



# 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

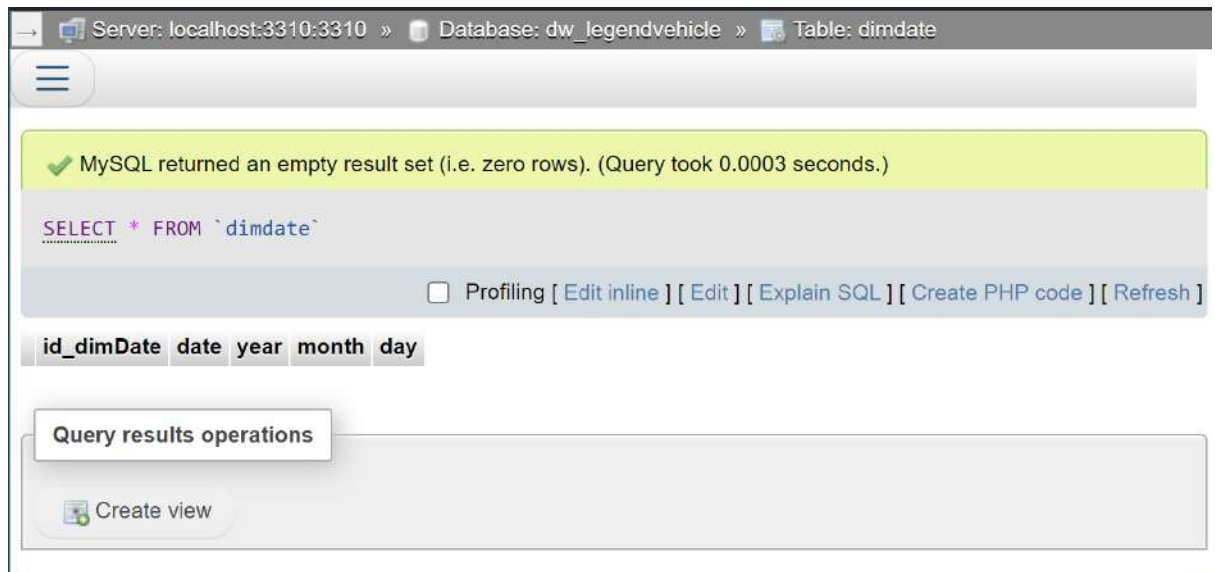
1. Buatlah sebuah database yang digunakan sebagai OLAP dengan nama dw\_LegendVehicle

```
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**.

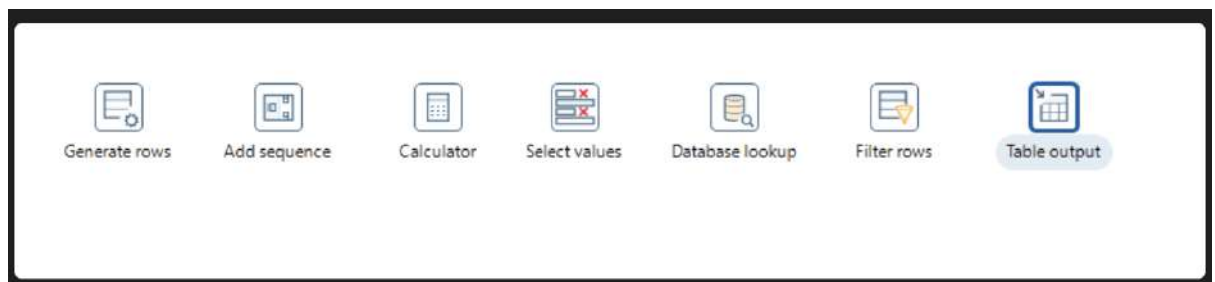
```
CREATE TABLE dimDate(  
  id_dimDate int not null AUTO_INCREMENT PRIMARY KEY  
  date date  
  year int  
  month int  
  day int  
);
```

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.



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.

#	Name	Type	Format	Length	Precision	Currency	Decimal	Group	Value	Set empty string?
1	CurrentDate	Date	dd-MM-yyyy						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

Step name: Add sequence

Name of value: incrementDay

Use a database to generate the sequence

Use DB to get sequence? ☐

Connection:  Edit... New... Wizard...

Schema name:  Schemas...

Sequence name: SEQ Sequences...

Use a transformation counter to generate the sequence

Use counter to calculate sequence? ☒

Counter name (optional):

Start at value: 0

Increment by: 1

Maximum value: 999999999

Buttons: 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 + 8 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	

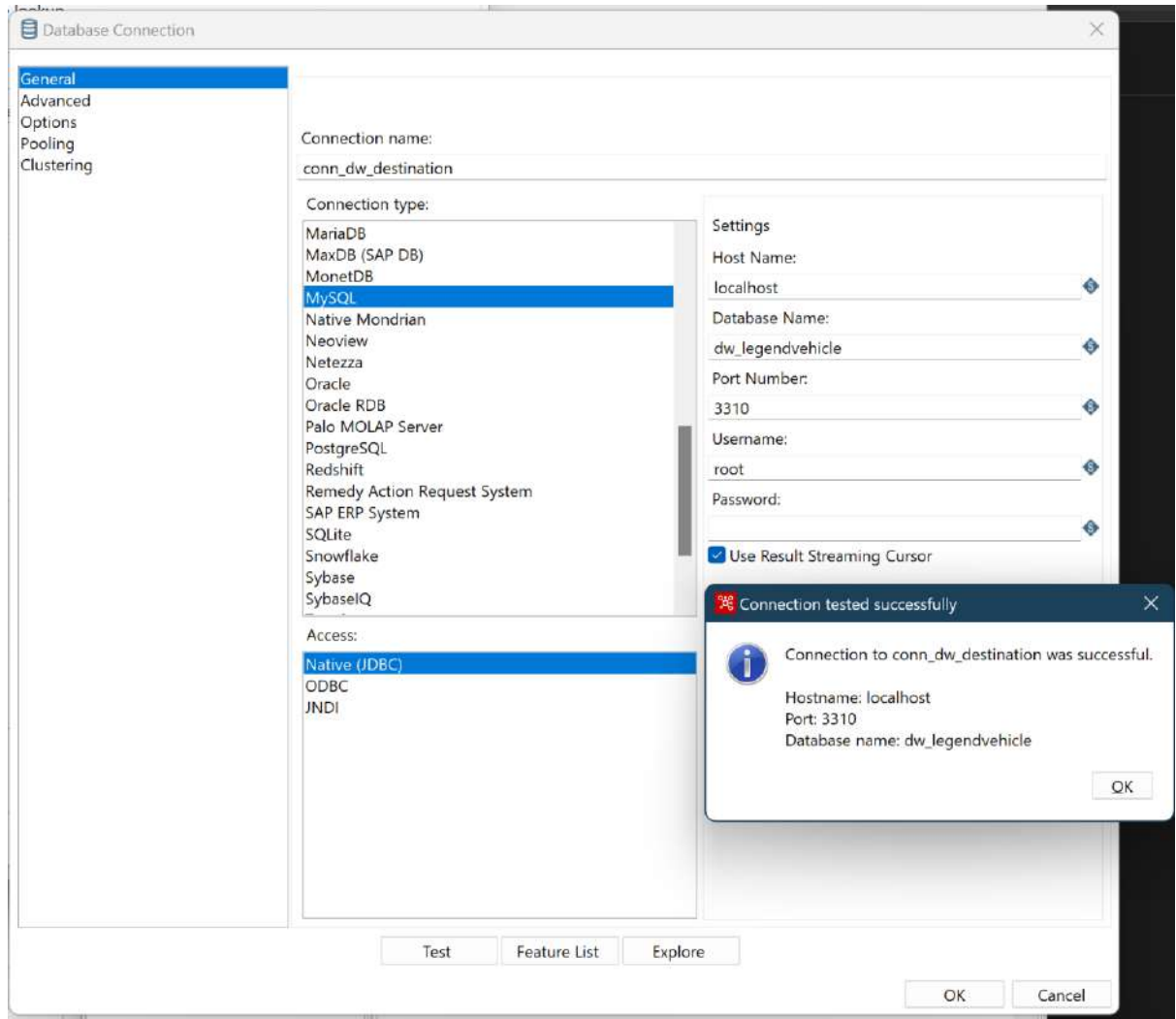
Get fields to remove

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 Edit... New... Wizard...

Lookup schema: dw\_legendvehicle Browse...

Lookup table: dimdate Browse...

Enable cache? ☐

Cache size in rows (0=cache 0)

Load all data from table ☐

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

#	Table field	Comparator	Field1	Field2
1	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 ☐

Fail on multiple results? ☐

Order by

Help OK Cancel Get Fields 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)



Filter rows

Step name:

Send 'true' data to step:

Send 'false' data to step:

The condition:

☐ To edit a subcondition, simply click on it

date IS NULL

AND

year IS NULL

AND

month IS NULL

AND

day IS NULL

Help OK Cancel

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.

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

					id_dimDate	date	year	month	day
<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

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

#	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 menggrouping 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

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

#	streamDate	streamYear	streamMonth	streamDay date	year	month	day
1							

Table output

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





## DIMENSI PEGAWAI

### PRAKTIKUM

1. Buatlah tabel dimPegawai pada dw\_LegendVehicle.

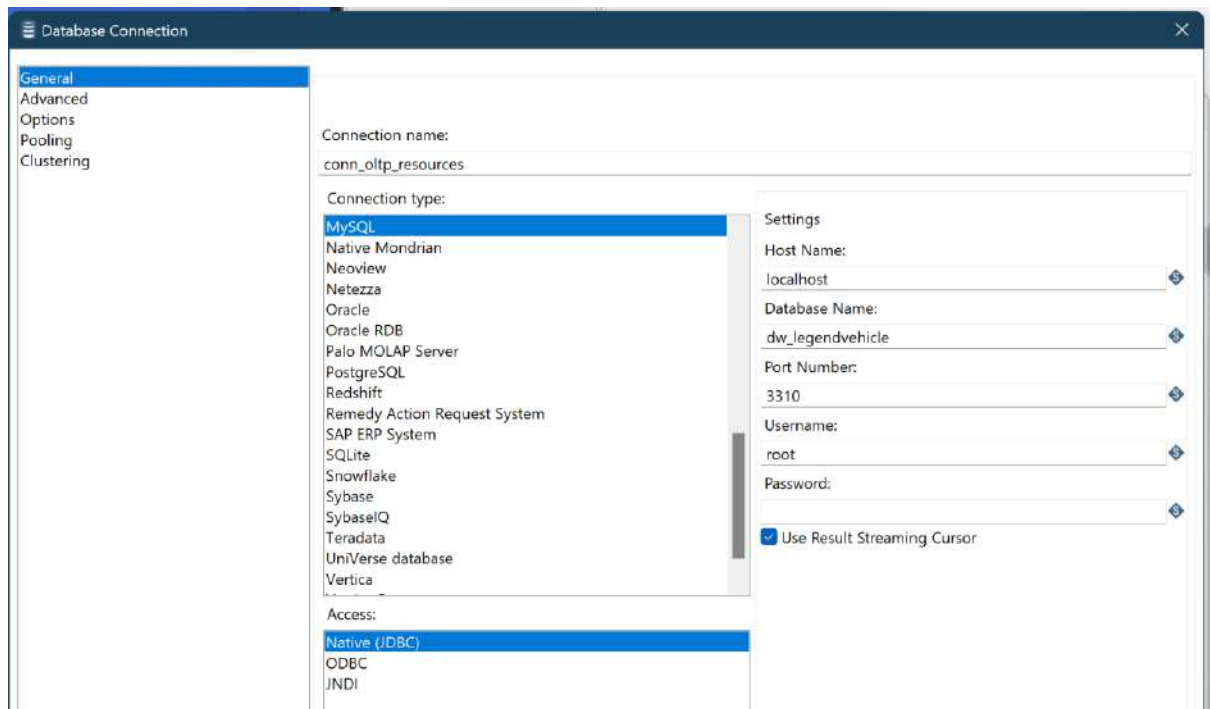
```
CREATE TABLE dimEmployees(  
    id_dimEmployees int not_null auto increment primary,  
    employeeNumber int(11),  
    firstName varchar(50),  
    lastname varchar(50),  
    jobtitle varchar(50),  
    boss_firstname varchar(50),  
    boss_lastname varchar(50),  
    updated date DEFAULT CURRENT_DATE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

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

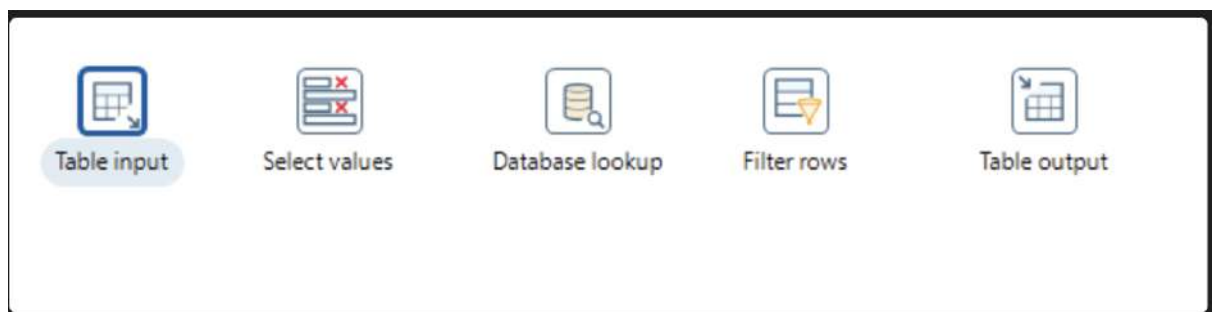
```
CREATE TABLE dimEmployees( id_dimEmployees int NOT NULL AUTO_INCREMENT PRIMARY KEY,  
employeeNumber int, firstName varchar(50), lastName varchar(50), jobTitle varchar(50),  
bossFirstName varchar(50), bossLastName varchar(50), updated date DEFAULT CURRENT_DATE );
```

[ [Edit inline](#) ] [ [Edit](#) ] [ [Create PHP code](#) ]

2. 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;
```

Table input

Step name

Connection

SQL

```
select * from employees e
left join employees r
on e.reportsTo=r.employeeNumber;
```

Line 1 Column 0

Store column info in step meta data ☐

Enable lazy conversion ☐

Replace variables in script? ☐

Insert data from step

Execute for each row? ☐

Limit size

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.

Select values

Step name Select values

Select & Alter Remove Meta-data

Fields :

#	Fieldname	Rename to	Length	Precision
1	employeeNumber	StreamEmployeeNumber		
2	lastName	StreamLastname		
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			

Get fields to select  
Edit Mapping

Include unspecified fields, ordered by name ☐

OK Cancel

Help

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

Select values

Step name Select values

Select & Alter Remove Meta-data

Fields to remove :

#	Fieldname
1	extension
2	email
3	officeCode
4	reportsTo
5	employeeNumber_1
6	extension_1
7	email_1
8	officeCode_1
9	reportsTo_1
10	jobTitle_1

Get fields to remove

OK Cancel

Help

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 [Edit...] [New...] [Wizard...]

Lookup schema: dw\_legendvehicle [Browse...]

Lookup table: dimemployees [Browse...]

Enable cache? ☐

Cache size in rows (0=cache): 0

Load all data from table ☐

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

#	Table field	Comparator	Field1	Field2
1	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:

[?] Help [OK] [Cancel] [Get Fields] [Get lookup fields]

11. Hubungkan output databse 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.



**Table output**

Step name: Table output

Connection: conn\_dw\_destination [Edit... New... Wizard...]

Target schema: dw\_legendvehicle [Browse...]

Target table: dimemployees [Browse...]

Commit size: 1000

Truncate table: ☐

Ignore insert errors: ☐

Specify database fields: ☒

**Main options Database fields**

Fields to insert:

#	Table field	Stream field
1	employeeNu...	StreamEmployeeenumber
2	firstName	StreamFirstname
3	lastName	StreamLastname
4	jobTitle	StreamJobtitle
5	bossFirstName	StreamFirstnameBoss
6	bossLastName	StreamLastnameBoss

[Get fields] [Enter field mapping]

[Help] [OK] [Cancel] [SQL]

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

## TUGAS 2

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 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	x4811	mpatterson@classicmodelcars.com	1	1002	VP Sales	1002	Murphy	Diane	x5800	dmurphy
3	1076	Firrelli	Jeff	x2275	jfirrelli@classicmodelcars.com	1	1002	VP Marketing	1002	Murphy	Diane	x5800	dmurphy
4	1088	Patterson	William	x4871	wpatterson@classicmodelcars.com	6	1056	Sales Manager (APAC)	1056	Patterson	Mary	x4811	mpatterson
5	1102	Bondur	Gerard	x5408	gbondur@classicmodelcars.com	4	1056	Sale Manager (EMEA)	1056	Patterson	Mary	x4811	mpatterson
6	1143	Bow	Anthony	x5428	abow@classicmodelcars.com	1	1056	Sales Manager (NA)	1056	Patterson	Mary	x4811	mpatterson
7	1165	Jennings	Leslie	x4291	ljennings@classicmodelcars.com	1	1143	Sales Rep	1143	Bow	Anthony	x5428	abow@
8	1166	Thompson	Leslie	x4865	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	ftsang@classicmodelcars.com	3	1143	Sales Rep	1143	Bow	Anthony	x5428	abow@
12	1323	Vanauf	George	x4132	gvanauf@classicmodelcars.com	3	1143	Sales Rep	1143	Bow	Anthony	x5428	abow@
13	1337	Bondur	Loui	x5492	lbondur@classicmodelcars.com	4	1102	Sales Rep	1102	Bondur	Gerard	x5408	gbondur
14	1370	Hernandez	Gerard	x2028	ghernandez@classicmodelcars.com	4	1102	Sales Rep	1102	Bondur	Gerard	x5408	gbondur
15	1401	Castillo	Pamela	x2759	pcastillo@classicmodelcars.com	4	1102	Sales Rep	1102	Bondur	Gerard	x5408	gbondur
16	1501	Bott	Larry	x2311	lbott@classicmodelcars.com	7	1102	Sales Rep	1102	Bondur	Gerard	x5408	gbondur
17	1504	Jones	Barry	x102	bjones@classicmodelcars.com	7	1102	Sales Rep	1102	Bondur	Gerard	x5408	gbondur
18	1611	Fixter	Andy	x101	afixter@classicmodelcars.com	6	1088	Sales Rep	1088	Patterson	William	x4871	wpatterson
19	1612	Marsh	Peter	x102	pmarsh@classicmodelcars.com	6	1088	Sales Rep	1088	Patterson	William	x4871	wpatterson
20	1619	King	Tom	x103	tking@classicmodelcars.com	6	1088	Sales Rep	1088	Patterson	William	x4871	wpatterson
21	1621	Nishi	Mami	x101	mnishi@classicmodelcars.com	5	1056	Sales Rep	1056	Patterson	Mary	x4811	mpatterson
22	1625	Kato	Yoshimi	x102	ykatoy@classicmodelcars.com	5	1621	Sales Rep	1621	Nishi	Mami	x101	mnishi
23	1702	Gerard	Martin	x2312	mgerard@classicmodelcars.com	4	1102	Sales Rep	1102	Bondur	Gerard	x5408	gbondur

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

## Database Lookup

#	StreamEmployeeNumber	StreamLastname	StreamFirstname	StreamJobtitle	StreamLastnameBoss	StreamFirstnameBoss	employeeNumber	firstName	lastName	jobTitle	bossFirstName	bossLastName
1	1002	Murphy	Diane	President	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>
2	1056	Patterson	Mary	VP Sales	Murphy	Diane	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>
3	1076	Fimelli	Jeff	VP Marketing	Murphy	Diane	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>
4	1088	Patterson	William	Sales Manager (APAC)	Patterson	Mary	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>
5	1102	Bondur	Gerard	Sale Manager (EMEA)	Patterson	Mary	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>
6	1143	Bow	Anthony	Sales Manager (NA)	Patterson	Mary	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>
7	1165	Jennings	Leslie	Sales Rep	Bow	Anthony	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>
8	1166	Thompson	Leslie	Sales Rep	Bow	Anthony	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>
9	1188	Fimelli	Julie	Sales Rep	Bow	Anthony	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>
10	1216	Patterson	Steve	Sales Rep	Bow	Anthony	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>
11	1266	Tseng	Foon Yue	Sales Rep	Bow	Anthony	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>
12	1323	Vanaufr	George	Sales Rep	Bow	Anthony	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>
13	1337	Bondur	Louil	Sales Rep	Bondur	Gerard	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>
14	1370	Hernandez	Gerard	Sales Rep	Bondur	Gerard	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>
15	1401	Castillo	Pamela	Sales Rep	Bondur	Gerard	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>
16	1501	Bott	Larry	Sales Rep	Bondur	Gerard	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>
17	1504	Jones	Barry	Sales Rep	Bondur	Gerard	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>
18	1611	Fixter	Andy	Sales Rep	Patterson	William	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>
19	1612	Marsh	Peter	Sales Rep	Patterson	William	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>
20	1619	King	Tom	Sales Rep	Patterson	William	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>
21	1621	Nishi	Mami	Sales Rep	Patterson	Mary	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>
22	1625	Kato	Yoshihiko	Sales Rep	Nishi	Mami	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>
23	1702	Geerd	Martin	Sales Rep	Bondur	Gerard	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>

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	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>
2	1056	Patterson	Mary	VP Sales	Murphy	Diane	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>
3	1076	Fimelli	Jeff	VP Marketing	Murphy	Diane	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>
4	1088	Patterson	William	Sales Manager (APAC)	Patterson	Mary	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>
5	1102	Bondur	Gerard	Sale Manager (EMEA)	Patterson	Mary	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>
6	1143	Bow	Anthony	Sales Manager (NA)	Patterson	Mary	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>
7	1165	Jennings	Leslie	Sales Rep	Bow	Anthony	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>
8	1166	Thompson	Leslie	Sales Rep	Bow	Anthony	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>
9	1188	Fimelli	Julie	Sales Rep	Bow	Anthony	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>
10	1216	Patterson	Steve	Sales Rep	Bow	Anthony	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>
11	1266	Tseng	Foon Yue	Sales Rep	Bow	Anthony	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>
12	1323	Vanaufr	George	Sales Rep	Bow	Anthony	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>
13	1337	Bondur	Louil	Sales Rep	Bondur	Gerard	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>
14	1370	Hernandez	Gerard	Sales Rep	Bondur	Gerard	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>
15	1401	Castillo	Pamela	Sales Rep	Bondur	Gerard	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>
16	1501	Bott	Larry	Sales Rep	Bondur	Gerard	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>
17	1504	Jones	Barry	Sales Rep	Bondur	Gerard	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>
18	1611	Fixter	Andy	Sales Rep	Patterson	William	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>
19	1612	Marsh	Peter	Sales Rep	Patterson	William	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>
20	1619	King	Tom	Sales Rep	Patterson	William	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>
21	1621	Nishi	Mami	Sales Rep	Patterson	Mary	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>
22	1625	Kato	Yoshihiko	Sales Rep	Nishi	Mami	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>
23	1702	Geerd	Martin	Sales Rep	Bondur	Gerard	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>

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	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>
2	1056	Patterson	Mary	VP Sales	Murphy	Diane	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>
3	1076	Fimelli	Jeff	VP Marketing	Murphy	Diane	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>
4	1088	Patterson	William	Sales Manager (APAC)	Patterson	Mary	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>
5	1102	Bondur	Gerard	Sale Manager (EMEA)	Patterson	Mary	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>
6	1143	Bow	Anthony	Sales Manager (NA)	Patterson	Mary	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>
7	1165	Jennings	Leslie	Sales Rep	Bow	Anthony	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>
8	1166	Thompson	Leslie	Sales Rep	Bow	Anthony	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>
9	1188	Fimelli	Julie	Sales Rep	Bow	Anthony	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>
10	1216	Patterson	Steve	Sales Rep	Bow	Anthony	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>
11	1266	Tseng	Foon Yue	Sales Rep	Bow	Anthony	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>
12	1323	Vanaufr	George	Sales Rep	Bow	Anthony	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>
13	1337	Bondur	Louil	Sales Rep	Bondur	Gerard	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>
14	1370	Hernandez	Gerard	Sales Rep	Bondur	Gerard	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>
15	1401	Castillo	Pamela	Sales Rep	Bondur	Gerard	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>
16	1501	Bott	Larry	Sales Rep	Bondur	Gerard	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>
17	1504	Jones	Barry	Sales Rep	Bondur	Gerard	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>
18	1611	Fixter	Andy	Sales Rep	Patterson	William	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>
19	1612	Marsh	Peter	Sales Rep	Patterson	William	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>
20	1619	King	Tom	Sales Rep	Patterson	William	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>
21	1621	Nishi	Mami	Sales Rep	Patterson	Mary	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>
22	1625	Kato	Yoshihiko	Sales Rep	Nishi	Mami	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>
23	1702	Geerd	Martin	Sales Rep	Bondur	Gerard	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>	<b>null</b>

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.



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

		employeeNumber	lastName	firstName	extension	email	officeCode	reportsTo	jobTitle
<input type="checkbox"/>	Edit			1	Al Farabi	Fadhluhrman x1	fadhlu@classmodels.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.

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

Browse Structure SQL Search Insert Export Import Privileges Operations Triggers

		id_dimEmployees	employeeNumber	1	firstName	lastName	jobTitle	bossFirstName	bossLastName	updated
<input type="checkbox"/>	Edit Copy Delete		47	1	Fadhlurohman	Al Farabi	Manager	Diane	Murphy	2024-03-23
<input type="checkbox"/>	Edit Copy Delete		23	1002	Diane	Murphy	President	NULL	NULL	2024-03-23
<input type="checkbox"/>	Edit Copy Delete		46	1002	Diane	Murphy	President	NULL	NULL	2024-03-23
<input type="checkbox"/>	Edit Copy Delete		48	1002	Diane	Murphy	President	NULL	NULL	2024-03-23
<input type="checkbox"/>	Edit Copy Delete		24	1056	Mary	Patterson	VP Sales	Diane	Murphy	2024-03-23
<input type="checkbox"/>	Edit Copy Delete		25	1076	Jeff	Firrelli	VP Marketing	Diane	Murphy	2024-03-23
<input type="checkbox"/>	Edit Copy Delete		26	1088	William	Patterson	Sales Manager (APAC)	Mary	Patterson	2024-03-23
<input type="checkbox"/>	Edit Copy Delete		27	1102	Gerard	Bondur	Sales Manager (EMEA)	Mary	Patterson	2024-03-23
<input type="checkbox"/>	Edit Copy Delete		28	1143	Anthony	Bow	Sales Manager (NA)	Mary	Patterson	2024-03-23
<input type="checkbox"/>	Edit Copy Delete		29	1165	Leslie	Jennings	Sales Rep	Anthony	Bow	2024-03-23
<input type="checkbox"/>	Edit Copy Delete		30	1166	Leslie	Thompson	Sales Rep	Anthony	Bow	2024-03-23
<input type="checkbox"/>	Edit Copy Delete		31	1188	Julie	Firrelli	Sales Rep	Anthony	Bow	2024-03-23
<input type="checkbox"/>	Edit Copy Delete		32	1216	Steve	Patterson	Sales Rep	Anthony	Bow	2024-03-23
<input type="checkbox"/>	Edit Copy Delete		33	1266	Foon Yue	Tseng	Sales Rep	Anthony	Bow	2024-03-23
<input type="checkbox"/>	Edit Copy Delete		34	1323	George	Vanau	Sales Rep	Anthony	Bow	2024-03-23
<input type="checkbox"/>	Edit Copy Delete		35	1337	Loui	Bondur	Sales Rep	Gerard	Bondur	2024-03-23
<input type="checkbox"/>	Edit Copy Delete		36	1370	Gerard	Hernandez	Sales Rep	Gerard	Bondur	2024-03-23
<input type="checkbox"/>	Edit Copy Delete		37	1401	Pamela	Castillo	Sales Rep	Gerard	Bondur	2024-03-23
<input type="checkbox"/>	Edit Copy Delete		38	1501	Larry	Bott	Sales Rep	Gerard	Bondur	2024-03-23
<input type="checkbox"/>	Edit Copy Delete		39	1504	Barry	Jones	Sales Rep	Gerard	Bondur	2024-03-23
<input type="checkbox"/>	Edit Copy Delete		40	1611	Andy	Fixter	Sales Rep	William	Patterson	2024-03-23
<input type="checkbox"/>	Edit Copy Delete		41	1612	Peter	Marsh	Sales Rep	William	Patterson	2024-03-23
<input type="checkbox"/>	Edit Copy Delete		42	1619	Tom	King	Sales Rep	William	Patterson	2024-03-23
<input type="checkbox"/>	Edit Copy Delete		43	1621	Mami	Nishi	Sales Rep	Mary	Patterson	2024-03-23
<input type="checkbox"/>	Edit Copy Delete		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			Chang
<input type="checkbox"/>	2 id_dimDate	int(11)			No	None			Chang
<input type="checkbox"/>	3 amount	decimal(10,2)			No	None			Chang

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



able input



Select values



Database lookup



Database lookup 2



Database lookup 3



Filter rows



Table output

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;
```

Table input

Step name: Table input

Connection: conn\_oltp\_resources [Edit...] [New...] [Wizard...]

SQL: `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;` [Get SQL select statement...]

Line 3 Column 59

Store column info in step meta data ☐

Enable lazy conversion ☐

Replace variables in script? ☐

Insert data from step

Execute for each row? ☐

Limit size: 0

[?] Help [OK] [Preview] [Cancel]

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.

28

Select values

Step name Select values

Select & Alter Remove Meta-data

Fields to remove :

#	Fieldname
1	extension
2	email
3	officeCode
4	reportsTo
5	employeeNumber_1
6	extension_1
7	officeCode_1
8	email_1
9	reportsTo_1
10	jobTitle_1
11	customerNumber
12	customerName
13	contactLastName
14	contactFirstName
15	phone
16	addressLine1
17	addressLine2
18	city
19	state
20	postalCode
21	country
22	salesRepEmployeeNumber
23	creditLimit
24	customerNumber_1
25	checkNumber
26	
27	
28	
29	
30	
31	
32	
33	

Get fields to remove

OK Cancel

Help

- 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.

**Database lookup**

Step name: Database lookup

Connection: conn\_dw\_destination Edit... New... Wizard...

Lookup schema: dw\_legendvehicle Browse...

Lookup table: dimemployees Browse...

Enable cache? ☐

Cache size in rows (0=cache): 0

Load all data from table ☐

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

#	Table field	Comparator	Field1	Field2
1	employeeNumber	=	streamEmployeeNumber	
2	lastName	=	streamLastName	
3	firstName	=	streamFirstName	
4	jobTitle	=	streamJobTitle	
5	bossLastName	=	streamLastNameBoss	
6	bossFirstName	=	streamFirstNameBoss	
7				
8				

Values to return from the lookup table :

#	Field	New name	Default	Type
1	id_dimEmployees			None

Do not pass the row if the lookup fails ☐

Fail on multiple results? ☐

Order by:

Help OK Cancel Get Fields Get lookup fields

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.

Database lookup

Step name: Database lookup 2

Connection: conn\_dw\_destination Edit... New... Wizard...

Lookup schema: dw\_legendvehicle Browse...

Lookup table: dimdate Browse...

Enable cache? ☐

Cache size in rows (0=cache): 0

Load all data from table ☐

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

#	Table field	Comparator	Field1	Field2
1	date	=	streamDate	

Values to return from the lookup table :

#	Field	New name	Default	Type
1	id_dimDate			None

Do not pass the row if the lookup fails ☐

Fail on multiple results? ☐

Order by:

Help OK Cancel Get Fields Get lookup fields

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.

Database lookup

Step name: Database lookup 3

Connection: conn\_dw\_destination [Edit...] [New...] [Wizard...]

Lookup schema: dw\_legendvehicle [Browse...]

Lookup table: factomset [Browse...]

Enable cache? ☐

Cache size in rows (0=cache): 0

Load all data from table ☐

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

#	Table field	Comparator	Field1	Field2
1	amount	=	streamAmount	
2	id_dimEmployees	=	id_dimEmployees	
3	id_dimDate	=	id_dimDate	

Values to return from the lookup table :

#	Field	New name	Default	Type
1	id_dimDate			None
2	id_dimEmployees			None
3	amount			None

Do not pass the row if the lookup fails ☐

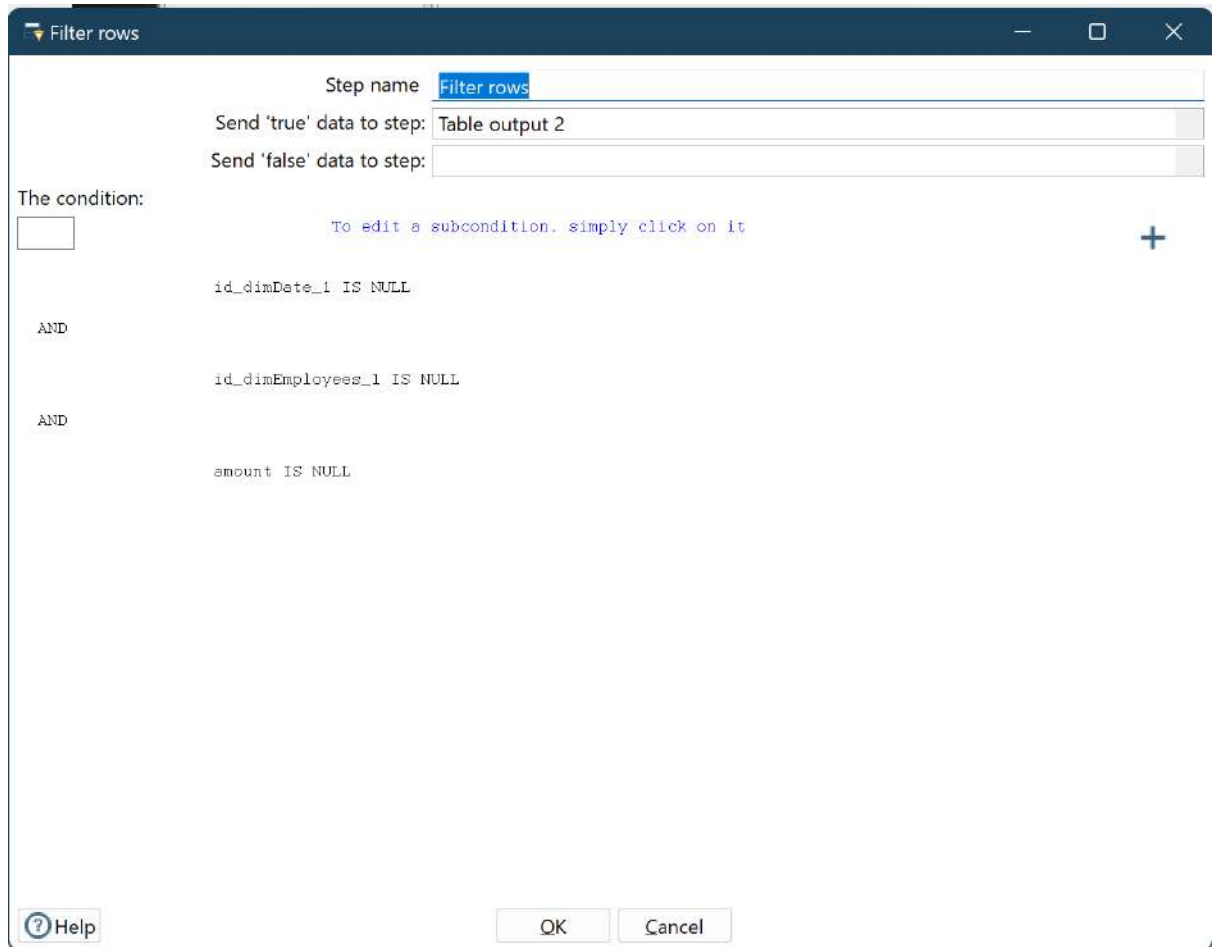
Fail on multiple results? ☐

Order by

[?] Help [OK] [Cancel] [Get Fields] [Get lookup fields]

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





Filter rows

Step name: Filter rows

Send 'true' data to step: Table output 2

Send 'false' data to step:

The condition:

☐ To edit a subcondition, simply click on it +

id\_dimDate\_1 IS NULL

AND

id\_dimEmployees\_1 IS NULL

AND

amount IS NULL

? Help OK Cancel

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.

34



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

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**

**Table Input**

Dari proses tersebut banyak data yang diinputkan dikarenakan pada proses query yang menggabungkan beberapa tabel sehingga data yang dihasilkan menjadi banyak.

**Select Values**

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	2004/06/28 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	83568.04	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	45264.38	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	12662.19	29
16	1165	Jennings	Leslie	Sales Rep	Bow	Anthony	2003/06/05 00:00:00.000	38675.13	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	2003/03/15 00:00:00.000	46781.66	29
19	1165	Jennings	Leslie	Sales Rep	Bow	Anthony	2004/06/21 00:00:00.000	59651.38	29
20	1165	Jennings	Leslie	Sales Rep	Bow	Anthony	2003/09/28 00:00:00.000	29957.09	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	2004/06/20 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	59342.74	30
27	1166	Thompson	Leslie	Sales Rep	Bow	Anthony	2005/02/06 00:00:00.000	39680.8	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	20395.24	31
37	1188	Firelli	Julie	Sales Rep	Bow	Anthony	2004/06/13 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 Preview data

#	streamEmployeeNumber	streamLastName	streamFirstName	streamJobTitle	streamLastNameBoss	streamFirstNameBoss	streamDate	streamAmount	id_dimEmployees	id_dimDate
1	1165	Jennings	Leslie	Sales Rep	Bow	Anthony	2005/03/05 00:00:00.000	101244.59	29	606
2	1165	Jennings	Leslie	Sales Rep	Bow	Anthony	2004/06/28 00:00:00.000	85410.87	29	101
3	1165	Jennings	Leslie	Sales Rep	Bow	Anthony	2003/04/11 00:00:00.000	11044.3	29	837
4	1165	Jennings	Leslie	Sales Rep	Bow	Anthony	2005/04/16 00:00:00.000	83568.04	29	727
5	1165	Jennings	Leslie	Sales Rep	Bow	Anthony	2004/12/27 00:00:00.000	47142.7	29	672
6	1165	Jennings	Leslie	Sales Rep	Bow	Anthony	2004/11/02 00:00:00.000	55639.66	29	227
7	1165	Jennings	Leslie	Sales Rep	Bow	Anthony	2003/08/15 00:00:00.000	111654.4	29	451
8	1165	Jennings	Leslie	Sales Rep	Bow	Anthony	2004/03/26 00:00:00.000	43369.3	29	320
9	1165	Jennings	Leslie	Sales Rep	Bow	Anthony	2003/11/25 00:00:00.000	45264.38	29	708
10	1165	Jennings	Leslie	Sales Rep	Bow	Anthony	2004/12/08 00:00:00.000	26248.78	29	345
11	1165	Jennings	Leslie	Sales Rep	Bow	Anthony	2003/12/11 00:00:00.000	23923.93	29	90
12	1165	Jennings	Leslie	Sales Rep	Bow	Anthony	2003/04/09 00:00:00.000	16537.85	29	684
13	1165	Jennings	Leslie	Sales Rep	Bow	Anthony	2004/11/14 00:00:00.000	2434.25	29	322
14	1165	Jennings	Leslie	Sales Rep	Bow	Anthony	2003/11/18 00:00:00.000	50743.65	29	784
15	1165	Jennings	Leslie	Sales Rep	Bow	Anthony	2005/02/02 00:00:00.000	12662.19	29	217
16	1165	Jennings	Leslie	Sales Rep	Bow	Anthony	2003/06/05 00:00:00.000	38675.13	29	307
17	1165	Jennings	Leslie	Sales Rep	Bow	Anthony	2003/11/03 00:00:00.000	85559.12	29	805
18	1165	Jennings	Leslie	Sales Rep	Bow	Anthony	2003/03/15 00:00:00.000	46781.66	29	538
19	1165	Jennings	Leslie	Sales Rep	Bow	Anthony	2004/06/21 00:00:00.000	59651.38	29	271
20	1165	Jennings	Leslie	Sales Rep	Bow	Anthony	2003/09/28 00:00:00.000	29957.09	29	425
21	1165	Jennings	Leslie	Sales Rep	Bow	Anthony	2004/02/29 00:00:00.000	12573.28	29	717
22	1166	Thompson	Leslie	Sales Rep	Bow	Anthony	2004/12/17 00:00:00.000	14191.12	30	157
23	1166	Thompson	Leslie	Sales Rep	Bow	Anthony	2003/06/06 00:00:00.000	32641.98	30	598
24	1166	Thompson	Leslie	Sales Rep	Bow	Anthony	2004/06/20 00:00:00.000	33347.88	30	330
25	1166	Thompson	Leslie	Sales Rep	Bow	Anthony	2003/12/04 00:00:00.000	3879.96	30	246
26	1166	Thompson	Leslie	Sales Rep	Bow	Anthony	2003/09/05 00:00:00.000	59342.74	30	768
27	1166	Thompson	Leslie	Sales Rep	Bow	Anthony	2005/02/06 00:00:00.000	39680.8	30	792
28	1166	Thompson	Leslie	Sales Rep	Bow	Anthony	2005/03/02 00:00:00.000	3452.75	30	291
29	1166	Thompson	Leslie	Sales Rep	Bow	Anthony	2003/10/18 00:00:00.000	4465.85	30	440
30	1166	Thompson	Leslie	Sales Rep	Bow	Anthony	2004/03/15 00:00:00.000	80375.24	30	383
31	1166	Thompson	Leslie	Sales Rep	Bow	Anthony	2004/01/18 00:00:00.000	21053.69	30	297
32	1166	Thompson	Leslie	Sales Rep	Bow	Anthony	2003/10/24 00:00:00.000	20452.5	30	348
33	1166	Thompson	Leslie	Sales Rep	Bow	Anthony	2003/12/09 00:00:00.000	7678.25	30	409
34	1166	Thompson	Leslie	Sales Rep	Bow	Anthony	2004/02/13 00:00:00.000	36070.47	30	499
35	1188	Firelli	Julie	Sales Rep	Bow	Anthony	2004/05/13 00:00:00.000	11843.45	31	454
36	1188	Firelli	Julie	Sales Rep	Bow	Anthony	2004/03/29 00:00:00.000	20395.24	31	591
37	1188	Firelli	Julie	Sales Rep	Bow	Anthony	2004/06/13 00:00:00.000	51152.86	31	633
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)



Execution Results

Logging Execution History Step Metrics Performance Graph Metrics Preview date

id	streamFirstName	streamJobTitle	streamLastNameBoss	streamFirstNameBoss	streamDate	streamAmount	id_dimEmployees	id_dimDate	id_dimDate.1	id_dimEmployees.1	amount
Leslie	Sales Rep	Boon	Anthony	2005/03/05 00:00:00.000	101244.50	29	795	email	email	email	email
Leslie	Sales Rep	Boon	Anthony	2004/06/28 00:00:00.000	85410.87	29	606	email	email	email	email
Leslie	Sales Rep	Boon	Anthony	2003/04/11 00:00:00.000	11044.3	29	101	email	email	email	email
Leslie	Sales Rep	Boon	Anthony	2005/04/16 00:00:00.000	83599.04	29	837	email	email	email	email
Leslie	Sales Rep	Boon	Anthony	2004/12/27 00:00:00.000	47142.7	29	727	email	email	email	email
Leslie	Sales Rep	Boon	Anthony	2004/11/02 00:00:00.000	55635.66	29	672	email	email	email	email
Leslie	Sales Rep	Boon	Anthony	2003/08/15 00:00:00.000	111664.4	29	227	email	email	email	email
Leslie	Sales Rep	Boon	Anthony	2004/03/26 00:00:00.000	43396.3	29	451	email	email	email	email
Leslie	Sales Rep	Boon	Anthony	2003/11/25 00:00:00.000	45084.36	29	329	email	email	email	email
Leslie	Sales Rep	Boon	Anthony	2004/12/09 00:00:00.000	25248.70	29	708	email	email	email	email
Leslie	Sales Rep	Boon	Anthony	2003/12/11 00:00:00.000	23923.99	29	345	email	email	email	email
Leslie	Sales Rep	Boon	Anthony	2003/04/09 00:00:00.000	16537.85	29	99	email	email	email	email
Leslie	Sales Rep	Boon	Anthony	2004/11/14 00:00:00.000	2434.25	29	684	email	email	email	email
Leslie	Sales Rep	Boon	Anthony	2003/11/18 00:00:00.000	50743.69	29	322	email	email	email	email
Leslie	Sales Rep	Boon	Anthony	2005/02/02 00:00:00.000	12692.19	29	764	email	email	email	email
Leslie	Sales Rep	Boon	Anthony	2003/08/05 00:00:00.000	30675.13	29	217	email	email	email	email
Leslie	Sales Rep	Boon	Anthony	2003/11/09 00:00:00.000	85559.12	29	397	email	email	email	email
Leslie	Sales Rep	Boon	Anthony	2005/03/15 00:00:00.000	40781.66	29	895	email	email	email	email
Leslie	Sales Rep	Boon	Anthony	2004/06/21 00:00:00.000	59551.30	29	538	email	email	email	email
Leslie	Sales Rep	Boon	Anthony	2003/09/28 00:00:00.000	29997.00	29	271	email	email	email	email
Leslie	Sales Rep	Boon	Anthony	2004/02/29 00:00:00.000	12573.28	29	425	email	email	email	email
Leslie	Sales Rep	Boon	Anthony	2004/12/17 00:00:00.000	14191.12	30	717	email	email	email	email
Leslie	Sales Rep	Boon	Anthony	2003/06/09 00:00:00.000	32641.98	30	157	email	email	email	email
Leslie	Sales Rep	Boon	Anthony	2004/06/20 00:00:00.000	33547.88	30	598	email	email	email	email
Leslie	Sales Rep	Boon	Anthony	2003/12/04 00:00:00.000	3879.96	30	338	email	email	email	email
Leslie	Sales Rep	Boon	Anthony	2003/09/05 00:00:00.000	50342.74	30	248	email	email	email	email
Leslie	Sales Rep	Boon	Anthony	2005/02/06 00:00:00.000	39580.8	30	768	email	email	email	email
Leslie	Sales Rep	Boon	Anthony	2005/03/02 00:00:00.000	3452.75	30	792	email	email	email	email
Leslie	Sales Rep	Boon	Anthony	2003/10/18 00:00:00.000	4466.85	30	291	email	email	email	email
Leslie	Sales Rep	Boon	Anthony	2004/03/15 00:00:00.000	80375.24	30	440	email	email	email	email
Leslie	Sales Rep	Boon	Anthony	2004/01/18 00:00:00.000	21053.69	30	383	email	email	email	email
Leslie	Sales Rep	Boon	Anthony	2003/10/24 00:00:00.000	26452.5	30	297	email	email	email	email
Leslie	Sales Rep	Boon	Anthony	2003/12/09 00:00:00.000	7678.25	30	343	email	email	email	email
Leslie	Sales Rep	Boon	Anthony	2004/02/13 00:00:00.000	36670.47	30	409	email	email	email	email
Julie	Sales Rep	Boon	Anthony	2004/05/13 00:00:00.000	11843.45	31	499	email	email	email	email
Julie	Sales Rep	Boon	Anthony	2004/05/24 00:00:00.000	20955.24	31	454	email	email	email	email
Julie	Sales Rep	Boon	Anthony	2004/06/13 00:00:00.000	51152.86	31	591	email	email	email	email

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

### Filter Rows

Execution Results

Logging Execution History Step Metrics Performance Graph Metrics Preview date

id	streamFirstName	streamJobTitle	streamLastNameBoss	streamFirstNameBoss	streamDate	streamAmount	id_dimEmployees	id_dimDate	id_dimDate.1	id_dimEmployees.1	amount
Leslie	Sales Rep	Boon	Anthony	2005/03/05 00:00:00.000	101244.50	29	795	email	email	email	email
Leslie	Sales Rep	Boon	Anthony	2004/06/28 00:00:00.000	85410.87	29	606	email	email	email	email
Leslie	Sales Rep	Boon	Anthony	2003/04/11 00:00:00.000	11044.3	29	101	email	email	email	email
Leslie	Sales Rep	Boon	Anthony	2005/04/16 00:00:00.000	83599.04	29	837	email	email	email	email
Leslie	Sales Rep	Boon	Anthony	2004/12/27 00:00:00.000	47142.7	29	727	email	email	email	email
Leslie	Sales Rep	Boon	Anthony	2004/11/02 00:00:00.000	55635.66	29	672	email	email	email	email
Leslie	Sales Rep	Boon	Anthony	2003/08/15 00:00:00.000	111664.4	29	227	email	email	email	email
Leslie	Sales Rep	Boon	Anthony	2004/03/26 00:00:00.000	43396.3	29	451	email	email	email	email
Leslie	Sales Rep	Boon	Anthony	2003/11/25 00:00:00.000	45084.36	29	329	email	email	email	email
Leslie	Sales Rep	Boon	Anthony	2004/12/09 00:00:00.000	25248.70	29	708	email	email	email	email
Leslie	Sales Rep	Boon	Anthony	2003/12/11 00:00:00.000	23923.99	29	345	email	email	email	email
Leslie	Sales Rep	Boon	Anthony	2003/04/09 00:00:00.000	16537.85	29	99	email	email	email	email
Leslie	Sales Rep	Boon	Anthony	2004/11/14 00:00:00.000	2434.25	29	684	email	email	email	email
Leslie	Sales Rep	Boon	Anthony	2003/11/18 00:00:00.000	50743.69	29	322	email	email	email	email
Leslie	Sales Rep	Boon	Anthony	2005/02/02 00:00:00.000	12692.19	29	764	email	email	email	email
Leslie	Sales Rep	Boon	Anthony	2003/08/05 00:00:00.000	30675.13	29	217	email	email	email	email
Leslie	Sales Rep	Boon	Anthony	2003/11/09 00:00:00.000	85559.12	29	397	email	email	email	email
Leslie	Sales Rep	Boon	Anthony	2005/03/15 00:00:00.000	40781.66	29	895	email	email	email	email
Leslie	Sales Rep	Boon	Anthony	2004/06/21 00:00:00.000	59551.30	29	538	email	email	email	email
Leslie	Sales Rep	Boon	Anthony	2003/09/28 00:00:00.000	29997.00	29	271	email	email	email	email
Leslie	Sales Rep	Boon	Anthony	2004/02/29 00:00:00.000	12573.28	29	425	email	email	email	email
Leslie	Sales Rep	Boon	Anthony	2004/12/17 00:00:00.000	14191.12	30	717	email	email	email	email
Leslie	Sales Rep	Boon	Anthony	2003/06/09 00:00:00.000	32641.98	30	157	email	email	email	email
Leslie	Sales Rep	Boon	Anthony	2004/06/20 00:00:00.000	33547.88	30	598	email	email	email	email
Leslie	Sales Rep	Boon	Anthony	2003/12/04 00:00:00.000	3879.96	30	338	email	email	email	email
Leslie	Sales Rep	Boon	Anthony	2003/09/05 00:00:00.000	50342.74	30	248	email	email	email	email
Leslie	Sales Rep	Boon	Anthony	2005/02/06 00:00:00.000	39580.8	30	768	email	email	email	email
Leslie	Sales Rep	Boon	Anthony	2005/03/02 00:00:00.000	3452.75	30	792	email	email	email	email
Leslie	Sales Rep	Boon	Anthony	2003/10/18 00:00:00.000	4466.85	30	291	email	email	email	email
Leslie	Sales Rep	Boon	Anthony	2004/03/15 00:00:00.000	80375.24	30	440	email	email	email	email
Leslie	Sales Rep	Boon	Anthony	2004/01/18 00:00:00.000	21053.69	30	383	email	email	email	email
Leslie	Sales Rep	Boon	Anthony	2003/10/24 00:00:00.000	26452.5	30	297	email	email	email	email
Leslie	Sales Rep	Boon	Anthony	2003/12/09 00:00:00.000	7678.25	30	343	email	email	email	email
Leslie	Sales Rep	Boon	Anthony	2004/02/13 00:00:00.000	36670.47	30	409	email	email	email	email
Julie	Sales Rep	Boon	Anthony	2004/05/13 00:00:00.000	11843.45	31	499	email	email	email	email
Julie	Sales Rep	Boon	Anthony	2004/05/24 00:00:00.000	20955.24	31	454	email	email	email	email
Julie	Sales Rep	Boon	Anthony	2004/06/13 00:00:00.000	51152.86	31	591	email	email	email	email

Pada proses filter rows kondisi data sama tidak ada yang berubah.

### Table Output



Execution Results

Logging

Execution History

Step Metrics

Performance Graph

Metrics

Preview data

Click column to toggle sort order

id	streamFirstName	streamJobTitle	streamLastNameBoss	streamFirstNameBoss	streamDate	streamAmount	id_dimEmployees	id_dimDate	id_dimDate_1	id_dimEmployees_1	amount
Leslie	Sales Rep	Boon	Anthony	2003/03/05 00:00:00.000	101244.99	29	795	enalls	enalls	enalls	
Leslie	Sales Rep	Boon	Anthony	2004/06/28 00:00:00.000	85410.87	29	686	enalls	enalls	enalls	
Leslie	Sales Rep	Boon	Anthony	2003/04/11 00:00:00.000	11044.3	29	101	enalls	enalls	enalls	
Leslie	Sales Rep	Boon	Anthony	2003/04/16 00:00:00.000	83598.04	29	837	enalls	enalls	enalls	
Leslie	Sales Rep	Boon	Anthony	2004/12/27 00:00:00.000	47142.7	29	727	enalls	enalls	enalls	
Leslie	Sales Rep	Boon	Anthony	2004/11/02 00:00:00.000	55639.66	29	672	enalls	enalls	enalls	
Leslie	Sales Rep	Boon	Anthony	2003/08/15 00:00:00.000	111654.4	29	227	enalls	enalls	enalls	
Leslie	Sales Rep	Boon	Anthony	2004/03/26 00:00:00.000	43366.3	29	451	enalls	enalls	enalls	
Leslie	Sales Rep	Boon	Anthony	2003/11/25 00:00:00.000	45084.36	29	329	enalls	enalls	enalls	
Leslie	Sales Rep	Boon	Anthony	2004/12/08 00:00:00.000	25248.70	29	709	enalls	enalls	enalls	
Leslie	Sales Rep	Boon	Anthony	2003/11/21 00:00:00.000	23923.98	29	345	enalls	enalls	enalls	
Leslie	Sales Rep	Boon	Anthony	2003/04/09 00:00:00.000	16537.85	29	99	enalls	enalls	enalls	
Leslie	Sales Rep	Boon	Anthony	2004/11/14 00:00:00.000	2434.25	29	684	enalls	enalls	enalls	
Leslie	Sales Rep	Boon	Anthony	2003/11/18 00:00:00.000	50743.89	29	322	enalls	enalls	enalls	
Leslie	Sales Rep	Boon	Anthony	2005/02/02 00:00:00.000	12692.19	29	764	enalls	enalls	enalls	
Leslie	Sales Rep	Boon	Anthony	2003/08/05 00:00:00.000	30675.13	29	217	enalls	enalls	enalls	
Leslie	Sales Rep	Boon	Anthony	2003/11/08 00:00:00.000	89559.12	29	397	enalls	enalls	enalls	
Leslie	Sales Rep	Boon	Anthony	2003/03/15 00:00:00.000	46781.66	29	895	enalls	enalls	enalls	
Leslie	Sales Rep	Boon	Anthony	2004/06/21 00:00:00.000	59551.30	29	538	enalls	enalls	enalls	
Leslie	Sales Rep	Boon	Anthony	2003/09/28 00:00:00.000	29997.09	29	271	enalls	enalls	enalls	
Leslie	Sales Rep	Boon	Anthony	2004/02/29 00:00:00.000	12573.28	29	425	enalls	enalls	enalls	
Leslie	Sales Rep	Boon	Anthony	2004/12/17 00:00:00.000	14191.12	30	717	enalls	enalls	enalls	
Leslie	Sales Rep	Boon	Anthony	2003/06/06 00:00:00.000	32641.98	30	157	enalls	enalls	enalls	
Leslie	Sales Rep	Boon	Anthony	2004/08/20 00:00:00.000	33347.88	30	598	enalls	enalls	enalls	
Leslie	Sales Rep	Boon	Anthony	2003/12/04 00:00:00.000	3879.96	30	338	enalls	enalls	enalls	
Leslie	Sales Rep	Boon	Anthony	2003/09/05 00:00:00.000	50342.74	30	248	enalls	enalls	enalls	
Leslie	Sales Rep	Boon	Anthony	2005/02/04 00:00:00.000	36686.8	30	768	enalls	enalls	enalls	
Leslie	Sales Rep	Boon	Anthony	2005/03/02 00:00:00.000	3452.75	30	792	enalls	enalls	enalls	
Leslie	Sales Rep	Boon	Anthony	2003/10/18 00:00:00.000	4466.85	30	291	enalls	enalls	enalls	
Leslie	Sales Rep	Boon	Anthony	2004/03/15 00:00:00.000	80375.24	30	440	enalls	enalls	enalls	
Leslie	Sales Rep	Boon	Anthony	2004/01/18 00:00:00.000	21053.69	30	383	enalls	enalls	enalls	
Leslie	Sales Rep	Boon	Anthony	2003/10/24 00:00:00.000	20452.5	30	297	enalls	enalls	enalls	
Leslie	Sales Rep	Boon	Anthony	2003/12/09 00:00:00.000	7678.25	30	343	enalls	enalls	enalls	
Leslie	Sales Rep	Boon	Anthony	2004/02/13 00:00:00.000	36870.47	30	409	enalls	enalls	enalls	
Julie	Sales Rep	Boon	Anthony	2004/05/13 00:00:00.000	11843.45	31	499	enalls	enalls	enalls	
Julie	Sales Rep	Boon	Anthony	2004/05/24 00:00:00.000	20555.24	31	454	enalls	enalls	enalls	
Julie	Sales Rep	Boon	Anthony	2004/08/13 00:00:00.000	51152.86	31	591	enalls	enalls	enalls	

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!!

## JOBS

### PRAKTIKUM

1. Buka Jobs pada **File - New – Jobs**
2. Gunakan 5 objects dan hububngkan sesuai urutan sebagai berikut:
  - a. Start: Objek untuk melakukan konfigurasi cron job dari proses ETL yag 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 tranformation yang telah dibuat pada bagian A, B dan C.

Transformation

Entry Name:  
Transformation

Transformation:  
E:\SEMESTER 4\BUSINESS INTELLIGENCE\PERTEMUAN 6\Transf... Browse...

Options | Logging | Arguments | Parameters

Run configuration:  
Pentaho local

Execution

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

? Help OK Cancel

Transformation

Entry Name:  
Transformation 2

Transformation:  
E:\SEMESTER 4\BUSINESS INTELLIGENCE\PERTEMUAN 6\Transf... Browse...

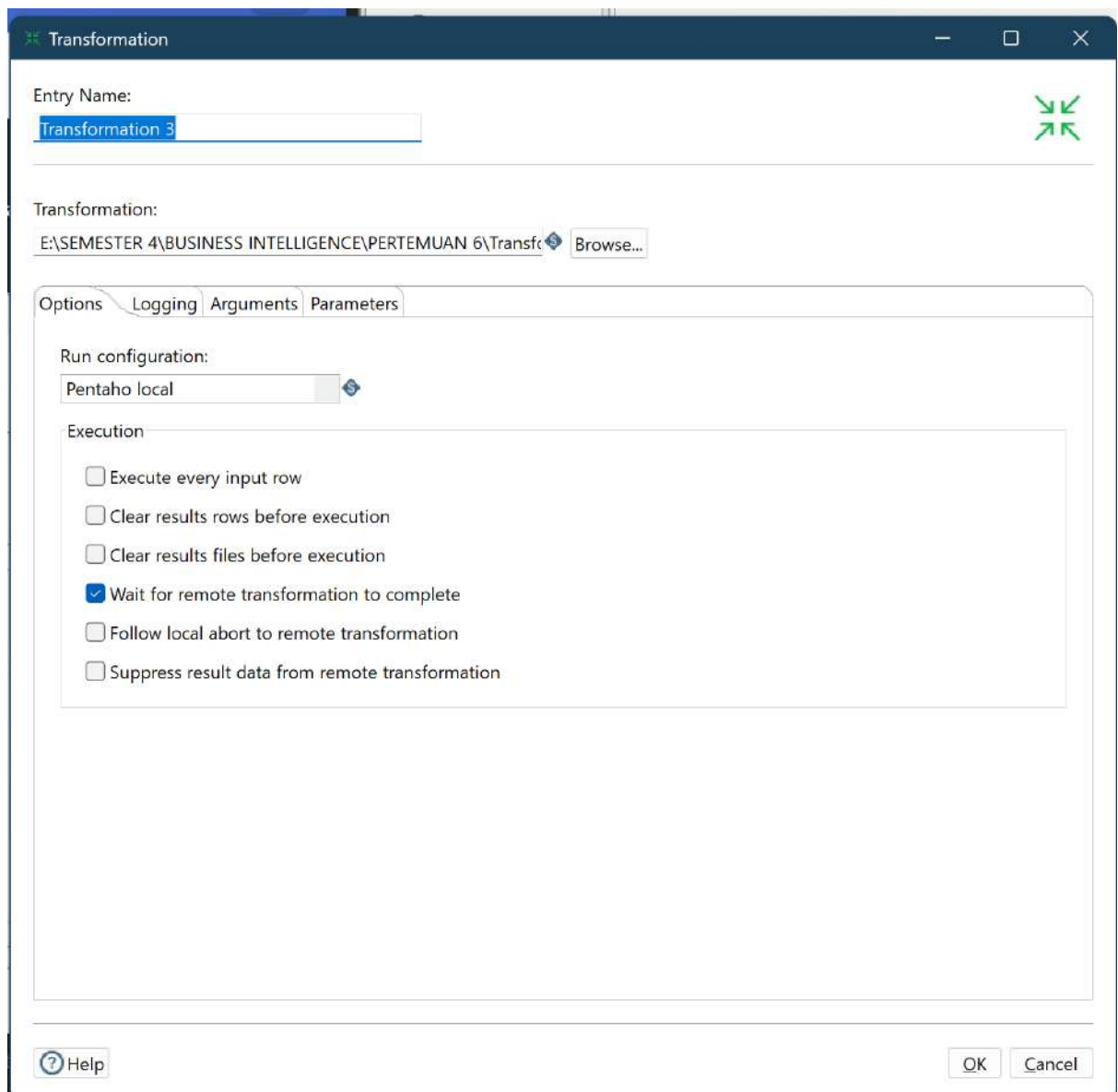
Options | Logging | Arguments | Parameters

Run configuration:  
Pentaho local

Execution

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

Help OK Cancel



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

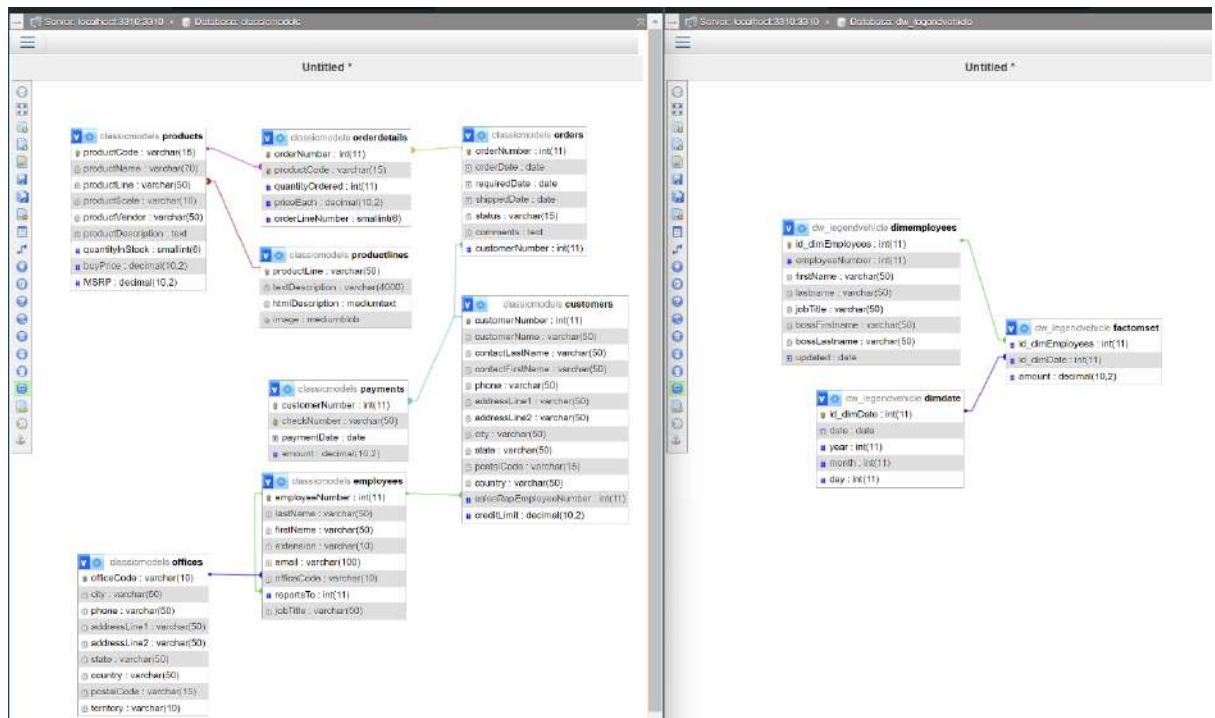
## Execution Results

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. analisislah 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.

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

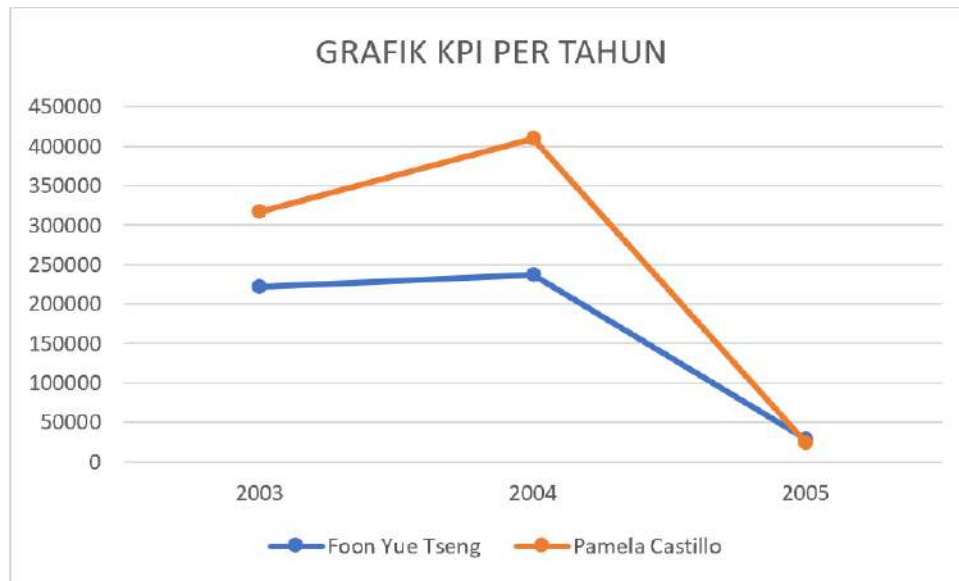
Query

```
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 databse OLAP tersebut untuk membantu pak marto menganalisa penjualan barang.

