



# Laporan Praktikum

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## PENDAHULUAN

### Studi Kasus

Berdasarkan studi kasus sebelumnya, pimpinan dari LegendVehicle mulai mengenal teknologi dan berpandangan visioner. LegendVehicle akan menerapkan data warehouse pada proses bisnisnya untuk menganalisa proses transaksi yang dilihat dari pembayaran yang masuk. Proses ini digunakan untuk menganalisa KPI “jumlah omset yang dimiliki”.

Untuk membentuk data warehouse tersebut, Data Engineer pada LegendVehicle perlu membuat sebuah database yang digunakan sebagai database OLAP.

Data dari OLTP yang ada akan di “ETL” kan menuju database OLAP.

## DIMENSI WAKTU

### PRAKTIKUM

1. Buatlah sebuah database yang digunakan sebagai OLAP dengan nama dw\_LegendVehicle

```
CREATE DATABASES dw_LegendVehicle;
use dw_LegendVehicle;
```

2. Buatlah table untuk menyimpan data master waktu atau yang disebut dengan **tabel dimensi**.

Beri nama table tersebut dengan nama **dimDate**.

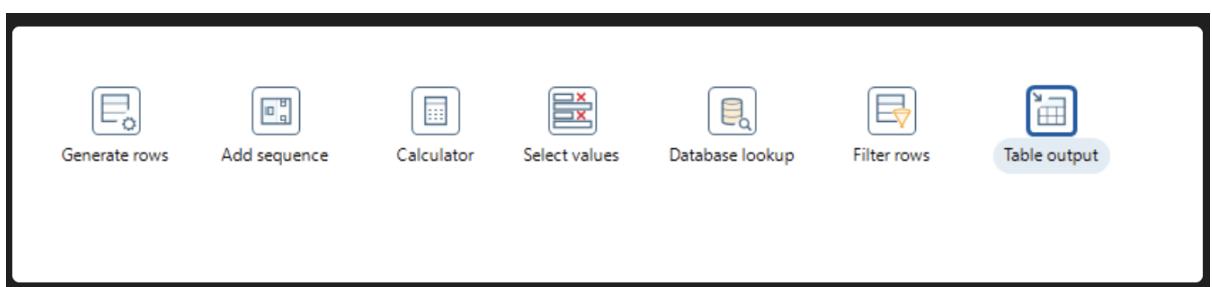
```
CREATE TABLE dimDate(
id_dimDate int not null AUTO_INCREMENT PRIMARY KEY
date date
year int
month int
day int
);
```

Pada tahapan selanjutnya, untuk membuat tabel dimensi dimDate, maka diperlukan generate data tanggal. Data tanggal yang disiapkan pada tabel dimDate menyesuaikan dengan proses bisnis yang berjalan.

The screenshot shows a MySQL Workbench interface. The title bar indicates the server is localhost:3310:3310, the database is dw\_legendvehicle, and the table is dimdate. A green message box at the top states: "MySQL returned an empty result set (i.e. zero rows). (Query took 0.0003 seconds.)". Below this, the SQL query "SELECT \* FROM `dimdate`" is displayed. To the right of the query are several options: Profiling, Edit inline, Edit, Explain SQL, Create PHP code, and Refresh. Below the query is a table header row with columns: id\_dimDate, date, year, month, and day. At the bottom left of the results area, there is a "Query results operations" button, which is currently active, and a "Create view" button.

Proses bisnis pada LegendVechicle adalah 5 tahun. Sehingga data pada tabel dimDate yang harus tersedia adalah tanggal selama 5 tahun. Mulai dari 1 Januari 2023

1. Buka PDI Spoon. Buat Transformation baru -> File - New - Transformation.
2. Drag and Drop beberapa objek yaitu:
  - a. Generate Rows: digunakan untuk membuat baris data baru.
  - b. Add Sequence: digunakan untuk membuat sequence, dalam hal ini membuat data di setiap harinya.
  - c. Calculator: digunakan untuk menjumlahkan hari dan mengambil data tahun, bulan dan hari.
  - d. Select Values: digunakan untuk memilih field yang digunakan.
  - e. Database Lookup: digunakan untuk melihat dan memastikan bahwa data yang akan dimasukkan kedalam tabel dimDate tidak kembar atau sama dengan data yang ada pada tabel dimDate itu sendiri.
  - f. Filter Rows: digunakan untuk mengambil data yang belum ada pada table dimDate setelah dicek sebelumnya.
  - g. Table Output: digunakan untuk menyimpan data pada tabel tujuan (dimDate).



3. Konfigurasi pada Generate Rows adalah merubah limit menjadi 1825 dimana memiliki arti bahwa data yang akan dibuat sebanyak 1825 data. 1825 merupakan jumlah hari dalam 5 tahun ( 365 hari x 5 tahun ).
4. Membuat fields baru bernama CurrentDate dengan type data Date dan format dd-MM-yyyy serta value awal 01-01-2003.

Generate rows

Step name	Generate rows									
Limit	1825									
Never stop generating rows <input type="checkbox"/>										
Interval in ms (delay) 5000										
Current row time field name now										
Previous row time field name FiveSecondsAgo										
Fields :										
#	Name	Type	Format	Length	Precision	Currency	Decimal	Group	Value	Set empty string?
1	CurrentDate	Date	dd-MM-y...						01-01-2003	

5. Hubungkan output dari Generate Rows menuju Add Sequence.
6. Konfigurasi pada Add Sequences adalah merubah Name of value menjadi incrementDay dengan start value bernilai 0 dan increment by bernilai 1

Add sequence

Step name	Add sequence
Name of value	incrementDay
Use a database to generate the sequence	
Use DB to get sequence?	<input type="checkbox"/>
Connection	<input type="button" value="Edit..."/> <input type="button" value="New..."/> <input type="button" value="Wizard..."/>
Schema name	<input type="button" value="Schemas..."/>
Sequence name	SEQ_ <input type="button" value="Sequences..."/>
Use a transformation counter to generate the sequence	
Use counter to calculate sequence?	<input checked="" type="checkbox"/>
Counter name (optional)	<input type="text"/>
Start at value	0 <input type="button" value="\$"/>
Increment by	1 <input type="button" value="\$"/>
Maximum value	999999999 <input type="button" value="\$"/>

Help      OK      Cancel

7. Hubungkan output dari add sequences menuju calculator.
8. Konfigurasi pada calculator dengan membuat fields baru sebagai berikut:
  - a. streamDate merupakan kalkulasi dari CurrentDate + incrementDay
  - b. streamYear merupakan Year dari streamDate
  - c. streamMonth merupakan Month dari streamDate
  - d. streamDay merupakan Day of month dari streamDate

**Calculator**

Step name  
Calculator

Throw an error on non existing files

Fields:

#	New field	Calculation	Field A	Field B	Field C	Value type	Length	Precision	Remove
1	streamDate	Date A + B Days	CurrentDate	incrementDay		None			N
2	streamYear	Year of date A	streamDate			None			N
3	streamMonth	Month of date A	streamDate			None			N
4	streamDay	Day of month of date A	streamDate			None			N

9. Hubungkan output dari calculator menuju Select values
10. Konfigurasi pada select values adalah dengan menekan tombol Get fields to select pada tab Select & Alter. Secara otomatis semua fields dari data input akan muncul.

**Select values**

Step name Select values

Select & Alter Remove Meta-data

Fields :

#	Fieldname	Rename to	Length	Precision	
1	CurrentDate				
2	incrementDay				
3	streamDate				
4	streamYear				
5	streamMonth				
6	streamDay				

Get fields to select  
Edit Mapping

Include unspecified fields, ordered by name

OK Cancel

? Help

11. Dikarenakan tidak semua fields digunakan, maka pada tab Remove diisikan fields CurrentDate dan incrementDay dikarenakan kedua fields tersebut tidak digunakan.

**Select values**

Step name Select values

Select & Alter Remove Meta-data

Fields to remove :

#	Fieldname
1	CurrentDate
2	incrementDay
3	
4	
5	
6	

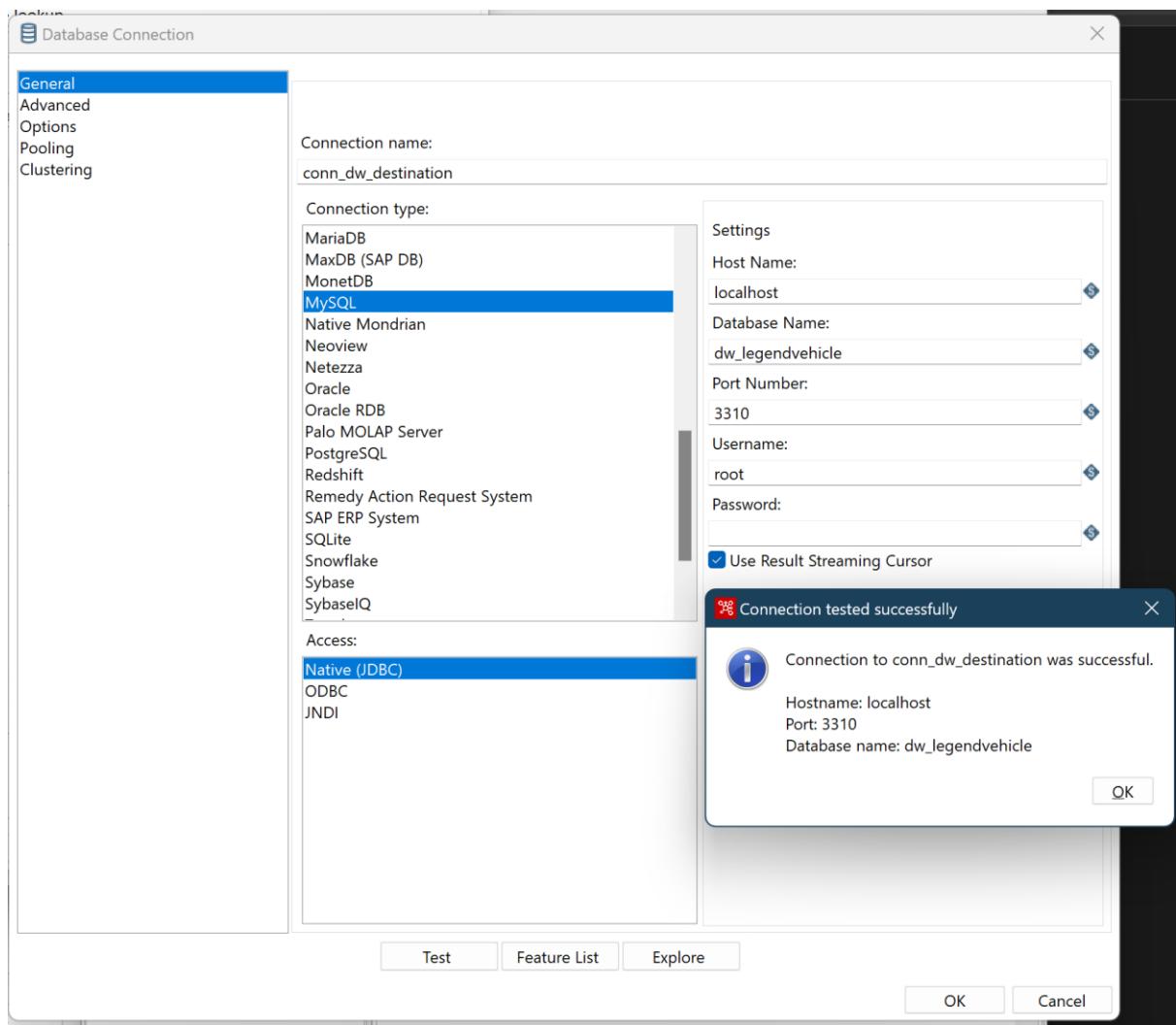
Get fields to remove

OK Cancel

? Help

12. Hubungkan output select values menuju database lookup.

13. Sebelum melakukan konfigurasi pada database lookup, buatlah koneksi terlebih dahulu pada database melalui File - New - Database Connection. Gunakan Connection type MySQL dengan host name , database name, port number, username dan password sesuai konfigurasi MySQL pada device masing-masing. beri nama connection name tersebut dengan nama conn\_dw\_destination.

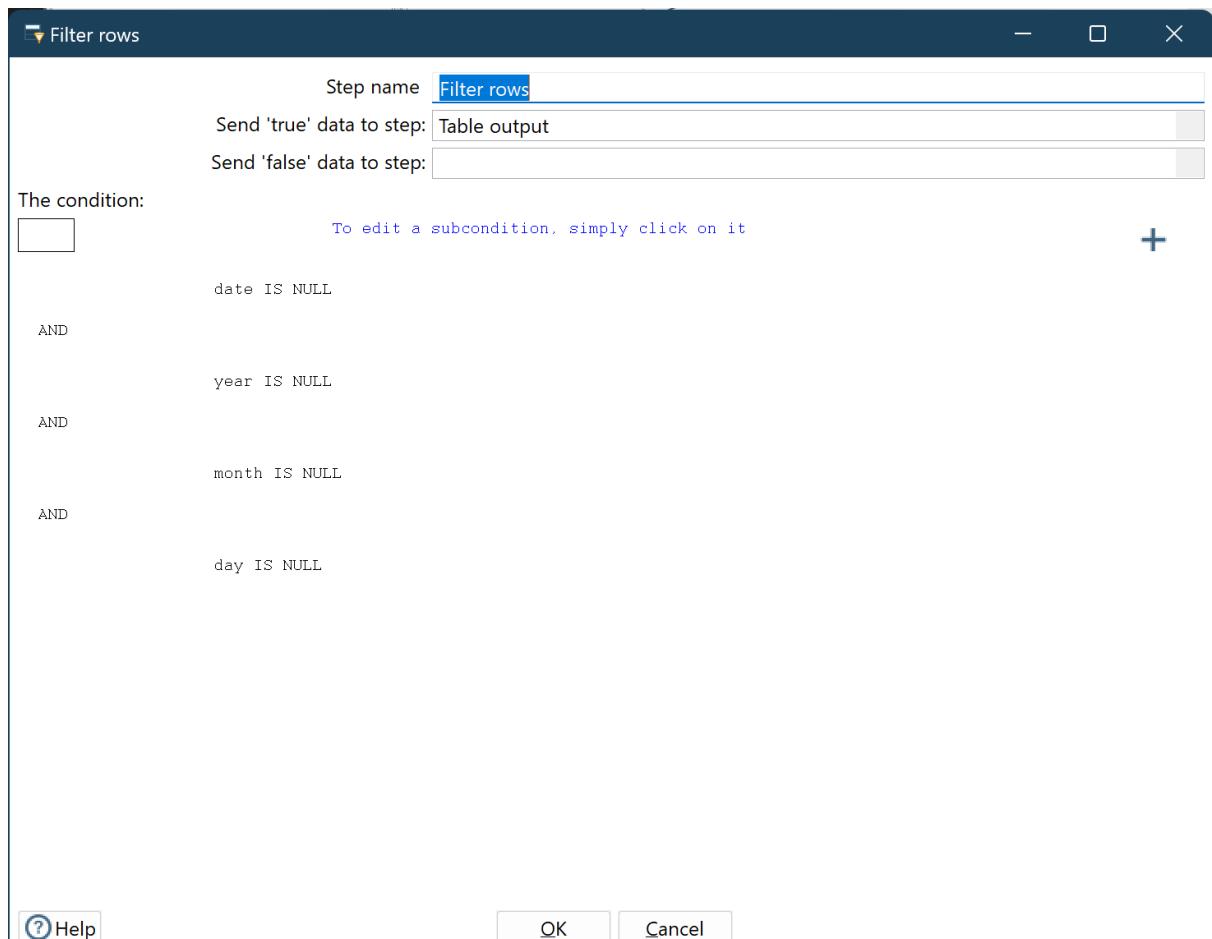


14. Konfigurasi pada database lookup adalah dengan memberikan connection dengan koneksi yang sudah dibuat pada step sebelumnya. dengan schema nama database yang digunakan dan tabel dimdate yang telah dibuat pada langkah pertama.
15. Field yang akan dicek untuk melihat kesamaan isi datanya agar tidak kembar adalah:
- field date pada table dimdate dengan field streamDate
  - field year pada table dimdate dengan field streamYear
  - field month pada table dimdate dengan field streamMonth
  - field day pada table dimdate dengan field streamDay
16. Field yang akan di retrieve adalah field yang ada pada table dimDate yaitu date, year, month, dan day.

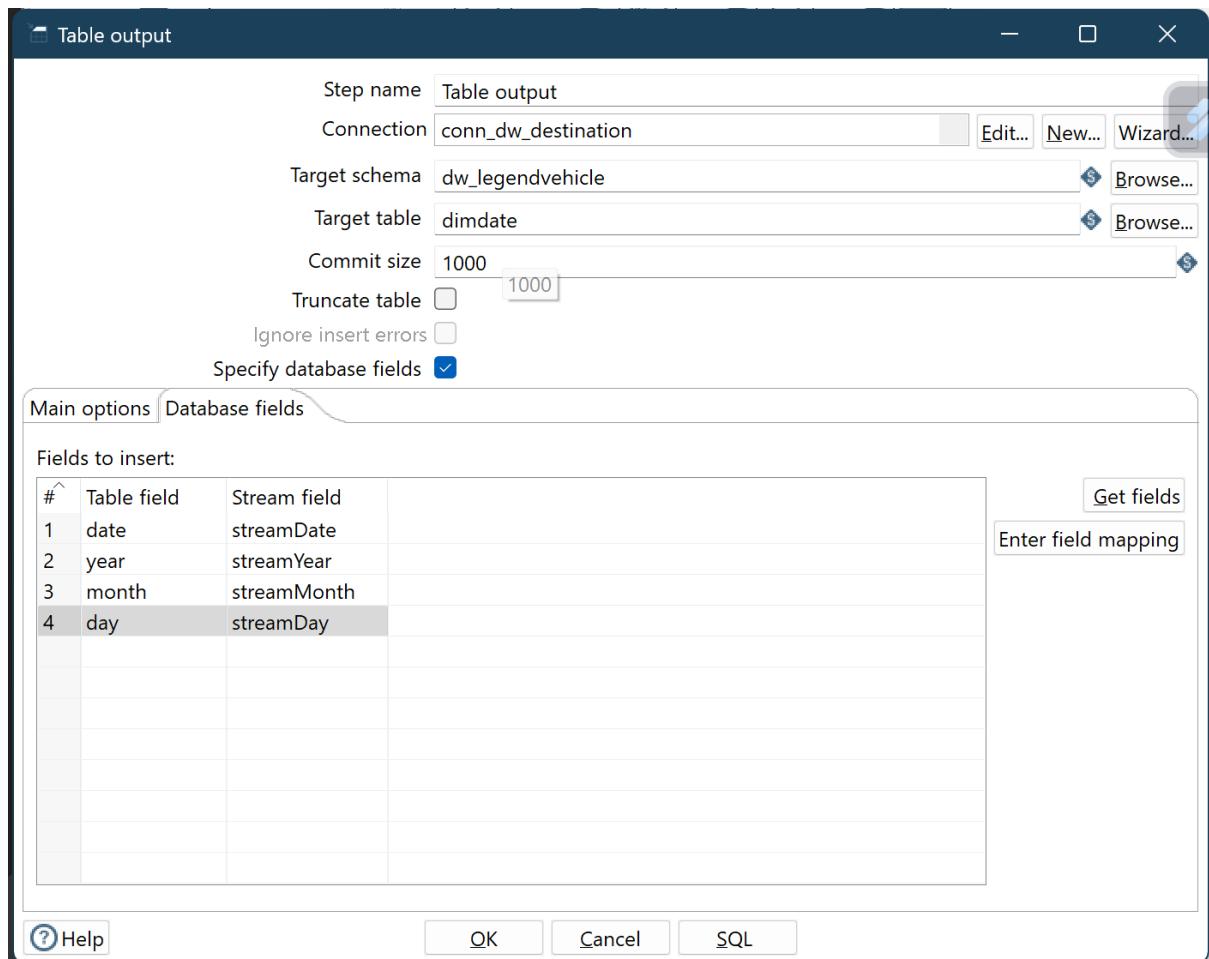
**Database lookup**

Step name	Database lookup			
Connection	conn_dw_destination <input type="button" value="Edit..."/> <input type="button" value="New..."/> <input type="button" value="Wizard..."/>			
Lookup schema	dw_legendvehicle <input type="button" value="Browse..."/>			
Lookup table	dimdate <input type="button" value="Browse..."/>			
Enable cache?	<input type="checkbox"/>			
Cache size in rows (0=cache)	0			
Load all data from table	<input type="checkbox"/>			
The key(s) to look up the value(s):				
#	Table field	Comparator	Field1	
1	date	=	streamDate	
2	year	=	streamYear	
3	month	=	streamMonth	
4	day	=	streamDay	
5				
Values to return from the lookup table :				
#	Field	New name	Default	Type
1	date			
2	year			
3	month			
4	day			
Do not pass the row if the lookup fails <input type="checkbox"/>				
Fail on multiple results? <input type="checkbox"/>				
Order by <input type="text"/>				
<input type="button" value="Help"/>		<input type="button" value="OK"/>	<input type="button" value="Cancel"/>	<input type="button" value="Get Fields"/> <input type="button" value="Get lookup fields"/>

17. Hubungkan output dari database lookup dengan filter rows
18. Konfigurasi pada filter rows adalah dengan melakukan konfigurasi output true data pada table output. Pada bagian ini data yang tidak memiliki kesamaan pada tahapan sebelumnya akan dicek dimana jika fields Stream tidak memiliki kesamaan dengan field dimDate, maka field dimDate tersebut akan bernilai null. Pada pernyataan kondisi tuliskan ( date is null and year is null and month is null and day is null)



19. Hubungkan output dari filter rows menuju table output.
20. Konfigurasi pada table output adalah memberikan koneksi pada conn\_dw\_destination dengan schema dw\_legendvehicle dan table dimdate.
21. Aktifkan specify database fields.
22. Pada tab Database fields, mapping data input streamDate, streamYear, streamMonth dan streamDay dengan fields yang ada pada dimDate. Pada tahapan ini akan dilakukan insert data menuju tabel dimDate.



23. cek isi table dimdate pada database. Jika sukses maka pada table dimdate akan terisi 1825 data.

```
2024/03/19 20:38:05 - Spoon - Transformation opened.  
2024/03/19 20:38:05 - Spoon - Launching transformation [Transformation 1]...  
2024/03/19 20:38:05 - Spoon - Started the transformation execution.  
2024/03/19 20:38:06 - Transformation 1 - Dispatching started for transformation [Transformation 1]  
2024/03/19 20:38:06 - Table output.0 - Connected to database [conn_dw_destination] (commit=1000)  
2024/03/19 20:38:06 - Generate rows.0 - Finished processing (I=0, O=0, R=0, W=1825, U=0, E=0)  
2024/03/19 20:38:06 - Add sequence.0 - Finished processing (I=0, O=0, R=1825, W=1825, U=0, E=0)  
2024/03/19 20:38:06 - Calculator.0 - Finished processing (I=0, O=0, R=1825, W=1825, U=0, E=0)  
2024/03/19 20:38:06 - Select values.0 - Finished processing (I=0, O=0, R=1825, W=1825, U=0, E=0)  
2024/03/19 20:38:07 - Database lookup.0 - Finished processing (I=0, O=0, R=1825, W=1825, U=0, E=0)  
2024/03/19 20:38:07 - Filter rows.0 - Finished processing (I=0, O=0, R=1825, W=1825, U=0, E=0)  
2024/03/19 20:38:08 - Table output.0 - Finished processing (I=0, O=1825, R=1825, W=1825, U=0, E=0)  
2024/03/19 20:38:08 - Spoon - The transformation has finished!!
```

Server: localhost:3310:3310 » Database: dw\_legendvehicle » Table: dimdate

Showing rows 0 - 24 (1825 total, Query took 0.0004 seconds.)

```
SELECT * FROM `dimdate`
```

Profiling [ Edit inline ] [ Edit ] [ Explain SQL ] [ Create ]

1 < > >> | Number of rows: 25

Extra options

	← T →							
<input type="checkbox"/>				1	2003-01-01	2003	1	1
<input type="checkbox"/>				2	2003-01-02	2003	1	2
<input type="checkbox"/>				3	2003-01-03	2003	1	3
<input type="checkbox"/>				4	2003-01-04	2003	1	4
<input type="checkbox"/>				5	2003-01-05	2003	1	5
<input type="checkbox"/>				6	2003-01-06	2003	1	6
<input type="checkbox"/>				7	2003-01-07	2003	1	7
<input type="checkbox"/>				8	2003-01-08	2003	1	8
<input type="checkbox"/>				9	2003-01-09	2003	1	9
<input type="checkbox"/>				10	2003-01-10	2003	1	10

## TUGAS 1

- Buka preview tab pada execution result area di setiap proses object. Amati input dan output data yang ada. Bandingkan di setiap prosesnya. Jelaskan perbedaan di setiap prosesnya.

Proses objek
Generate rows

## TUGAS PERTEMUAN KE-6: DATABASE ANALYTICAL

#	CurrentDate
1	01-01-2003
2	01-01-2003
3	01-01-2003
4	01-01-2003
5	01-01-2003
6	01-01-2003
7	01-01-2003
8	01-01-2003
9	01-01-2003
10	01-01-2003
11	01-01-2003
12	01-01-2003
13	01-01-2003
14	01-01-2003
15	01-01-2003
16	01-01-2003
17	01-01-2003
18	01-01-2003
19	01-01-2003
20	01-01-2003
21	01-01-2003
22	01-01-2003
23	01-01-2003
24	01-01-2003
25	01-01-2003
26	01-01-2003
27	01-01-2003
28	01-01-2003
29	01-01-2003
30	01-01-2003
31	01-01-2003
32	01-01-2003
33	01-01-2003
34	01-01-2003
35	01-01-2003
36	01-01-2003
37	01-01-2003
38	01-01-2003

Pada proses ini mengenerate data sebanyak 1825 yang dimana terdiri dari tanggal, bulan, tahun sesuai dengan apa yang diinputkan.

### Add sequences

#	CurrentDate	incrementDay
1	01-01-2003	0
2	01-01-2003	1
3	01-01-2003	2
4	01-01-2003	3
5	01-01-2003	4
6	01-01-2003	5
7	01-01-2003	6
8	01-01-2003	7
9	01-01-2003	8
10	01-01-2003	9
11	01-01-2003	10
12	01-01-2003	11
13	01-01-2003	12
14	01-01-2003	13
15	01-01-2003	14
16	01-01-2003	15
17	01-01-2003	16
18	01-01-2003	17
19	01-01-2003	18
20	01-01-2003	19
21	01-01-2003	20
22	01-01-2003	21
23	01-01-2003	22
24	01-01-2003	23
25	01-01-2003	24
26	01-01-2003	25
27	01-01-2003	26
28	01-01-2003	27
29	01-01-2003	28
30	01-01-2003	29
31	01-01-2003	30
32	01-01-2003	31
33	01-01-2003	32
34	01-01-2003	33
35	01-01-2003	34
36	01-01-2003	35
37	01-01-2003	36
38	01-01-2003	37

Pada proses ini bertambah satu atribut yaitu incrementDay yang dimana menghitung jumlah hari berdasarkan data tanggal pada proses sebelumnya.

### Calculator

## TUGAS PERTEMUAN KE-6: DATABASE ANALYTICAL

#	CurrentDate	incrementDay	streamDate	streamYear	streamMonth	streamDay
1	01-01-2003	0	2003/01/01 00:00:00.000	2003	1	1
2	01-01-2003	1	2003/01/02 00:00:00.000	2003	1	2
3	01-01-2003	2	2003/01/03 00:00:00.000	2003	1	3
4	01-01-2003	3	2003/01/04 00:00:00.000	2003	1	4
5	01-01-2003	4	2003/01/05 00:00:00.000	2003	1	5
6	01-01-2003	5	2003/01/06 00:00:00.000	2003	1	6
7	01-01-2003	6	2003/01/07 00:00:00.000	2003	1	7
8	01-01-2003	7	2003/01/08 00:00:00.000	2003	1	8
9	01-01-2003	8	2003/01/09 00:00:00.000	2003	1	9
10	01-01-2003	9	2003/01/10 00:00:00.000	2003	1	10
11	01-01-2003	10	2003/01/11 00:00:00.000	2003	1	11
12	01-01-2003	11	2003/01/12 00:00:00.000	2003	1	12
13	01-01-2003	12	2003/01/13 00:00:00.000	2003	1	13
14	01-01-2003	13	2003/01/14 00:00:00.000	2003	1	14
15	01-01-2003	14	2003/01/15 00:00:00.000	2003	1	15
16	01-01-2003	15	2003/01/16 00:00:00.000	2003	1	16
17	01-01-2003	16	2003/01/17 00:00:00.000	2003	1	17
18	01-01-2003	17	2003/01/18 00:00:00.000	2003	1	18
19	01-01-2003	18	2003/01/19 00:00:00.000	2003	1	19
20	01-01-2003	19	2003/01/20 00:00:00.000	2003	1	20
21	01-01-2003	20	2003/01/21 00:00:00.000	2003	1	21
22	01-01-2003	21	2003/01/22 00:00:00.000	2003	1	22
23	01-01-2003	22	2003/01/23 00:00:00.000	2003	1	23
24	01-01-2003	23	2003/01/24 00:00:00.000	2003	1	24
25	01-01-2003	24	2003/01/25 00:00:00.000	2003	1	25
26	01-01-2003	25	2003/01/26 00:00:00.000	2003	1	26
27	01-01-2003	26	2003/01/27 00:00:00.000	2003	1	27
28	01-01-2003	27	2003/01/28 00:00:00.000	2003	1	28
29	01-01-2003	28	2003/01/29 00:00:00.000	2003	1	29
30	01-01-2003	29	2003/01/30 00:00:00.000	2003	1	30
31	01-01-2003	30	2003/01/31 00:00:00.000	2003	1	31
32	01-01-2003	31	2003/02/01 00:00:00.000	2003	2	1
33	01-01-2003	32	2003/02/02 00:00:00.000	2003	2	2
34	01-01-2003	33	2003/02/03 00:00:00.000	2003	2	3
35	01-01-2003	34	2003/02/04 00:00:00.000	2003	2	4
36	01-01-2003	35	2003/02/05 00:00:00.000	2003	2	5
37	01-01-2003	36	2003/02/06 00:00:00.000	2003	2	6
38	01-01-2003	37	2003/02/07 00:00:00.000	2003	2	7

Pada proses ini lebih kompleks dibanding sebelumnya dikarenakan memecah dan mengrouping data tanggal menjadi tahun, bulan, hari.

### Select values

#	streamDate	streamYear	streamMonth	streamDay
1	2003/01/01 00:00:00.000	2003	1	1
2	2003/01/02 00:00:00.000	2003	1	2
3	2003/01/03 00:00:00.000	2003	1	3
4	2003/01/04 00:00:00.000	2003	1	4
5	2003/01/05 00:00:00.000	2003	1	5
6	2003/01/06 00:00:00.000	2003	1	6
7	2003/01/07 00:00:00.000	2003	1	7
8	2003/01/08 00:00:00.000	2003	1	8
9	2003/01/09 00:00:00.000	2003	1	9
10	2003/01/10 00:00:00.000	2003	1	10
11	2003/01/11 00:00:00.000	2003	1	11
12	2003/01/12 00:00:00.000	2003	1	12
13	2003/01/13 00:00:00.000	2003	1	13
14	2003/01/14 00:00:00.000	2003	1	14
15	2003/01/15 00:00:00.000	2003	1	15
16	2003/01/16 00:00:00.000	2003	1	16
17	2003/01/17 00:00:00.000	2003	1	17
18	2003/01/18 00:00:00.000	2003	1	18
19	2003/01/19 00:00:00.000	2003	1	19
20	2003/01/20 00:00:00.000	2003	1	20
21	2003/01/21 00:00:00.000	2003	1	21
22	2003/01/22 00:00:00.000	2003	1	22
23	2003/01/23 00:00:00.000	2003	1	23
24	2003/01/24 00:00:00.000	2003	1	24
25	2003/01/25 00:00:00.000	2003	1	25
26	2003/01/26 00:00:00.000	2003	1	26
27	2003/01/27 00:00:00.000	2003	1	27
28	2003/01/28 00:00:00.000	2003	1	28
29	2003/01/29 00:00:00.000	2003	1	29
30	2003/01/30 00:00:00.000	2003	1	30
31	2003/01/31 00:00:00.000	2003	1	31
32	2003/02/01 00:00:00.000	2003	2	1
33	2003/02/02 00:00:00.000	2003	2	2
34	2003/02/03 00:00:00.000	2003	2	3
35	2003/02/04 00:00:00.000	2003	2	4
36	2003/02/05 00:00:00.000	2003	2	5
37	2003/02/06 00:00:00.000	2003	2	6
38	2003/02/07 00:00:00.000	2003	2	7

Pada proses ini kolom yang digunakan lebih sedikit dibanding sebelumnya dikarenakan terdapat penghapusan atau remove kolom yang dimana dapat menampilkan kolom-kolom tertentu saja.

### Database lookup

## TUGAS PERTEMUAN KE-6: DATABASE ANALYTICAL

#	streamDate	streamYear	streamMonth	streamDay	date	year	month	day
1	2003/01/01 00:00:00.000	2003	1	1	2003/01/01 00:00:00.000	2003	1	1
2	2003/01/02 00:00:00.000	2003	1	2	2003/01/02 00:00:00.000	2003	1	2
3	2003/01/03 00:00:00.000	2003	1	3	2003/01/03 00:00:00.000	2003	1	3
4	2003/01/04 00:00:00.000	2003	1	4	2003/01/04 00:00:00.000	2003	1	4
5	2003/01/05 00:00:00.000	2003	1	5	2003/01/05 00:00:00.000	2003	1	5
6	2003/01/06 00:00:00.000	2003	1	6	2003/01/06 00:00:00.000	2003	1	6
7	2003/01/07 00:00:00.000	2003	1	7	2003/01/07 00:00:00.000	2003	1	7
8	2003/01/08 00:00:00.000	2003	1	8	2003/01/08 00:00:00.000	2003	1	8
9	2003/01/09 00:00:00.000	2003	1	9	2003/01/09 00:00:00.000	2003	1	9
10	2003/01/10 00:00:00.000	2003	1	10	2003/01/10 00:00:00.000	2003	1	10
11	2003/01/11 00:00:00.000	2003	1	11	2003/01/11 00:00:00.000	2003	1	11
12	2003/01/12 00:00:00.000	2003	1	12	2003/01/12 00:00:00.000	2003	1	12
13	2003/01/13 00:00:00.000	2003	1	13	2003/01/13 00:00:00.000	2003	1	13
14	2003/01/14 00:00:00.000	2003	1	14	2003/01/14 00:00:00.000	2003	1	14
15	2003/01/15 00:00:00.000	2003	1	15	2003/01/15 00:00:00.000	2003	1	15
16	2003/01/16 00:00:00.000	2003	1	16	2003/01/16 00:00:00.000	2003	1	16
17	2003/01/17 00:00:00.000	2003	1	17	2003/01/17 00:00:00.000	2003	1	17
18	2003/01/18 00:00:00.000	2003	1	18	2003/01/18 00:00:00.000	2003	1	18
19	2003/01/19 00:00:00.000	2003	1	19	2003/01/19 00:00:00.000	2003	1	19
20	2003/01/20 00:00:00.000	2003	1	20	2003/01/20 00:00:00.000	2003	1	20
21	2003/01/21 00:00:00.000	2003	1	21	2003/01/21 00:00:00.000	2003	1	21
22	2003/01/22 00:00:00.000	2003	1	22	2003/01/22 00:00:00.000	2003	1	22
23	2003/01/23 00:00:00.000	2003	1	23	2003/01/23 00:00:00.000	2003	1	23
24	2003/01/24 00:00:00.000	2003	1	24	2003/01/24 00:00:00.000	2003	1	24
25	2003/01/25 00:00:00.000	2003	1	25	2003/01/25 00:00:00.000	2003	1	25
26	2003/01/26 00:00:00.000	2003	1	26	2003/01/26 00:00:00.000	2003	1	26
27	2003/01/27 00:00:00.000	2003	1	27	2003/01/27 00:00:00.000	2003	1	27
28	2003/01/28 00:00:00.000	2003	1	28	2003/01/28 00:00:00.000	2003	1	28
29	2003/01/29 00:00:00.000	2003	1	29	2003/01/29 00:00:00.000	2003	1	29
30	2003/01/30 00:00:00.000	2003	1	30	2003/01/30 00:00:00.000	2003	1	30
31	2003/01/31 00:00:00.000	2003	1	31	2003/01/31 00:00:00.000	2003	1	31
32	2003/02/01 00:00:00.000	2003	2	1	2003/02/01 00:00:00.000	2003	2	1
33	2003/02/02 00:00:00.000	2003	2	2	2003/02/02 00:00:00.000	2003	2	2
34	2003/02/03 00:00:00.000	2003	2	3	2003/02/03 00:00:00.000	2003	2	3
35	2003/02/04 00:00:00.000	2003	2	4	2003/02/04 00:00:00.000	2003	2	4
36	2003/02/05 00:00:00.000	2003	2	5	2003/02/05 00:00:00.000	2003	2	5
37	2003/02/06 00:00:00.000	2003	2	6	2003/02/06 00:00:00.000	2003	2	6
38	2003/02/07 00:00:00.000	2003	2	7	2003/02/07 00:00:00.000	2003	2	7

Pada proses ini menampilkan versi lengkap dari hasil proses-proses sebelumnya sebelum dilakukan filtering dan dimasukkan ke dalam database.

### Filter rows

#	streamDate	streamYear	streamMonth	streamDay	date	year	month	day
1								

Pada proses filtering tidak adanya data yang dihasilkan dikarenakan setiap data tidak ada yang memiliki nilai null.

### Table output

#	streamDate	streamYear	streamMonth	streamDay	date	year	month	day
1								

Pada proses ini pun sama dikarenakan data sudah diinputkan ke dalam database.

## DIMENSI PEGAWAI

### PRAKTIKUM

- Buatlah tabel dimPegawai pada dw\_LegendVehicle.

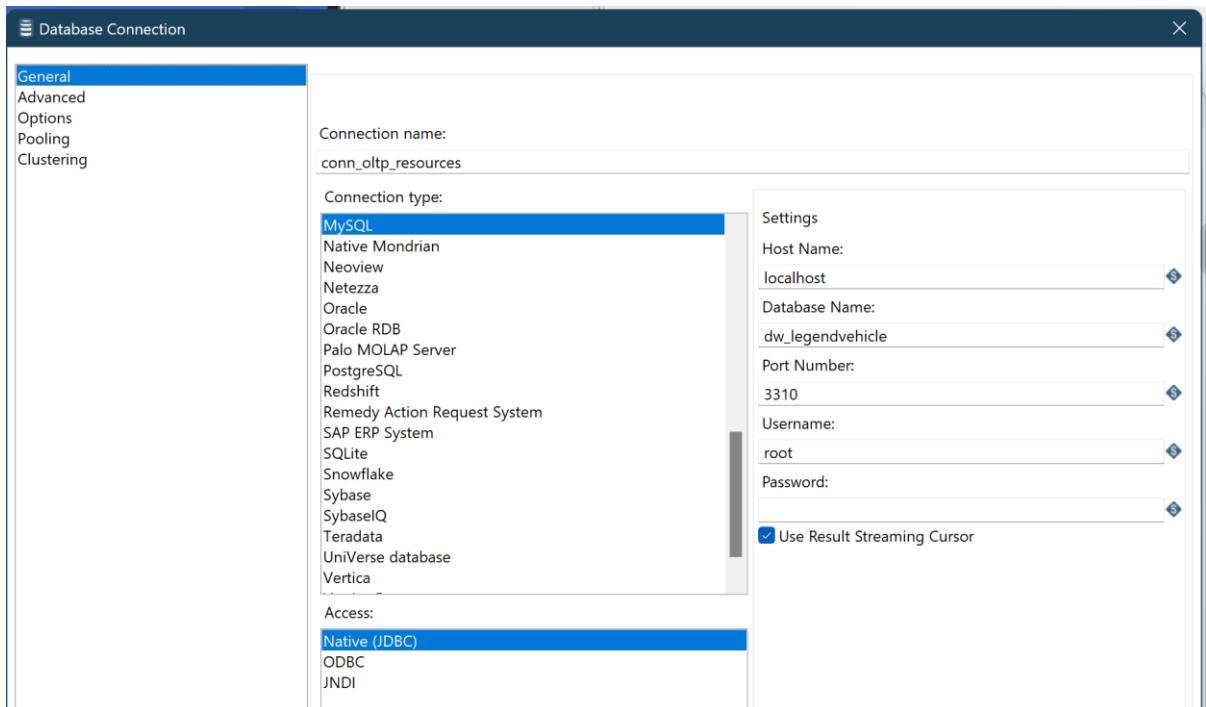
```
CREATE TABLE dimEmployees(  
    id_dimEmployees int not_null auto increment primary,  
    employeeNumber int(11),  
    firstName varchar(50),  
    lastname varchar(50),  
    jobtitle varchar(50),  
    boss_firstname varchar(50),  
    boss_lastname varchar(50),  
    updated date DEFAULT CURRENT_DATE  
);
```

 MySQL returned an empty result set (i.e. zero rows). (Query took 0.0201 seconds.)

```
CREATE TABLE dimEmployees( id_dimEmployees int NOT NULL AUTO_INCREMENT PRIMARY KEY,  
employeeNumber int, firstName varchar(50), lastName varchar(50), jobTitle varchar(50),  
bossFirstName varchar(50), bossLastName varchar(50), updated date DEFAULT CURRENT_DATE );
```

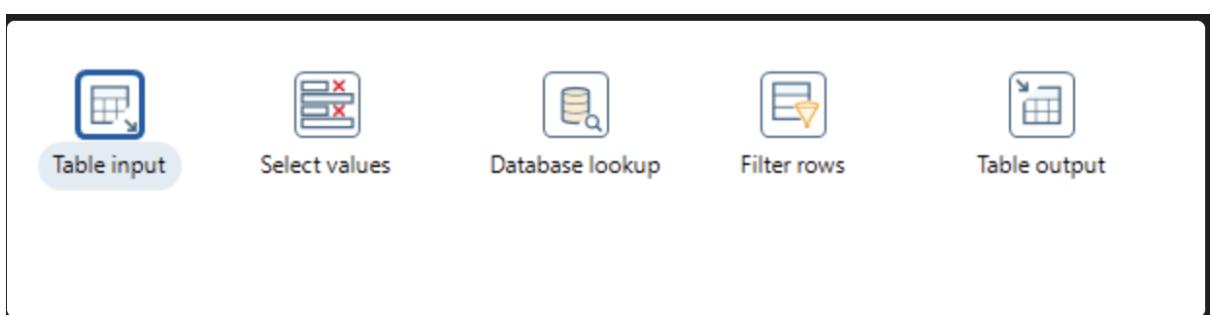
[ Edit inline ] [ Edit ] [ Create PHP code ]

- Pada PDI Spoon buatlah koneksi baru dengan nama conn\_oltp\_resources yang menghubungkan dengan database oltp. Sesuaikan hostname, database name, port number, username dan password dengan keadaan device masing-masing.

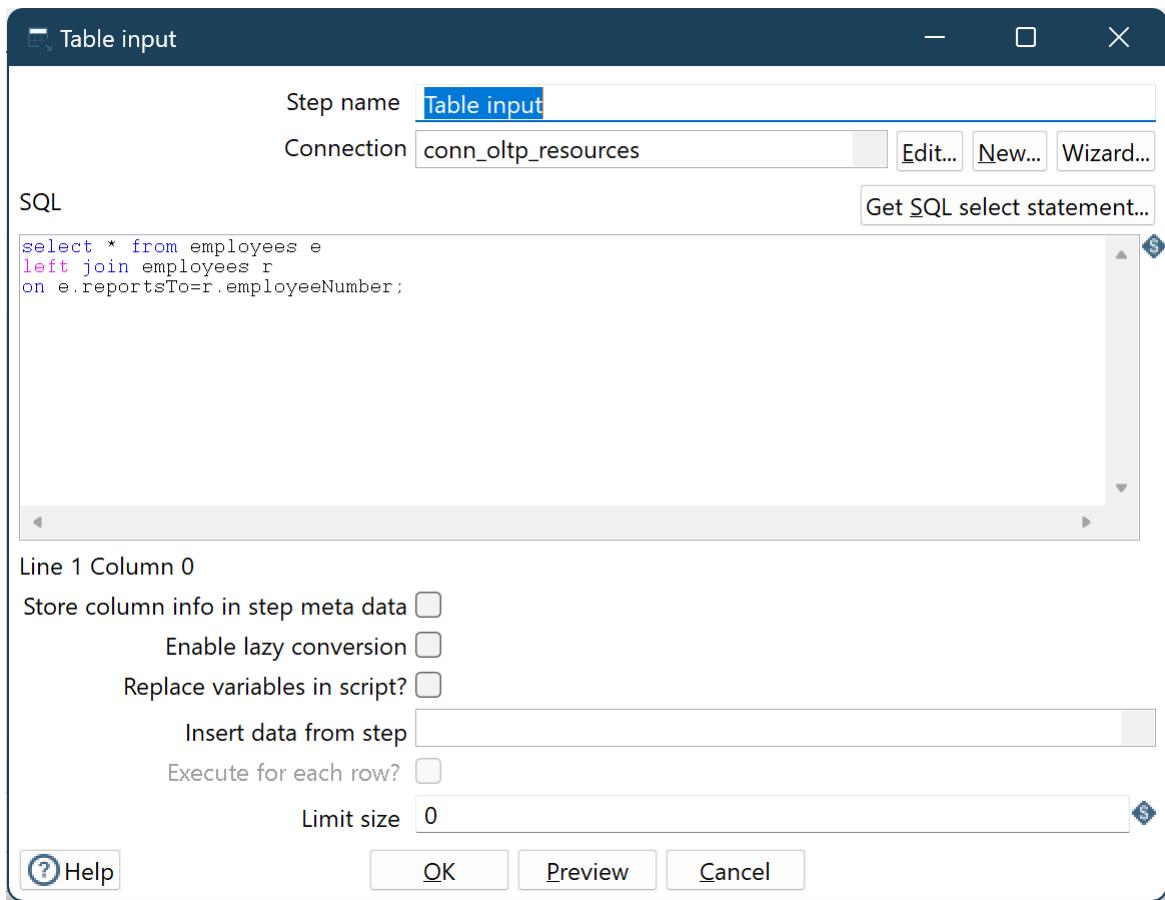


3. Drag and drop beberapa objek sebagai berikut :

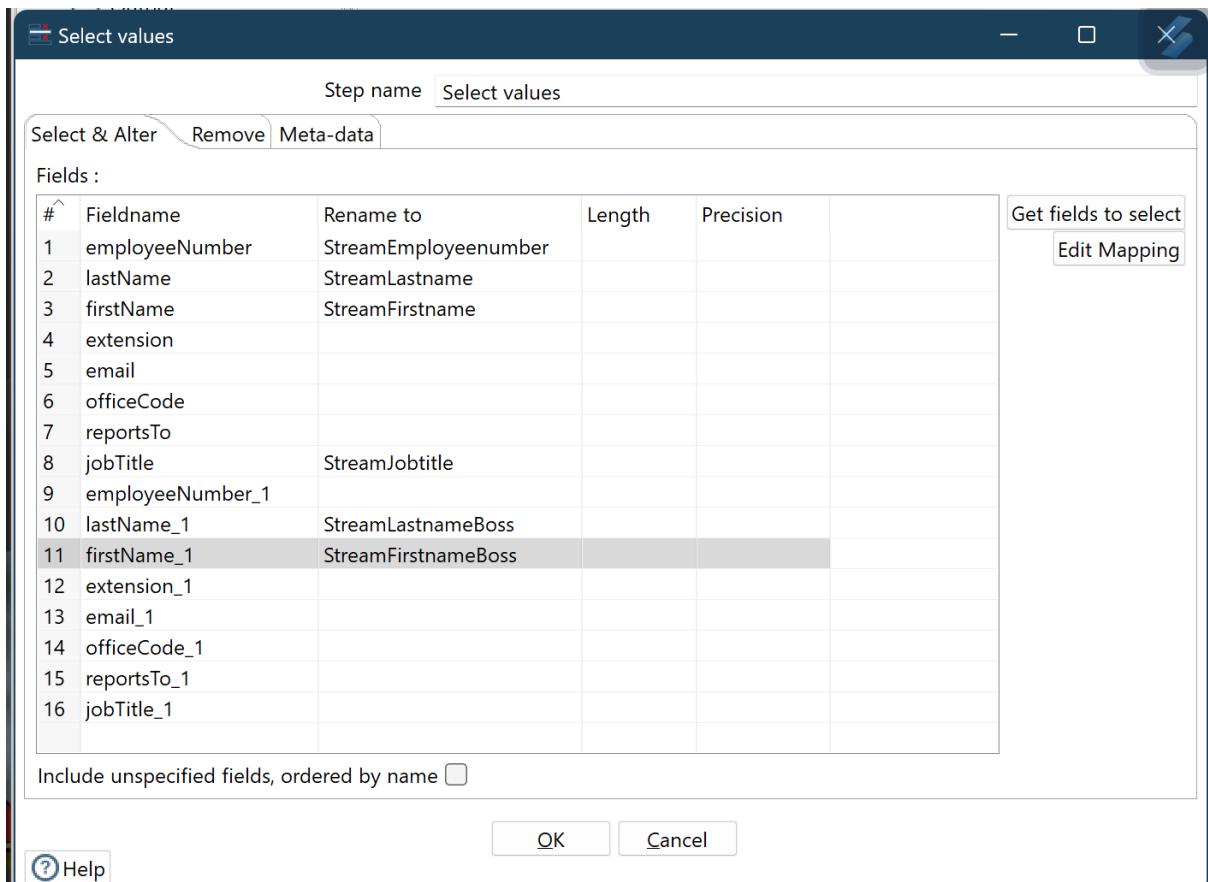
- a. Table input : digunakan mengambil data dari database OLTP
- b. Select values : memilih field yang digunakan untuk proses transform dan load
- c. Database lookup : digunakan untuk melihat data pada tabel dimEmployees untuk memastikan data tidak kembar
- d. Filter rows : digunakan untuk memilih data stream yang masih belum ada pada tabel dimEmployees
- e. Table output : memasukkan data ke dalam table dimEmployees



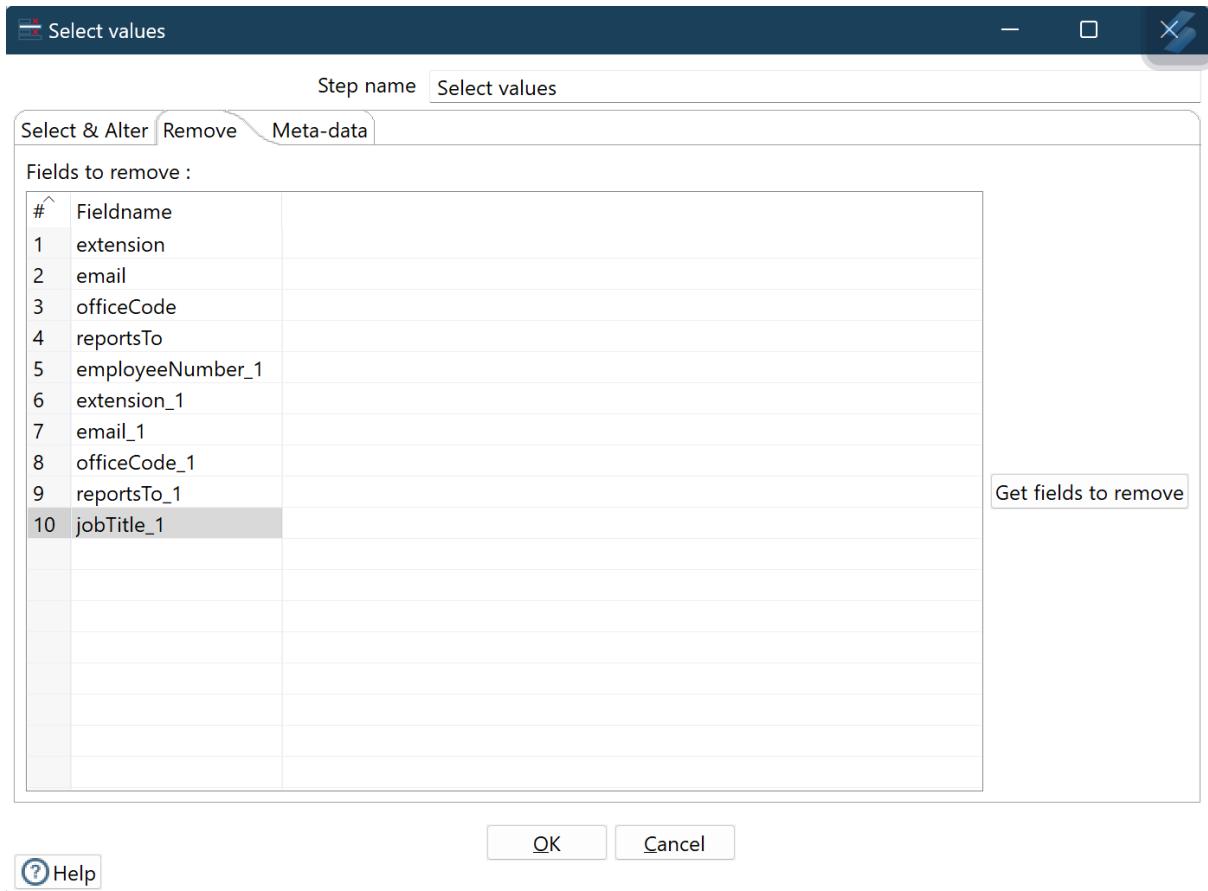
4. Konfigurasi pada table input dengan menghubungkan Connection pada koneksi conn\_oltp\_resources. Untuk mengambil data sumber menggunakan query dibawah ini.
- ```
select * from dimEmployees e
left join dimEmployees r
e.reportsTo=r.employeeNumber;
```



5. Hubungkan output table input pada select values.
6. Konfigurasi pada select values yaitu mengambil data dari field employeeNumber, lastname, firstname, jobTitle, lastname\_1 dan firstname\_1 sebagai data stream yang digunakan pada proses ETL pada tab select & alter.



7. Hilangkan field lain yang tidak digunakan pada tab remove.



8. Hubungkan output select values pada database lookup
9. Konfigurasi pada database lookup adalah dengan menghubungkan koneksi pada conn\_dw\_destination dengan table lookup dimEmployees yang telah dibuat pada tahap pertama.
10. Field yang di lookup adalah field pada tabel dimEmployees dengan field stream input dari OLTP. sedangkan field yang di retrieve adalah field dari dimEmployees itu sendiri. Jika tidak ada data yang sama maka akan muncul null.

**Database lookup**

Step name: Database lookup  
Connection: conn\_dw\_destination

Lookup schema: dw\_legendvehicle   
Lookup table: dimemployees

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 | employeeNumber | =          | StreamEmployeeNumber |        |
| 2 | firstname      | =          | StreamFirstname      |        |
| 3 | lastname       | =          | StreamLastname       |        |
| 4 | jobtitle       | =          | StreamJobtitle       |        |
| 5 | bossFirstName  | =          | StreamFirstnameBoss  |        |
| 6 | bossLastName   | =          | StreamLastnameBoss   |        |

Values to return from the lookup table :

| # | Field          | New name | Default | Type    |
|---|----------------|----------|---------|---------|
| 1 | employeeNumber |          |         | Integer |
| 2 | firstName      |          |         | Integer |
| 3 | lastName       |          |         | String  |
| 4 | jobTitle       |          |         | String  |
| 5 | bossFirstName  |          |         | String  |
| 6 | bossLastName   |          |         | String  |

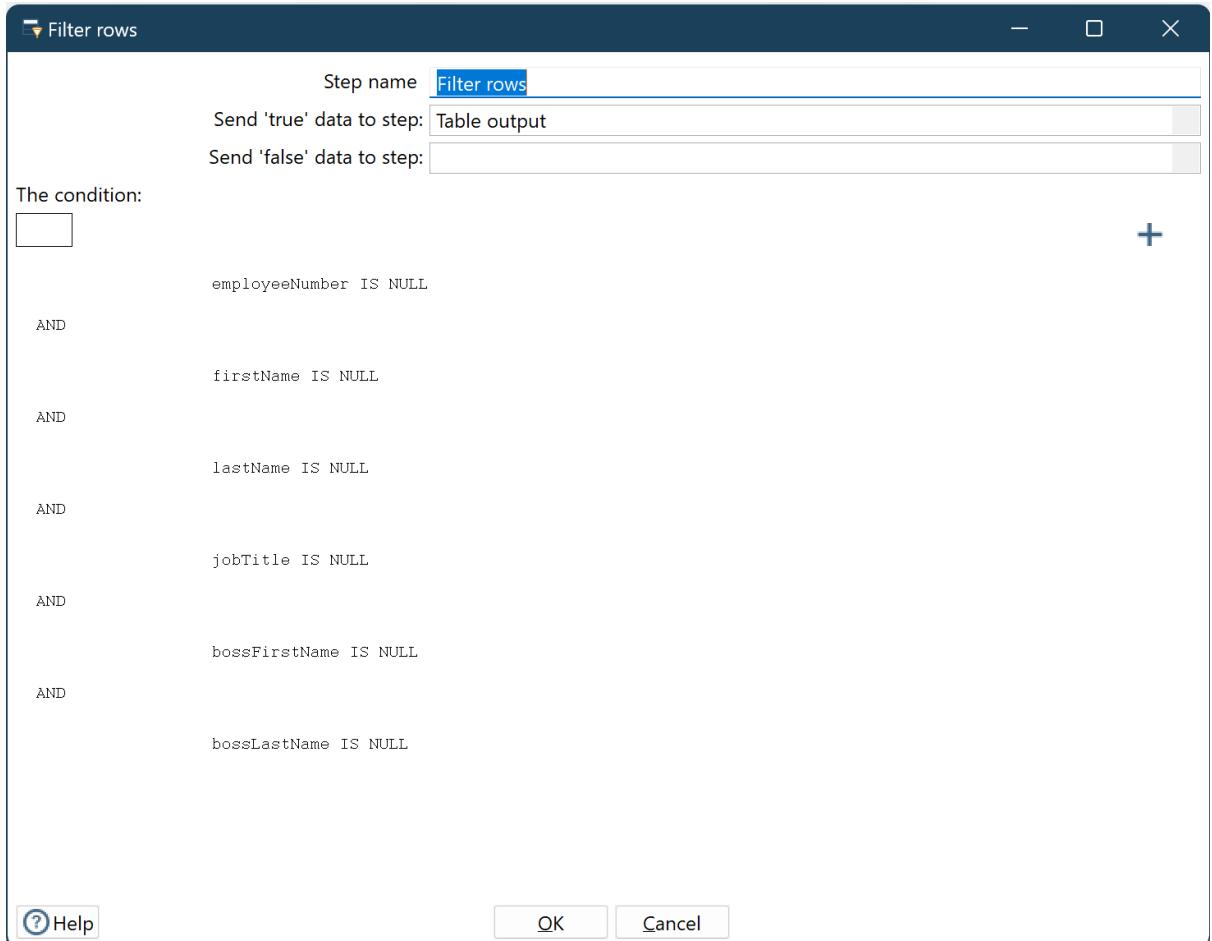
Do not pass the row if the lookup fails

Fail on multiple results?

Order by

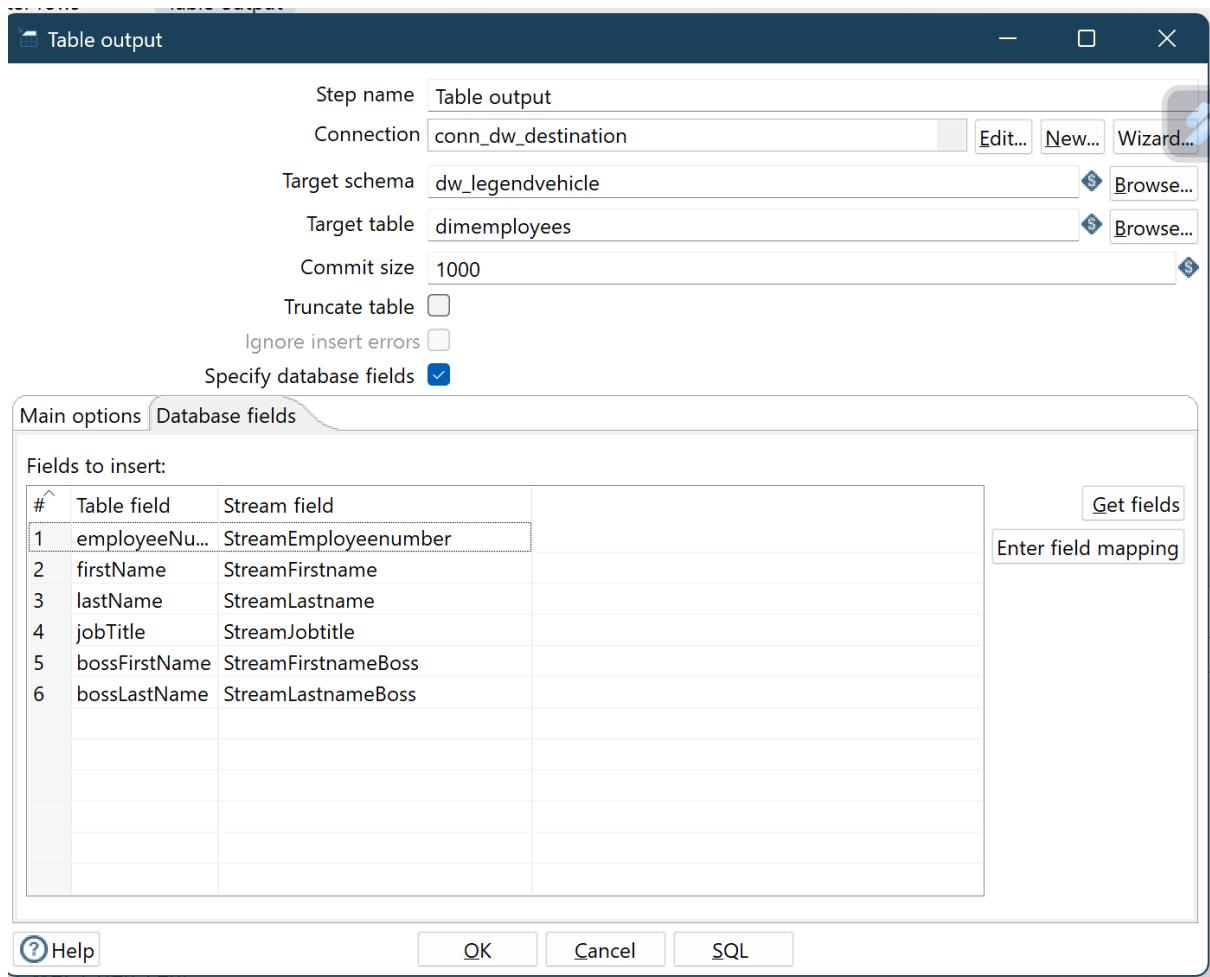
11. Hubungkan output database lookup dengan filter rows.

12. Pada filter rows berikan kondisi field yang null pada field dimemployees untuk dimasukkan pada proses selanjutnya. Hal itu menandakan bahwa data stream belum memiliki kesamaan pada data di dimemployees.



13. Hubungkan output dari filter rows dengan table output.  
14. Pada table output, gunakan connection conn\_dw\_destination untuk memasukkan data pada tabel dimemployees.  
15. Aktifkan specify database fields, dan mapping data stream input dari oltp terhadap field yang ada pada dimemployees.

## TUGAS PERTEMUAN KE-6: DATABASE ANALYTICAL



16. jika proses keseluruhan berhasil maka tabel dimemployees akan terisi data pegawai dari database OLTP.

|                          |  | id_dimEmployees | employeeNumber | firstName | lastname  | jobTitle             | bossFirstname | bossLastname | updated    |
|--------------------------|--|-----------------|----------------|-----------|-----------|----------------------|---------------|--------------|------------|
| <input type="checkbox"/> |  | 23              | 1002           | Diane     | Murphy    | President            | NULL          | NULL         | 2024-03-23 |
| <input type="checkbox"/> |  | 24              | 1056           | Mary      | Patterson | VP Sales             | Diane         | Murphy       | 2024-03-23 |
| <input type="checkbox"/> |  | 25              | 1076           | Jeff      | Firrelli  | VP Marketing         | Diane         | Murphy       | 2024-03-23 |
| <input type="checkbox"/> |  | 26              | 1088           | William   | Patterson | Sales Manager (APAC) | Mary          | Patterson    | 2024-03-23 |
| <input type="checkbox"/> |  | 27              | 1102           | Gerard    | Bondur    | Sale Manager (EMEA)  | Mary          | Patterson    | 2024-03-23 |
| <input type="checkbox"/> |  | 28              | 1143           | Anthony   | Bow       | Sales Manager (NA)   | Mary          | Patterson    | 2024-03-23 |
| <input type="checkbox"/> |  | 29              | 1165           | Leslie    | Jennings  | Sales Rep            | Anthony       | Bow          | 2024-03-23 |
| <input type="checkbox"/> |  | 30              | 1166           | Leslie    | Thompson  | Sales Rep            | Anthony       | Bow          | 2024-03-23 |
| <input type="checkbox"/> |  | 31              | 1188           | Julie     | Firrelli  | Sales Rep            | Anthony       | Bow          | 2024-03-23 |
| <input type="checkbox"/> |  | 32              | 1216           | Steve     | Patterson | Sales Rep            | Anthony       | Bow          | 2024-03-23 |
| <input type="checkbox"/> |  | 33              | 1286           | Foon Yue  | Tseng     | Sales Rep            | Anthony       | Bow          | 2024-03-23 |
| <input type="checkbox"/> |  | 34              | 1323           | George    | Vanauf    | Sales Rep            | Anthony       | Bow          | 2024-03-23 |
| <input type="checkbox"/> |  | 35              | 1337           | Loui      | Bondur    | Sales Rep            | Gerard        | Bondur       | 2024-03-23 |
| <input type="checkbox"/> |  | 36              | 1370           | Gerard    | Hernandez | Sales Rep            | Gerard        | Bondur       | 2024-03-23 |
| <input type="checkbox"/> |  | 37              | 1401           | Pamela    | Castillo  | Sales Rep            | Gerard        | Bondur       | 2024-03-23 |
| <input type="checkbox"/> |  | 38              | 1501           | Larry     | Bott      | Sales Rep            | Gerard        | Bondur       | 2024-03-23 |
| <input type="checkbox"/> |  | 39              | 1504           | Barry     | Jones     | Sales Rep            | Gerard        | Bondur       | 2024-03-23 |
| <input type="checkbox"/> |  | 40              | 1611           | Andy      | Fixter    | Sales Rep            | William       | Patterson    | 2024-03-23 |
| <input type="checkbox"/> |  | 41              | 1612           | Peter     | Marsh     | Sales Rep            | William       | Patterson    | 2024-03-23 |
| <input type="checkbox"/> |  | 42              | 1619           | Tom       | King      | Sales Rep            | William       | Patterson    | 2024-03-23 |
| <input type="checkbox"/> |  | 43              | 1621           | Mami      | Nishi     | Sales Rep            | Mary          | Patterson    | 2024-03-23 |
| <input type="checkbox"/> |  | 44              | 1625           | Yoshimi   | Kato      | Sales Rep            | Mami          | Nishi        | 2024-03-23 |
| <input type="checkbox"/> |  | 45              | 1702           | Martin    | Gerard    | Sales Rep            | Gerard        | Bondur       | 2024-03-23 |

## TUGAS PERTEMUAN KE-6: DATABASE ANALYTICAL

### TUGAS 2

- Buka preview tab pada execution result area di setiap proses object. amati input dan output data yang ada. bandingkan di setiap prosesnya. jelaskan perbedaan disetiap prosesnya.

| Proses Objek |                |           |           |           |                                 |            |           |                      |                  |            |             |             |         |  |
|--------------|----------------|-----------|-----------|-----------|---------------------------------|------------|-----------|----------------------|------------------|------------|-------------|-------------|---------|--|
| Table Input  |                |           |           |           |                                 |            |           |                      |                  |            |             |             |         |  |
| #^           | employeeNumber | lastName  | firstName | extension | email                           | officeCode | reportsTo | jobTitle             | employeeNumber_1 | lastName_1 | firstName_1 | extension_1 | email_1 |  |
| 1            | 1002           | Murphy    | Diane     | x5800     | dmurphy@classicmodelcars.com    | 1          | <null>    | President            | <null>           | <null>     | <null>      | <null>      | <null>  |  |
| 2            | 1056           | Patterson | Mary      | x4611     | mpatterson@classicmodelcars.com | 1          | 1002      | VP Sales             | 1002             | Murphy     | Diane       | x5800       | dmurph  |  |
| 3            | 1076           | Firrelli  | Jeff      | x9273     | jfirrelli@classicmodelcars.com  | 1          | 1002      | VP Marketing         | 1002             | Murphy     | Diane       | x5800       | dmurph  |  |
| 4            | 1088           | Patterson | William   | x4871     | wpatterson@classicmodelcars.com | 6          | 1056      | Sales Manager (APAC) | 1056             | Patterson  | Mary        | x4611       | mpatte  |  |
| 5            | 1102           | Bondur    | Gerard    | x5408     | gbondur@classicmodelcars.com    | 4          | 1056      | Sales Manager (EMEA) | 1056             | Patterson  | Mary        | x4611       | mpatte  |  |
| 6            | 1143           | Bow       | Anthony   | x5428     | abow@classicmodelcars.com       | 1          | 1056      | Sales Manager (NA)   | 1056             | Patterson  | Mary        | x4611       | mpatte  |  |
| 7            | 1165           | Jennings  | Leslie    | x3291     | ljennings@classicmodelcars.com  | 1          | 1143      | Sales Rep            | 1143             | Bow        | Anthony     | x5428       | abow@   |  |
| 8            | 1166           | Thompson  | Leslie    | x4065     | lthompson@classicmodelcars.com  | 1          | 1143      | Sales Rep            | 1143             | Bow        | Anthony     | x5428       | abow@   |  |
| 9            | 1188           | Firrelli  | Julie     | x2173     | jfirrelli@classicmodelcars.com  | 2          | 1143      | Sales Rep            | 1143             | Bow        | Anthony     | x5428       | abow@   |  |
| 10           | 1216           | Patterson | Steve     | x4334     | spatterson@classicmodelcars.com | 2          | 1143      | Sales Rep            | 1143             | Bow        | Anthony     | x5428       | abow@   |  |
| 11           | 1286           | Tseng     | Foon Yue  | x2248     | ftseng@classicmodelcars.com     | 3          | 1143      | Sales Rep            | 1143             | Bow        | Anthony     | x5428       | abow@   |  |
| 12           | 1323           | Vanauf    | George    | x4102     | gvanauf@classicmodelcars.com    | 3          | 1143      | Sales Rep            | 1143             | Bow        | Anthony     | x5428       | abow@   |  |
| 13           | 1337           | Bondur    | Loui      | x6493     | lbondur@classicmodelcars.com    | 4          | 1102      | Sales Rep            | 1102             | Bondur     | Gerard      | x5408       | gbond   |  |
| 14           | 1370           | Hernandez | Gerard    | x2028     | ghernande@classicmodelcars.com  | 4          | 1102      | Sales Rep            | 1102             | Bondur     | Gerard      | x5408       | gbonds  |  |
| 15           | 1401           | Castillo  | Pamela    | x2759     | pcastillo@classicmodelcars.com  | 4          | 1102      | Sales Rep            | 1102             | Bondur     | Gerard      | x5408       | gbonds  |  |
| 16           | 1501           | Bott      | Larry     | x2311     | lbott@classicmodelcars.com      | 7          | 1102      | Sales Rep            | 1102             | Bondur     | Gerard      | x5408       | gbonds  |  |
| 17           | 1504           | Jones     | Barry     | x102      | bjones@classicmodelcars.com     | 7          | 1102      | Sales Rep            | 1102             | Bondur     | Gerard      | x5408       | gbonds  |  |
| 18           | 1611           | Fixter    | Andy      | x101      | afixter@classicmodelcars.com    | 6          | 1088      | Sales Rep            | 1088             | Patterson  | William     | x4871       | wpatte  |  |
| 19           | 1612           | Marsh     | Peter     | x102      | pmash@classicmodelcars.com      | 6          | 1088      | Sales Rep            | 1088             | Patterson  | William     | x4871       | wpatte  |  |
| 20           | 1619           | King      | Tom       | x103      | tking@classicmodelcars.com      | 6          | 1088      | Sales Rep            | 1088             | Patterson  | William     | x4871       | wpatte  |  |
| 21           | 1621           | Nishi     | Mami      | x101      | mnishi@classicmodelcars.com     | 5          | 1056      | Sales Rep            | 1056             | Patterson  | Mary        | x4611       | mpatte  |  |
| 22           | 1625           | Kato      | Yoshimi   | x102      | ykato@classicmodelcars.com      | 5          | 1621      | Sales Rep            | 1621             | Nishi      | Mami        | x101        | mnihi   |  |
| 23           | 1702           | Gerard    | Martin    | x2312     | mgrand@classicmodelcars.com     | 4          | 1102      | Sales Rep            | 1102             | Bondur     | Gerard      | x5408       | gbond   |  |

Pada proses ini data yang berasal dari resources nya diekstrak semua sehingga banyak sekali data khususnya kolom yang berbeda dibanding dengan table yang nantinya akan menjadi tempat perpindahan data dari resourcesnya.

| Select Values |                      |                |                 |                      |                    |                     |
|---------------|----------------------|----------------|-----------------|----------------------|--------------------|---------------------|
| #^            | StreamEmployeeNumber | StreamLastname | StreamFirstname | StreamJobtitle       | StreamLastnameBoss | StreamFirstnameBoss |
| 1             | 1002                 | Murphy         | Diane           | President            | <null>             | <null>              |
| 2             | 1056                 | Patterson      | Mary            | VP Sales             | Murphy             | Diane               |
| 3             | 1076                 | Firrelli       | Jeff            | VP Marketing         | Murphy             | Diane               |
| 4             | 1088                 | Patterson      | William         | Sales Manager (APAC) | Patterson          | Mary                |
| 5             | 1102                 | Bondur         | Gerard          | Sale Manager (EMEA)  | Patterson          | Mary                |
| 6             | 1143                 | Bow            | Anthony         | Sales Manager (NA)   | Patterson          | Mary                |
| 7             | 1165                 | Jennings       | Leslie          | Sales Rep            | Bow                | Anthony             |
| 8             | 1166                 | Thompson       | Leslie          | Sales Rep            | Bow                | Anthony             |
| 9             | 1188                 | Firrelli       | Julie           | Sales Rep            | Bow                | Anthony             |
| 10            | 1216                 | Patterson      | Steve           | Sales Rep            | Bow                | Anthony             |
| 11            | 1286                 | Tseng          | Foon Yue        | Sales Rep            | Bow                | Anthony             |
| 12            | 1323                 | Vanauf         | George          | Sales Rep            | Bow                | Anthony             |
| 13            | 1337                 | Bondur         | Loui            | Sales Rep            | Bondur             | Gerard              |
| 14            | 1370                 | Hernandez      | Gerard          | Sales Rep            | Bondur             | Gerard              |
| 15            | 1401                 | Castillo       | Pamela          | Sales Rep            | Bondur             | Gerard              |
| 16            | 1501                 | Bott           | Larry           | Sales Rep            | Bondur             | Gerard              |
| 17            | 1504                 | Jones          | Barry           | Sales Rep            | Bondur             | Gerard              |
| 18            | 1611                 | Fixter         | Andy            | Sales Rep            | Patterson          | William             |
| 19            | 1612                 | Marsh          | Peter           | Sales Rep            | Patterson          | William             |
| 20            | 1619                 | King           | Tom             | Sales Rep            | Patterson          | William             |
| 21            | 1621                 | Nishi          | Mami            | Sales Rep            | Patterson          | Mary                |
| 22            | 1625                 | Kato           | Yoshimi         | Sales Rep            | Nishi              | Mami                |
| 23            | 1702                 | Gerard         | Martin          | Sales Rep            | Bondur             | Gerard              |

Pada select values data mulai tersaring sehingga hanya beberapa fields saja yang ditampilkan dan juga beberapa atribut disini mulai terjadi rename atau pergantian nama.

| Database Lookup |
|-----------------|
|-----------------|

## TUGAS PERTEMUAN KE-6: DATABASE ANALYTICAL

| #  | StreamEmployeeNumber | StreamLastname | StreamFirstname | StreamJobTitle       | StreamLastnameBoss | StreamFirstnameBoss | employeeNumber | firstName | lastName | jobTitle | bossFirstName | bossLastName |
|----|----------------------|----------------|-----------------|----------------------|--------------------|---------------------|----------------|-----------|----------|----------|---------------|--------------|
| 1  | 1002                 | Murphy         | Diane           | President            | <null>             | <null>              | <null>         | <null>    | <null>   | <null>   | <null>        | <null>       |
| 2  | 1056                 | Patterson      | Mary            | VP Sales             | Murphy             | Diane               | <null>         | <null>    | <null>   | <null>   | <null>        | <null>       |
| 3  | 1076                 | Firelli        | Jeff            | VP Marketing         | Murphy             | Diane               | <null>         | <null>    | <null>   | <null>   | <null>        | <null>       |
| 4  | 1088                 | Patterson      | William         | Sales Manager (APAC) | Patterson          | Mary                | <null>         | <null>    | <null>   | <null>   | <null>        | <null>       |
| 5  | 1102                 | Bondur         | Gerard          | Sale Manager (EMEA)  | Patterson          | Mary                | <null>         | <null>    | <null>   | <null>   | <null>        | <null>       |
| 6  | 1143                 | Bow            | Anthony         | Sales Manager (NA)   | Patterson          | Mary                | <null>         | <null>    | <null>   | <null>   | <null>        | <null>       |
| 7  | 1165                 | Jennings       | Leslie          | Sales Rep            | Bow                | Anthony             | <null>         | <null>    | <null>   | <null>   | <null>        | <null>       |
| 8  | 1166                 | Thompson       | Leslie          | Sales Rep            | Bow                | Anthony             | <null>         | <null>    | <null>   | <null>   | <null>        | <null>       |
| 9  | 1188                 | Firelli        | Julie           | Sales Rep            | Bow                | Anthony             | <null>         | <null>    | <null>   | <null>   | <null>        | <null>       |
| 10 | 1216                 | Patterson      | Steve           | Sales Rep            | Bow                | Anthony             | <null>         | <null>    | <null>   | <null>   | <null>        | <null>       |
| 11 | 1286                 | Tseng          | Foon Yue        | Sales Rep            | Bow                | Anthony             | <null>         | <null>    | <null>   | <null>   | <null>        | <null>       |
| 12 | 1323                 | Vanauf         | George          | Sales Rep            | Bow                | Anthony             | <null>         | <null>    | <null>   | <null>   | <null>        | <null>       |
| 13 | 1337                 | Bondur         | Loui            | Sales Rep            | Bondur             | Gerard              | <null>         | <null>    | <null>   | <null>   | <null>        | <null>       |
| 14 | 1370                 | Hernandez      | Gerard          | Sales Rep            | Bondur             | Gerard              | <null>         | <null>    | <null>   | <null>   | <null>        | <null>       |
| 15 | 1401                 | Castillo       | Pamela          | Sales Rep            | Bondur             | Gerard              | <null>         | <null>    | <null>   | <null>   | <null>        | <null>       |
| 16 | 1501                 | Bott           | Larry           | Sales Rep            | Bondur             | Gerard              | <null>         | <null>    | <null>   | <null>   | <null>        | <null>       |
| 17 | 1504                 | Jones          | Barry           | Sales Rep            | Bondur             | Gerard              | <null>         | <null>    | <null>   | <null>   | <null>        | <null>       |
| 18 | 1611                 | Fixter         | Andy            | Sales Rep            | Patterson          | William             | <null>         | <null>    | <null>   | <null>   | <null>        | <null>       |
| 19 | 1612                 | Marsh          | Peter           | Sales Rep            | Patterson          | William             | <null>         | <null>    | <null>   | <null>   | <null>        | <null>       |
| 20 | 1619                 | King           | Tom             | Sales Rep            | Patterson          | William             | <null>         | <null>    | <null>   | <null>   | <null>        | <null>       |
| 21 | 1621                 | Nishi          | Mami            | Sales Rep            | Patterson          | Mary                | <null>         | <null>    | <null>   | <null>   | <null>        | <null>       |
| 22 | 1625                 | Kato           | Yoshimi         | Sales Rep            | Nishi              | Mami                | <null>         | <null>    | <null>   | <null>   | <null>        | <null>       |
| 23 | 1702                 | Gerard         | Martin          | Sales Rep            | Bondur             | Gerard              | <null>         | <null>    | <null>   | <null>   | <null>        | <null>       |

Pada database lookup dimana semua fields akan ditampilkan namun dikarenakan sudah tersaring pada select values beberapa fields menjadi null karena nilai data tidak dilanjutkan.

### Filter Rows

| #  | StreamEmployeeNumber | StreamLastname | StreamFirstname | StreamJobTitle       | StreamLastnameBoss | StreamFirstnameBoss | employeeNumber | firstName | lastName | jobTitle | bossFirstName | bossLastName |
|----|----------------------|----------------|-----------------|----------------------|--------------------|---------------------|----------------|-----------|----------|----------|---------------|--------------|
| 1  | 1002                 | Murphy         | Diane           | President            | <null>             | <null>              | <null>         | <null>    | <null>   | <null>   | <null>        | <null>       |
| 2  | 1056                 | Patterson      | Mary            | VP Sales             | Murphy             | Diane               | <null>         | <null>    | <null>   | <null>   | <null>        | <null>       |
| 3  | 1076                 | Firelli        | Jeff            | VP Marketing         | Murphy             | Diane               | <null>         | <null>    | <null>   | <null>   | <null>        | <null>       |
| 4  | 1088                 | Patterson      | William         | Sales Manager (APAC) | Patterson          | Mary                | <null>         | <null>    | <null>   | <null>   | <null>        | <null>       |
| 5  | 1102                 | Bondur         | Gerard          | Sale Manager (EMEA)  | Patterson          | Mary                | <null>         | <null>    | <null>   | <null>   | <null>        | <null>       |
| 6  | 1143                 | Bow            | Anthony         | Sales Manager (NA)   | Patterson          | Mary                | <null>         | <null>    | <null>   | <null>   | <null>        | <null>       |
| 7  | 1165                 | Jennings       | Leslie          | Sales Rep            | Bow                | Anthony             | <null>         | <null>    | <null>   | <null>   | <null>        | <null>       |
| 8  | 1166                 | Thompson       | Leslie          | Sales Rep            | Bow                | Anthony             | <null>         | <null>    | <null>   | <null>   | <null>        | <null>       |
| 9  | 1188                 | Firelli        | Julie           | Sales Rep            | Bow                | Anthony             | <null>         | <null>    | <null>   | <null>   | <null>        | <null>       |
| 10 | 1216                 | Patterson      | Steve           | Sales Rep            | Bow                | Anthony             | <null>         | <null>    | <null>   | <null>   | <null>        | <null>       |
| 11 | 1286                 | Tseng          | Foon Yue        | Sales Rep            | Bow                | Anthony             | <null>         | <null>    | <null>   | <null>   | <null>        | <null>       |
| 12 | 1323                 | Vanauf         | George          | Sales Rep            | Bow                | Anthony             | <null>         | <null>    | <null>   | <null>   | <null>        | <null>       |
| 13 | 1337                 | Bondur         | Loui            | Sales Rep            | Bondur             | Gerard              | <null>         | <null>    | <null>   | <null>   | <null>        | <null>       |
| 14 | 1370                 | Hernandez      | Gerard          | Sales Rep            | Bondur             | Gerard              | <null>         | <null>    | <null>   | <null>   | <null>        | <null>       |
| 15 | 1401                 | Castillo       | Pamela          | Sales Rep            | Bondur             | Gerard              | <null>         | <null>    | <null>   | <null>   | <null>        | <null>       |
| 16 | 1501                 | Bott           | Larry           | Sales Rep            | Bondur             | Gerard              | <null>         | <null>    | <null>   | <null>   | <null>        | <null>       |
| 17 | 1504                 | Jones          | Barry           | Sales Rep            | Bondur             | Gerard              | <null>         | <null>    | <null>   | <null>   | <null>        | <null>       |
| 18 | 1611                 | Fixter         | Andy            | Sales Rep            | Patterson          | William             | <null>         | <null>    | <null>   | <null>   | <null>        | <null>       |
| 19 | 1612                 | Marsh          | Peter           | Sales Rep            | Patterson          | William             | <null>         | <null>    | <null>   | <null>   | <null>        | <null>       |
| 20 | 1619                 | King           | Tom             | Sales Rep            | Patterson          | William             | <null>         | <null>    | <null>   | <null>   | <null>        | <null>       |
| 21 | 1621                 | Nishi          | Mami            | Sales Rep            | Patterson          | Mary                | <null>         | <null>    | <null>   | <null>   | <null>        | <null>       |
| 22 | 1625                 | Kato           | Yoshimi         | Sales Rep            | Nishi              | Mami                | <null>         | <null>    | <null>   | <null>   | <null>        | <null>       |
| 23 | 1702                 | Gerard         | Martin          | Sales Rep            | Bondur             | Gerard              | <null>         | <null>    | <null>   | <null>   | <null>        | <null>       |

Pada filter rows pun terjadi hal yang sama data tetap dilanjutkan tanpa perubahan dikarenakan pada pembanding nya berupa selain stream atribut.

### Table Output

| #  | StreamEmployeeNumber | StreamLastname | StreamFirstname | StreamJobTitle       | StreamLastnameBoss | StreamFirstnameBoss | employeeNumber | firstName | lastName | jobTitle | bossFirstName | bossLastName |
|----|----------------------|----------------|-----------------|----------------------|--------------------|---------------------|----------------|-----------|----------|----------|---------------|--------------|
| 1  | 1002                 | Murphy         | Diane           | President            | <null>             | <null>              | <null>         | <null>    | <null>   | <null>   | <null>        | <null>       |
| 2  | 1056                 | Patterson      | Mary            | VP Sales             | Murphy             | Diane               | <null>         | <null>    | <null>   | <null>   | <null>        | <null>       |
| 3  | 1076                 | Firelli        | Jeff            | VP Marketing         | Murphy             | Diane               | <null>         | <null>    | <null>   | <null>   | <null>        | <null>       |
| 4  | 1088                 | Patterson      | William         | Sales Manager (APAC) | Patterson          | Mary                | <null>         | <null>    | <null>   | <null>   | <null>        | <null>       |
| 5  | 1102                 | Bondur         | Gerard          | Sale Manager (EMEA)  | Patterson          | Mary                | <null>         | <null>    | <null>   | <null>   | <null>        | <null>       |
| 6  | 1143                 | Bow            | Anthony         | Sales Manager (NA)   | Patterson          | Mary                | <null>         | <null>    | <null>   | <null>   | <null>        | <null>       |
| 7  | 1165                 | Jennings       | Leslie          | Sales Rep            | Bow                | Anthony             | <null>         | <null>    | <null>   | <null>   | <null>        | <null>       |
| 8  | 1166                 | Thompson       | Leslie          | Sales Rep            | Bow                | Anthony             | <null>         | <null>    | <null>   | <null>   | <null>        | <null>       |
| 9  | 1188                 | Firelli        | Julie           | Sales Rep            | Bow                | Anthony             | <null>         | <null>    | <null>   | <null>   | <null>        | <null>       |
| 10 | 1216                 | Patterson      | Steve           | Sales Rep            | Bow                | Anthony             | <null>         | <null>    | <null>   | <null>   | <null>        | <null>       |
| 11 | 1286                 | Tseng          | Foon Yue        | Sales Rep            | Bow                | Anthony             | <null>         | <null>    | <null>   | <null>   | <null>        | <null>       |
| 12 | 1323                 | Vanauf         | George          | Sales Rep            | Bow                | Anthony             | <null>         | <null>    | <null>   | <null>   | <null>        | <null>       |
| 13 | 1337                 | Bondur         | Loui            | Sales Rep            | Bondur             | Gerard              | <null>         | <null>    | <null>   | <null>   | <null>        | <null>       |
| 14 | 1370                 | Hernandez      | Gerard          | Sales Rep            | Bondur             | Gerard              | <null>         | <null>    | <null>   | <null>   | <null>        | <null>       |
| 15 | 1401                 | Castillo       | Pamela          | Sales Rep            | Bondur             | Gerard              | <null>         | <null>    | <null>   | <null>   | <null>        | <null>       |
| 16 | 1501                 | Bott           | Larry           | Sales Rep            | Bondur             | Gerard              | <null>         | <null>    | <null>   | <null>   | <null>        | <null>       |
| 17 | 1504                 | Jones          | Barry           | Sales Rep            | Bondur             | Gerard              | <null>         | <null>    | <null>   | <null>   | <null>        | <null>       |
| 18 | 1611                 | Fixter         | Andy            | Sales Rep            | Patterson          | William             | <null>         | <null>    | <null>   | <null>   | <null>        | <null>       |
| 19 | 1612                 | Marsh          | Peter           | Sales Rep            | Patterson          | William             | <null>         | <null>    | <null>   | <null>   | <null>        | <null>       |
| 20 | 1619                 | King           | Tom             | Sales Rep            | Patterson          | William             | <null>         | <null>    | <null>   | <null>   | <null>        | <null>       |
| 21 | 1621                 | Nishi          | Mami            | Sales Rep            | Patterson          | Mary                | <null>         | <null>    | <null>   | <null>   | <null>        | <null>       |
| 22 | 1625                 | Kato           | Yoshimi         | Sales Rep            | Nishi              | Mami                | <null>         | <null>    | <null>   | <null>   | <null>        | <null>       |
| 23 | 1702                 | Gerard         | Martin          | Sales Rep            | Bondur             | Gerard              | <null>         | <null>    | <null>   | <null>   | <null>        | <null>       |

Pada table output hasilnya sama seperti sebelumnya pada kondisi data nya tidak ada perubahan.

Hanya menampilkan output berupa stream atribut yang sudah dilakukan prosesnya pada select values.

2. Jika proses itu di ulangi ( di run kembali ) apakah data akan redundant?

Jawab : terdapat satu data yang redundant dikarenakan pada proses filter rows memasang kondisi is null dan pada data tersebut sesuai sehingga data tersebut ditulis kembali ke dalam database dan menyebabkan redundant.

## TUGAS PERTEMUAN KE-6: DATABASE ANALYTICAL

|                          | <input type="button" value="←"/> | <input type="button" value="→"/> | <input type="button" value="▼"/> | <b>id_dimEmployees</b> | <b>employeeNumber</b> | <b>▲ 1</b> | <b>firstName</b> | <b>lastname</b>      | <b>jobTitle</b> | <b>bossFirstname</b> | <b>bossLastname</b> | <b>updated</b> |
|--------------------------|----------------------------------|----------------------------------|----------------------------------|------------------------|-----------------------|------------|------------------|----------------------|-----------------|----------------------|---------------------|----------------|
| <input type="checkbox"/> |                                  |                                  |                                  | 23                     | 1002                  | Diane      | Murphy           | President            | NULL            | NULL                 | NULL                | 2024-03-23     |
| <input type="checkbox"/> |                                  |                                  |                                  | 46                     | 1002                  | Diane      | Murphy           | President            | NULL            | NULL                 | NULL                | 2024-03-23     |
| <input type="checkbox"/> |                                  |                                  |                                  | 24                     | 1056                  | Mary       | Patterson        | VP Sales             | Diane           | Murphy               | Murphy              | 2024-03-23     |
| <input type="checkbox"/> |                                  |                                  |                                  | 25                     | 1076                  | Jeff       | Firrelli         | VP Marketing         | Diane           | Murphy               | Murphy              | 2024-03-23     |
| <input type="checkbox"/> |                                  |                                  |                                  | 26                     | 1088                  | William    | Patterson        | Sales Manager (APAC) | Mary            | Patterson            | Patterson           | 2024-03-23     |
| <input type="checkbox"/> |                                  |                                  |                                  | 27                     | 1102                  | Gerard     | Bondur           | Sale Manager (EMEA)  | Mary            | Patterson            | Patterson           | 2024-03-23     |
| <input type="checkbox"/> |                                  |                                  |                                  | 28                     | 1143                  | Anthony    | Bow              | Sales Manager (NA)   | Mary            | Patterson            | Patterson           | 2024-03-23     |
| <input type="checkbox"/> |                                  |                                  |                                  | 29                     | 1165                  | Leslie     | Jennings         | Sales Rep            | Anthony         | Bow                  | Bow                 | 2024-03-23     |
| <input type="checkbox"/> |                                  |                                  |                                  | 30                     | 1166                  | Leslie     | Thompson         | Sales Rep            | Anthony         | Bow                  | Bow                 | 2024-03-23     |
| <input type="checkbox"/> |                                  |                                  |                                  | 31                     | 1188                  | Julie      | Firrelli         | Sales Rep            | Anthony         | Bow                  | Bow                 | 2024-03-23     |
| <input type="checkbox"/> |                                  |                                  |                                  | 32                     | 1216                  | Steve      | Patterson        | Sales Rep            | Anthony         | Bow                  | Bow                 | 2024-03-23     |
| <input type="checkbox"/> |                                  |                                  |                                  | 33                     | 1286                  | Foon Yue   | Tseng            | Sales Rep            | Anthony         | Bow                  | Bow                 | 2024-03-23     |
| <input type="checkbox"/> |                                  |                                  |                                  | 34                     | 1323                  | George     | Vanauf           | Sales Rep            | Anthony         | Bow                  | Bow                 | 2024-03-23     |
| <input type="checkbox"/> |                                  |                                  |                                  | 35                     | 1337                  | Loui       | Bondur           | Sales Rep            | Gerard          | Bondur               | Bondur              | 2024-03-23     |
| <input type="checkbox"/> |                                  |                                  |                                  | 36                     | 1370                  | Gerard     | Hernandez        | Sales Rep            | Gerard          | Bondur               | Bondur              | 2024-03-23     |
| <input type="checkbox"/> |                                  |                                  |                                  | 37                     | 1401                  | Pamela     | Castillo         | Sales Rep            | Gerard          | Bondur               | Bondur              | 2024-03-23     |
| <input type="checkbox"/> |                                  |                                  |                                  | 38                     | 1501                  | Larry      | Bott             | Sales Rep            | Gerard          | Bondur               | Bondur              | 2024-03-23     |
| <input type="checkbox"/> |                                  |                                  |                                  | 39                     | 1504                  | Barry      | Jones            | Sales Rep            | Gerard          | Bondur               | Bondur              | 2024-03-23     |
| <input type="checkbox"/> |                                  |                                  |                                  | 40                     | 1611                  | Andy       | Fixter           | Sales Rep            | William         | Patterson            | Patterson           | 2024-03-23     |
| <input type="checkbox"/> |                                  |                                  |                                  | 41                     | 1612                  | Peter      | Marsh            | Sales Rep            | William         | Patterson            | Patterson           | 2024-03-23     |
| <input type="checkbox"/> |                                  |                                  |                                  | 42                     | 1619                  | Tom        | King             | Sales Rep            | William         | Patterson            | Patterson           | 2024-03-23     |
| <input type="checkbox"/> |                                  |                                  |                                  | 43                     | 1621                  | Mami       | Nishi            | Sales Rep            | Mary            | Patterson            | Patterson           | 2024-03-23     |
| <input type="checkbox"/> |                                  |                                  |                                  | 44                     | 1625                  | Yoshimi    | Kato             | Sales Rep            | Mami            | Nishi                | Nishi               | 2024-03-23     |
| <input type="checkbox"/> |                                  |                                  |                                  | 45                     | 1702                  | Martin     | Gerard           | Sales Rep            | Gerard          | Bondur               | Bondur              | 2024-03-23     |

```

2024/03/23 16:37:15 - Spoon - Transformation opened.
2024/03/23 16:37:15 - Spoon - Launching transformation [Transformation 2]...
2024/03/23 16:37:15 - Spoon - Started the transformation execution.
2024/03/23 16:37:16 - Transformation 2 - Dispatching started for transformation [Transformation 2]
2024/03/23 16:37:16 - Table output.0 - Connected to database [conn_dw_destination] (commit=1000)
2024/03/23 16:37:16 - Table input.0 - Finished reading query, closing connection
2024/03/23 16:37:16 - Table input.0 - Finished processing (I=23, O=0, R=0, W=23, U=0, E=0)
2024/03/23 16:37:16 - Select values.0 - Finished processing (I=0, O=0, R=23, W=23, U=0, E=0)
2024/03/23 16:37:16 - Database lookup.0 - Finished processing (I=22, O=0, R=23, W=23, U=0, E=0)
2024/03/23 16:37:16 - Filter rows.0 - Finished processing (I=0, O=0, R=23, W=1, U=0, E=0)
2024/03/23 16:37:16 - Table output.0 - Finished processing (I=0, O=1, R=1, W=1, U=0, E=0)
2024/03/23 16:37:16 - Spoon - The transformation has finished!!

```

3. Tambahkan nama anda pada table employee di OLTP. jalankan kembali transformasi ini. Amati hasilnya, apa yang terjadi?

|                          | <input type="button" value="←"/> | <th><input type="button" value="▼"/></th> <th><b>employeeNumber</b></th> <th><b>lastName</b></th> <th><b>firstName</b></th> <th><b>extension</b></th> <th><b>email</b></th> <th><b>officeCode</b></th> <th><b>reportsTo</b></th> <th><b>jobTitle</b></th> | <input type="button" value="▼"/> | <b>employeeNumber</b> | <b>lastName</b> | <b>firstName</b> | <b>extension</b> | <b>email</b>                | <b>officeCode</b> | <b>reportsTo</b> | <b>jobTitle</b> |
|--------------------------|----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|-----------------------|-----------------|------------------|------------------|-----------------------------|-------------------|------------------|-----------------|
| <input type="checkbox"/> |                                  |                                                                                                                                                                                                                                                           |                                  | 1                     | Al Farabi       | Fadhlurohman     | x1               | fadhlu@classicmodelcars.com | 1                 | 1002             | Manager         |

Ketika dijalankan kembali maka data tersebut akan ditulis ke dalam table dimemployee dan juga data pada nomor.2 dimana terjadi redundant juga akan ditulis ulang. Seperti pada gambar dibawah ini.

TUGAS PERTEMUAN KE-6: DATABASE ANALYTICAL

| dimemployees             |        |           |                        |                |        |              |           |                      |               |              |            |
|--------------------------|--------|-----------|------------------------|----------------|--------|--------------|-----------|----------------------|---------------|--------------|------------|
|                          | Browse | Structure | SQL                    | Search         | Insert | Export       | Import    | Privileges           | Operations    | Triggers     |            |
| ←                        | →      | ↓         | <b>id_dimEmployees</b> | employeeNumber | ↑ 1    | firstName    | lastname  | jobTitle             | bossFirstname | bossLastname | updated    |
| <input type="checkbox"/> |        |           |                        | 47             | 1      | Fadhlurohman | Al Farabi | Manager              | Diane         | Murphy       | 2024-03-23 |
| <input type="checkbox"/> |        |           |                        | 23             | 1002   | Diane        | Murphy    | President            | NULL          | NULL         | 2024-03-23 |
| <input type="checkbox"/> |        |           |                        | 46             | 1002   | Diane        | Murphy    | President            | NULL          | NULL         | 2024-03-23 |
| <input type="checkbox"/> |        |           |                        | 48             | 1002   | Diane        | Murphy    | President            | NULL          | NULL         | 2024-03-23 |
| <input type="checkbox"/> |        |           |                        | 24             | 1056   | Mary         | Patterson | VP Sales             | Diane         | Murphy       | 2024-03-23 |
| <input type="checkbox"/> |        |           |                        | 25             | 1076   | Jeff         | Firrelli  | VP Marketing         | Diane         | Murphy       | 2024-03-23 |
| <input type="checkbox"/> |        |           |                        | 26             | 1088   | William      | Patterson | Sales Manager (APAC) | Mary          | Patterson    | 2024-03-23 |
| <input type="checkbox"/> |        |           |                        | 27             | 1102   | Gerard       | Bondur    | Sale Manager (EMEA)  | Mary          | Patterson    | 2024-03-23 |
| <input type="checkbox"/> |        |           |                        | 28             | 1143   | Anthony      | Bow       | Sales Manager (NA)   | Mary          | Patterson    | 2024-03-23 |
| <input type="checkbox"/> |        |           |                        | 29             | 1165   | Leslie       | Jennings  | Sales Rep            | Anthony       | Bow          | 2024-03-23 |
| <input type="checkbox"/> |        |           |                        | 30             | 1166   | Leslie       | Thompson  | Sales Rep            | Anthony       | Bow          | 2024-03-23 |
| <input type="checkbox"/> |        |           |                        | 31             | 1188   | Julie        | Firrelli  | Sales Rep            | Anthony       | Bow          | 2024-03-23 |
| <input type="checkbox"/> |        |           |                        | 32             | 1216   | Steve        | Patterson | Sales Rep            | Anthony       | Bow          | 2024-03-23 |
| <input type="checkbox"/> |        |           |                        | 33             | 1286   | Foon Yue     | Tseng     | Sales Rep            | Anthony       | Bow          | 2024-03-23 |
| <input type="checkbox"/> |        |           |                        | 34             | 1323   | George       | Vanauf    | Sales Rep            | Anthony       | Bow          | 2024-03-23 |
| <input type="checkbox"/> |        |           |                        | 35             | 1337   | Loui         | Bondur    | Sales Rep            | Gerard        | Bondur       | 2024-03-23 |
| <input type="checkbox"/> |        |           |                        | 36             | 1370   | Gerard       | Hernandez | Sales Rep            | Gerard        | Bondur       | 2024-03-23 |
| <input type="checkbox"/> |        |           |                        | 37             | 1401   | Pamela       | Castillo  | Sales Rep            | Gerard        | Bondur       | 2024-03-23 |
| <input type="checkbox"/> |        |           |                        | 38             | 1501   | Larry        | Bott      | Sales Rep            | Gerard        | Bondur       | 2024-03-23 |
| <input type="checkbox"/> |        |           |                        | 39             | 1504   | Barry        | Jones     | Sales Rep            | Gerard        | Bondur       | 2024-03-23 |
| <input type="checkbox"/> |        |           |                        | 40             | 1611   | Andy         | Fixter    | Sales Rep            | William       | Patterson    | 2024-03-23 |
| <input type="checkbox"/> |        |           |                        | 41             | 1612   | Peter        | Marsh     | Sales Rep            | William       | Patterson    | 2024-03-23 |
| <input type="checkbox"/> |        |           |                        | 42             | 1619   | Tom          | King      | Sales Rep            | William       | Patterson    | 2024-03-23 |
| <input type="checkbox"/> |        |           |                        | 43             | 1621   | Mami         | Nishi     | Sales Rep            | Mary          | Patterson    | 2024-03-23 |
| <input type="checkbox"/> |        |           |                        | 44             | 1625   | Yoshimi      | Kato      | Sales Rep            | Mami          | Nishi        | 2024-03-23 |

## FAKTA PEMBAYARAN

### PRAKTIKUM

1. Buatlah sebuah tabel pada database OLAP yang telah dibuat (database\_dw\_legendvehicle).

a. Nama tabel : FactOmset

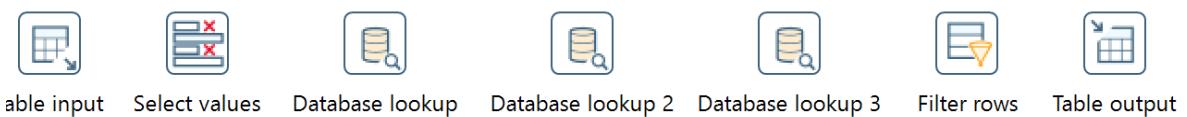
b. Field :

- i. id\_dimEmployees int FK tabel dimEmployee
- ii. id\_dimDate int FK tabel dimDate
- iii. amount decimal(10.2)

| #                        | Name              | Type          | Collation | Attributes | Null | Default | Comments | Extra | Action |
|--------------------------|-------------------|---------------|-----------|------------|------|---------|----------|-------|--------|
| <input type="checkbox"/> | 1 id_dimEmployees | int(11)       |           |            | No   | None    |          |       | Change |
| <input type="checkbox"/> | 2 id_dimDate      | int(11)       |           |            | No   | None    |          |       | Change |
| <input type="checkbox"/> | 3 amount          | decimal(10,2) |           |            | No   | None    |          |       | Change |

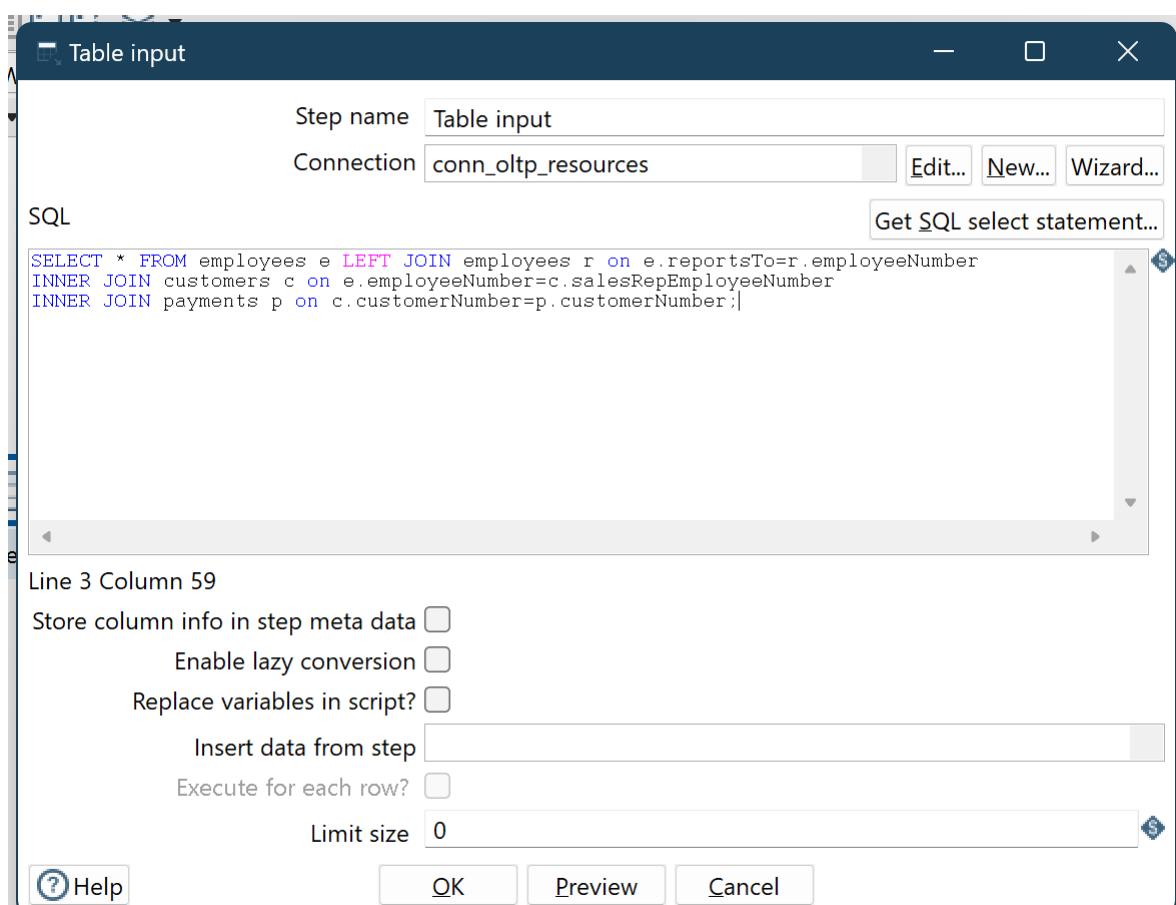
2. Buat transformation baru pada PDI Spoon. Gunakan object-object yang dihubungkan sebagai berikut:

- a. Table input : digunakan untuk mengambil data transaksi dari OLTP
- b. Select values : digunakan untuk memilih field yang akan digunakan untuk OLAP
- c. Database lookup (1) : digunakan untuk mencocokkan data pada tabel dimEmployee untuk mengambil ide\_dimEmployee
- d. Database lookup (2) : digunakan untuk mencocokkan data pada tabel dimDate untuk mengambil id\_dimDate
- e. Database lookup (3) : digunakan untuk mencocokkan data pada tabel factomset untuk melihat data yang sama atau tidak
- f. Filter rows : digunakan untuk memilih data yang sudah ada pada tabel factomset tidak dimasukkan lagi
- g. Table output : digunakan untuk memasukkan data pada tabel factOmset



3. Konfigurasi pada table input adalah untuk mendapatkan data dari OLTP sesuai dengan hasil dari query berikut. Query tersebut akan menampilkan seluruh isi field dari employee hingga transaksi yang didapat dilihat dari payments yang didapat.

```
select *
from employees e
left join employees r on e.reportsTo=r.employeeNumber
inner join customers c on e.employeeNumber=c.salesRepEmployeeNumber
inner join payments p on c.customerNumber=p.customerNumber;
```



4. Konfigurasi pada Select Values adalah untuk menghapus semua field kecuali employeeNumber, lastname dari employee, firstname dari employee, jobTitle dari employee, lastname dari manager, firstname dari manager, payment date dan amount.

Select values

Step name Select values

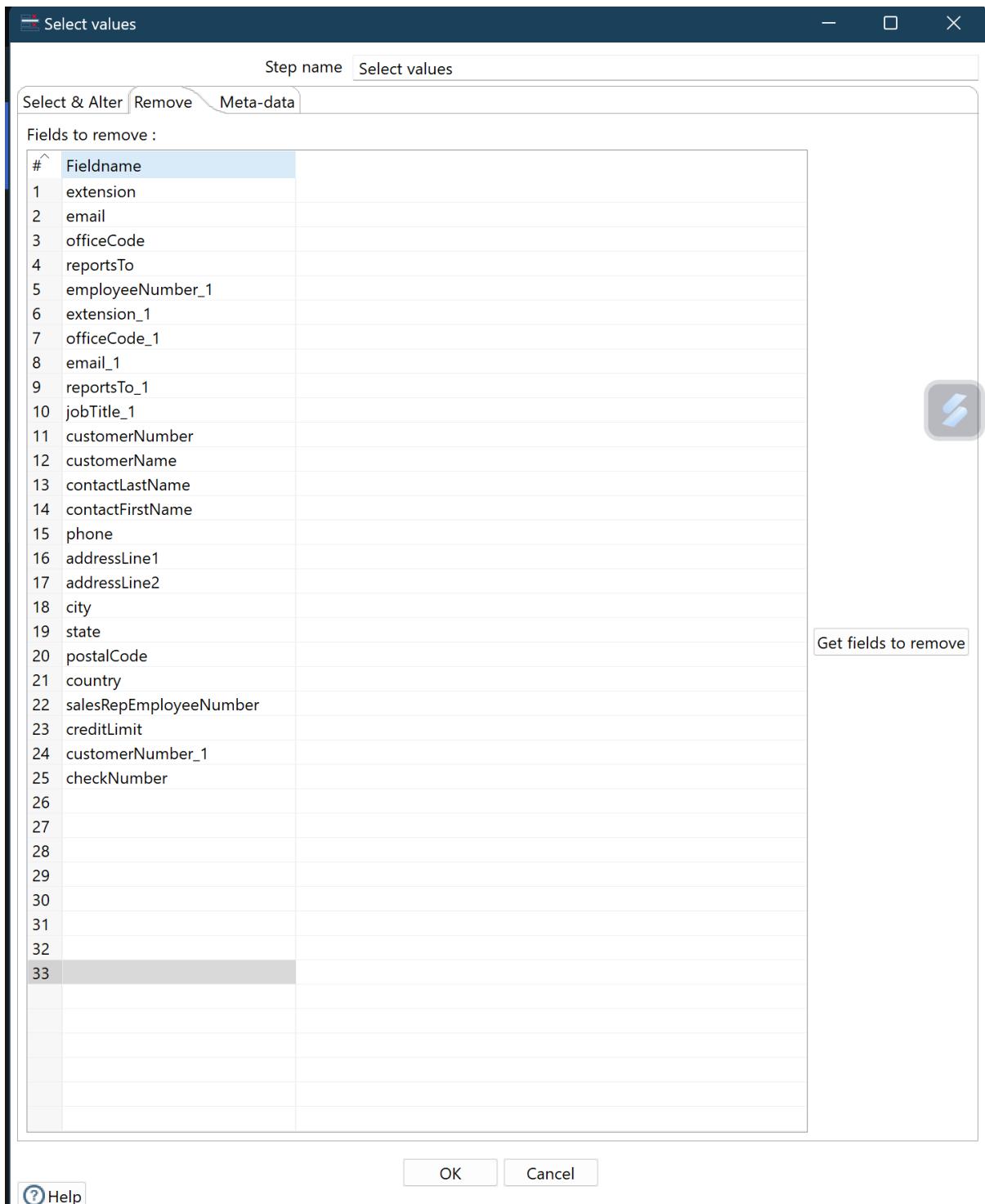
Select & Alter Remove Meta-data

Fields :

| #  | Fieldname              | Rename to            | Length | Precision |                                      |
|----|------------------------|----------------------|--------|-----------|--------------------------------------|
| 1  | employeeNumber         | streamEmployeeNumber |        |           | <a href="#">Get fields to select</a> |
| 2  | lastName               | streamLastName       |        |           | <a href="#">Edit Mapping</a>         |
| 3  | firstName              | streamFirstName      |        |           |                                      |
| 4  | extension              |                      |        |           |                                      |
| 5  | email                  |                      |        |           |                                      |
| 6  | officeCode             |                      |        |           |                                      |
| 7  | reportsTo              |                      |        |           |                                      |
| 8  | jobTitle               | streamJobTitle       |        |           |                                      |
| 9  | employeeNumber_1       |                      |        |           |                                      |
| 10 | lastName_1             | streamLastNameBoss   |        |           |                                      |
| 11 | firstName_1            | streamFirstNameBoss  |        |           |                                      |
| 12 | extension_1            |                      |        |           |                                      |
| 13 | email_1                |                      |        |           |                                      |
| 14 | officeCode_1           |                      |        |           |                                      |
| 15 | reportsTo_1            |                      |        |           |                                      |
| 16 | jobTitle_1             |                      |        |           |                                      |
| 17 | customerNumber         |                      |        |           |                                      |
| 18 | customerName           |                      |        |           |                                      |
| 19 | contactLastName        |                      |        |           |                                      |
| 20 | contactFirstName       |                      |        |           |                                      |
| 21 | phone                  |                      |        |           |                                      |
| 22 | addressLine1           |                      |        |           |                                      |
| 23 | addressLine2           |                      |        |           |                                      |
| 24 | city                   |                      |        |           |                                      |
| 25 | state                  |                      |        |           |                                      |
| 26 | postalCode             |                      |        |           |                                      |
| 27 | country                |                      |        |           |                                      |
| 28 | salesRepEmployeeNumber |                      |        |           |                                      |
| 29 | creditLimit            |                      |        |           |                                      |
| 30 | customerNumber_1       |                      |        |           |                                      |
| 31 | checkNumber            |                      |        |           |                                      |
| 32 | paymentDate            | streamDate           |        |           |                                      |
| 33 | amount                 | streamAmount         |        |           |                                      |

Include unspecified fields, ordered by name

OK Cancel [? Help](#)

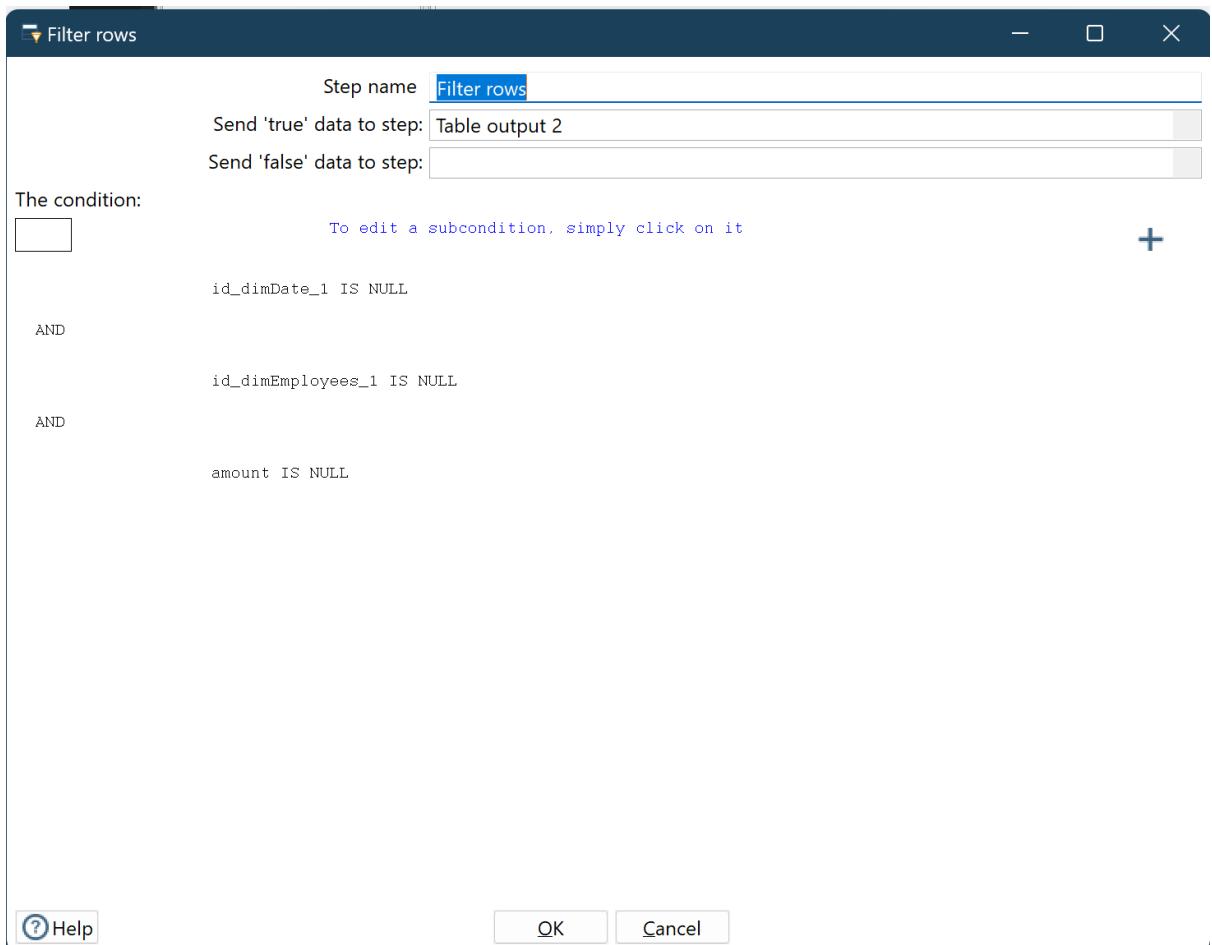


5. Konfigurasi pada tabel database lookup adalah dengan melakukan komparasi field stream (output dari proses sebelumnya) dengan field isi data pada tabel dimEmployees. Jika data tersebut cocok maka akan diambil id\_dimEmployees nya.

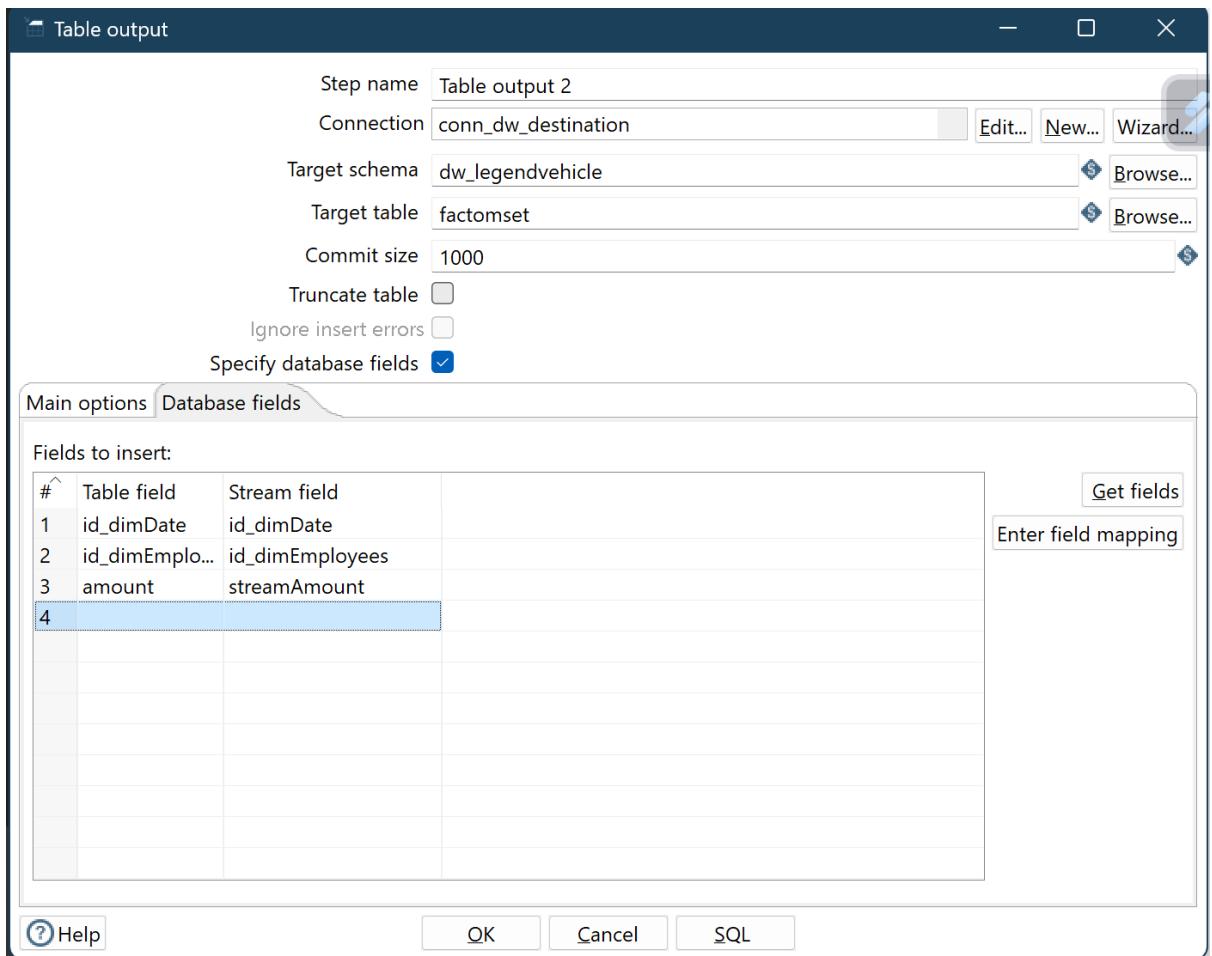
6. Konfigurasi pada tabel database lookup yang kedua adalah dengan melakukan komparasi field stream (output dari proses sebelumnya untuk field date) dengan field isi data pada tabel dimDate. Jika data tersebut cocok maka akan diambil id\_dimDate nya.

7. Konfigurasi pada tabel database lookup yang ketiga adalah dengan melakukan komparasi id\_dimDate dan id\_dimEmployees yang diambil dari proses lookup sebelumnya dengan field isi data pada tabel factOmset. Jika data tersebut cocok data tidak akan dimasukkan dalam tabel factOmset.

8. Pada bagian filter rows untuk melihat data belum ada pada tabel factOmset dengan melihat bahwa output dari lookup sebelumnya bernilai NULL



9. Konfigurasi terakhir pada table output adalah dengan melakukan mapping data output dari proses sebelumnya kedalam field pada tabel factOmset.



10. Jalankan proses transformation tersebut.

**Execution Results**

Logging Execution History Step Metrics Performance Graph Metrics Preview data

2024/03/23 22:31:45 - Spoon - Transformation opened.  
2024/03/23 22:31:45 - Spoon - Launching transformation [Transformation 3]...  
2024/03/23 22:31:45 - Spoon - Started the transformation execution.  
2024/03/23 22:31:46 - Transformation 3 - Dispatching started for transformation [Transformation 3]  
2024/03/23 22:31:46 - Table output 2.0 - Connected to database [conn\_dw\_destination] (commit=1000)  
2024/03/23 22:31:46 - Table input.0 - Finished reading query, closing connection  
2024/03/23 22:31:46 - Table input.0 - Finished processing (I=273, O=0, R=0, W=273, U=0, E=0)  
2024/03/23 22:31:46 - Select values.0 - Finished processing (I=0, O=0, R=273, W=273, U=0, E=0)  
2024/03/23 22:31:46 - Database lookup.0 - Finished processing (I=273, O=0, R=273, W=273, U=0, E=0)  
2024/03/23 22:31:46 - Database lookup 2.0 - Finished processing (I=273, O=0, R=273, W=273, U=0, E=0)  
2024/03/23 22:31:46 - Database lookup 3.0 - Finished processing (I=0, O=0, R=273, W=273, U=0, E=0)  
2024/03/23 22:31:46 - Filter rows.0 - Finished processing (I=0, O=0, R=273, W=273, U=0, E=0)  
2024/03/23 22:31:46 - Table output 2.0 - Finished processing (I=0, O=273, R=273, W=273, U=0, E=0)  
2024/03/23 22:31:46 - Spoon - The transformation has finished!!

## TUGAS PERTEMUAN KE-6: DATABASE ANALYTICAL

→ Server: localhost:3310:3310 » Database: dw\_legendvehicle » Table: factomset

Showing rows 0 - 272 (273 total, Query took 0.0004 seconds.)

```
SELECT * FROM `factomset`
```

Profiling [ Edit inline ] [ Edit ] [ Explain SQL ] [ Create PHP code ] [ Refresh ]

Show all | Number of rows: 500 ▾

Extra options

|  | id_dimEmployees | id_dimDate | amount    |
|--|-----------------|------------|-----------|
|  | 29              | 795        | 101244.59 |
|  | 29              | 606        | 85410.87  |
|  | 29              | 101        | 11044.30  |
|  | 29              | 837        | 83598.04  |
|  | 29              | 727        | 47142.70  |
|  | 29              | 672        | 55639.66  |
|  | 29              | 227        | 111654.40 |
|  | 29              | 451        | 43369.30  |
|  | 29              | 329        | 45084.38  |
|  | 29              | 708        | 26248.78  |
|  | 29              | 345        | 23923.93  |
|  | 29              | 99         | 16537.85  |
|  | 29              | 684        | 2434.25   |
|  | 29              | 322        | 50743.65  |
|  | 29              | 764        | 12692.19  |
|  | 29              | 217        | 38675.13  |
|  | 29              | 307        | 85559.12  |
|  | 29              | 805        | 46781.66  |
|  | 29              | 538        | 59551.38  |
|  | 29              | 271        | 29997.09  |
|  | 29              | 425        | 12573.28  |
|  | 30              | 717        | 14191.12  |
|  | 30              | 157        | 32641.98  |

# TUGAS PERTEMUAN KE-6: DATABASE ANALYTICAL

## TUGAS

- Buka preview tab pada execution result area di setiap proses object. amati input dan output data yang ada. bandingkan di setiap prosesnya. jelaskan perbedaan disetiap prosesnya.

| Proses Objek |                |          |           |           |                                |            |           |           |                  |            |             |             |           |
|--------------|----------------|----------|-----------|-----------|--------------------------------|------------|-----------|-----------|------------------|------------|-------------|-------------|-----------|
| Table Input  |                |          |           |           |                                |            |           |           |                  |            |             |             |           |
|              |                |          |           |           |                                |            |           |           |                  |            |             |             |           |
| #            | employeeNumber | lastName | firstName | extension | email                          | officeCode | reportsTo | jobTitle  | employeeNumber_1 | lastName_1 | firstName_1 | extension_1 | email_1   |
| 1            | 1165           | Jennings | Leslie    | x3291     | ljennings@classicmodelcars.com | 1          | 1143      | Sales Rep | 1143             | Bow        | Anthony     | x5428       | abow@clar |
| 2            | 1165           | Jennings | Leslie    | x3291     | ljennings@classicmodelcars.com | 1          | 1143      | Sales Rep | 1143             | Bow        | Anthony     | x5428       | abow@clar |
| 3            | 1165           | Jennings | Leslie    | x3291     | ljennings@classicmodelcars.com | 1          | 1143      | Sales Rep | 1143             | Bow        | Anthony     | x5428       | abow@clar |
| 4            | 1165           | Jennings | Leslie    | x3291     | ljennings@classicmodelcars.com | 1          | 1143      | Sales Rep | 1143             | Bow        | Anthony     | x5428       | abow@clar |
| 5            | 1165           | Jennings | Leslie    | x3291     | ljennings@classicmodelcars.com | 1          | 1143      | Sales Rep | 1143             | Bow        | Anthony     | x5428       | abow@clar |
| 6            | 1165           | Jennings | Leslie    | x3291     | ljennings@classicmodelcars.com | 1          | 1143      | Sales Rep | 1143             | Bow        | Anthony     | x5428       | abow@clar |
| 7            | 1165           | Jennings | Leslie    | x3291     | ljennings@classicmodelcars.com | 1          | 1143      | Sales Rep | 1143             | Bow        | Anthony     | x5428       | abow@clar |
| 8            | 1165           | Jennings | Leslie    | x3291     | ljennings@classicmodelcars.com | 1          | 1143      | Sales Rep | 1143             | Bow        | Anthony     | x5428       | abow@clar |
| 9            | 1165           | Jennings | Leslie    | x3291     | ljennings@classicmodelcars.com | 1          | 1143      | Sales Rep | 1143             | Bow        | Anthony     | x5428       | abow@clar |
| 10           | 1165           | Jennings | Leslie    | x3291     | ljennings@classicmodelcars.com | 1          | 1143      | Sales Rep | 1143             | Bow        | Anthony     | x5428       | abow@clar |
| 11           | 1165           | Jennings | Leslie    | x3291     | ljennings@classicmodelcars.com | 1          | 1143      | Sales Rep | 1143             | Bow        | Anthony     | x5428       | abow@clar |
| 12           | 1165           | Jennings | Leslie    | x3291     | ljennings@classicmodelcars.com | 1          | 1143      | Sales Rep | 1143             | Bow        | Anthony     | x5428       | abow@clar |
| 13           | 1165           | Jennings | Leslie    | x3291     | ljennings@classicmodelcars.com | 1          | 1143      | Sales Rep | 1143             | Bow        | Anthony     | x5428       | abow@clar |
| 14           | 1165           | Jennings | Leslie    | x3291     | ljennings@classicmodelcars.com | 1          | 1143      | Sales Rep | 1143             | Bow        | Anthony     | x5428       | abow@clar |
| 15           | 1165           | Jennings | Leslie    | x3291     | ljennings@classicmodelcars.com | 1          | 1143      | Sales Rep | 1143             | Bow        | Anthony     | x5428       | abow@clar |
| 16           | 1165           | Jennings | Leslie    | x3291     | ljennings@classicmodelcars.com | 1          | 1143      | Sales Rep | 1143             | Bow        | Anthony     | x5428       | abow@clar |
| 17           | 1165           | Jennings | Leslie    | x3291     | ljennings@classicmodelcars.com | 1          | 1143      | Sales Rep | 1143             | Bow        | Anthony     | x5428       | abow@clar |
| 18           | 1165           | Jennings | Leslie    | x3291     | ljennings@classicmodelcars.com | 1          | 1143      | Sales Rep | 1143             | Bow        | Anthony     | x5428       | abow@clar |
| 19           | 1165           | Jennings | Leslie    | x3291     | ljennings@classicmodelcars.com | 1          | 1143      | Sales Rep | 1143             | Bow        | Anthony     | x5428       | abow@clar |
| 20           | 1165           | Jennings | Leslie    | x3291     | ljennings@classicmodelcars.com | 1          | 1143      | Sales Rep | 1143             | Bow        | Anthony     | x5428       | abow@clar |
| 21           | 1165           | Jennings | Leslie    | x3291     | ljennings@classicmodelcars.com | 1          | 1143      | Sales Rep | 1143             | Bow        | Anthony     | x5428       | abow@clar |
| 22           | 1166           | Thompson | Leslie    | x4065     | lthompson@classicmodelcars.com | 1          | 1143      | Sales Rep | 1143             | Bow        | Anthony     | x5428       | abow@clar |
| 23           | 1166           | Thompson | Leslie    | x4065     | lthompson@classicmodelcars.com | 1          | 1143      | Sales Rep | 1143             | Bow        | Anthony     | x5428       | abow@clar |
| 24           | 1166           | Thompson | Leslie    | x4065     | lthompson@classicmodelcars.com | 1          | 1143      | Sales Rep | 1143             | Bow        | Anthony     | x5428       | abow@clar |
| 25           | 1166           | Thompson | Leslie    | x4065     | lthompson@classicmodelcars.com | 1          | 1143      | Sales Rep | 1143             | Bow        | Anthony     | x5428       | abow@clar |
| 26           | 1166           | Thompson | Leslie    | x4065     | lthompson@classicmodelcars.com | 1          | 1143      | Sales Rep | 1143             | Bow        | Anthony     | x5428       | abow@clar |
| 27           | 1166           | Thompson | Leslie    | x4065     | lthompson@classicmodelcars.com | 1          | 1143      | Sales Rep | 1143             | Bow        | Anthony     | x5428       | abow@clar |
| 28           | 1166           | Thompson | Leslie    | x4065     | lthompson@classicmodelcars.com | 1          | 1143      | Sales Rep | 1143             | Bow        | Anthony     | x5428       | abow@clar |
| 29           | 1166           | Thompson | Leslie    | x4065     | lthompson@classicmodelcars.com | 1          | 1143      | Sales Rep | 1143             | Bow        | Anthony     | x5428       | abow@clar |
| 30           | 1166           | Thompson | Leslie    | x4065     | lthompson@classicmodelcars.com | 1          | 1143      | Sales Rep | 1143             | Bow        | Anthony     | x5428       | abow@clar |
| 31           | 1166           | Thompson | Leslie    | x4065     | lthompson@classicmodelcars.com | 1          | 1143      | Sales Rep | 1143             | Bow        | Anthony     | x5428       | abow@clar |
| 32           | 1166           | Thompson | Leslie    | x4065     | lthompson@classicmodelcars.com | 1          | 1143      | Sales Rep | 1143             | Bow        | Anthony     | x5428       | abow@clar |
| 33           | 1166           | Thompson | Leslie    | x4065     | lthompson@classicmodelcars.com | 1          | 1143      | Sales Rep | 1143             | Bow        | Anthony     | x5428       | abow@clar |
| 34           | 1166           | Thompson | Leslie    | x4065     | lthompson@classicmodelcars.com | 1          | 1143      | Sales Rep | 1143             | Bow        | Anthony     | x5428       | abow@clar |
| 35           | 1188           | Firelli  | Julie     | x2173     | jfirelli@classicmodelcars.com  | 2          | 1143      | Sales Rep | 1143             | Bow        | Anthony     | x5428       | abow@clar |
| 36           | 1188           | Firelli  | Julie     | x2173     | jfirelli@classicmodelcars.com  | 2          | 1143      | Sales Rep | 1143             | Bow        | Anthony     | x5428       | abow@clar |
| 37           | 1188           | Firelli  | Julie     | x2173     | jfirelli@classicmodelcars.com  | 2          | 1143      | Sales Rep | 1143             | Bow        | Anthony     | x5428       | abow@clar |
| 38           | 1188           | Firelli  | Julie     | x2173     | jfirelli@classicmodelcars.com  | 2          | 1143      | Sales Rep | 1143             | Bow        | Anthony     | x5428       | abow@clar |

| Select Values     |                      |                |                 |                |                    |                     |                         |              |  |  |  |  |
|-------------------|----------------------|----------------|-----------------|----------------|--------------------|---------------------|-------------------------|--------------|--|--|--|--|
| Execution Results |                      |                |                 |                |                    |                     |                         |              |  |  |  |  |
|                   |                      |                |                 |                |                    |                     |                         |              |  |  |  |  |
| #                 | streamEmployeeNumber | streamLastName | streamFirstName | streamJobTitle | streamLastNameBoss | streamFirstNameBoss | streamDate              | streamAmount |  |  |  |  |
| 1                 | 1165                 | Jennings       | Leslie          | Sales Rep      | Bow                | Anthony             | 2005/03/05 00:00:00.000 | 101244.59    |  |  |  |  |
| 2                 | 1165                 | Jennings       | Leslie          | Sales Rep      | Bow                | Anthony             | 2004/08/28 00:00:00.000 | 85410.87     |  |  |  |  |
| 3                 | 1165                 | Jennings       | Leslie          | Sales Rep      | Bow                | Anthony             | 2003/04/11 00:00:00.000 | 11044.3      |  |  |  |  |
| 4                 | 1165                 | Jennings       | Leslie          | Sales Rep      | Bow                | Anthony             | 2005/04/16 00:00:00.000 | 83598.04     |  |  |  |  |
| 5                 | 1165                 | Jennings       | Leslie          | Sales Rep      | Bow                | Anthony             | 2004/12/27 00:00:00.000 | 47142.7      |  |  |  |  |
| 6                 | 1165                 | Jennings       | Leslie          | Sales Rep      | Bow                | Anthony             | 2004/11/02 00:00:00.000 | 55639.66     |  |  |  |  |
| 7                 | 1165                 | Jennings       | Leslie          | Sales Rep      | Bow                | Anthony             | 2003/08/15 00:00:00.000 | 111654.4     |  |  |  |  |
| 8                 | 1165                 | Jennings       | Leslie          | Sales Rep      | Bow                | Anthony             | 2004/03/26 00:00:00.000 | 43369.3      |  |  |  |  |
| 9                 | 1165                 | Jennings       | Leslie          | Sales Rep      | Bow                | Anthony             | 2003/11/25 00:00:00.000 | 45084.38     |  |  |  |  |
| 10                | 1165                 | Jennings       | Leslie          | Sales Rep      | Bow                | Anthony             | 2004/12/08 00:00:00.000 | 26248.78     |  |  |  |  |
| 11                | 1165                 | Jennings       | Leslie          | Sales Rep      | Bow                | Anthony             | 2003/12/11 00:00:00.000 | 23923.93     |  |  |  |  |
| 12                | 1165                 | Jennings       | Leslie          | Sales Rep      | Bow                | Anthony             | 2003/04/09 00:00:00.000 | 16537.85     |  |  |  |  |
| 13                | 1165                 | Jennings       | Leslie          | Sales Rep      | Bow                | Anthony             | 2004/11/14 00:00:00.000 | 2434.25      |  |  |  |  |
| 14                | 1165                 | Jennings       | Leslie          | Sales Rep      | Bow                | Anthony             | 2003/11/18 00:00:00.000 | 50743.65     |  |  |  |  |
| 15                | 1165                 | Jennings       | Leslie          | Sales Rep      | Bow                | Anthony             | 2005/02/02 00:00:00.000 | 12692.19     |  |  |  |  |
| 16                | 1165                 | Jennings       | Leslie          | Sales Rep      | Bow                | Anthony             | 2003/08/05 00:00:00.000 | 38675.13     |  |  |  |  |
| 17                | 1165                 | Jennings       | Leslie          | Sales Rep      | Bow                | Anthony             | 2003/11/03 00:00:00.000 | 85559.12     |  |  |  |  |
| 18                | 1165                 | Jennings       | Leslie          | Sales Rep      | Bow                | Anthony             | 2005/03/15 00:00:00.000 | 46781.66     |  |  |  |  |
| 19                | 1165                 | Jennings       | Leslie          | Sales Rep      | Bow                | Anthony             | 2004/06/21 00:00:00.000 | 59511.38     |  |  |  |  |
| 20                | 1165                 | Jennings       | Leslie          | Sales Rep      | Bow                | Anthony             | 2003/09/28 00:00:00.000 | 29997.09     |  |  |  |  |
| 21                | 1165                 | Jennings       | Leslie          | Sales Rep      | Bow                | Anthony             | 2004/02/29 00:00:00.000 | 12573.28     |  |  |  |  |
| 22                | 1166                 | Thompson       | Leslie          | Sales Rep      | Bow                | Anthony             | 2004/12/17 00:00:00.000 | 14191.12     |  |  |  |  |
| 23                | 1166                 | Thompson       | Leslie          | Sales Rep      | Bow                | Anthony             | 2003/06/06 00:00:00.000 | 32641.98     |  |  |  |  |
| 24                | 1166                 | Thompson       | Leslie          | Sales Rep      | Bow                | Anthony             | 2004/08/20 00:00:00.000 | 33347.88     |  |  |  |  |
| 25                | 1166                 | Thompson       | Leslie          | Sales Rep      | Bow                | Anthony             | 2003/12/04 00:00:00.000 | 3879.96      |  |  |  |  |
| 26                | 1166                 | Thompson       | Leslie          | Sales Rep      | Bow                | Anthony             | 2003/09/05 00:00:00.000 | 50342.74     |  |  |  |  |
| 27                | 1166                 | Thompson       | Leslie          | Sales Rep      | Bow                | Anthony             | 2005/02/06 00:00:00.000 | 39580.6      |  |  |  |  |
| 28                | 1166                 | Thompson       | Leslie          | Sales Rep      | Bow                | Anthony             | 2005/03/02 00:00:00.000 | 3452.75      |  |  |  |  |
| 29                | 1166                 | Thompson       | Leslie          | Sales Rep      | Bow                | Anthony             | 2003/10/18 00:00:00.000 | 4465.85      |  |  |  |  |
| 30                | 1166                 | Thompson       | Leslie          | Sales Rep      | Bow                | Anthony             | 2004/03/15 00:00:00.000 | 80375.24     |  |  |  |  |
| 31                | 1166                 | Thompson       | Leslie          | Sales Rep      | Bow                | Anthony             | 2004/01/18 00:00:00.000 | 21053.69     |  |  |  |  |
| 32                | 1166                 | Thompson       | Leslie          | Sales Rep      | Bow                | Anthony             | 2003/10/24 00:00:00.000 | 20452.5      |  |  |  |  |
| 33                | 1166                 | Thompson       | Leslie          | Sales Rep      | Bow                | Anthony             | 2003/12/09 00:00:00.000 | 7678.25      |  |  |  |  |
| 34                | 1166                 | Thompson       | Leslie          | Sales Rep      | Bow                | Anthony             | 2004/02/13 00:00:00.000 | 36070.47     |  |  |  |  |
| 35                | 1188                 | Firelli        | Julie           | Sales Rep      | Bow                | Anthony             | 2004/05/13 00:00:00.000 | 11843.45     |  |  |  |  |
| 36                | 1188                 | Firelli        | Julie           | Sales Rep      | Bow                | Anthony             | 2004/03/29 00:00:00.000 | 20355.24     |  |  |  |  |
| 37                | 1188                 | Firelli        | Julie           | Sales Rep      | Bow                | Anthony             | 2004/08/13 00:00:00.000 | 51152.86     |  |  |  |  |
| 38                | 1188                 | Firelli        | Julie           | Sales Rep      | Bow                | Anthony             | 2004/09/24 00:00:00.000 | 4424.4       |  |  |  |  |

Pada proses ini data mulai tersaring dikarenakan terdapat atribut atau kolom yang dihapus sehingga hanya ditampilkan kolom yang tidak dihapus.

Database Lookup (1)

## TUGAS PERTEMUAN KE-6: DATABASE ANALYTICAL

| #  | streamEmployeeNumber | streamLastName | streamFirstName | streamJobTitle | streamLastNameBoss | streamFirstNameBoss | streamDate              | streamAmount | id_dimEmployees |
|----|----------------------|----------------|-----------------|----------------|--------------------|---------------------|-------------------------|--------------|-----------------|
| 1  | 1165                 | Jennings       | Leslie          | Sales Rep      | Bow                | Anthony             | 2005/03/05 00:00:00.000 | 101244.59    | 29              |
| 2  | 1165                 | Jennings       | Leslie          | Sales Rep      | Bow                | Anthony             | 2004/08/28 00:00:00.000 | 85410.87     | 29              |
| 3  | 1165                 | Jennings       | Leslie          | Sales Rep      | Bow                | Anthony             | 2003/04/11 00:00:00.000 | 11044.3      | 29              |
| 4  | 1165                 | Jennings       | Leslie          | Sales Rep      | Bow                | Anthony             | 2005/04/16 00:00:00.000 | 83598.04     | 29              |
| 5  | 1165                 | Jennings       | Leslie          | Sales Rep      | Bow                | Anthony             | 2004/12/27 00:00:00.000 | 47142.7      | 29              |
| 6  | 1165                 | Jennings       | Leslie          | Sales Rep      | Bow                | Anthony             | 2004/11/02 00:00:00.000 | 55639.66     | 29              |
| 7  | 1165                 | Jennings       | Leslie          | Sales Rep      | Bow                | Anthony             | 2003/08/15 00:00:00.000 | 111654.4     | 29              |
| 8  | 1165                 | Jennings       | Leslie          | Sales Rep      | Bow                | Anthony             | 2004/03/26 00:00:00.000 | 43369.3      | 29              |
| 9  | 1165                 | Jennings       | Leslie          | Sales Rep      | Bow                | Anthony             | 2003/11/25 00:00:00.000 | 45084.38     | 29              |
| 10 | 1165                 | Jennings       | Leslie          | Sales Rep      | Bow                | Anthony             | 2004/12/08 00:00:00.000 | 26248.78     | 29              |
| 11 | 1165                 | Jennings       | Leslie          | Sales Rep      | Bow                | Anthony             | 2003/12/11 00:00:00.000 | 23923.93     | 29              |
| 12 | 1165                 | Jennings       | Leslie          | Sales Rep      | Bow                | Anthony             | 2003/04/09 00:00:00.000 | 16537.85     | 29              |
| 13 | 1165                 | Jennings       | Leslie          | Sales Rep      | Bow                | Anthony             | 2004/11/14 00:00:00.000 | 2434.25      | 29              |
| 14 | 1165                 | Jennings       | Leslie          | Sales Rep      | Bow                | Anthony             | 2003/11/18 00:00:00.000 | 50743.65     | 29              |
| 15 | 1165                 | Jennings       | Leslie          | Sales Rep      | Bow                | Anthony             | 2005/02/02 00:00:00.000 | 12692.19     | 29              |
| 16 | 1165                 | Jennings       | Leslie          | Sales Rep      | Bow                | Anthony             | 2003/08/05 00:00:00.000 | 38875.13     | 29              |
| 17 | 1165                 | Jennings       | Leslie          | Sales Rep      | Bow                | Anthony             | 2003/11/03 00:00:00.000 | 85559.12     | 29              |
| 18 | 1165                 | Jennings       | Leslie          | Sales Rep      | Bow                | Anthony             | 2005/03/15 00:00:00.000 | 46781.66     | 29              |
| 19 | 1165                 | Jennings       | Leslie          | Sales Rep      | Bow                | Anthony             | 2004/06/21 00:00:00.000 | 59551.38     | 29              |
| 20 | 1165                 | Jennings       | Leslie          | Sales Rep      | Bow                | Anthony             | 2003/09/28 00:00:00.000 | 29997.09     | 29              |
| 21 | 1165                 | Jennings       | Leslie          | Sales Rep      | Bow                | Anthony             | 2004/02/29 00:00:00.000 | 12573.28     | 29              |
| 22 | 1166                 | Thompson       | Leslie          | Sales Rep      | Bow                | Anthony             | 2004/12/17 00:00:00.000 | 14191.12     | 30              |
| 23 | 1166                 | Thompson       | Leslie          | Sales Rep      | Bow                | Anthony             | 2003/06/06 00:00:00.000 | 32641.98     | 30              |
| 24 | 1166                 | Thompson       | Leslie          | Sales Rep      | Bow                | Anthony             | 2004/08/20 00:00:00.000 | 33347.88     | 30              |
| 25 | 1166                 | Thompson       | Leslie          | Sales Rep      | Bow                | Anthony             | 2003/12/04 00:00:00.000 | 3879.96      | 30              |
| 26 | 1166                 | Thompson       | Leslie          | Sales Rep      | Bow                | Anthony             | 2003/09/05 00:00:00.000 | 50342.74     | 30              |
| 27 | 1166                 | Thompson       | Leslie          | Sales Rep      | Bow                | Anthony             | 2005/02/06 00:00:00.000 | 39580.6      | 30              |
| 28 | 1166                 | Thompson       | Leslie          | Sales Rep      | Bow                | Anthony             | 2005/03/02 00:00:00.000 | 3452.75      | 30              |
| 29 | 1166                 | Thompson       | Leslie          | Sales Rep      | Bow                | Anthony             | 2003/10/18 00:00:00.000 | 4465.85      | 30              |
| 30 | 1166                 | Thompson       | Leslie          | Sales Rep      | Bow                | Anthony             | 2004/03/15 00:00:00.000 | 80375.24     | 30              |
| 31 | 1166                 | Thompson       | Leslie          | Sales Rep      | Bow                | Anthony             | 2004/01/18 00:00:00.000 | 21053.69     | 30              |
| 32 | 1166                 | Thompson       | Leslie          | Sales Rep      | Bow                | Anthony             | 2003/10/24 00:00:00.000 | 20452.5      | 30              |
| 33 | 1166                 | Thompson       | Leslie          | Sales Rep      | Bow                | Anthony             | 2003/12/09 00:00:00.000 | 7678.25      | 30              |
| 34 | 1166                 | Thompson       | Leslie          | Sales Rep      | Bow                | Anthony             | 2004/02/13 00:00:00.000 | 36070.47     | 30              |
| 35 | 1188                 | Firelli        | Julie           | Sales Rep      | Bow                | Anthony             | 2004/05/13 00:00:00.000 | 11843.45     | 31              |
| 36 | 1188                 | Firelli        | Julie           | Sales Rep      | Bow                | Anthony             | 2004/03/29 00:00:00.000 | 20355.24     | 31              |
| 37 | 1188                 | Firelli        | Julie           | Sales Rep      | Bow                | Anthony             | 2004/08/13 00:00:00.000 | 51152.86     | 31              |
| 38 | 1188                 | Firelli        | Julie           | Sales Rep      | Bow                | Anthony             | 2004/09/24 00:00:00.000 | 4424.4       | 31              |

Pada proses ini mulai proses perhitungan amount pada masing-masing karyawan yang ada agar bisa dimasukkan ke dalam database factomset nya itu sendiri.

### Database Lookup (2)

| Execution Results |                      |                   |                 |                |                    |                     |                         |              |                 |
|-------------------|----------------------|-------------------|-----------------|----------------|--------------------|---------------------|-------------------------|--------------|-----------------|
| Logging           |                      | Execution History |                 | Step Metrics   |                    | Performance Graph   |                         | Metrics      |                 |
| Click here        | Link here            | Click here        | Link here       | Click here     | Link here          | Click here          | Link here               | Click here   | Link here       |
| 1                 | streamEmployeeNumber | streamLastName    | streamFirstName | streamJobTitle | streamLastNameBoss | streamFirstNameBoss | streamDate              | streamAmount | id_dimEmployees |
| 1                 | 1165                 | Jennings          | Leslie          | Sales Rep      | Bow                | Anthony             | 2005/03/05 00:00:00.000 | 101244.59    | 29              |
| 2                 | 1165                 | Jennings          | Leslie          | Sales Rep      | Bow                | Anthony             | 2004/08/28 00:00:00.000 | 85410.87     | 29              |
| 3                 | 1165                 | Jennings          | Leslie          | Sales Rep      | Bow                | Anthony             | 2003/04/11 00:00:00.000 | 11044.3      | 29              |
| 4                 | 1165                 | Jennings          | Leslie          | Sales Rep      | Bow                | Anthony             | 2005/04/16 00:00:00.000 | 83598.04     | 29              |
| 5                 | 1165                 | Jennings          | Leslie          | Sales Rep      | Bow                | Anthony             | 2004/12/27 00:00:00.000 | 47142.7      | 29              |
| 6                 | 1165                 | Jennings          | Leslie          | Sales Rep      | Bow                | Anthony             | 2004/11/02 00:00:00.000 | 55639.66     | 29              |
| 7                 | 1165                 | Jennings          | Leslie          | Sales Rep      | Bow                | Anthony             | 2003/08/15 00:00:00.000 | 111654.4     | 29              |
| 8                 | 1165                 | Jennings          | Leslie          | Sales Rep      | Bow                | Anthony             | 2004/03/26 00:00:00.000 | 43369.3      | 29              |
| 9                 | 1165                 | Jennings          | Leslie          | Sales Rep      | Bow                | Anthony             | 2003/11/25 00:00:00.000 | 45084.38     | 29              |
| 10                | 1165                 | Jennings          | Leslie          | Sales Rep      | Bow                | Anthony             | 2004/12/08 00:00:00.000 | 26248.78     | 29              |
| 11                | 1165                 | Jennings          | Leslie          | Sales Rep      | Bow                | Anthony             | 2003/12/11 00:00:00.000 | 23923.93     | 29              |
| 12                | 1165                 | Jennings          | Leslie          | Sales Rep      | Bow                | Anthony             | 2003/04/09 00:00:00.000 | 16537.85     | 29              |
| 13                | 1165                 | Jennings          | Leslie          | Sales Rep      | Bow                | Anthony             | 2004/11/14 00:00:00.000 | 2434.25      | 29              |
| 14                | 1165                 | Jennings          | Leslie          | Sales Rep      | Bow                | Anthony             | 2003/11/18 00:00:00.000 | 50743.65     | 29              |
| 15                | 1165                 | Jennings          | Leslie          | Sales Rep      | Bow                | Anthony             | 2005/02/02 00:00:00.000 | 12692.19     | 29              |
| 16                | 1165                 | Jennings          | Leslie          | Sales Rep      | Bow                | Anthony             | 2003/08/05 00:00:00.000 | 38875.13     | 29              |
| 17                | 1165                 | Jennings          | Leslie          | Sales Rep      | Bow                | Anthony             | 2003/11/03 00:00:00.000 | 85559.12     | 29              |
| 18                | 1165                 | Jennings          | Leslie          | Sales Rep      | Bow                | Anthony             | 2005/03/15 00:00:00.000 | 46781.66     | 29              |
| 19                | 1165                 | Jennings          | Leslie          | Sales Rep      | Bow                | Anthony             | 2004/06/21 00:00:00.000 | 59551.38     | 29              |
| 20                | 1165                 | Jennings          | Leslie          | Sales Rep      | Bow                | Anthony             | 2003/09/28 00:00:00.000 | 29997.09     | 29              |
| 21                | 1165                 | Jennings          | Leslie          | Sales Rep      | Bow                | Anthony             | 2004/02/29 00:00:00.000 | 12573.28     | 29              |
| 22                | 1166                 | Thompson          | Leslie          | Sales Rep      | Bow                | Anthony             | 2004/12/17 00:00:00.000 | 14191.12     | 30              |
| 23                | 1166                 | Thompson          | Leslie          | Sales Rep      | Bow                | Anthony             | 2003/06/06 00:00:00.000 | 32641.98     | 30              |
| 24                | 1166                 | Thompson          | Leslie          | Sales Rep      | Bow                | Anthony             | 2004/08/20 00:00:00.000 | 33347.88     | 30              |
| 25                | 1166                 | Thompson          | Leslie          | Sales Rep      | Bow                | Anthony             | 2003/12/04 00:00:00.000 | 3879.96      | 30              |
| 26                | 1166                 | Thompson          | Leslie          | Sales Rep      | Bow                | Anthony             | 2003/09/05 00:00:00.000 | 50342.74     | 30              |
| 27                | 1166                 | Thompson          | Leslie          | Sales Rep      | Bow                | Anthony             | 2005/02/06 00:00:00.000 | 39580.6      | 30              |
| 28                | 1166                 | Thompson          | Leslie          | Sales Rep      | Bow                | Anthony             | 2005/03/02 00:00:00.000 | 3452.75      | 30              |
| 29                | 1166                 | Thompson          | Leslie          | Sales Rep      | Bow                | Anthony             | 2003/10/18 00:00:00.000 | 4465.85      | 30              |
| 30                | 1166                 | Thompson          | Leslie          | Sales Rep      | Bow                | Anthony             | 2004/03/15 00:00:00.000 | 80375.24     | 30              |
| 31                | 1166                 | Thompson          | Leslie          | Sales Rep      | Bow                | Anthony             | 2004/01/18 00:00:00.000 | 21053.69     | 30              |
| 32                | 1166                 | Thompson          | Leslie          | Sales Rep      | Bow                | Anthony             | 2003/10/24 00:00:00.000 | 20452.5      | 30              |
| 33                | 1166                 | Thompson          | Leslie          | Sales Rep      | Bow                | Anthony             | 2005/12/09 00:00:00.000 | 7678.25      | 30              |
| 34                | 1166                 | Thompson          | Leslie          | Sales Rep      | Bow                | Anthony             | 2004/02/13 00:00:00.000 | 36070.47     | 30              |
| 35                | 1188                 | Firelli           | Julie           | Sales Rep      | Bow                | Anthony             | 2004/05/13 00:00:00.000 | 11843.45     | 31              |
| 36                | 1188                 | Firelli           | Julie           | Sales Rep      | Bow                | Anthony             | 2004/03/29 00:00:00.000 | 20355.24     | 31              |
| 37                | 1188                 | Firelli           | Julie           | Sales Rep      | Bow                | Anthony             | 2004/08/13 00:00:00.000 | 51152.86     | 31              |
| 38                | 1188                 | Firelli           | Julie           | Sales Rep      | Bow                | Anthony             | 2004/09/24 00:00:00.000 | 4424.4       | 31              |

Proses berlanjut dengan menambahkan detail date atau tanggal yang dimana menyesuaikan kolom pada database yang diisi dimana terdiri dari id karyawan, id date, dan amount itu sendiri.

### Database Lookup (3)

## TUGAS PERTEMUAN KE-6: DATABASE ANALYTICAL

| Execution Results                                                                                                                                                             |                 |                |                    |                     |                         |              |                 |            |              |                   |        |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|----------------|--------------------|---------------------|-------------------------|--------------|-----------------|------------|--------------|-------------------|--------|
| <a href="#">Logging</a> <a href="#">Execution History</a> <a href="#">Step Metrics</a> <a href="#">Performance Graph</a> <a href="#">Metrics</a> <a href="#">Preview data</a> |                 |                |                    |                     |                         |              |                 |            |              |                   |        |
| Stream                                                                                                                                                                        | streamFirstName | streamJobTitle | streamLastNameBoss | streamFirstNameBoss | streamDate              | streamAmount | id_dimEmployees | id_dimDate | id_dimDate_1 | id_dimEmployees_1 | amount |
| ie                                                                                                                                                                            | Leslie          | Sales Rep      | Bow                | Anthony             | 2005/03/05 00:00:00.000 | 101244.59    | 29              | 795        | <null>       | <null>            | <null> |
|                                                                                                                                                                               | Leslie          | Sales Rep      | Bow                | Anthony             | 2004/08/28 00:00:00.000 | 85410.87     | 29              | 606        | <null>       | <null>            | <null> |
|                                                                                                                                                                               | Leslie          | Sales Rep      | Bow                | Anthony             | 2003/04/11 00:00:00.000 | 11044.3      | 29              | 101        | <null>       | <null>            | <null> |
|                                                                                                                                                                               | Leslie          | Sales Rep      | Bow                | Anthony             | 2005/04/16 00:00:00.000 | 83598.04     | 29              | 837        | <null>       | <null>            | <null> |
|                                                                                                                                                                               | Leslie          | Sales Rep      | Bow                | Anthony             | 2004/12/27 00:00:00.000 | 47142.7      | 29              | 727        | <null>       | <null>            | <null> |
|                                                                                                                                                                               | Leslie          | Sales Rep      | Bow                | Anthony             | 2004/11/02 00:00:00.000 | 55639.66     | 29              | 672        | <null>       | <null>            | <null> |
|                                                                                                                                                                               | Leslie          | Sales Rep      | Bow                | Anthony             | 2003/08/15 00:00:00.000 | 111654.4     | 29              | 227        | <null>       | <null>            | <null> |
|                                                                                                                                                                               | Leslie          | Sales Rep      | Bow                | Anthony             | 2004/03/26 00:00:00.000 | 43369.3      | 29              | 451        | <null>       | <null>            | <null> |
|                                                                                                                                                                               | Leslie          | Sales Rep      | Bow                | Anthony             | 2003/11/25 00:00:00.000 | 45084.38     | 29              | 329        | <null>       | <null>            | <null> |
|                                                                                                                                                                               | Leslie          | Sales Rep      | Bow                | Anthony             | 2004/12/08 00:00:00.000 | 26248.78     | 29              | 708        | <null>       | <null>            | <null> |
|                                                                                                                                                                               | Leslie          | Sales Rep      | Bow                | Anthony             | 2003/12/11 00:00:00.000 | 23923.93     | 29              | 345        | <null>       | <null>            | <null> |
|                                                                                                                                                                               | Leslie          | Sales Rep      | Bow                | Anthony             | 2003/04/09 00:00:00.000 | 16537.85     | 29              | 99         | <null>       | <null>            | <null> |
|                                                                                                                                                                               | Leslie          | Sales Rep      | Bow                | Anthony             | 2004/11/14 00:00:00.000 | 24342.5      | 29              | 684        | <null>       | <null>            | <null> |
|                                                                                                                                                                               | Leslie          | Sales Rep      | Bow                | Anthony             | 2003/11/18 00:00:00.000 | 50743.65     | 29              | 322        | <null>       | <null>            | <null> |
|                                                                                                                                                                               | Leslie          | Sales Rep      | Bow                | Anthony             | 2005/02/02 00:00:00.000 | 12692.19     | 29              | 764        | <null>       | <null>            | <null> |
|                                                                                                                                                                               | Leslie          | Sales Rep      | Bow                | Anthony             | 2003/08/05 00:00:00.000 | 38675.13     | 29              | 217        | <null>       | <null>            | <null> |
|                                                                                                                                                                               | Leslie          | Sales Rep      | Bow                | Anthony             | 2003/11/03 00:00:00.000 | 85559.12     | 29              | 307        | <null>       | <null>            | <null> |
|                                                                                                                                                                               | Leslie          | Sales Rep      | Bow                | Anthony             | 2005/03/15 00:00:00.000 | 46781.66     | 29              | 805        | <null>       | <null>            | <null> |
|                                                                                                                                                                               | Leslie          | Sales Rep      | Bow                | Anthony             | 2004/06/21 00:00:00.000 | 59551.38     | 29              | 538        | <null>       | <null>            | <null> |
|                                                                                                                                                                               | Leslie          | Sales Rep      | Bow                | Anthony             | 2003/09/28 00:00:00.000 | 29997.09     | 29              | 271        | <null>       | <null>            | <null> |
|                                                                                                                                                                               | Leslie          | Sales Rep      | Bow                | Anthony             | 2004/02/29 00:00:00.000 | 12573.28     | 29              | 425        | <null>       | <null>            | <null> |
|                                                                                                                                                                               | Leslie          | Sales Rep      | Bow                | Anthony             | 2004/12/17 00:00:00.000 | 14191.12     | 30              | 717        | <null>       | <null>            | <null> |
|                                                                                                                                                                               | Leslie          | Sales Rep      | Bow                | Anthony             | 2003/06/06 00:00:00.000 | 32641.98     | 30              | 157        | <null>       | <null>            | <null> |
|                                                                                                                                                                               | Leslie          | Sales Rep      | Bow                | Anthony             | 2004/08/20 00:00:00.000 | 33347.88     | 30              | 598        | <null>       | <null>            | <null> |
|                                                                                                                                                                               | Leslie          | Sales Rep      | Bow                | Anthony             | 2003/12/04 00:00:00.000 | 3879.96      | 30              | 338        | <null>       | <null>            | <null> |
|                                                                                                                                                                               | Leslie          | Sales Rep      | Bow                | Anthony             | 2003/09/05 00:00:00.000 | 50342.74     | 30              | 248        | <null>       | <null>            | <null> |
|                                                                                                                                                                               | Leslie          | Sales Rep      | Bow                | Anthony             | 2005/02/06 00:00:00.000 | 39580.6      | 30              | 768        | <null>       | <null>            | <null> |
|                                                                                                                                                                               | Leslie          | Sales Rep      | Bow                | Anthony             | 2005/03/02 00:00:00.000 | 3452.75      | 30              | 792        | <null>       | <null>            | <null> |
|                                                                                                                                                                               | Leslie          | Sales Rep      | Bow                | Anthony             | 2003/10/18 00:00:00.000 | 4465.85      | 30              | 291        | <null>       | <null>            | <null> |
|                                                                                                                                                                               | Leslie          | Sales Rep      | Bow                | Anthony             | 2004/03/15 00:00:00.000 | 80375.24     | 30              | 440        | <null>       | <null>            | <null> |
|                                                                                                                                                                               | Leslie          | Sales Rep      | Bow                | Anthony             | 2004/01/18 00:00:00.000 | 21053.69     | 30              | 383        | <null>       | <null>            | <null> |
|                                                                                                                                                                               | Leslie          | Sales Rep      | Bow                | Anthony             | 2003/10/24 00:00:00.000 | 20452.5      | 30              | 297        | <null>       | <null>            | <null> |
|                                                                                                                                                                               | Leslie          | Sales Rep      | Bow                | Anthony             | 2003/12/09 00:00:00.000 | 7678.25      | 30              | 343        | <null>       | <null>            | <null> |
|                                                                                                                                                                               | Leslie          | Sales Rep      | Bow                | Anthony             | 2004/02/13 00:00:00.000 | 36070.47     | 30              | 409        | <null>       | <null>            | <null> |
|                                                                                                                                                                               | Julie           | Sales Rep      | Bow                | Anthony             | 2004/05/13 00:00:00.000 | 11843.45     | 31              | 499        | <null>       | <null>            | <null> |
|                                                                                                                                                                               | Julie           | Sales Rep      | Bow                | Anthony             | 2004/03/29 00:00:00.000 | 20355.24     | 31              | 454        | <null>       | <null>            | <null> |
|                                                                                                                                                                               | Julie           | Sales Rep      | Bow                | Anthony             | 2004/08/13 00:00:00.000 | 51152.86     | 31              | 591        | <null>       | <null>            | <null> |

Lalu, data tersebut bertambah kolom yang bernilai null yang dimana kolom tersebut digunakan untuk proses filter rows.

### Filter Rows

| Execution Results                                                                                                                                                             |                 |                |                    |                     |                         |              |                 |            |              |                   |        |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|----------------|--------------------|---------------------|-------------------------|--------------|-----------------|------------|--------------|-------------------|--------|
| <a href="#">Logging</a> <a href="#">Execution History</a> <a href="#">Step Metrics</a> <a href="#">Performance Graph</a> <a href="#">Metrics</a> <a href="#">Preview data</a> |                 |                |                    |                     |                         |              |                 |            |              |                   |        |
| Stream                                                                                                                                                                        | streamFirstName | streamJobTitle | streamLastNameBoss | streamFirstNameBoss | streamDate              | streamAmount | id_dimEmployees | id_dimDate | id_dimDate_1 | id_dimEmployees_1 | amount |
| ie                                                                                                                                                                            | Leslie          | Sales Rep      | Bow                | Anthony             | 2005/03/05 00:00:00.000 | 101244.59    | 29              | 795        | <null>       | <null>            | <null> |
|                                                                                                                                                                               | Leslie          | Sales Rep      | Bow                | Anthony             | 2004/08/28 00:00:00.000 | 85410.87     | 29              | 606        | <null>       | <null>            | <null> |
|                                                                                                                                                                               | Leslie          | Sales Rep      | Bow                | Anthony             | 2003/04/11 00:00:00.000 | 11044.3      | 29              | 101        | <null>       | <null>            | <null> |
|                                                                                                                                                                               | Leslie          | Sales Rep      | Bow                | Anthony             | 2005/04/16 00:00:00.000 | 83598.04     | 29              | 837        | <null>       | <null>            | <null> |
|                                                                                                                                                                               | Leslie          | Sales Rep      | Bow                | Anthony             | 2004/12/27 00:00:00.000 | 47142.7      | 29              | 727        | <null>       | <null>            | <null> |
|                                                                                                                                                                               | Leslie          | Sales Rep      | Bow                | Anthony             | 2004/11/02 00:00:00.000 | 55639.66     | 29              | 672        | <null>       | <null>            | <null> |
|                                                                                                                                                                               | Leslie          | Sales Rep      | Bow                | Anthony             | 2003/08/15 00:00:00.000 | 111654.4     | 29              | 227        | <null>       | <null>            | <null> |
|                                                                                                                                                                               | Leslie          | Sales Rep      | Bow                | Anthony             | 2004/03/26 00:00:00.000 | 43369.3      | 29              | 451        | <null>       | <null>            | <null> |
|                                                                                                                                                                               | Leslie          | Sales Rep      | Bow                | Anthony             | 2003/11/25 00:00:00.000 | 45084.38     | 29              | 329        | <null>       | <null>            | <null> |
|                                                                                                                                                                               | Leslie          | Sales Rep      | Bow                | Anthony             | 2004/12/08 00:00:00.000 | 26248.78     | 29              | 708        | <null>       | <null>            | <null> |
|                                                                                                                                                                               | Leslie          | Sales Rep      | Bow                | Anthony             | 2003/12/11 00:00:00.000 | 23923.93     | 29              | 345        | <null>       | <null>            | <null> |
|                                                                                                                                                                               | Leslie          | Sales Rep      | Bow                | Anthony             | 2003/04/09 00:00:00.000 | 16537.85     | 29              | 99         | <null>       | <null>            | <null> |
|                                                                                                                                                                               | Leslie          | Sales Rep      | Bow                | Anthony             | 2004/11/14 00:00:00.000 | 24342.5      | 29              | 684        | <null>       | <null>            | <null> |
|                                                                                                                                                                               | Leslie          | Sales Rep      | Bow                | Anthony             | 2003/11/18 00:00:00.000 | 50743.65     | 29              | 322        | <null>       | <null>            | <null> |
|                                                                                                                                                                               | Leslie          | Sales Rep      | Bow                | Anthony             | 2005/02/02 00:00:00.000 | 12692.19     | 29              | 764        | <null>       | <null>            | <null> |
|                                                                                                                                                                               | Leslie          | Sales Rep      | Bow                | Anthony             | 2003/08/05 00:00:00.000 | 38675.13     | 29              | 217        | <null>       | <null>            | <null> |
|                                                                                                                                                                               | Leslie          | Sales Rep      | Bow                | Anthony             | 2003/11/03 00:00:00.000 | 85559.12     | 29              | 307        | <null>       | <null>            | <null> |
|                                                                                                                                                                               | Leslie          | Sales Rep      | Bow                | Anthony             | 2005/03/15 00:00:00.000 | 46781.66     | 29              | 805        | <null>       | <null>            | <null> |
|                                                                                                                                                                               | Leslie          | Sales Rep      | Bow                | Anthony             | 2004/06/21 00:00:00.000 | 59551.38     | 29              | 538        | <null>       | <null>            | <null> |
|                                                                                                                                                                               | Leslie          | Sales Rep      | Bow                | Anthony             | 2003/09/28 00:00:00.000 | 29997.09     | 29              | 271        | <null>       | <null>            | <null> |
|                                                                                                                                                                               | Leslie          | Sales Rep      | Bow                | Anthony             | 2004/02/29 00:00:00.000 | 12573.28     | 29              | 425        | <null>       | <null>            | <null> |
|                                                                                                                                                                               | Leslie          | Sales Rep      | Bow                | Anthony             | 2004/12/17 00:00:00.000 | 14191.12     | 30              | 717        | <null>       | <null>            | <null> |
|                                                                                                                                                                               | Leslie          | Sales Rep      | Bow                | Anthony             | 2003/06/06 00:00:00.000 | 32641.98     | 30              | 157        | <null>       | <null>            | <null> |
|                                                                                                                                                                               | Leslie          | Sales Rep      | Bow                | Anthony             | 2004/08/20 00:00:00.000 | 33347.88     | 30              | 598        | <null>       | <null>            | <null> |
|                                                                                                                                                                               | Leslie          | Sales Rep      | Bow                | Anthony             | 2003/12/04 00:00:00.000 | 3879.96      | 30              | 338        | <null>       | <null>            | <null> |
|                                                                                                                                                                               | Leslie          | Sales Rep      | Bow                | Anthony             | 2003/09/05 00:00:00.000 | 50342.74     | 30              | 248        | <null>       | <null>            | <null> |
|                                                                                                                                                                               | Leslie          | Sales Rep      | Bow                | Anthony             | 2005/02/06 00:00:00.000 | 39580.6      | 30              | 768        | <null>       | <null>            | <null> |
|                                                                                                                                                                               | Leslie          | Sales Rep      | Bow                | Anthony             | 2005/03/02 00:00:00.000 | 3452.75      | 30              | 792        | <null>       | <null>            | <null> |
|                                                                                                                                                                               | Leslie          | Sales Rep      | Bow                | Anthony             | 2003/10/18 00:00:00.000 | 4465.85      | 30              | 291        | <null>       | <null>            | <null> |
|                                                                                                                                                                               | Leslie          | Sales Rep      | Bow                | Anthony             | 2004/03/15 00:00:00.000 | 80375.24     | 30              | 440        | <null>       | <null>            | <null> |
|                                                                                                                                                                               | Leslie          | Sales Rep      | Bow                | Anthony             | 2004/01/18 00:00:00.000 | 21053.69     | 30              | 383        | <null>       | <null>            | <null> |
|                                                                                                                                                                               | Leslie          | Sales Rep      | Bow                | Anthony             | 2003/10/24 00:00:00.000 | 20452.5      | 30              | 297        | <null>       | <null>            | <null> |
|                                                                                                                                                                               | Leslie          | Sales Rep      | Bow                | Anthony             | 2003/12/09 00:00:00.000 | 7678.25      | 30              | 343        | <null>       | <null>            | <null> |
|                                                                                                                                                                               | Leslie          | Sales Rep      | Bow                | Anthony             | 2004/02/13 00:00:00.000 | 36070.47     | 30              | 409        | <null>       | <null>            | <null> |
|                                                                                                                                                                               | Julie           | Sales Rep      | Bow                | Anthony             | 2004/05/13 00:00:00.000 | 11843.45     | 31              | 499        | <null>       | <null>            | <null> |
|                                                                                                                                                                               | Julie           | Sales Rep      | Bow                | Anthony             | 2004/03/29 00:00:00.000 | 20355.24     | 31              | 454        | <null>       | <null>            | <null> |
|                                                                                                                                                                               | Julie           | Sales Rep      | Bow                | Anthony             | 2004/08/13 00:00:00.000 | 51152.86     | 31              | 591        | <null>       | <null>            | <null> |

Pada proses filter rows kondisi data sama ada yang berubah.

### Table Output

## TUGAS PERTEMUAN KE-6: DATABASE ANALYTICAL

| id     | streamFirstName | streamJobTitle | streamLastNameBoss | streamFirstNameBoss | streamDate              | streamAmount | id_dimEmployees | id_dimDate | id_dimDate_1 | id_dimEmployees_1 | amount |
|--------|-----------------|----------------|--------------------|---------------------|-------------------------|--------------|-----------------|------------|--------------|-------------------|--------|
| Leslie | Sales Rep       | Bow            | Anthony            | Anthony             | 2005/03/05 00:00:00.000 | 101244.59    | 29              | 795        | <null>       | <null>            | <null> |
| Leslie | Sales Rep       | Bow            | Anthony            | Anthony             | 2004/08/28 00:00:00.000 | 85410.87     | 29              | 606        | <null>       | <null>            | <null> |
| Leslie | Sales Rep       | Bow            | Anthony            | Anthony             | 2003/04/11 00:00:00.000 | 11044.3      | 29              | 101        | <null>       | <null>            | <null> |
| Leslie | Sales Rep       | Bow            | Anthony            | Anthony             | 2005/04/16 00:00:00.000 | 83598.04     | 29              | 837        | <null>       | <null>            | <null> |
| Leslie | Sales Rep       | Bow            | Anthony            | Anthony             | 2004/12/27 00:00:00.000 | 47142.7      | 29              | 727        | <null>       | <null>            | <null> |
| Leslie | Sales Rep       | Bow            | Anthony            | Anthony             | 2004/11/02 00:00:00.000 | 55639.66     | 29              | 672        | <null>       | <null>            | <null> |
| Leslie | Sales Rep       | Bow            | Anthony            | Anthony             | 2003/08/15 00:00:00.000 | 111654.4     | 29              | 227        | <null>       | <null>            | <null> |
| Leslie | Sales Rep       | Bow            | Anthony            | Anthony             | 2004/03/26 00:00:00.000 | 43369.3      | 29              | 451        | <null>       | <null>            | <null> |
| Leslie | Sales Rep       | Bow            | Anthony            | Anthony             | 2003/11/25 00:00:00.000 | 45084.38     | 29              | 329        | <null>       | <null>            | <null> |
| Leslie | Sales Rep       | Bow            | Anthony            | Anthony             | 2004/12/08 00:00:00.000 | 26248.78     | 29              | 708        | <null>       | <null>            | <null> |
| Leslie | Sales Rep       | Bow            | Anthony            | Anthony             | 2003/12/11 00:00:00.000 | 23923.93     | 29              | 345        | <null>       | <null>            | <null> |
| Leslie | Sales Rep       | Bow            | Anthony            | Anthony             | 2003/04/09 00:00:00.000 | 16537.85     | 29              | 99         | <null>       | <null>            | <null> |
| Leslie | Sales Rep       | Bow            | Anthony            | Anthony             | 2004/11/14 00:00:00.000 | 24342.5      | 29              | 684        | <null>       | <null>            | <null> |
| Leslie | Sales Rep       | Bow            | Anthony            | Anthony             | 2003/11/18 00:00:00.000 | 50743.65     | 29              | 322        | <null>       | <null>            | <null> |
| Leslie | Sales Rep       | Bow            | Anthony            | Anthony             | 2005/02/02 00:00:00.000 | 12692.19     | 29              | 764        | <null>       | <null>            | <null> |
| Leslie | Sales Rep       | Bow            | Anthony            | Anthony             | 2003/08/05 00:00:00.000 | 38675.13     | 29              | 217        | <null>       | <null>            | <null> |
| Leslie | Sales Rep       | Bow            | Anthony            | Anthony             | 2003/11/03 00:00:00.000 | 85559.12     | 29              | 307        | <null>       | <null>            | <null> |
| Leslie | Sales Rep       | Bow            | Anthony            | Anthony             | 2005/03/15 00:00:00.000 | 46781.66     | 29              | 805        | <null>       | <null>            | <null> |
| Leslie | Sales Rep       | Bow            | Anthony            | Anthony             | 2004/06/21 00:00:00.000 | 59551.38     | 29              | 538        | <null>       | <null>            | <null> |
| Leslie | Sales Rep       | Bow            | Anthony            | Anthony             | 2003/09/28 00:00:00.000 | 29997.09     | 29              | 271        | <null>       | <null>            | <null> |
| Leslie | Sales Rep       | Bow            | Anthony            | Anthony             | 2004/02/29 00:00:00.000 | 12573.28     | 29              | 425        | <null>       | <null>            | <null> |
| Leslie | Sales Rep       | Bow            | Anthony            | Anthony             | 2004/12/17 00:00:00.000 | 14191.12     | 30              | 717        | <null>       | <null>            | <null> |
| Leslie | Sales Rep       | Bow            | Anthony            | Anthony             | 2003/06/06 00:00:00.000 | 32641.98     | 30              | 157        | <null>       | <null>            | <null> |
| Leslie | Sales Rep       | Bow            | Anthony            | Anthony             | 2004/08/20 00:00:00.000 | 33347.88     | 30              | 598        | <null>       | <null>            | <null> |
| Leslie | Sales Rep       | Bow            | Anthony            | Anthony             | 2003/12/04 00:00:00.000 | 3879.96      | 30              | 338        | <null>       | <null>            | <null> |
| Leslie | Sales Rep       | Bow            | Anthony            | Anthony             | 2003/09/05 00:00:00.000 | 50342.74     | 30              | 248        | <null>       | <null>            | <null> |
| Leslie | Sales Rep       | Bow            | Anthony            | Anthony             | 2005/02/06 00:00:00.000 | 39580.6      | 30              | 768        | <null>       | <null>            | <null> |
| Leslie | Sales Rep       | Bow            | Anthony            | Anthony             | 2005/03/02 00:00:00.000 | 3452.75      | 30              | 792        | <null>       | <null>            | <null> |
| Leslie | Sales Rep       | Bow            | Anthony            | Anthony             | 2003/10/18 00:00:00.000 | 4465.85      | 30              | 291        | <null>       | <null>            | <null> |
| Leslie | Sales Rep       | Bow            | Anthony            | Anthony             | 2004/03/15 00:00:00.000 | 80375.24     | 30              | 440        | <null>       | <null>            | <null> |
| Leslie | Sales Rep       | Bow            | Anthony            | Anthony             | 2004/01/18 00:00:00.000 | 21053.69     | 30              | 383        | <null>       | <null>            | <null> |
| Leslie | Sales Rep       | Bow            | Anthony            | Anthony             | 2003/10/24 00:00:00.000 | 20452.5      | 30              | 297        | <null>       | <null>            | <null> |
| Leslie | Sales Rep       | Bow            | Anthony            | Anthony             | 2003/12/09 00:00:00.000 | 7678.25      | 30              | 343        | <null>       | <null>            | <null> |
| Leslie | Sales Rep       | Bow            | Anthony            | Anthony             | 2004/02/13 00:00:00.000 | 36070.47     | 30              | 409        | <null>       | <null>            | <null> |
| Julie  | Sales Rep       | Bow            | Anthony            | Anthony             | 2004/05/13 00:00:00.000 | 11843.45     | 31              | 499        | <null>       | <null>            | <null> |
| Julie  | Sales Rep       | Bow            | Anthony            | Anthony             | 2004/03/29 00:00:00.000 | 20352.4      | 31              | 454        | <null>       | <null>            | <null> |
| Julie  | Sales Rep       | Bow            | Anthony            | Anthony             | 2004/08/13 00:00:00.000 | 51152.86     | 31              | 591        | <null>       | <null>            | <null> |

Pada table output pun sama data yang dihasilkan tidak ada perubahan.

2. Jika proses itu di ulangi ( di run kembali ) apakah data akan redundant?

Jawab : jika proses tersebut diulangi tidak terjadi redundant dikarenakan pada field stream dan kolom yang berada didatabase berdasarkan hasil sebelumnya tidak ada yang bernilai null sehingga tidak terjadi penulisan data ulang.

| Execution Results                                                                                    |                   |              |                   |         |              |  |  |  |  |  |  |
|------------------------------------------------------------------------------------------------------|-------------------|--------------|-------------------|---------|--------------|--|--|--|--|--|--|
| Logging                                                                                              | Execution History | Step Metrics | Performance Graph | Metrics | Preview data |  |  |  |  |  |  |
| 2024/03/23 22:44:40 - Spoon - Transformation opened.                                                 |                   |              |                   |         |              |  |  |  |  |  |  |
| 2024/03/23 22:44:40 - Spoon - Launching transformation [Transformation 3]...                         |                   |              |                   |         |              |  |  |  |  |  |  |
| 2024/03/23 22:44:40 - Spoon - Started the transformation execution.                                  |                   |              |                   |         |              |  |  |  |  |  |  |
| 2024/03/23 22:44:41 - Transformation 3 - Dispatching started for transformation [Transformation 3]   |                   |              |                   |         |              |  |  |  |  |  |  |
| 2024/03/23 22:44:41 - Table output 2.0 - Connected to database [conn_dw_destination] (commit=1000)   |                   |              |                   |         |              |  |  |  |  |  |  |
| 2024/03/23 22:44:41 - Table input.0 - Finished reading query, closing connection                     |                   |              |                   |         |              |  |  |  |  |  |  |
| 2024/03/23 22:44:41 - Table input.0 - Finished processing (I=273, O=0, R=0, W=273, U=0, E=0)         |                   |              |                   |         |              |  |  |  |  |  |  |
| 2024/03/23 22:44:41 - Select values.0 - Finished processing (I=0, O=0, R=273, W=273, U=0, E=0)       |                   |              |                   |         |              |  |  |  |  |  |  |
| 2024/03/23 22:44:41 - Database lookup.0 - Finished processing (I=273, O=0, R=273, W=273, U=0, E=0)   |                   |              |                   |         |              |  |  |  |  |  |  |
| 2024/03/23 22:44:41 - Database lookup 2.0 - Finished processing (I=273, O=0, R=273, W=273, U=0, E=0) |                   |              |                   |         |              |  |  |  |  |  |  |
| 2024/03/23 22:44:41 - Database lookup 3.0 - Finished processing (I=273, O=0, R=273, W=273, U=0, E=0) |                   |              |                   |         |              |  |  |  |  |  |  |
| 2024/03/23 22:44:41 - Filter rows.0 - Finished processing (I=0, O=0, R=273, W=0, U=0, E=0)           |                   |              |                   |         |              |  |  |  |  |  |  |
| 2024/03/23 22:44:41 - Spoon - The transformation has finished!!                                      |                   |              |                   |         |              |  |  |  |  |  |  |

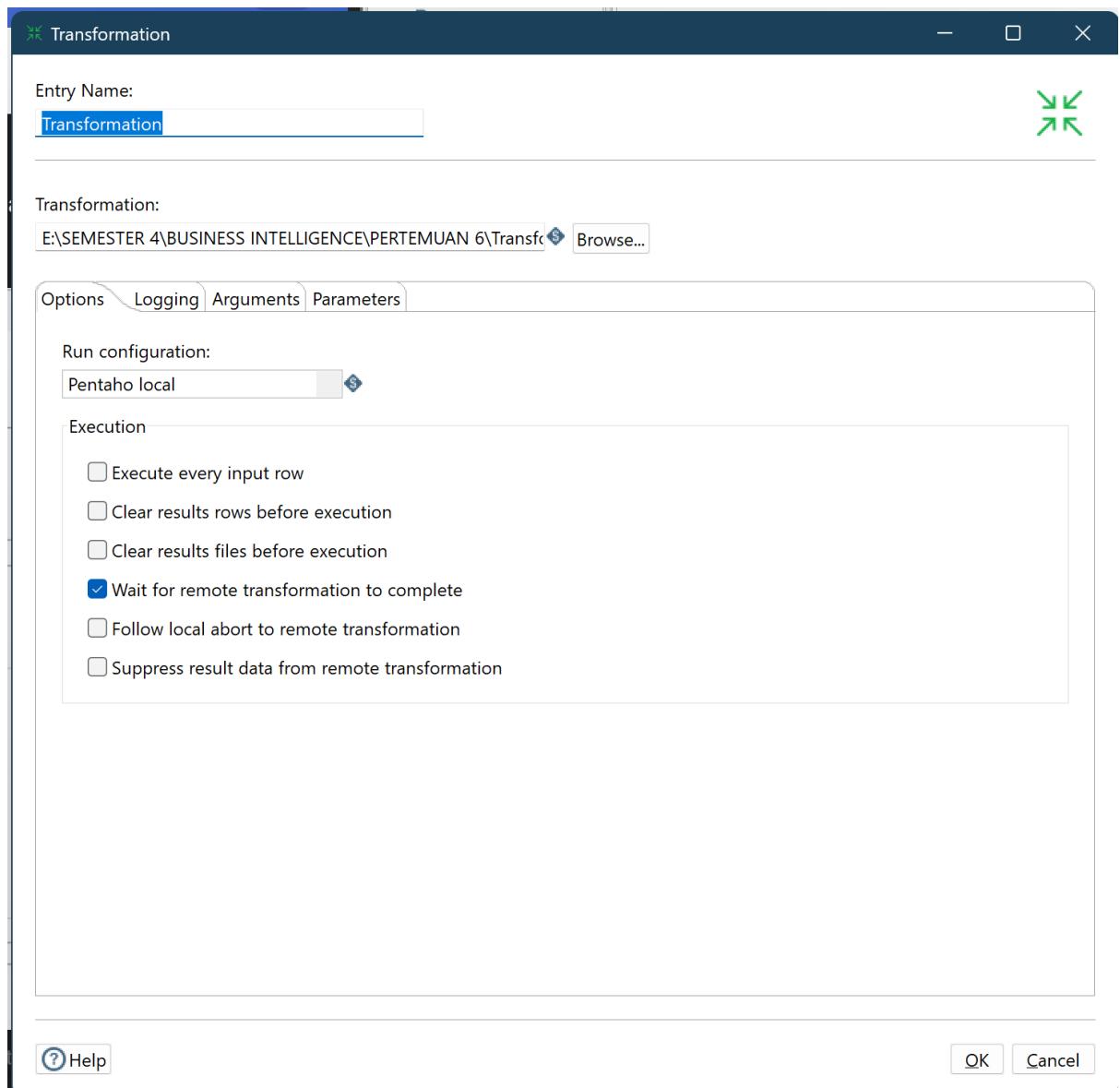
## JOB

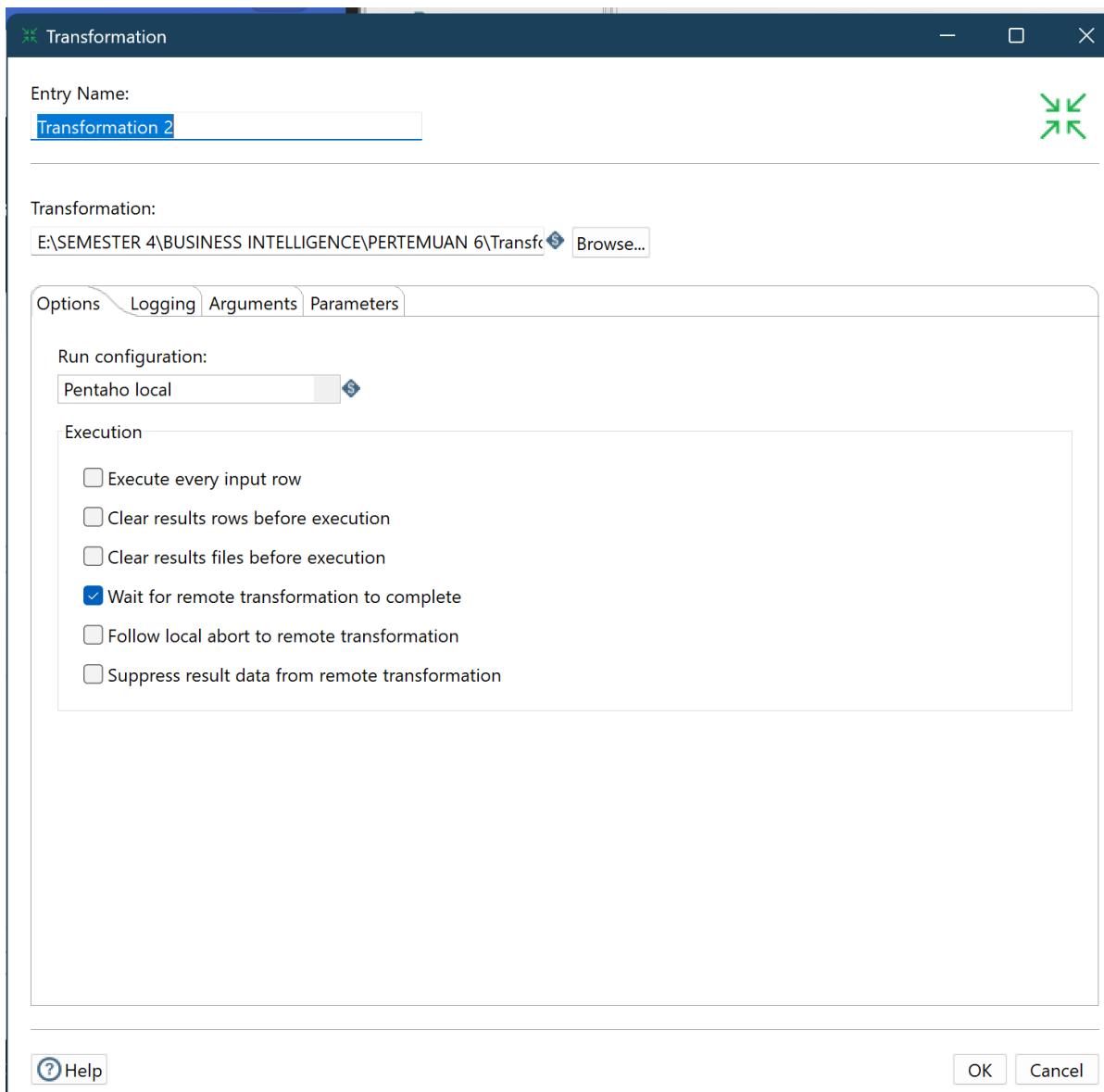
### PRAKTIKUM

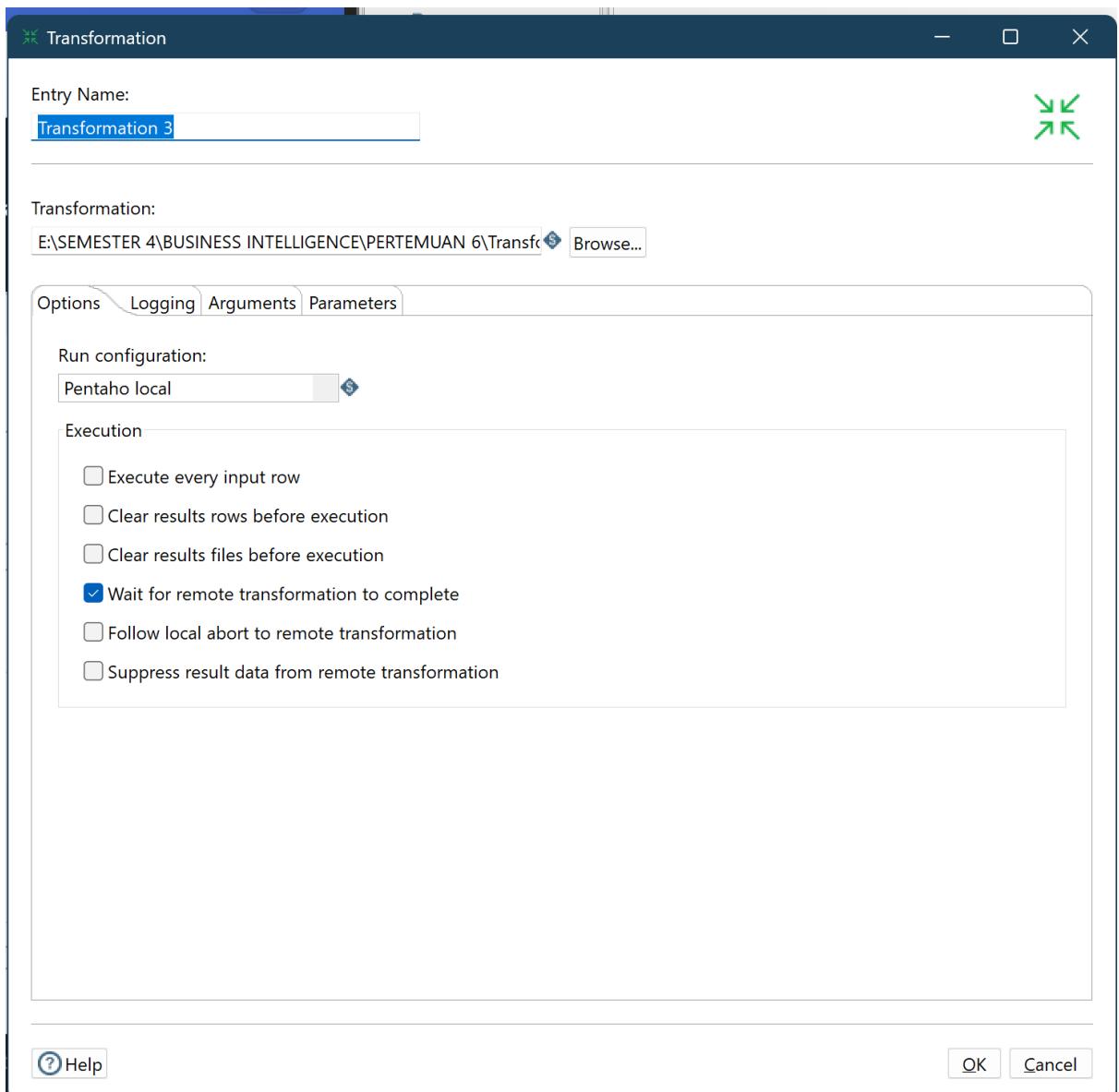
1. Buka Jobs pada **File - New – Jobs**
2. Gunakan 5 objects dan hubungkan sesuai urutan sebagai berikut:
  - a. Start: Objek untuk melakukan konfigurasi cron job dari proses ETL yang telah dibuat
  - b. Transformation 1 : digunakan untuk menjalankan transformation pembuatan dimDate.
  - c. Transformation 2 : digunakan untuk menjalankan transformation pembuatan dimEmployees.
  - d. Transformation 3 : digunakan untuk menjalankan transformation pembuatan factOmset.
  - e. Success: Objek untuk menandakan bahwa proses telah selesai.



3. Konfigurasi dilakukan pada setiap transformation untuk mengambil file transformation yang telah dibuat pada bagian A, B dan C.







4. Jalankan jobs tersebut ketika semua transformation telah dihubungkan dengan file transformation yang telah dibuat sebelumnya.

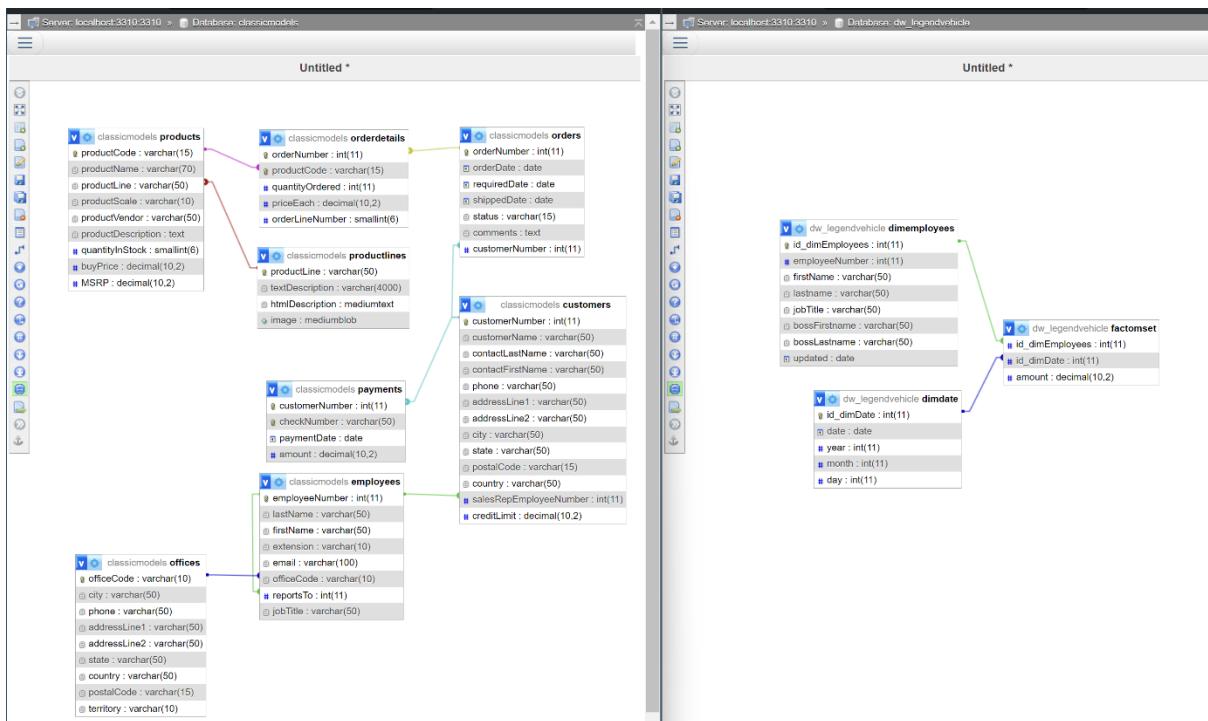
**Execution Results**

Logging History Job metrics Metrics

2024/03/23 22:51:55 - Spoon - Save file as...  
 2024/03/23 22:51:55 - Spoon - Starting job...  
 2024/03/23 22:51:55 - Job 1 - Start of job execution  
 2024/03/23 22:51:55 - Job 1 - Starting entry [Transformation]  
 2024/03/23 22:51:55 - Transformation - Using run configuration [Pentaho local]  
 2024/03/23 22:51:55 - Transformation 1 - Dispatching started for transformation [Transformation 1]  
 2024/03/23 22:51:55 - Table output.0 - Connected to database [conn\_dw\_destination] (commit=1000)  
 2024/03/23 22:51:55 - Generate rows.0 - Finished processing (I=0, O=0, R=0, W=1825, U=0, E=0)  
 2024/03/23 22:51:55 - Add sequence.0 - Finished processing (I=0, O=0, R=1825, W=1825, U=0, E=0)  
 2024/03/23 22:51:55 - Calculator.0 - Finished processing (I=0, O=0, R=1825, W=1825, U=0, E=0)  
 2024/03/23 22:51:55 - Select values.0 - Finished processing (I=0, O=0, R=1825, W=1825, U=0, E=0)  
 2024/03/23 22:51:56 - Database lookup.0 - Finished processing (I=1825, O=0, R=1825, W=1825, U=0, E=0)  
 2024/03/23 22:51:56 - Filter rows.0 - Finished processing (I=0, O=0, R=1825, W=0, U=0, E=0)  
 2024/03/23 22:51:56 - Job 1 - Starting entry [Transformation 2]  
 2024/03/23 22:51:56 - Transformation 2 - Using run configuration [Pentaho local]  
 2024/03/23 22:51:56 - Transformation 2 - Dispatching started for transformation [Transformation 2]  
 2024/03/23 22:51:56 - Table output.0 - Connected to database [conn\_dw\_destination] (commit=1000)  
 2024/03/23 22:51:56 - Table input.0 - Finished reading query, closing connection  
 2024/03/23 22:51:56 - Table input.0 - Finished processing (I=24, O=0, R=0, W=24, U=0, E=0)  
 2024/03/23 22:51:56 - Select values.0 - Finished processing (I=0, O=0, R=24, W=24, U=0, E=0)  
 2024/03/23 22:51:56 - Database lookup.0 - Finished processing (I=23, O=0, R=24, W=24, U=0, E=0)  
 2024/03/23 22:51:56 - Filter rows.0 - Finished processing (I=0, O=0, R=24, W=1, U=0, E=0)  
 2024/03/23 22:51:56 - Table output.0 - Finished processing (I=0, O=1, R=1, W=1, U=0, E=0)  
 2024/03/23 22:51:56 - Job 1 - Starting entry [Transformation 3]  
 2024/03/23 22:51:56 - Transformation 3 - Using run configuration [Pentaho local]  
 2024/03/23 22:51:56 - Transformation 3 - Dispatching started for transformation [Transformation 3]  
 2024/03/23 22:51:56 - Table output.2.0 - Connected to database [conn\_dw\_destination] (commit=1000)  
 2024/03/23 22:51:56 - Table input.0 - Finished reading query, closing connection  
 2024/03/23 22:51:56 - Table input.0 - Finished processing (I=273, O=0, R=0, W=273, U=0, E=0)  
 2024/03/23 22:51:56 - Select values.0 - Finished processing (I=0, O=0, R=273, W=273, U=0, E=0)  
 2024/03/23 22:51:56 - Database lookup.0 - Finished processing (I=273, O=0, R=273, W=273, U=0, E=0)  
 2024/03/23 22:51:56 - Database lookup.2.0 - Finished processing (I=273, O=0, R=273, W=273, U=0, E=0)  
 2024/03/23 22:51:56 - Database lookup.3.0 - Finished processing (I=273, O=0, R=273, W=273, U=0, E=0)  
 2024/03/23 22:51:56 - Filter rows.0 - Finished processing (I=0, O=0, R=273, W=0, U=0, E=0)  
 2024/03/23 22:51:56 - Job 1 - Starting entry [Success]  
 2024/03/23 22:51:56 - Job 1 - Finished job entry [Success] (result=[true])  
 2024/03/23 22:51:56 - Job 1 - Finished job entry [Transformation 3] (result=[true])  
 2024/03/23 22:51:56 - Job 1 - Finished job entry [Transformation 2] (result=[true])  
 2024/03/23 22:51:56 - Job 1 - Finished job entry [Transformation] (result=[true])  
 2024/03/23 22:51:56 - Job 1 - Job execution finished  
 2024/03/23 22:51:56 - Spoon - Job has ended.

## TUGAS

1. Buka desain database dari dw\_legendvehicle pada DBMS, bandingkan design tersebut dengan desain db OLTP legendVehicle pada jobsheet 2. analisalah dan ceritakan perbedaannya.



Dari kedua desain database tersebut memiliki perbedaan dimana pada database OLTP lebih kompleks dikarenakan difokuskan untuk proses transaksi dari masing-masing data tersebut sehingga pembuatan desain lebih terstruktur. Sedangkan pada database dw\_legendvehicle yang baru lebih simpel dikarenakan hanya difokuskan untuk analisa atau bisa dibilang hanya pengambilan data dari database OLTP untuk divisualisasikan.

- Buatlah report pertahun untuk KPI "Jumlah omset yang didapat" pada **Foon Yue Tseng** dan **Pamela Castillo**. Serta gambarkan grafiknya (grafik garis).

Query

```

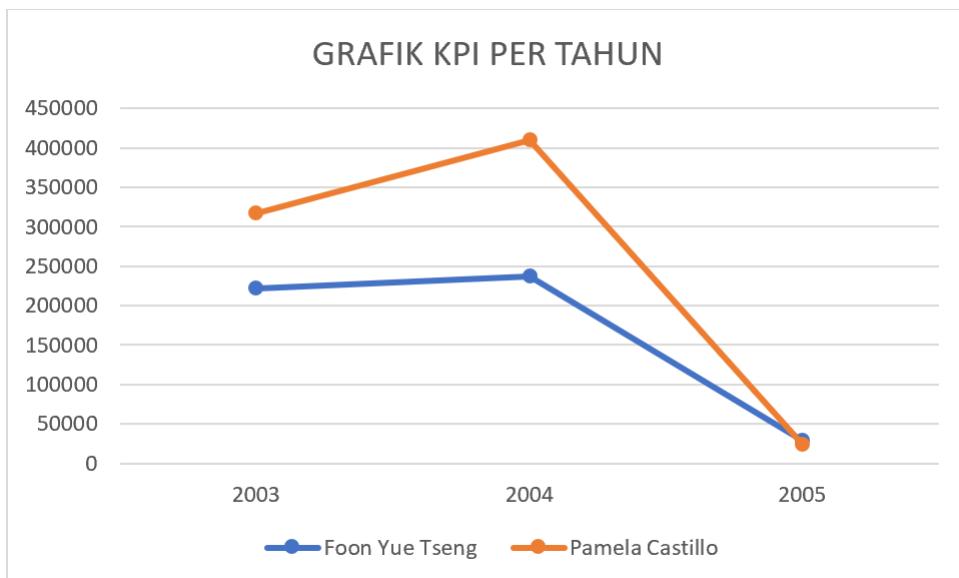
1 SELECT e.employeeNumber AS 'NOMOR PEGAWAI',
2     CONCAT(e.firstName, ' ', e.lastName) AS 'NAMA PEGAWAI',
3     d.year AS 'TAHUN',
4     SUM(o.amount) AS 'OMSET'
5 FROM dimemployees e
6 JOIN factomset o ON e.id_dimEmployees = o.id_dimEmployees
7 JOIN dimdate d ON d.id_dimDate = o.id_dimDate
8 WHERE e.firstName IN ('Pamela', 'Foon Yue')
9 GROUP BY e.employeeNumber, d.year;

```

Hasil

| NOMOR PEGAWAI | NAMA PEGAWAI    | TAHUN | OMSET     |
|---------------|-----------------|-------|-----------|
| 1286          | Foon Yue Tseng  | 2003  | 221887.03 |
| 1286          | Foon Yue Tseng  | 2004  | 237255.26 |
| 1286          | Foon Yue Tseng  | 2005  | 29070.38  |
| 1401          | Pamela Castillo | 2003  | 317104.78 |
| 1401          | Pamela Castillo | 2004  | 409910.07 |
| 1401          | Pamela Castillo | 2005  | 23187.02  |

Grafik



3. Jelaskan perbedaan query saat mendapatkan data pada nomor 2 dengan query pada saat Jobsheet 2!

Jawab : perbedaan query tersebut terjadi dikarenakan pada perbedaan struktur desain database yang dimana jika pada jobsheet 2 desain nya kompleks dan setiap data terpecah ke masing-masing tabel nya. Sedangkan pada nomor 2 desain database nya simpel dan mengedepankan ke arah kesimpulan sehingga proses query lebih mudah.

4. Simpulkan dengan bahasa sendiri, apa perbedaan OLTP dan OLAP?

Jawab : perbedaan jika melihat dari struktur desain database adalah OLTP lebih kompleks dikarenakan difokuskan untuk proses transaksi agar masing-masing data pemetaan nya menjadi jelas. Sedangkan pada OLAP desain database lebih simpel dikarenakan ingin langsung menganalisis dari data tersebut.

## 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.

