

**LAPORAN HASIL STUDI KASUS JOBSHEET 3**



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**PROGRAM STUDI D-IV SISTEM INFORMASI BISNIS**

**JURUSAN TEKNOLOGI INFORMASI**

**POLITEKNIK NEGERI MALANG**

**2024**

## STUDI KASUS

Pak Marto merupakan komisaris dari LegendVehicle. Pak Marto butuh laporan untuk analisa dari hasil penjualan dilihat dari sisi barang / product. Buatlah database OLAP tersebut untuk membantu pak marto menganalisa penjualan barang

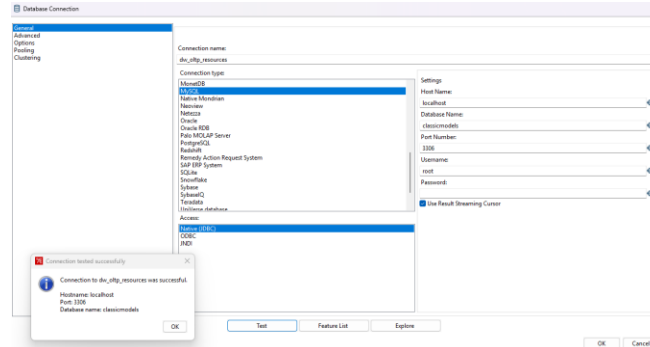
Jawaban

### 1. Membuat tabel dimensi dim\_product

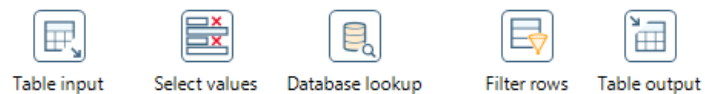
- Menambahkan tabel dimProduct pada database dw\_legendVehicle

```
CREATE TABLE dimProduct (  
  id_dimProduct INT AUTO_INCREMENT PRIMARY KEY,  
  productCode VARCHAR(15),  
  productName VARCHAR(100),  
  productLine VARCHAR(50),  
  productScale VARCHAR(20),  
  productVendor VARCHAR(50)  
);
```

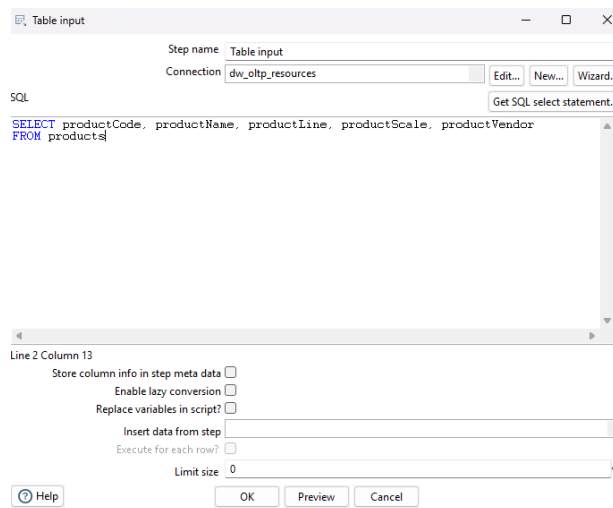
- Menambahkan database connection untuk mengkoneksikan pada tabel classicmodels guna menginputkan



- Menyiapkan elemen-elemen berikut



- Konfigurasi pada elemen Tabel input (mengambil data) sesuai dengan kolom yang diinginkan



- Jika sql benar akan muncul pada preview

Examine preview data

Rows of step: Table input (110 rows)

#	productCode	productName	productLine	productScale	productVendor
1	510_1670	1969 Harley Davidson Ultimate Chopper	Motorcycles	1:10	Min Lin Decast
2	510_1849	1952 Alpine Renault 1300	Classic Cars	1:10	Classic Metal Creations
3	510_2016	1996 Moto Guzzi 1100	Motorcycles	1:10	Highway 66 Mini Classics
4	510_4698	2003 Harley-Davidson Eagle Drag Bike	Motorcycles	1:10	Real Start Decast
5	510_4757	1972 Alfa Romeo GTA	Classic Cars	1:10	Motor City Art Classics
6	510_4962	1962 Lancia Delta 16V	Classic Cars	1:10	Second Gear Decast
7	512_1099	1980 Ford Mustang	Classic Cars	1:12	Autosart Studio Design
8	512_1108	2001 Ferrari Enzo	Classic Cars	1:12	Second Gear Decast
9	512_1666	1938 Seba Bus	Trucks and Buses	1:12	Welly Decast Productions
10	512_2023	2002 Suzuki V800	Motorcycles	1:12	Unimax Art Galleries
11	512_3140	1969 Corvair Monza	Classic Cars	1:18	Welly Decast Productions
12	512_3380	1960 Dodge Charger	Classic Cars	1:12	Welly Decast Productions
13	512_3891	1969 Ford Falcon	Classic Cars	1:12	Second Gear Decast
14	512_3990	1970 Plymouth Hemi Cuda	Classic Cars	1:12	Studio M Art Models
15	512_4673	1957 Chevy Pickup	Trucks and Buses	1:12	Exotic Designs
16	512_4675	1999 Dodge Charger	Classic Cars	1:12	Welly Decast Productions
17	518_1067	1940 Ford Pickup Truck	Trucks and Buses	1:18	Studio M Art Models
18	518_1129	1993 Mazda RX-7	Classic Cars	1:18	Highway 66 Mini Classics
19	518_1242	1937 Lincoln Batline	Vintage Cars	1:18	Motor City Art Classics
20	518_1367	1936 Mercedes-Benz 500K Special Roadster	Vintage Cars	1:18	Studio M Art Models
21	518_1589	1965 Aston Martin DB5	Classic Cars	1:18	Classic Metal Creations
22	518_1662	1960s Black Hawk Helicopter	Planes	1:18	Real Start Decast
23	518_1749	1971 General Young-Jordan	Vintage Cars	1:18	Welly Decast Productions
24	518_1889	1948 Porsche 356-A Roadster	Classic Cars	1:18	Gardner Collectibles
25	518_1984	1993 Honda Civic	Classic Cars	1:18	Min Lin Decast
26	518_2238	1980 Chrysler Plymouth Provider	Classic Cars	1:18	Gardner Collectibles
27	518_2240	1911 Ford Town Car	Vintage Cars	1:18	Motor City Art Classics
28	518_2219	1964 Mercedes Tour Bus	Trucks and Buses	1:18	Unimax Art Galleries
29	518_2325	1932 Model A Ford 4-Coupe	Vintage Cars	1:18	Autosart Studio Design
30	518_2432	1926 Ford Fire Engine	Trucks and Buses	1:18	Carnaset DieCast Legends

- Konfigurasi Select Values dengan menentukan kolom productCode, productName, productLine, productScale, productVendor yang akan diambil

Select values

Step name: Select values

Select & Alter Remove Meta-data

Fields:

#	Fieldname	Rename to	Length	Precision
1	productCode			
2	productName			
3	productLine			
4	productScale			
5	productVendor			

Get fields to select Edit Mapping

Include unspecified fields, ordered by name ☐

Help OK Cancel

- Konfigurasi Database lookup dengan melakukan lookup pada database dw\_legendvehicle pada table dimproduct, sehingga kita dapat mengambil id\_dimProduct dan menyimpannya sebagai foreign key pada tabel fakta

Database lookup

Step name: Database lookup

Connection: dw\_oltp\_resources Edit... New... Wizard...

Lookup schema: dw\_legendvehicle Browse...

Lookup table: dimproduct Browse...

Enable cache? ☐

Cache size in rows (0=cache): 0

Load all data from table ☐

The key(s) to look up the value(s):

#	Table field	Comparator	Field1	Field2
1	productCode	=	productCode	

Values to return from the lookup table:

#	Field	New name	Default	Type
1	id_dimProduct			

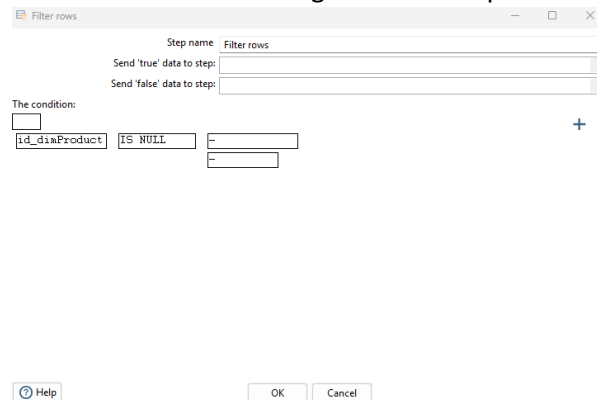
Do not pass the row if the lookup fails ☐

Fail on multiple results? ☐

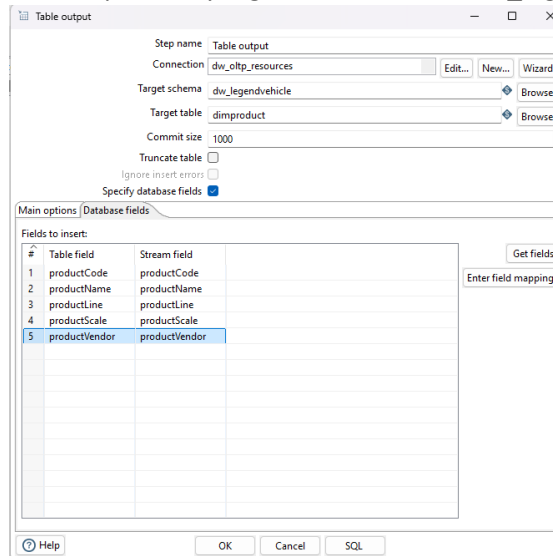
Order by:

Help OK Cancel Get Fields Get lookup fields

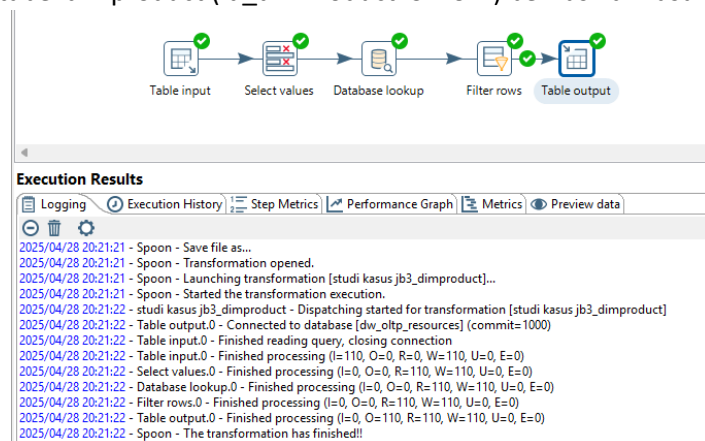
- Konfigurasi filter rows untuk mengambil data dengan syarat kolom id\_dimProduct bernilai NULL, maka data akan dikirim ke langkah Table output.



- Konfigurasi Tabel Output untuk menyimpan data hasil transformasi ke dalam tabel database ke dalam tabel dimproduct yang berada di skema dw\_legendvehicle



- Eksekusi transformasi dan hasilnya semua 110 data baru yang sebelumnya tidak ditemukan di tabel dimproduct (id\_dimProduct IS NULL) berhasil dimasukkan



- Pada preview menunjukkan semua data adalah data baru (akan masuk pada tabel output karna bernilai true).

**Execution Results**

Logging Execution History Step Metrics Performance Graph Metrics Preview data

First rows Last rows Off

#	productCode	productName	productLine	productScale	productVendor	id_dimProduct
1	S10_1678	1969 Harley Davidson Ultimate Chopper	Motorcycles	1:10	Min Lin Diecast	<null>
2	S10_1949	1952 Alpine Renault 1300	Classic Cars	1:10	Classic Metal Creations	<null>
3	S10_2016	1996 Moto Guzzi 1100i	Motorcycles	1:10	Highway 66 Mini Classics	<null>
4	S10_4698	2003 Harley-Davidson Eagle Drag Bike	Motorcycles	1:10	Red Start Diecast	<null>
5	S10_4757	1972 Alfa Romeo GTA	Classic Cars	1:10	Motor City Art Classics	<null>
6	S10_4962	1962 Lancia Delta 16V	Classic Cars	1:10	Second Gear Diecast	<null>
7	S12_1099	1968 Ford Mustang	Classic Cars	1:12	Autoart Studio Design	<null>
8	S12_1108	2001 Ferrari Enzo	Classic Cars	1:12	Second Gear Diecast	<null>
9	S12_1666	1958 Setra Bus	Trucks and Buses	1:12	Welly Diecast Productions	<null>
10	S12_2823	2002 Suzuki XREO	Motorcycles	1:12	Unimax Art Galleries	<null>
11	S12_3148	1969 Corvair Monza	Classic Cars	1:18	Welly Diecast Productions	<null>
12	S12_3380	1968 Dodge Charger	Classic Cars	1:12	Welly Diecast Productions	<null>

- Hasil akhir pada tabel output akan otomatis tersimpan pada database dw\_legendvehicle kolom dimproduct

id\_dimProduct productCode productName productLine productScale productVendor

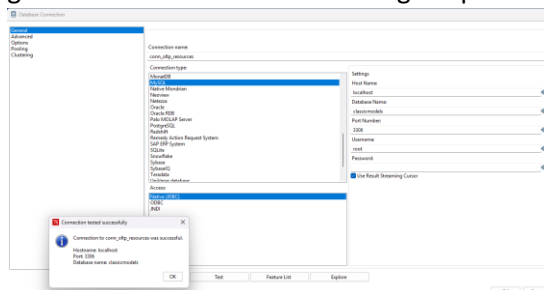
<input type="checkbox"/>	Edit Copy Delete	1 S10_1678	1969 Harley Davidson Ultimate Chopper	Motorcycles	1:10	Min Lin Diecast
<input type="checkbox"/>	Edit Copy Delete	2 S10_1949	1952 Alpine Renault 1300	Classic Cars	1:10	Classic Metal Creations
<input type="checkbox"/>	Edit Copy Delete	3 S10_2016	1996 Moto Guzzi 1100i	Motorcycles	1:10	Highway 66 Mini Classics
<input type="checkbox"/>	Edit Copy Delete	4 S10_4698	2003 Harley-Davidson Eagle Drag Bike	Motorcycles	1:10	Red Start Diecast
<input type="checkbox"/>	Edit Copy Delete	5 S10_4757	1972 Alfa Romeo GTA	Classic Cars	1:10	Motor City Art Classics
<input type="checkbox"/>	Edit Copy Delete	6 S10_4962	1962 Lancia Delta 16V	Classic Cars	1:10	Second Gear Diecast
<input type="checkbox"/>	Edit Copy Delete	7 S12_1099	1968 Ford Mustang	Classic Cars	1:12	Autoart Studio Design
<input type="checkbox"/>	Edit Copy Delete	8 S12_1108	2001 Ferrari Enzo	Classic Cars	1:12	Second Gear Diecast
<input type="checkbox"/>	Edit Copy Delete	9 S12_1666	1958 Setra Bus	Trucks and Buses	1:12	Welly Diecast Productions
<input type="checkbox"/>	Edit Copy Delete	10 S12_2823	2002 Suzuki XREO	Motorcycles	1:12	Unimax Art Galleries
<input type="checkbox"/>	Edit Copy Delete	11 S12_3148	1969 Corvair Monza	Classic Cars	1:18	Welly Diecast Productions
<input type="checkbox"/>	Edit Copy Delete	12 S12_3380	1968 Dodge Charger	Classic Cars	1:12	Welly Diecast Productions
<input type="checkbox"/>	Edit Copy Delete	13 S12_3891	1969 Ford Falcon	Classic Cars	1:12	Second Gear Diecast
<input type="checkbox"/>	Edit Copy Delete	14 S12_3900	1970 Plymouth Hemi Cuda	Classic Cars	1:12	Studio M Art Models
<input type="checkbox"/>	Edit Copy Delete	15 S12_4473	1987 Chevy Pickup	Trucks and Buses	1:12	Exoto Designs
<input type="checkbox"/>	Edit Copy Delete	16 S12_4675	1969 Dodge Charger	Classic Cars	1:12	Welly Diecast Productions

## 2. Membuat tabel fakta fact\_sales

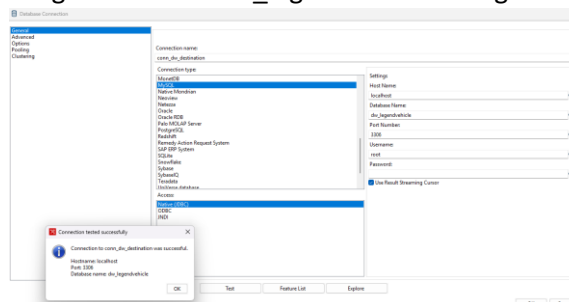
- Membuat tabel baru pada database dw\_legendvehicle dengan nama factsales

```
CREATE TABLE factSales (
    id_factSales INT NOT NULL AUTO_INCREMENT PRIMARY KEY,
    id_dimProduct INT,
    id_dimDate INT,
    quantitySold INT,
    salesAmount DECIMAL(10,2),
    FOREIGN KEY (id_dimProduct) REFERENCES dimProduct(id_dimProduct),
    FOREIGN KEY (id_dimDate) REFERENCES dimDate(id_dimDate)
);
```

- Mengkoneksikan dengan database classicmodels sebagai input



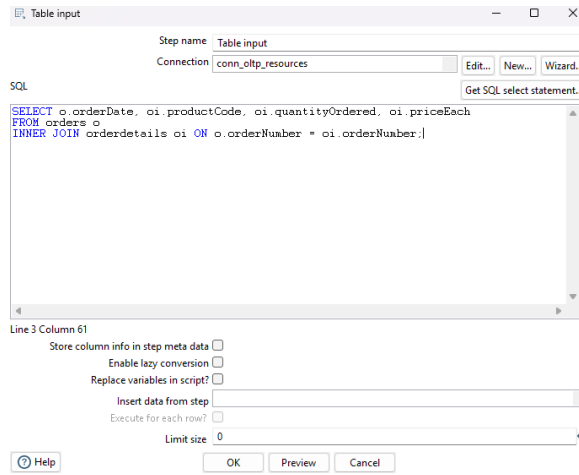
- Mengkonsikan juga dengan database dw\_legendvehicle sebagai output



- Menyiapkan elemen-elemen berikut



- Konfigurasi pada elemen Tabel input (mengambil data) sesuai dengan kolom yang diinginkan

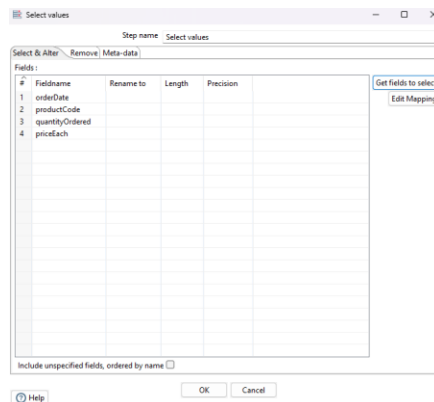


- Jika sql benar akan muncul datanya pada preview

Rows of step: Table input (1000 rows)

#	orderDate	productCode	quantityOrdered	priceEach
1	2003/01/06 00:00:00.000	S18_1749	30	136.0
2	2003/01/06 00:00:00.000	S18_2248	50	55.09
3	2003/01/06 00:00:00.000	S18_4409	22	75.46
4	2003/01/06 00:00:00.000	S24_3969	49	35.29
5	2003/01/09 00:00:00.000	S18_2325	25	108.06
6	2003/01/09 00:00:00.000	S18_2795	26	167.06
7	2003/01/09 00:00:00.000	S24_1937	45	32.53
8	2003/01/09 00:00:00.000	S24_2022	46	44.35
9	2003/01/10 00:00:00.000	S18_1342	39	95.55
10	2003/01/10 00:00:00.000	S18_1367	41	43.13
11	2003/01/29 00:00:00.000	S10_1949	26	214.3
12	2003/01/29 00:00:00.000	S10_4962	42	119.67
13	2003/01/29 00:00:00.000	S12_1666	27	121.64
14	2003/01/29 00:00:00.000	S18_1097	35	94.5
15	2003/01/29 00:00:00.000	S18_2432	22	58.34
16	2003/01/29 00:00:00.000	S18_2949	27	92.19
17	2003/01/29 00:00:00.000	S18_2957	35	61.84
18	2003/01/29 00:00:00.000	S18_3136	25	86.92
19	2003/01/29 00:00:00.000	S18_3520	46	86.31
20	2003/01/29 00:00:00.000	S18_4600	36	90.07
21	2003/01/29 00:00:00.000	S18_4668	41	40.75
22	2003/01/29 00:00:00.000	S24_2300	36	107.34
23	2003/01/29 00:00:00.000	S24_4258	25	88.62
24	2003/01/29 00:00:00.000	S32_1268	31	92.46
25	2003/01/29 00:00:00.000	S32_3522	45	63.35
26	2003/01/29 00:00:00.000	S700_2824	42	94.07
27	2003/01/31 00:00:00.000	S12_3148	34	131.44
28	2003/01/31 00:00:00.000	S12_4473	41	111.39
29	2003/01/31 00:00:00.000	S18_2238	24	135.9

- Konfigurasi Select Values dengan menentukan kolom orderDate, productCode, quantityOrder, priceEach



- Konfigurasi database lookup1 untuk mengambil data dari dimproduct

Database lookup

Step name: Database lookup

Connection: conn\_dw\_destination

Lookup schema: dw\_legendvehicle

Lookup table: dimproduct

Enable cache? ☐

Cache size in rows (0=cache): 0

Load all data from table ☐

The key(s) to look up the value(s):

#	Table field	Comparator	Field1	Field2
1	productCode	=	productCode	

Values to return from the lookup table:

#	Field	New name	Default	Type
1	id_dimProduct			

Do not pass the row if the lookup fails? ☐

Fail on multiple results? ☐

Order by:

Help OK Cancel Get Fields Get lookup fields

- Konfigurasi database lookup2 untuk mengambil data dari dimdate

Database lookup

Step name: Database lookup 2

Connection: conn\_dw\_destination

Lookup schema: dw\_legendvehicle

Lookup table: dimdate

Enable cache? ☐

Cache size in rows (0=cache): 0

Load all data from table ☐

The key(s) to look up the value(s):

#	Table field	Comparator	Field1	Field2
1	date	=	orderDate	

Values to return from the lookup table:

#	Field	New name	Default	Type
1	id_dimDate			
2				

Do not pass the row if the lookup fails? ☐

Fail on multiple results? ☐

Order by:

Help OK Cancel Get Fields Get lookup fields

- Konfigurasi database lookup3 untuk memasukkan data ke factsales

Database lookup

Step name: Database lookup 3

Connection: conn\_dw\_destination

Lookup schema: dw\_legendvehicle

Lookup table: factsales

Enable cache? ☐

Cache size in rows (0=cache): 0

Load all data from table ☐

The key(s) to look up the value(s):

#	Table field	Comparator	Field1	Field2
1	id_dimProduct	=	id_dimProduct	
2	id_dimDate	=	id_dimDate	
3	quantitySold	=	quantityOrdered	
4	salesAmount	=	priceEach	

Values to return from the lookup table:

#	Field	New name	Default	Type
1	id_factSales			

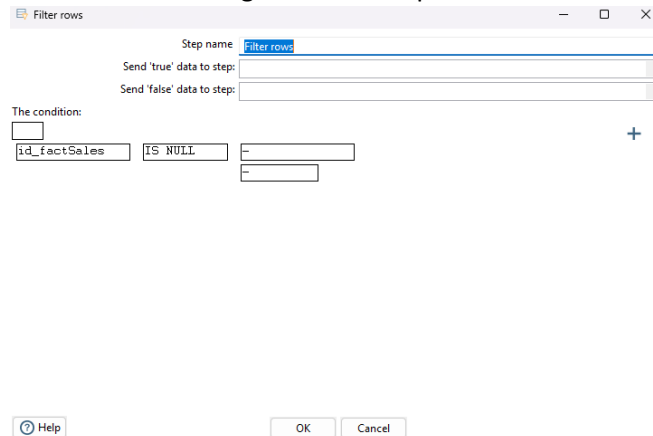
Do not pass the row if the lookup fails? ☐

Fail on multiple results? ☐

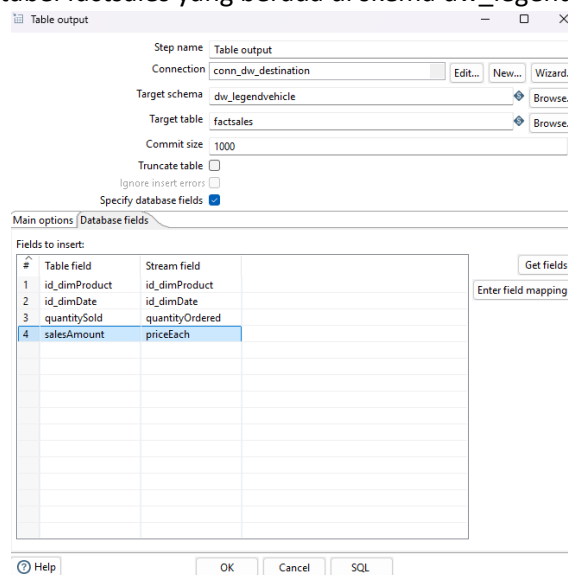
Order by:

Help OK Cancel Get Fields Get lookup fields

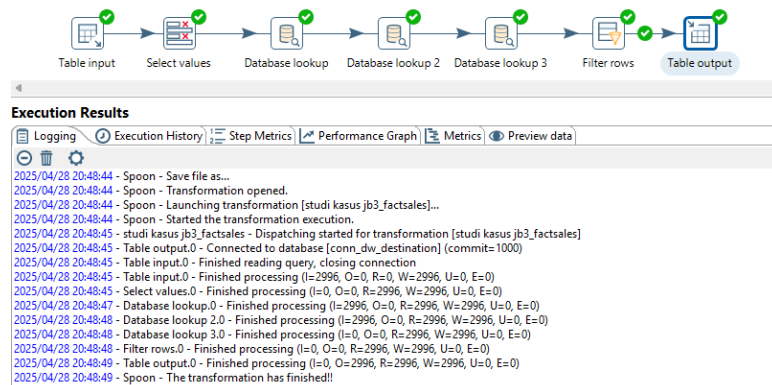
- Konfigurasi filter rows untuk mengambil data dengan syarat kolom id\_factsales bernilai NULL, maka data akan dikirim ke langkah Table output



- Konfigurasi Tabel Output untuk menyimpan data hasil transformasi ke dalam tabel database ke dalam tabel factsales yang berada di skema dw\_legendvehicle



- Eksekusi transformasi dan hasilnya semua 2996 data baru yang sebelumnya tidak ditemukan di tabel factsales (id\_factsales IS NULL) berhasil dimasukkan





- Pada preview menunjukkan semua data adalah data baru (akan masuk pada tabel output karna bernilai true)

**Execution Results**

Logging Execution History Step Metrics Performance Graph Metrics Preview data

First rows Last rows Off

#	orderDate	productCode	quantityOrdered	priceEach	id_dimProduct	id_dimDate	id_factSales
1	2003/01/06 00:00:00.000	S18_1749	30	136.0	23	6	<null>
2	2003/01/06 00:00:00.000	S18_2248	50	55.09	27	6	<null>
3	2003/01/06 00:00:00.000	S18_4409	22	75.46	50	6	<null>
4	2003/01/06 00:00:00.000	S24_3969	49	35.29	80	6	<null>
5	2003/01/09 00:00:00.000	S18_2325	25	108.06	29	9	<null>
6	2003/01/09 00:00:00.000	S18_2795	26	167.06	33	9	<null>
7	2003/01/09 00:00:00.000	S24_1937	45	32.53	61	9	<null>
8	2003/01/09 00:00:00.000	S24_2022	46	44.35	64	9	<null>
9	2003/01/10 00:00:00.000	S18_1342	39	95.55	19	10	<null>
10	2003/01/10 00:00:00.000	S18_1367	41	43.13	20	10	<null>
11	2003/01/29 00:00:00.000	S10_1949	26	214.3	2	29	<null>
12	2003/01/29 00:00:00.000	S10_4962	42	119.67	6	29	<null>
13	2003/01/29 00:00:00.000	S12_1666	27	121.64	9	29	<null>
14	2003/01/29 00:00:00.000	S18_1097	35	94.5	17	29	<null>
15	2003/01/29 00:00:00.000	S18_2427	22	58.34	30	29	<null>

- Hasil akhir pada tabel output akan otomatis tersimpan pada database dw\_legendvehicle kolom factsales

id	id_dimProduct	id_dimDate	quantitySold	salesAmount
1	23	6	30	136.00
2	27	6	50	55.09
3	50	6	22	75.46
4	80	6	49	35.29
5	29	9	25	108.06
6	33	9	26	167.06
7	61	9	45	32.53
8	64	9	46	44.35
9	19	10	39	95.55
10	20	10	41	43.13
11	2	29	26	214.30
12	6	29	42	119.67
13	9	29	27	121.64
14	17	29	35	94.50
15	30	29	22	58.34
16	35	29	27	82.19
17	36	29	35	61.84
18	38	29	25	88.82
19	44	29	46	86.31
20	52	29	36	86.07
21	53	29	41	40.75

### 3. Membuat job untuk menggabungkan dimdate, dimproduct dan factsales

- Menyiapkan elemen-elemen berikut



- Start: Objek untuk melakukan konfigurasi cron job dari proses ETL yang telah dibuat
- Transformation 1 : digunakan untuk menjalankan transformation pembuatan dimDate.

Transformation

Entry Name: Transformation

Transformation: D:\kuliah\sem4\data warehouse\pentaho\Ub3-1.ktr

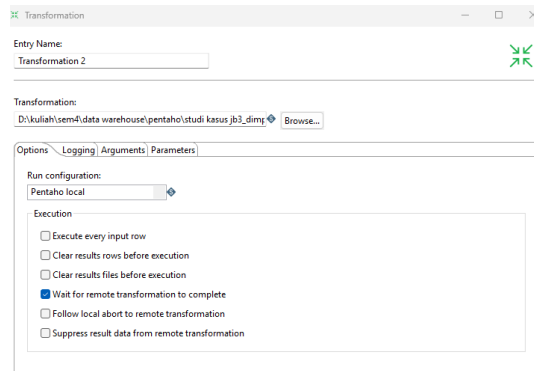
Options Logging Arguments Parameters

Run configuration: Pentaho local

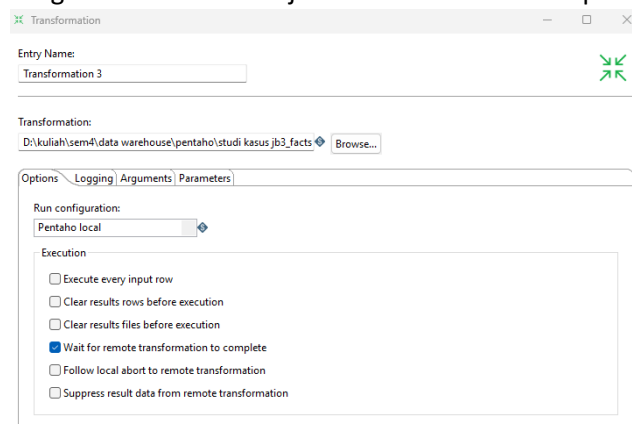
Execution

- ☐ Execute every input row
- ☐ Clear results rows before execution
- ☐ Clear results files before execution
- ☒ Wait for remote transformation to complete
- ☐ Follow local abort to remote transformation
- ☐ Suppress result data from remote transformation

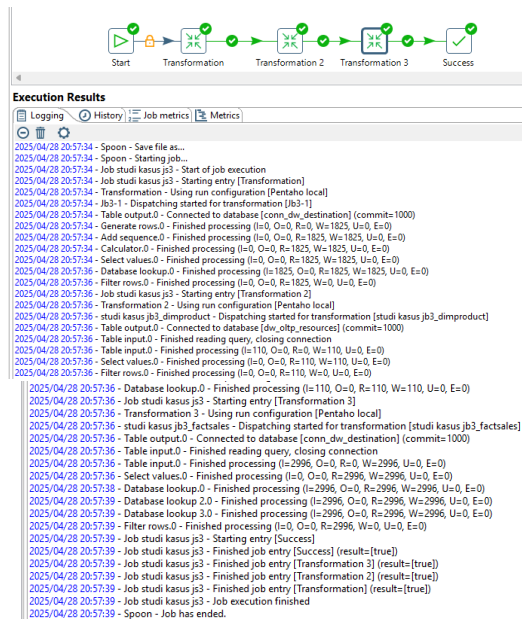
- Transformation 2 : digunakan untuk menjalankan transformation pembuatan dimProduct



- Transformation 3 : digunakan untuk menjalankan transformation pembuatan factSales



- Success: Objek untuk menandakan bahwa proses telah selesai
- Eksekusi Job



- Struktur tabel pada dw\_legendvehicle setelah dieksekusi

