?](#)

☒ Yes ☐ No

EXPLORER

NO FOLDER OPENED

You have not yet opened a folder.

Open Folder

You can clone a repository locally.

Clone Repository

To learn more about how to use git and source control in VS Code [read our docs](#).

You can create a project using built-in templates.

Create Project

Welcome

Project From Template

New Project From Template

Select Template and Target Location

Add Basic Information

Set Basic Properties

Set Database Information

Bind to HDI Container Service

Bind to HDI Container Service

Please provide your Cloud Foundry login credentials and configure the HDI container service binding if needed.

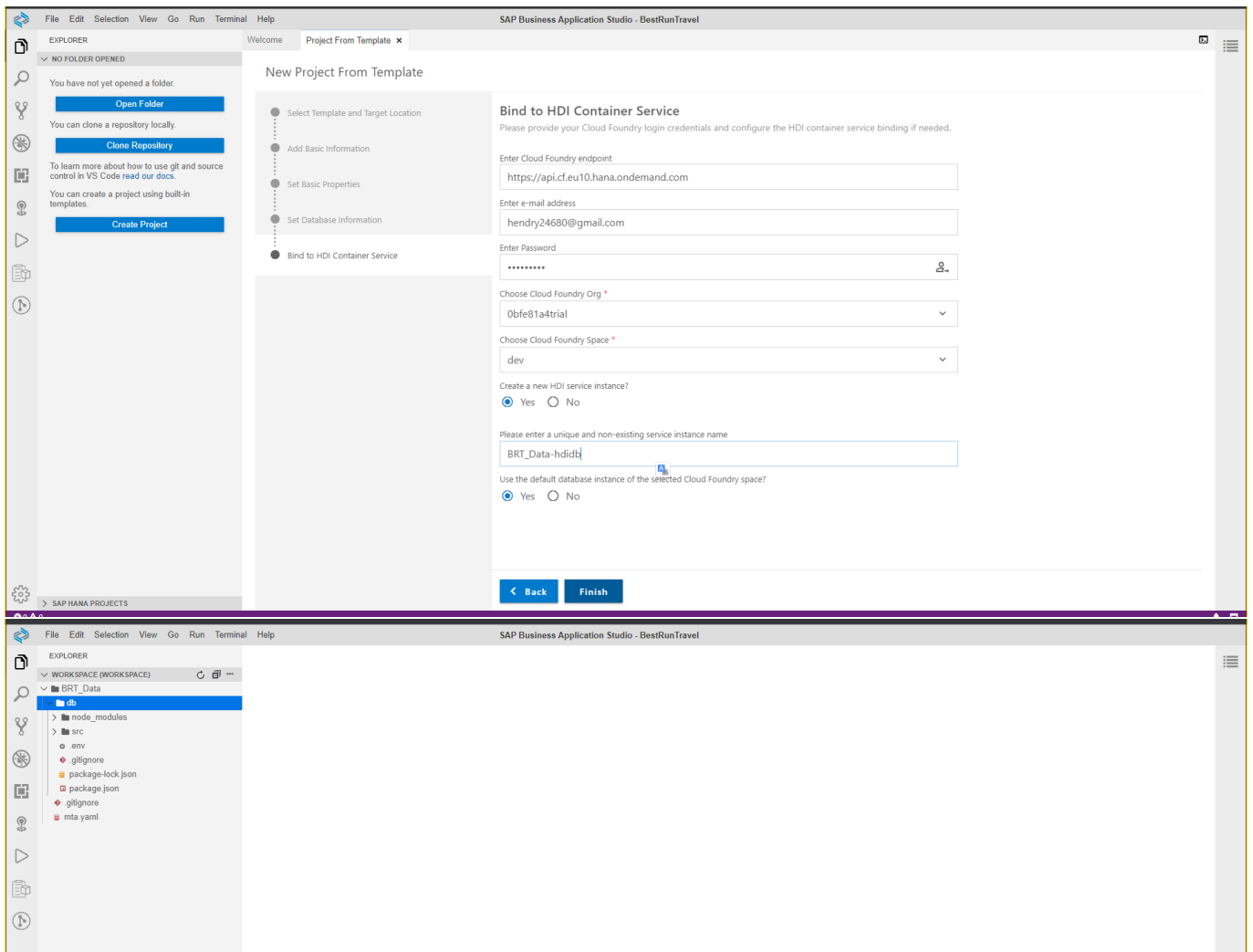
Enter Cloud Foundry endpoint

Enter e-mail address

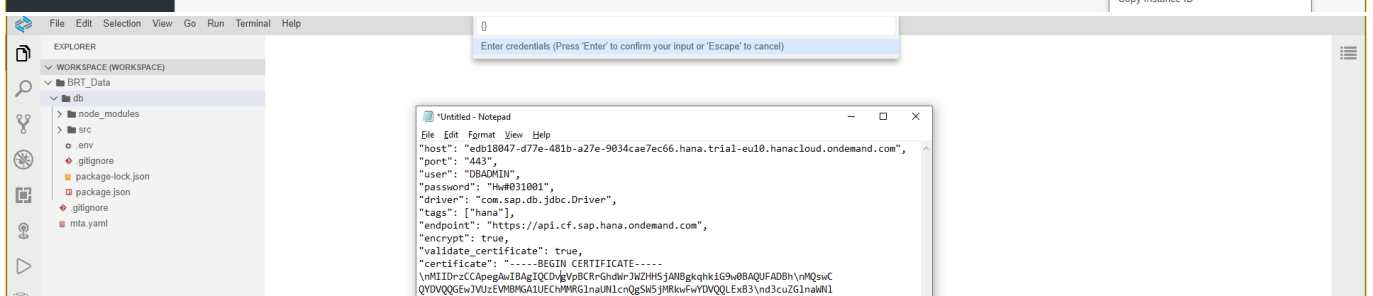
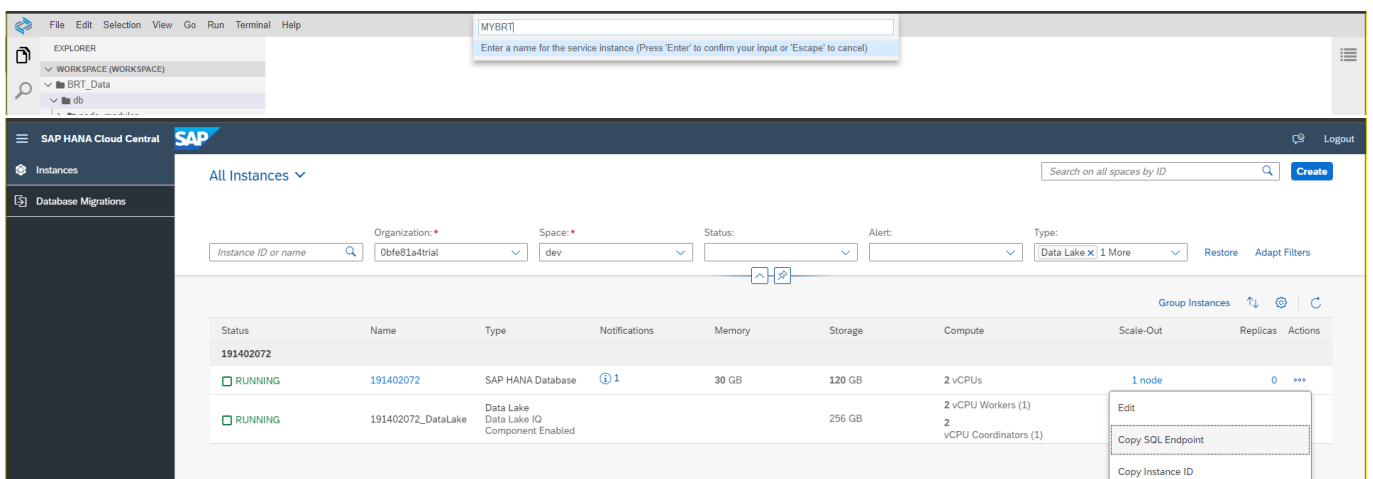
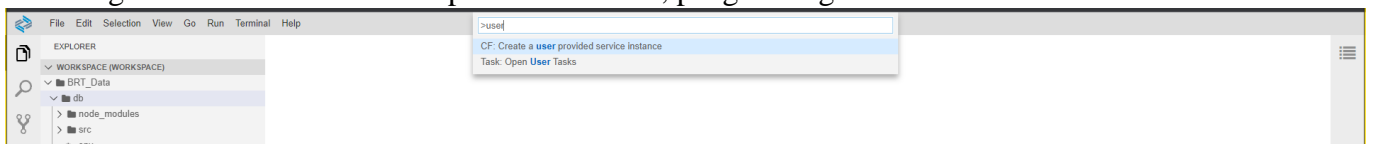
Enter Password

Login

Enter the specified Cloud Foundry user's password



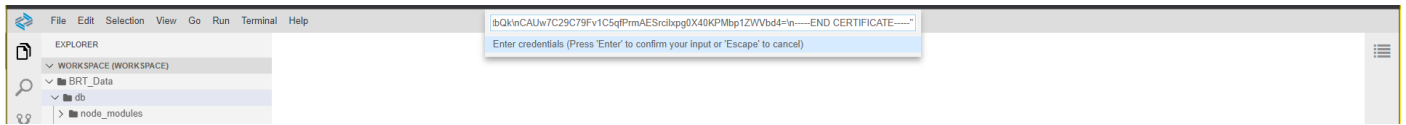
- Sekarang kita akan membuat user-provided service, penghubung ke database. Tekan Ctrl + Shift + P.



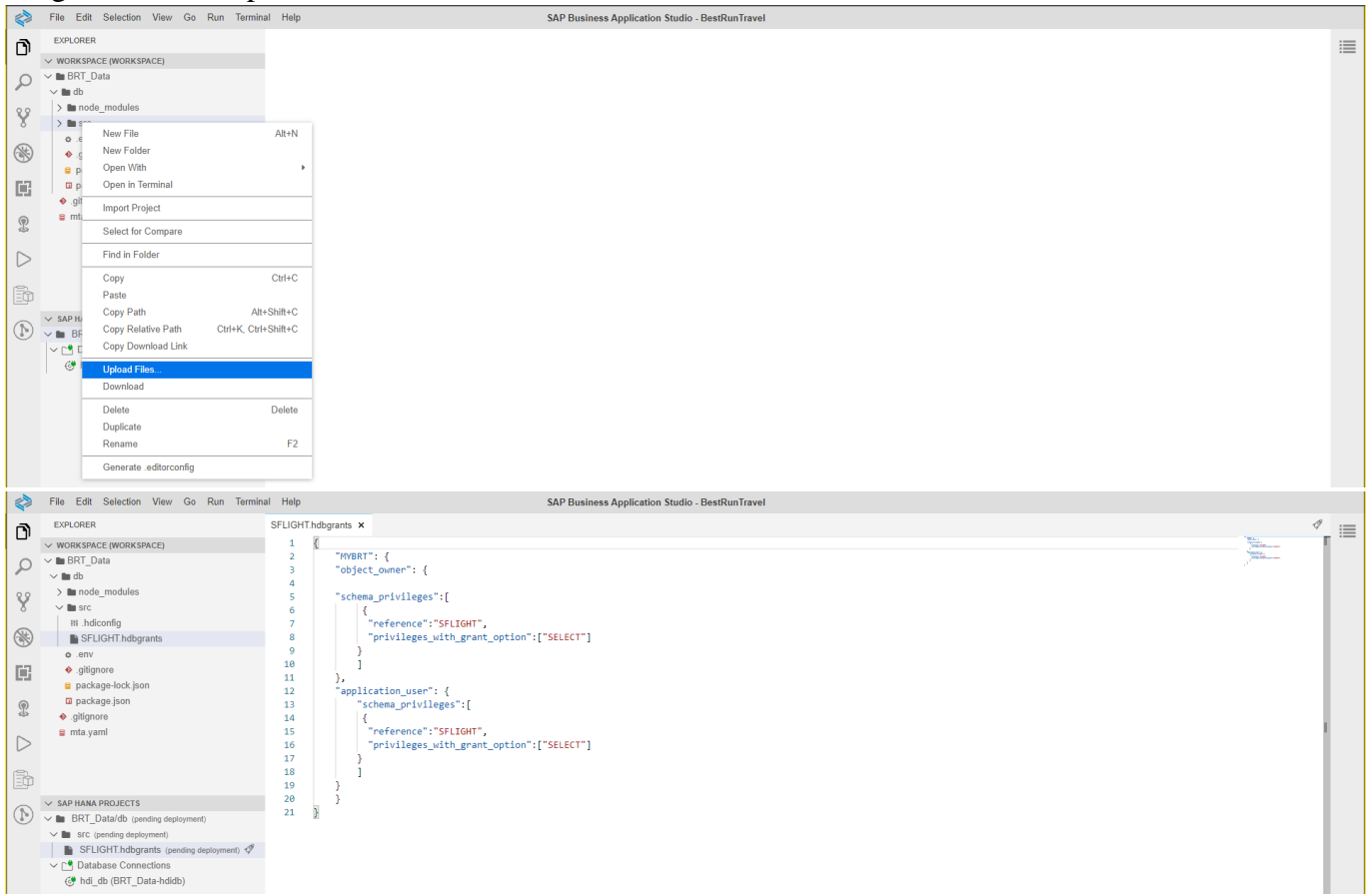
```

File Edit Format View Help
"host": "ed18047-d77e-481b-a27e-9034cae7ec66.hana.trial-eu10.hanacloud.ondemand.com",
"port": "443",
"user": "DBADMIN",
"password": "Hw#031001",
"driver": "com.sap.db.jdbc.Driver",
"tags": ["hana"],
"endpoint": "https://api.cf.sap.hana.ondemand.com",
"encrypt": true,
"validate_certificate": true,
"certificate": "-----BEGIN CERTIFICATE-----
MIIDrzCCAgEwIBAgIQCDVpB8CRnGhdn3KZHSJANBgkqhkiG9w0BAQUFAADh
YQYDQgEwVUzEVMBGAlUECMWBG1naUN1cnQgSk5jMRkwFwYDQQLExB3Ynd3cuZG1naUN1
cnQgSk5jMRkwFwYDQQLExB3Ynd3cuZG1naUN1cnQgSk5jMRkwFwYDQQLExB3Ynd3cuZG1naUN1
-----END CERTIFICATE-----"

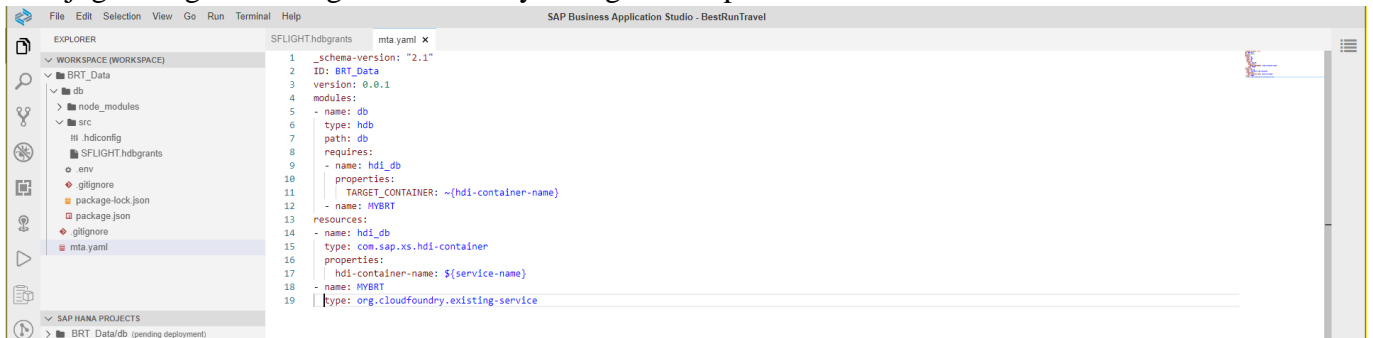
```



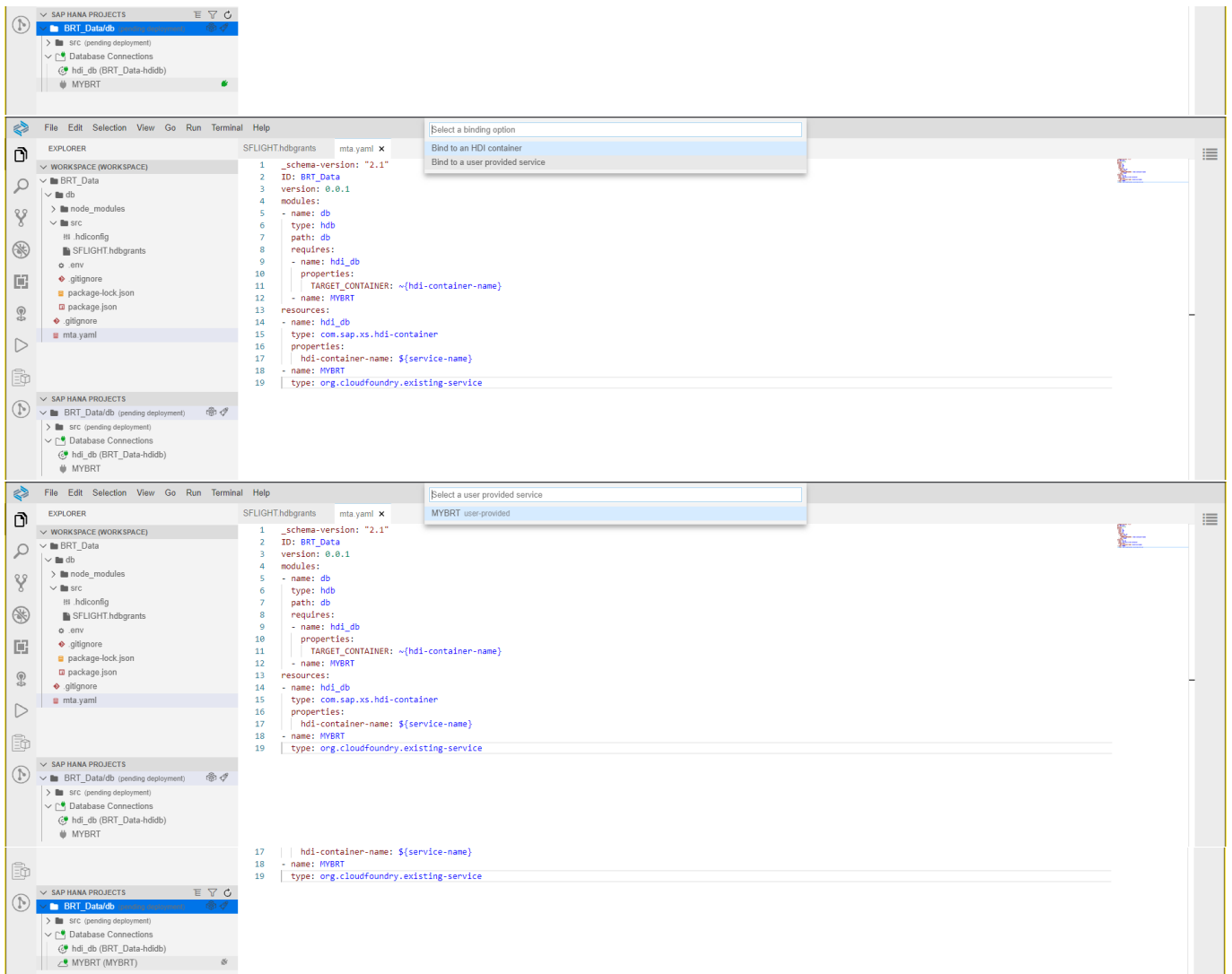
- Kemudian kita upload terlebih dahulu konfigurasi untuk schema SFLIGHT dan sesuaikan nama koneksi dengan nama user-provided service kita.



- Dan juga mengatur konfigurasi file mta.yaml agar user-provided service kita terdaftar.



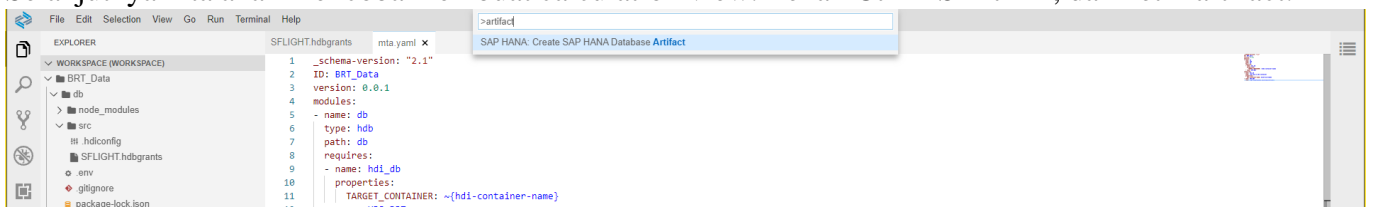
- Jangan lupa untuk binding service kita.

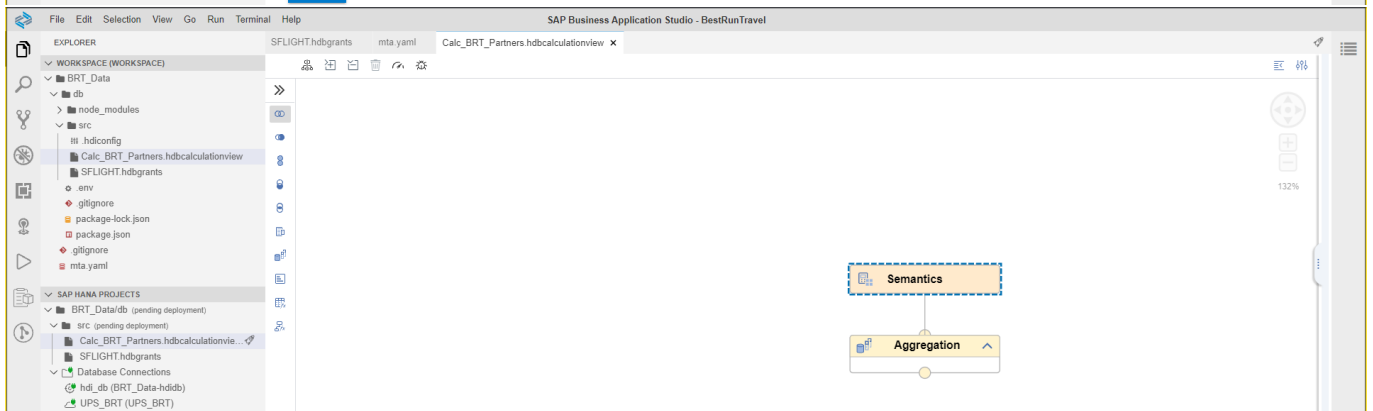
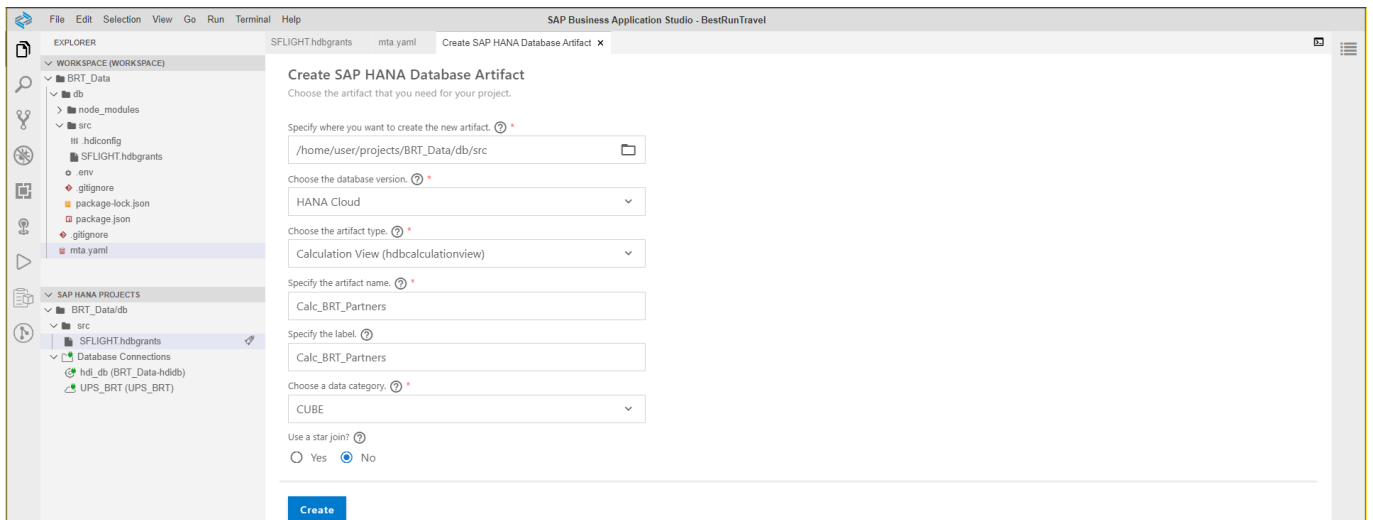


- Kemudian kita coba deploy projectnya dengan klik icon roket.

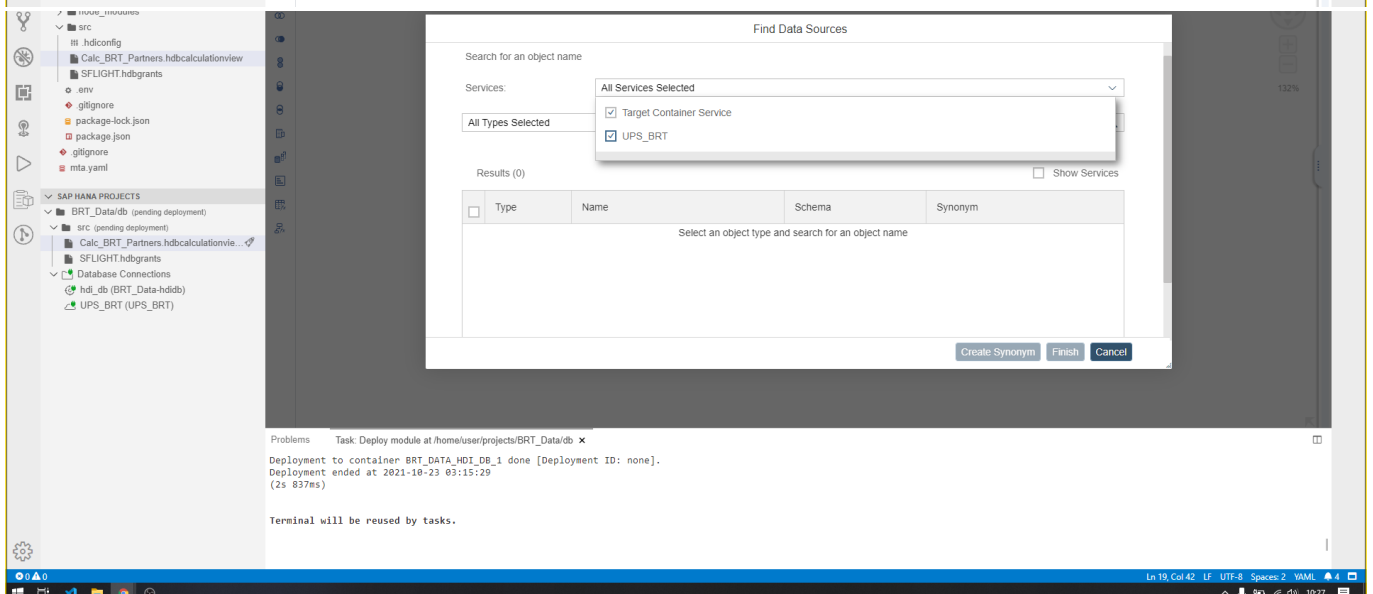
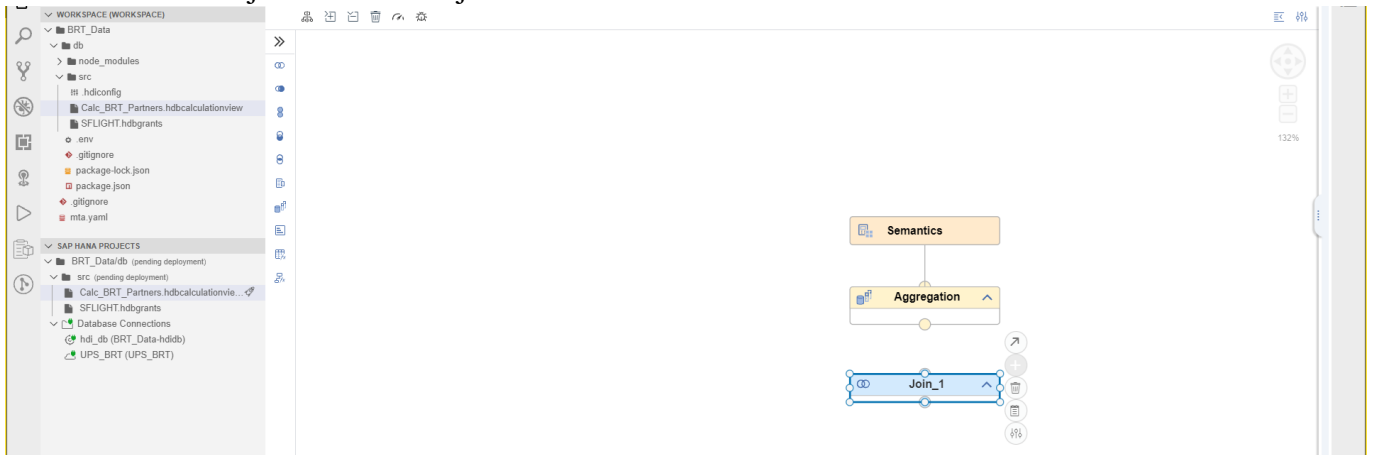


- Selanjutnya kita akan mencoba membuat calculation view. Tekan Ctrl + Shift + P, dan ketik artifact.





- Kemudian buatlah join node untuk join antara SAGENCYDATA dan STRAVELAG.



src

hdi.config

Calc_BRT_Partners.hdbcalculationview

SFLIGHT.hdbgrants

env

gignore

package-lock.json

package.json

gignore

mta.yaml

SAP HANA PROJECTS

BRT_Data/db (pending deployment)

src (pending deployment)

Calc_BRT_Partners.hdbcalculationvie...

SFLIGHT.hdbgrants

Database Connections

hdi_db (BRT_Data-hdib)

UPS_BRT (UPS_BRT)

Find Data Sources

Search for an object name

Services: All Services Selected

All Types Selected SAGENC

Results (1)

Type	Name	Schema	Synonym
	SAGENCYDATA	SFLIGHT	

Create Synonym Finish Cancel

Find Data Sources

Synonym details to automatically create synonyms:

Synonym Name	Object Name	Schema	Use Existing Synonym
com.sap::SAGENCYDATA	SAGENCYDATA	SFLIGHT	

Generate .hdbgrants file Create synonym configuration file

Previous Finish Cancel

Find Data Sources

Search for an object name

Services: All Services Selected

All Types Selected STRAVEL

Results (1)

Type	Name	Schema	Synonym
	STRAVELAG	SFLIGHT	

Create Synonym Finish Cancel

Find Data Sources

Synonym details to automatically create synonyms:

Synonym Name	Object Name	Schema	Use Existing Synonym
com.sap::STRAVELAG	STRAVELAG	SFLIGHT	

Generate .hdbgrants file Create synonym configuration file

Previous Finish Cancel

File Edit Selection View Go Run Terminal Help

SAP Business Application Studio - BestRunTravel

WORKSPACE (WORKSPACE)

BRT_Data

db

node_modules

src

hdi.config

BRT_Data-hdib.hdbsynonym

Calc_BRT_Partners.hdbcalculationview

SFLIGHT.hdbgrants

env

gignore

package-lock.json

package.json

gignore

mta.yaml

SAP HANA PROJECTS

BRT_Data/db (pending deployment)

src (pending deployment)

BRT_Data-hdib.hdbsynonym

Calc_BRT_Partners.hdbcalculationview (...)

SFLIGHT.hdbgrants

Database Connections

hdi_db (BRT_Data-hdib)

UPS_BRT (UPS_BRT)

SFLIGHT.hdbgrants

Calc_BRT_Partners.hdbcalculationview x

Semantics

Aggregation

Join_1

com.sap::SAGENC...

com.sap::STRAVEL...

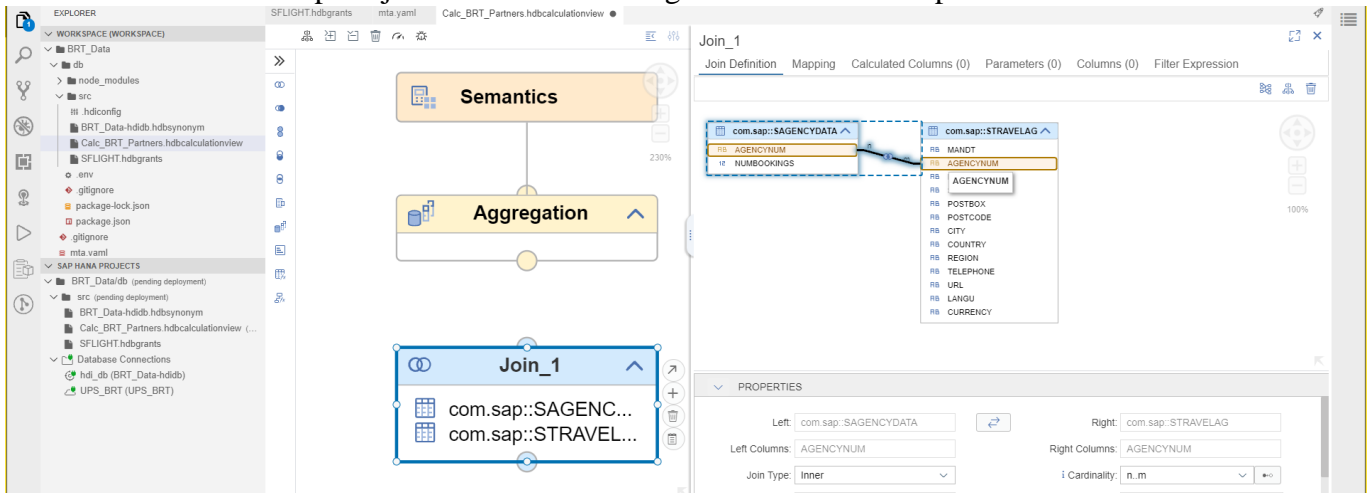
Problems

Task: Deploy module at /home/user/projects/BRT_Data/db x

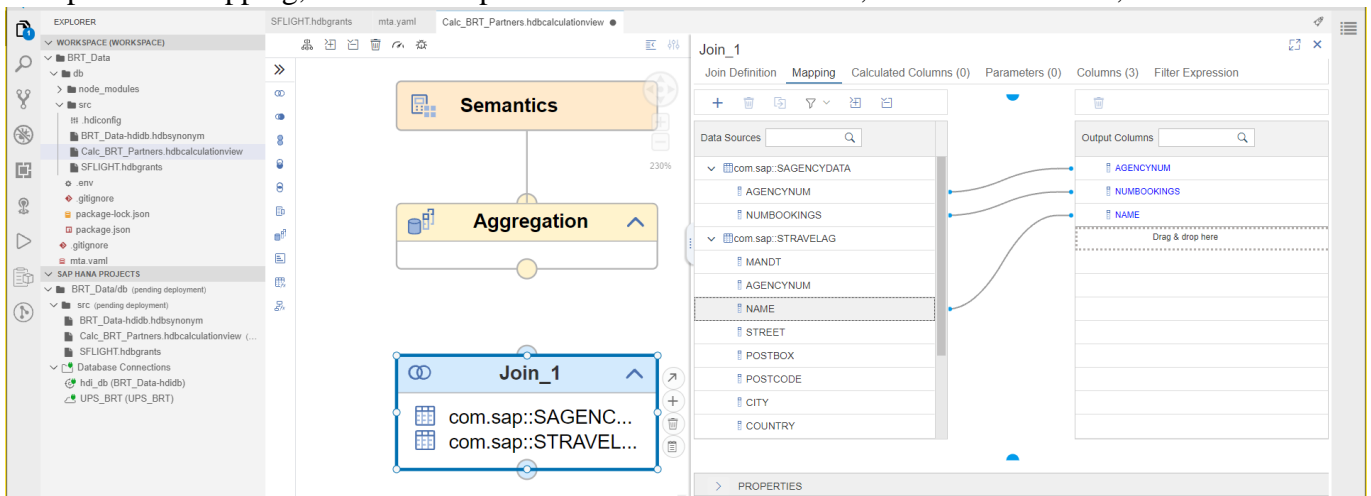
Deployment to container BRT_DATA_HDI_DB_1 done [Deployment ID: none].

Deployment ended at 2021-10-23 03:28:28

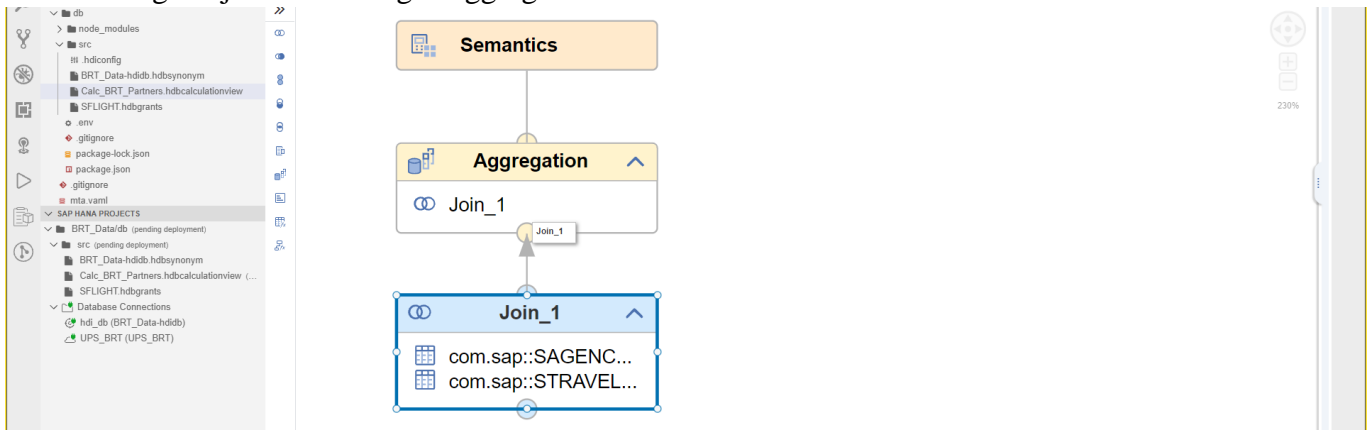
- Kemudian double-click pada join node dan sambungan AGENCYNUM pada kedua data source.



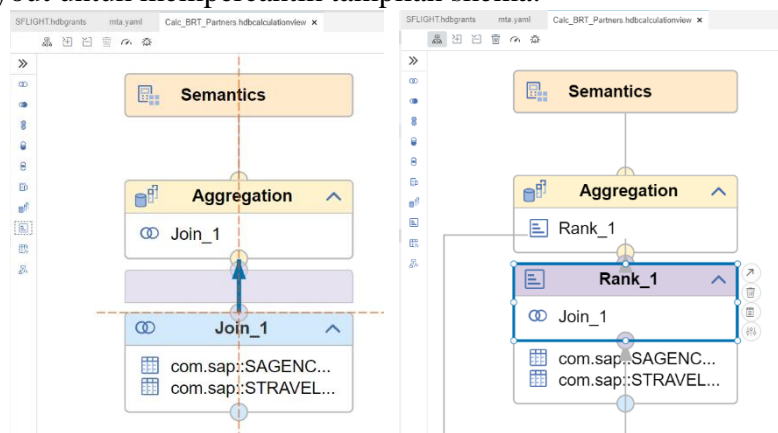
- Dan pada tab Mapping, double click pada column AGENCYNUM, NUMBOOKINGS, dan NAME.

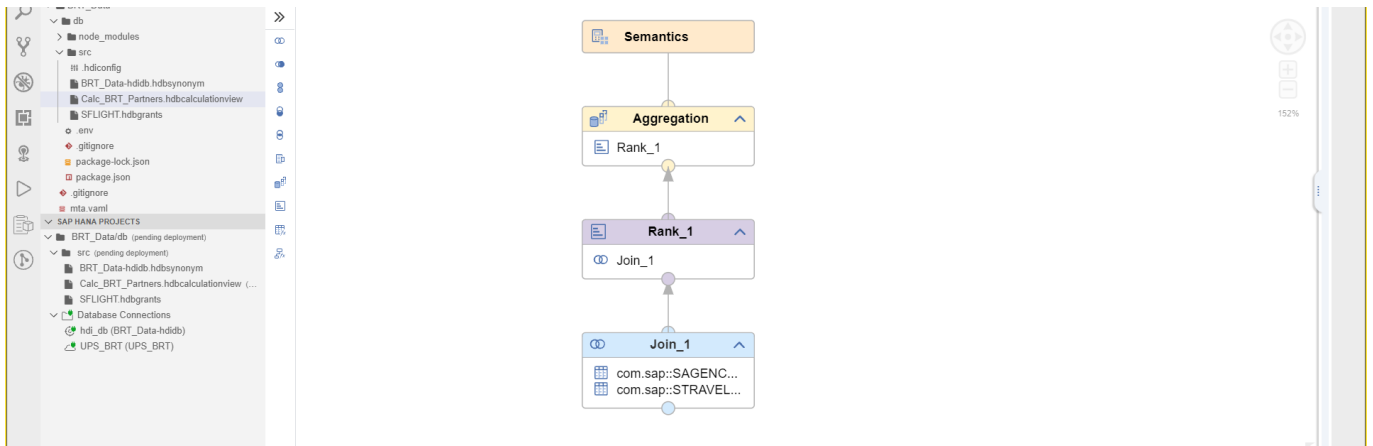


- Lalu hubungkan join node dengan aggregation node.



- Kemudian untuk menunjukkan hasil rank, tambahkan rank node diantara join_1 dan aggregation. Gunakan juga auto layout untuk mempercantik tampilan skema.





- Kemudian double-click pada rank_1 node dan lakukan konfigurasi untuk menampilkan top rank berdasarkan NUMBOOKINGS.

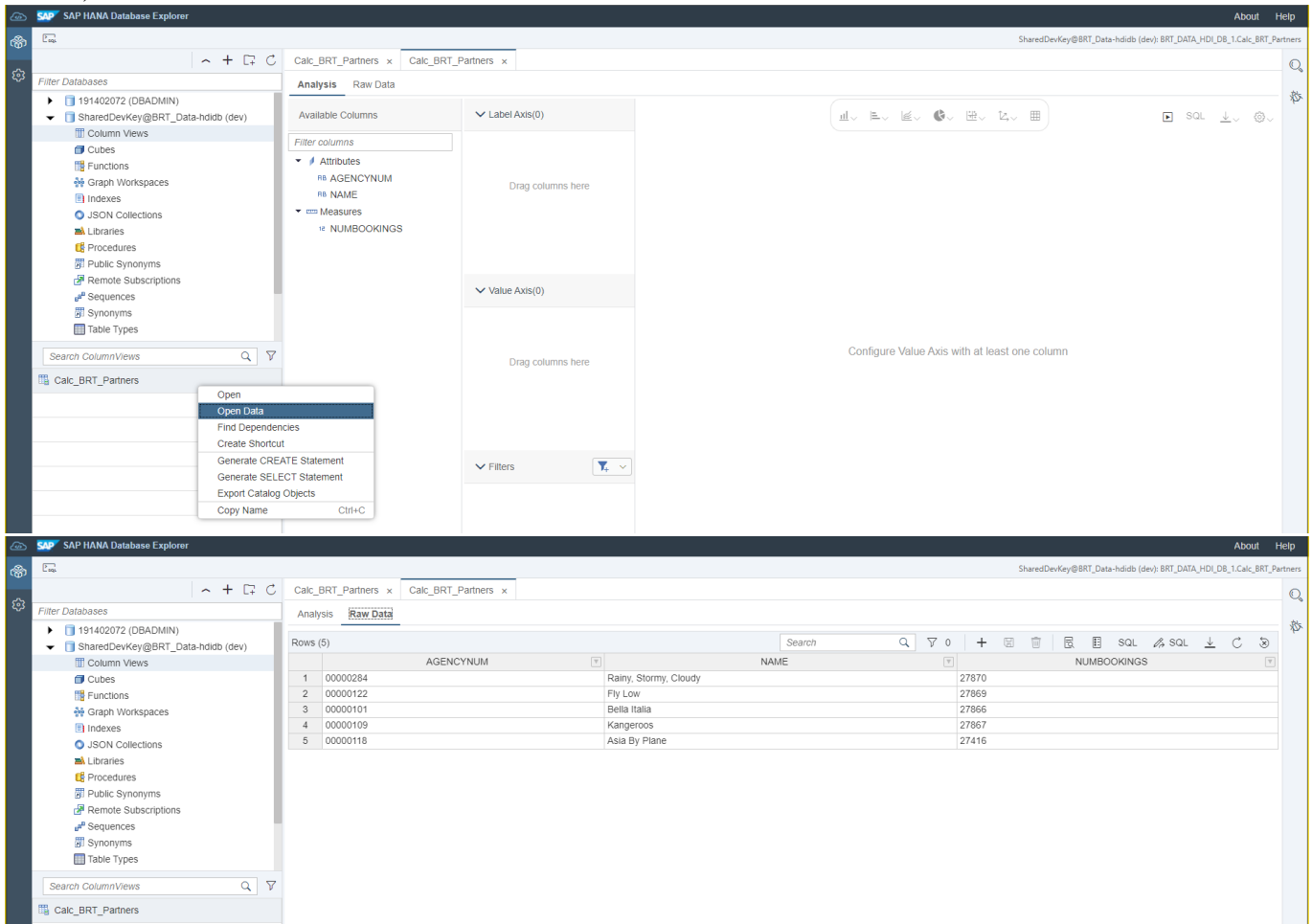
- Double-click pada node aggregation, dan double-click pada masing-masing column rank_1 agar masuk ke output columns.

- Deploy project tersebut lalu buka Database Explorer dari HDI Container. Pilih column views dan klik pada nama calculation view tadi.

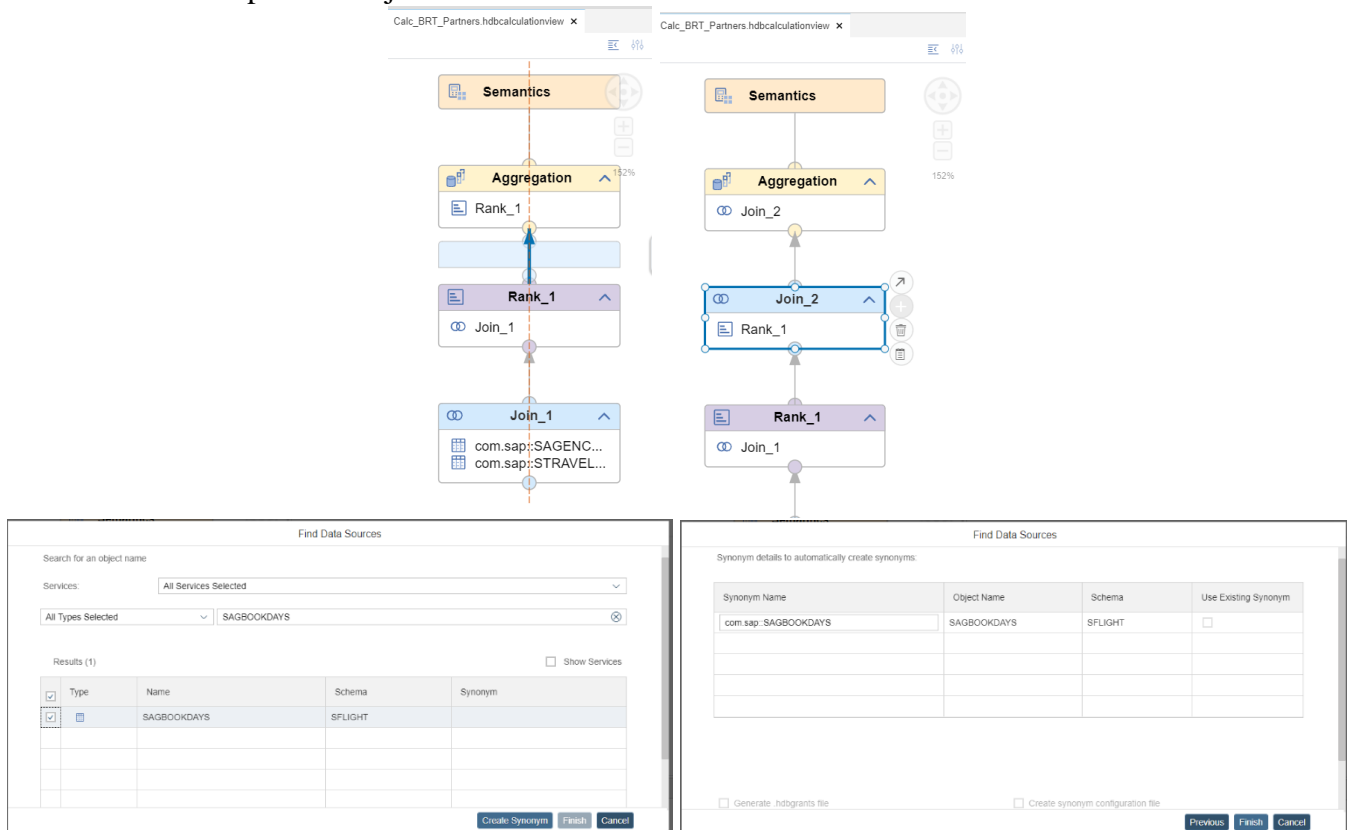
Column View Name	Schema	Type
Calc_BRT_Partners	BRT_DATA_HDI_DB_1	CALCULATED

Columns	View Column	SQL Data Type	Not Null	Default	Comment
1	AGENCYNUM	NVARCHAR(8)		NULL	AGENCYNUM
2	NAME	NVARCHAR(25)		NULL	NAME
3	NUMBOOKINGS	BIGINT		NULL	NUMBOOKINGS

Bisa juga dengan right-click pada calculation view dan pilih open data > raw data (hasil dari sortir top rank 5).



- Tambahkan lagi join node lainnya diantara rank_1 dan aggregation. Tambahkan juga datasource SAGBOOKDAYS pada node join tersebut.



- Sambungkan AGENCYNUM dari kedua sisi yang akan di-join. Pada tab Mapping, masing-masing column di-double-click.

The screenshot shows the SAP Business Application Studio interface. On the left, the Explorer pane displays the project structure, including the workspace and various data sources. The main canvas shows a data model diagram with nodes: Semantics, Aggregation, Join_2, Rank_1, and Join_1. The Join_2 node is highlighted, and its configuration panel is open on the right. The configuration panel shows the Join Definition, Mapping, and Properties tabs. The Properties tab is active, showing the Left and Right columns, Join Type (Inner), and Cardinality (n..m).

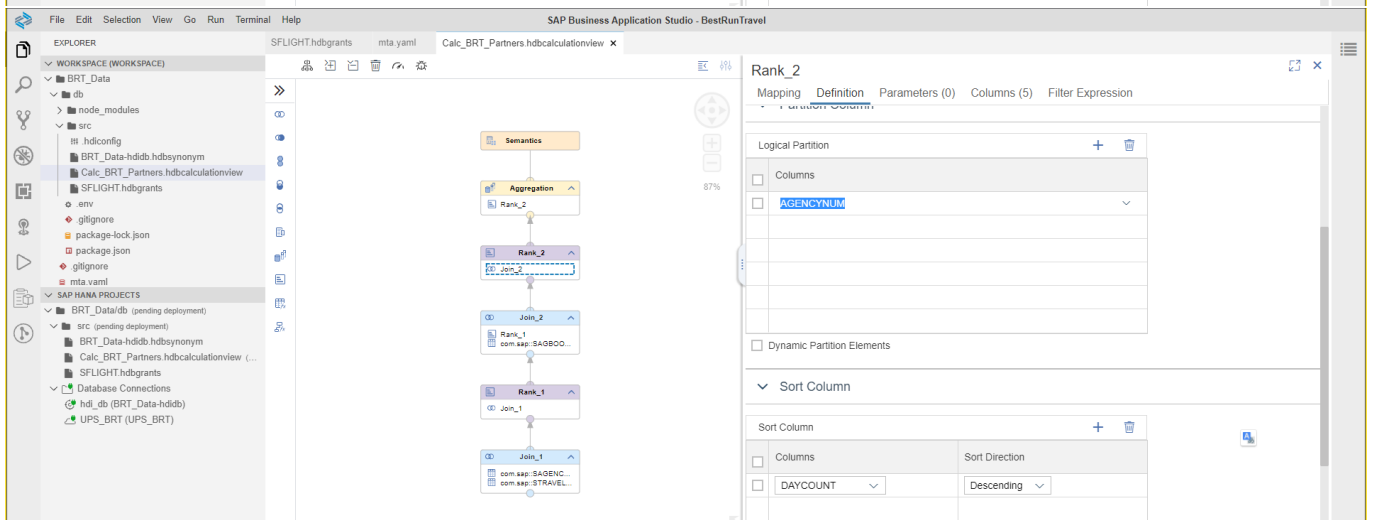
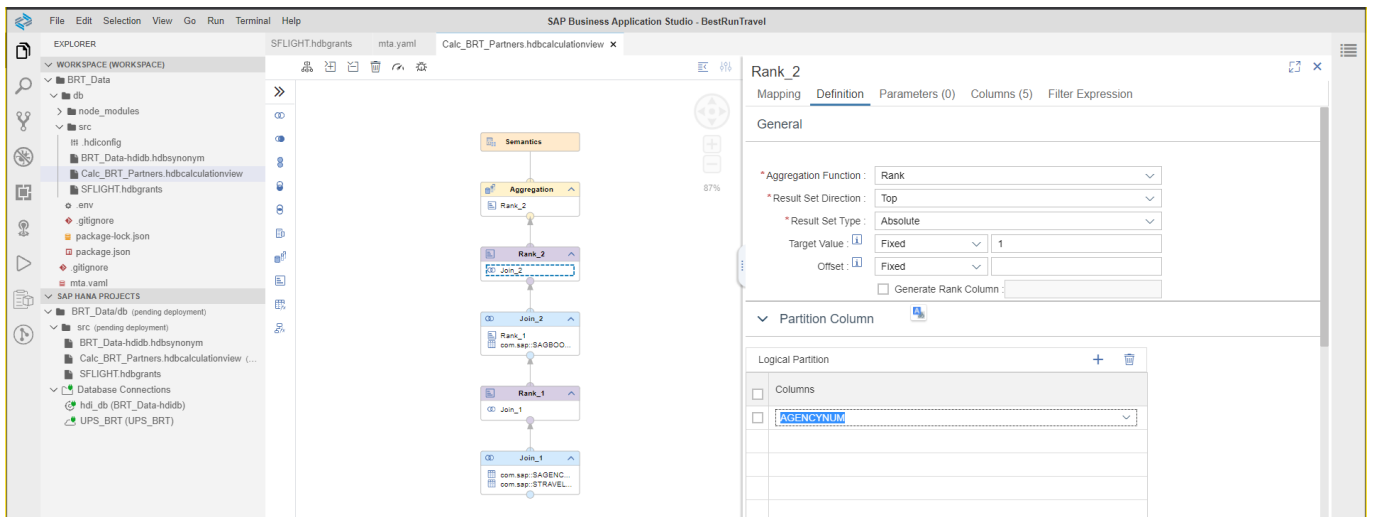
This screenshot shows the same SAP Business Application Studio interface, but with the Join_2 configuration panel updated. The Output Columns tab is active, showing a list of columns: AGENCYNUM, NUMBOOKINGS, NAME, ORDERDAY, and DAYCOUNT. The diagram on the left remains the same, with the Join_2 node highlighted.

- Tambahkan juga rank node diantara node join_2 dan aggregation. Dan lakukan konfigurasi top rank berdasarkan AGENCYNUM dan diurutkan berdasarkan DAYCOUNT.

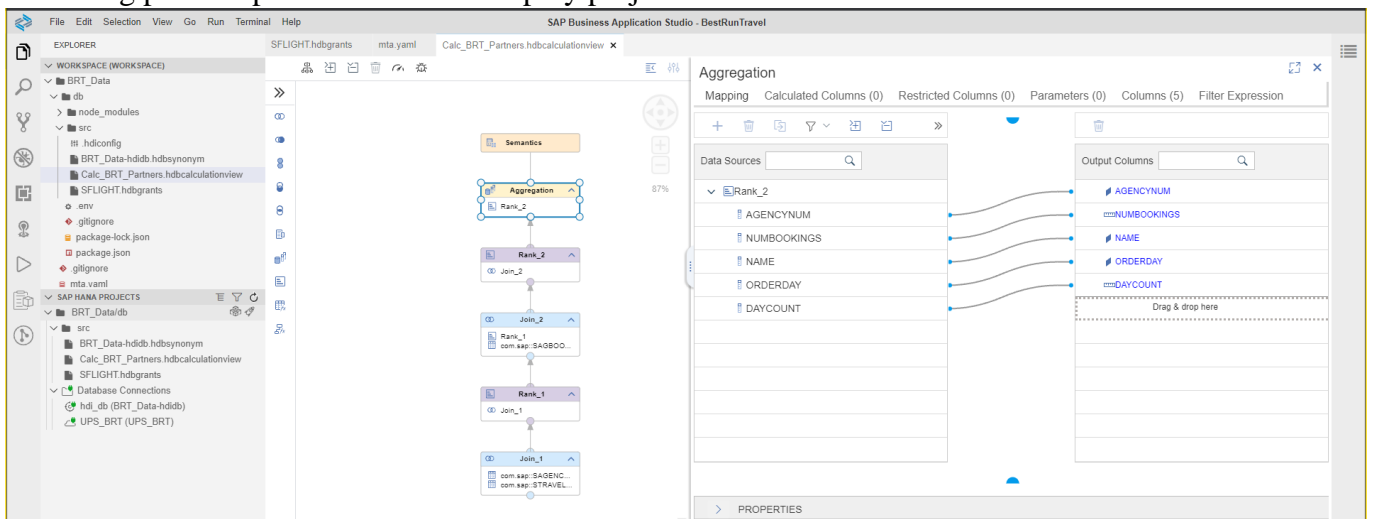
This screenshot shows the SAP Business Application Studio interface after adding a new Rank_2 node. The diagram on the left now includes a Rank_2 node between the Join_2 and Aggregation nodes. The Join_2 configuration panel is still open, showing the same output columns as before.

This screenshot shows the SAP Business Application Studio interface with the Join_2 configuration panel updated to show a mapping table. The diagram on the left remains the same, with the Rank_2 node highlighted. The mapping table in the Join_2 configuration panel is as follows:

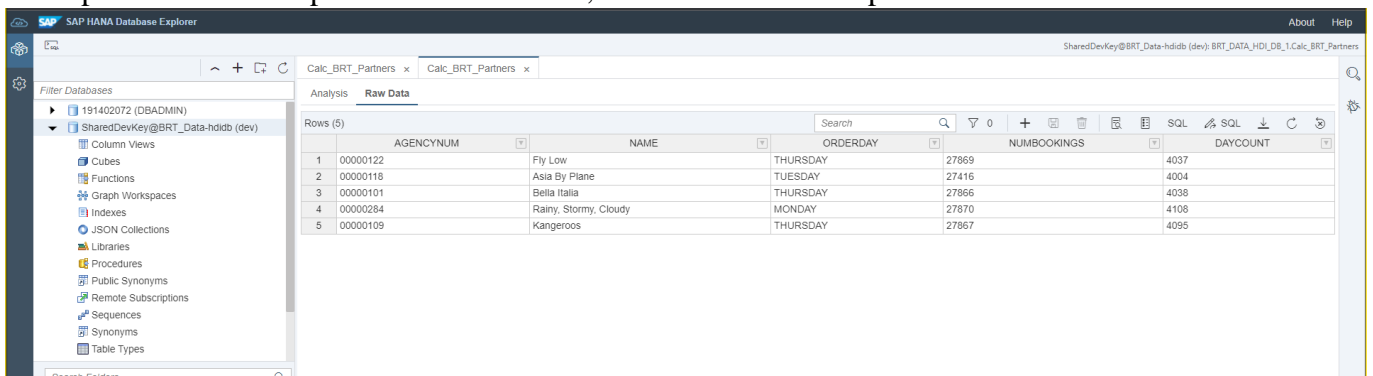
Mapping	Definition	Parameters (0)	Columns (5)	Filter Expression
AGENCYNUM	Join_2_AGENC...	NVARCHAR(8)	Semantics	Kee...
NUMBOOKINGS	Join_2_NUMB...	BIGINT		
NAME	Join_2_NAME	NVARCHAR(25)		
ORDERDAY	Join_2_ORDE...	NVARCHAR(5...		
DAYCOUNT	Join_2_DAYCO...	BIGINT		



- Kemudian double-click pada node aggregation. Double-click pada masing-masing column agar terhubung pada output columns. Lalu deploy project.

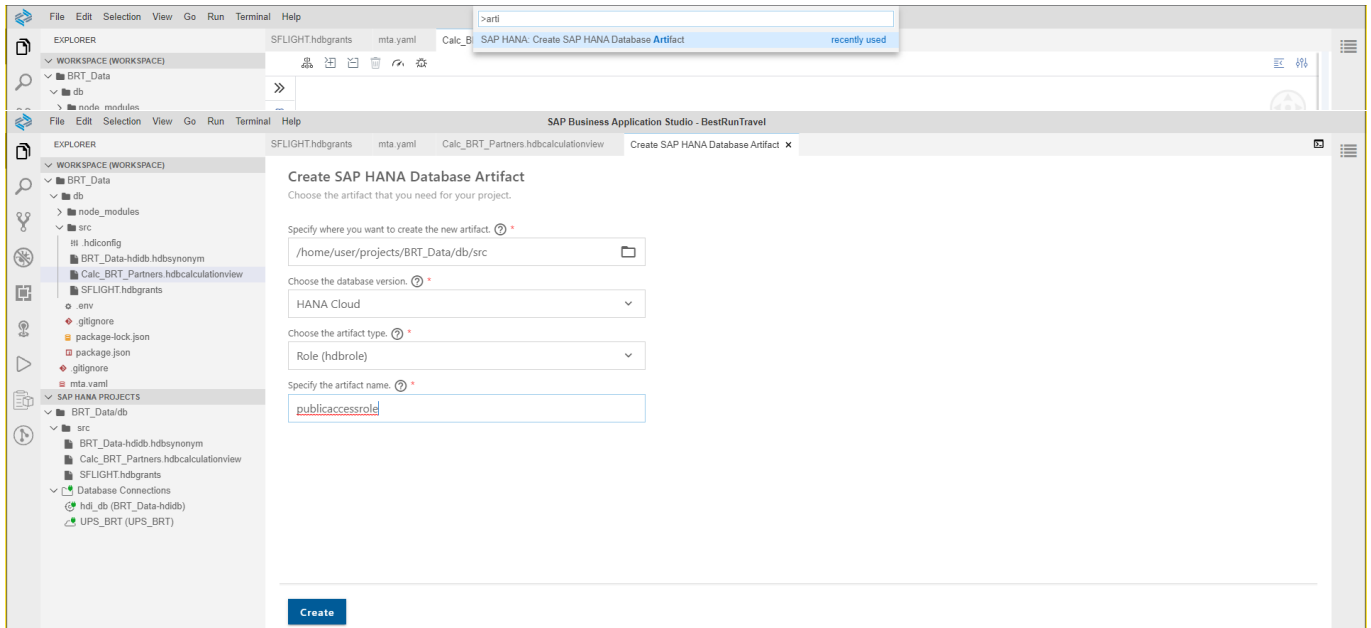


- Lihat pada Database Explorer HDI Container, akan muncul hasil top rank kedua.

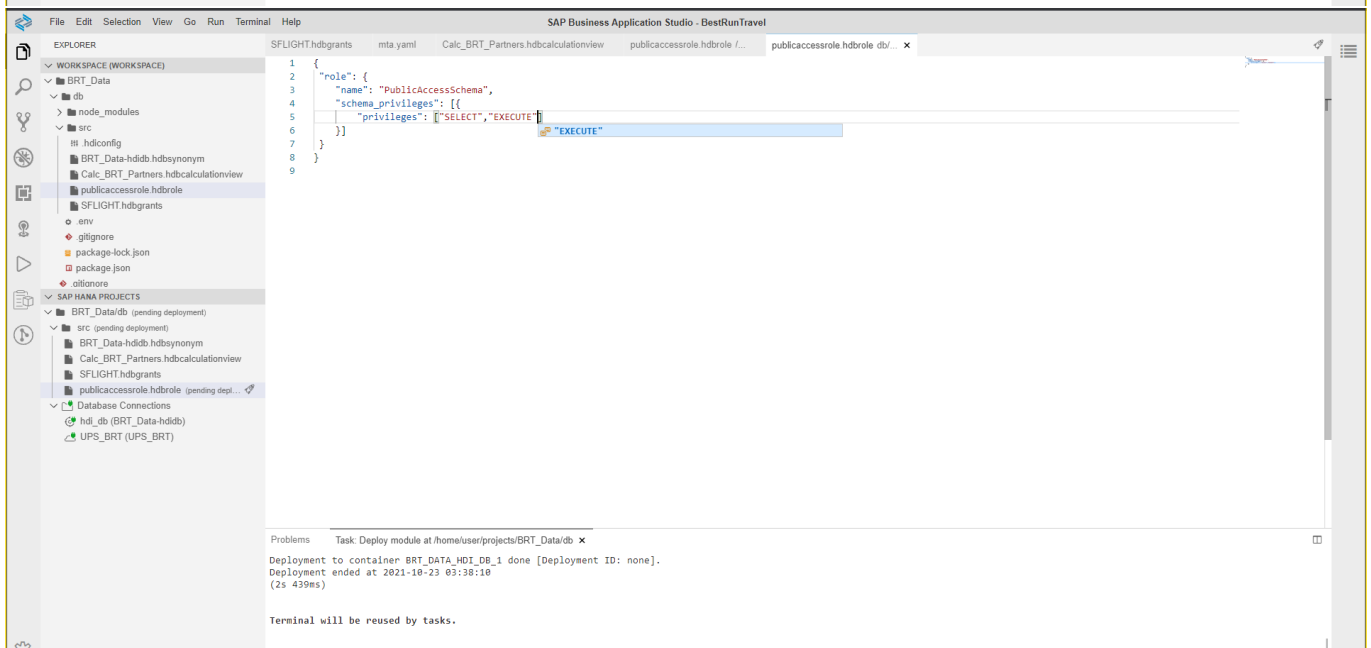
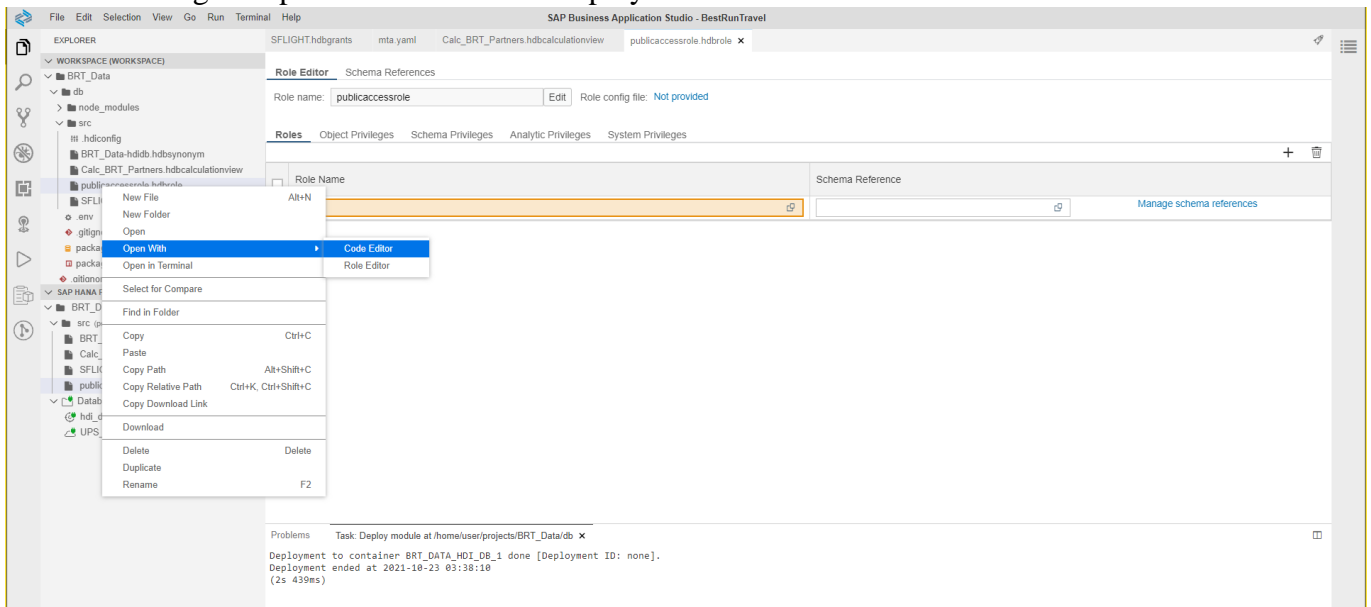


Selanjutnya kita akan menambahkan user lain agar dapat mengakses data dalam database secara aman.

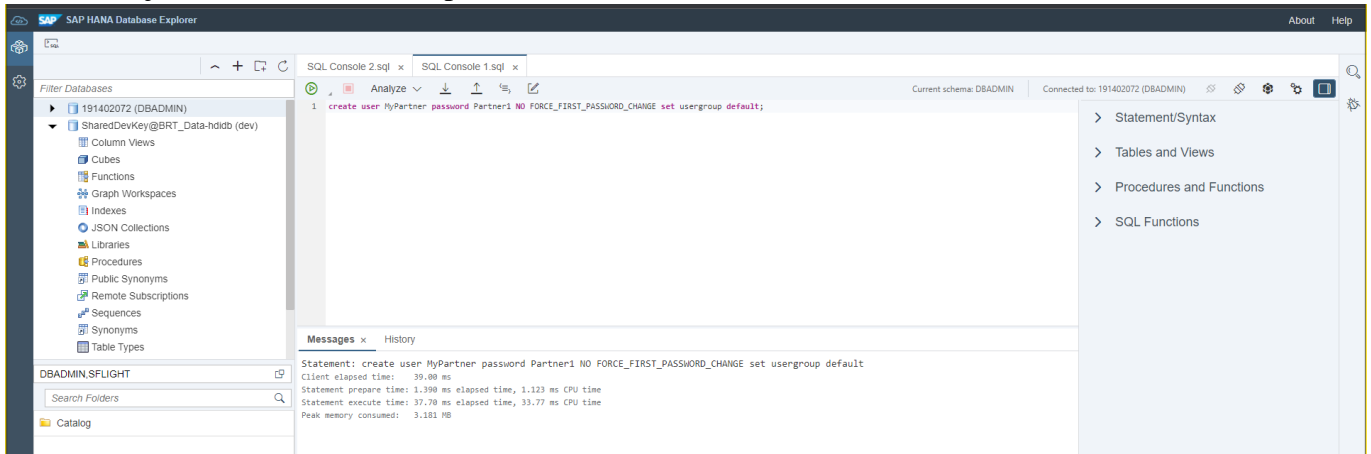
- Tambahkan artifact Role terlebih dahulu.



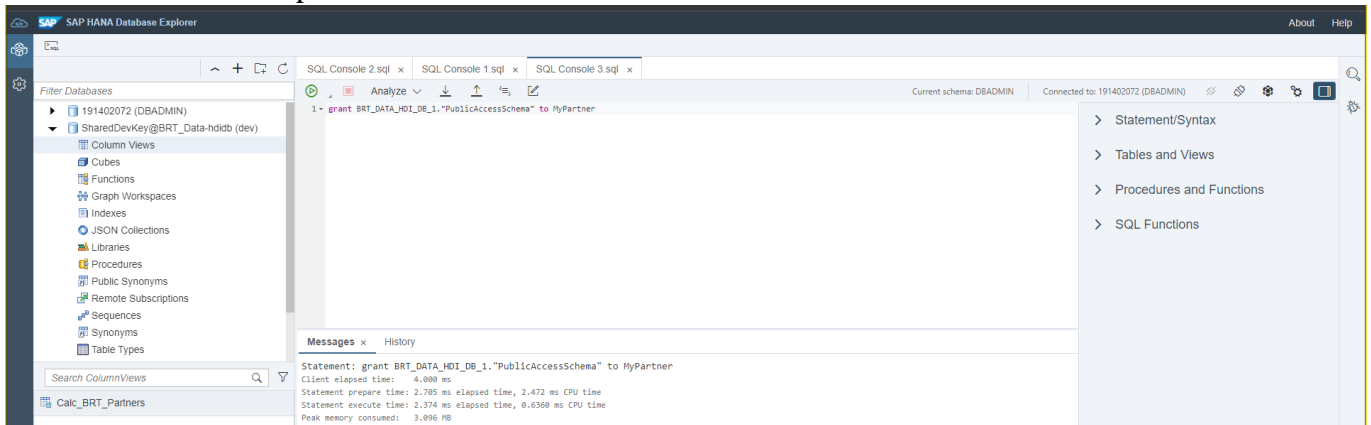
- Lakukan konfigurasi pada file hdbrole dan deploy.



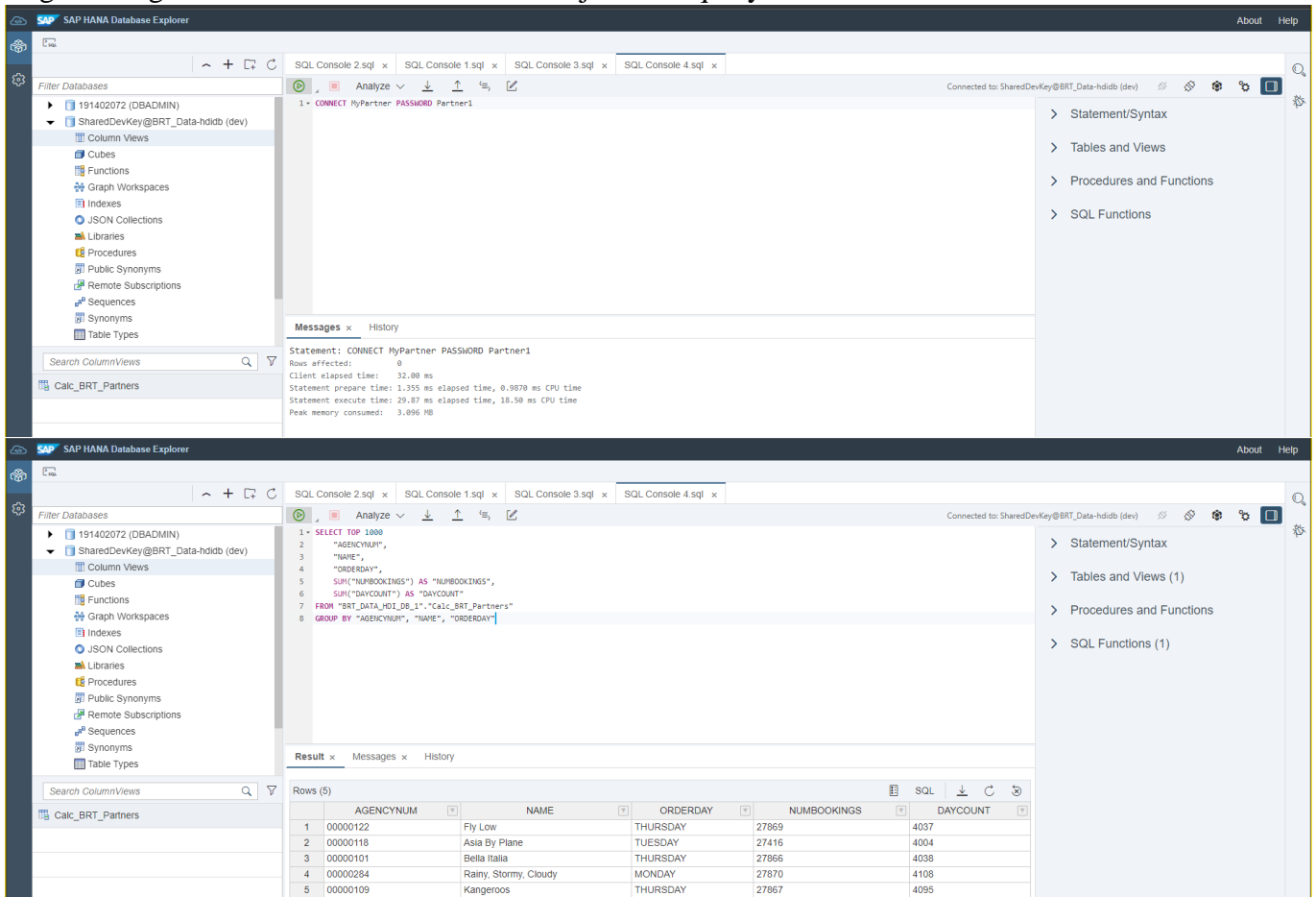
- Kemudian jalankan SQL Console pada DBAMIN dan mulai untuk membuat user baru.



- Berikan akses schema pada user tersebut.



- Log in sebagai user tersebut dan mencoba menjalankan query select data.



Demikian pengerjaan kali ini terkait software SAP HANA Cloud.