

DATA WAREHOUSE

JS 03



Oleh:

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SIB-2B / 25

**D-IV SISTEM INFORMASI BISNIS
JURUSAN TEKNOLOGI INFORMASI
POLITEKNIK NEGERI MALANG**

A. Dimensi Waktu

1. Drag and Drop beberapa objek

Generate rows Add sequence Calculator Select values Database lookup Filter rows Table output

Generate rows

Step name: Generate rows

Limit: 1825

Never stop generating rows: ☐

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
1	CurrentDate	Date	dd/MM...						01-01-2003	N

2. Konfigurasi add sequence

Add sequence

Step name: Add sequence

Name of value: incrementDay

Use a database to generate the sequence

Use DB to get sequence? ☐

Connection:

Schema name:

Sequence name: SEQ_

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: 99999999

Help

OK

Cancel

3. Konfigurasi calculator

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 D...	Current...	increm...		None			N
2	streamYear	Year of date A	stream...			None			N
3	streamMonth	Month of da...	stream...			None			N
4	streamDav	Dav of mont...	stream...			None			N

4. Konfigurasi select values dan remove

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			

Include unspecified fields, ordered by name ☐

Select values

Step name: Select values

Select & Alter Remove Meta-data

Fields to remove:

#	Fieldname
1	CurrentDate
2	incrementDay

Get fields to remove

Help OK Cancel

5. Database connection

Connection tested successfully

Connection to conn_dw_destination was successful.

Hostname: localhost
Port: 3306
Database name: dw_legendvehicle

OK

General Advanced Options Pooling Clustering

Connection name: conn_dw_destination

Connection type:

- MaxDB (SAP DB)
- MonetDB
- MySQL
- Native Mondrian
- Neoview
- Netezza
- Oracle
- Oracle RDB
- PostgreSQL
- Redshift
- Remedy Action Request System
- SAP ERP System
- SQLite
- Snowflake
- Sybase
- SybaseIQ
- Teradata
- UniVerse database
- Vertica

Access:

- Native (JDBC)
- ODBC

Settings

Host Name: localhost

Database Name: dw_legendvehicle

Port Number: 3306

Username: root

Password:

☒ Use Result Streaming Cursor

6. Konfigurasi database lookup

Database lookup

Step name

Database lookup

Connection

conn_dw_destination

Edit...

New

Lookup schema

dw_legendvehicle

Lookup table

dimdate

Enable cache?

☐

Cache size in rows (0=cache

0

Load all data from table

☐

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

#	Table field	Comparator	Field1	Field2	
1	streamDate	=	streamDate		
2	streamYear	=	streamYear		
3	streamMonth	=	streamMonth		
4	streamDay	=	streamDay		

Values to return from the lookup table :

#	Field	New name	Default	Type	
1	id_dimDate	id_dimDate		Integer	
2	date	date		Date	
3	year	year		Integer	
4	month	month		Integer	
5	day	day		Integer	
6	quarter	quarter		Integer	

7. Konfigurasi filter rows

Step name

Filter rows

Send 'true' data to step:

table output

Send 'false' data to step:

The condition:

☐

To edit a subcondition, si

date IS NULL

AND

year IS NULL

AND

month IS NULL

AND

day IS NULL

8. Konfigurasi table output

Table output

Step name: Table output

Connection: conn_dw_destination

Target schema: dw_legendvehicle

Target table: dimdate

Commit size: 1000

Truncate table: ☐

Ignore insert errors: ☐

Specify database fields: ☒

Main options | Database fields

Fields to insert:

#	Table field	Stream field
1	date	date
2	year	year
3	month	month
4	day	day

Get

Enter field ma

9. Isi table database

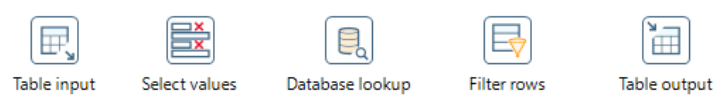
		id_dimDate	date	year	month	day
<input type="checkbox"/>	Edit Copy Delete	2	2023-01-01	2023	1	1
<input type="checkbox"/>	Edit Copy Delete	3	2023-01-02	2023	1	2
<input type="checkbox"/>	Edit Copy Delete	4	2023-01-03	2023	1	3
<input type="checkbox"/>	Edit Copy Delete	5	2023-01-04	2023	1	4
<input type="checkbox"/>	Edit Copy Delete	6	2023-01-05	2023	1	5
<input type="checkbox"/>	Edit Copy Delete	7	2023-01-06	2023	1	6
<input type="checkbox"/>	Edit Copy Delete	8	2023-01-07	2023	1	7
<input type="checkbox"/>	Edit Copy Delete	9	2023-01-08	2023	1	8

Tugas1

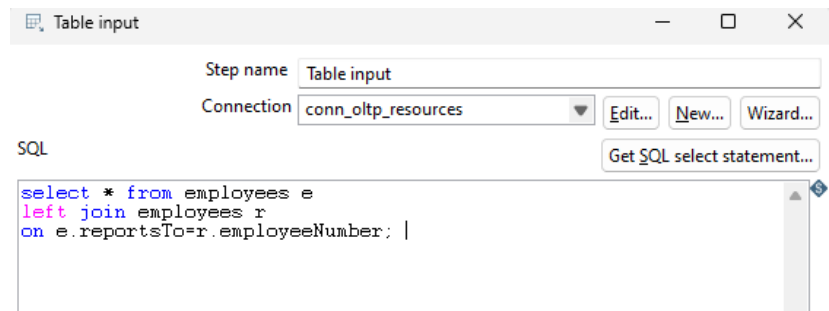
Proses Objek	SS Data Input	SS Data Output	Keterangan
Generate Rows	Tidak ada (step awal)	Menghasilkan sejumlah baris data (misal 1.825 baris untuk tanggal)	Membuat data dummy untuk dimensi waktu (dimDate)
Add Sequence	Data dari Generate Rows	Data yang sama dengan tambahan ID berurutan	Menambahkan nomor urut (Primary Key)
Calculator	Data dari Add Sequence	Data dengan hasil perhitungan tambahan	Melakukan perhitungan matematika (misalnya, menambah 7 hari, menghitung quarter, dll.)
Select Values	Data hasil dari Calculator	Data dengan hanya kolom yang dipilih	Menghapus kolom yang tidak diperlukan , mengubah nama kolom jika perlu
Database Lookup	Data dari Select Values	Data yang sama dengan tambahan kolom dari database lain	Mencari referensi data dari database lain (misalnya, mencocokkan hari libur)
Filter Rows	Data dari Database Lookup	Hanya data yang lolos filter	Membuang data yang tidak memenuhi kondisi , misalnya date IS NULL
Table Output	Data dari Filter Rows	Tidak ada (data dimasukkan ke database)	Menyimpan data ke dalam tabel database (dimDate)

B. Dimensi Pegawai

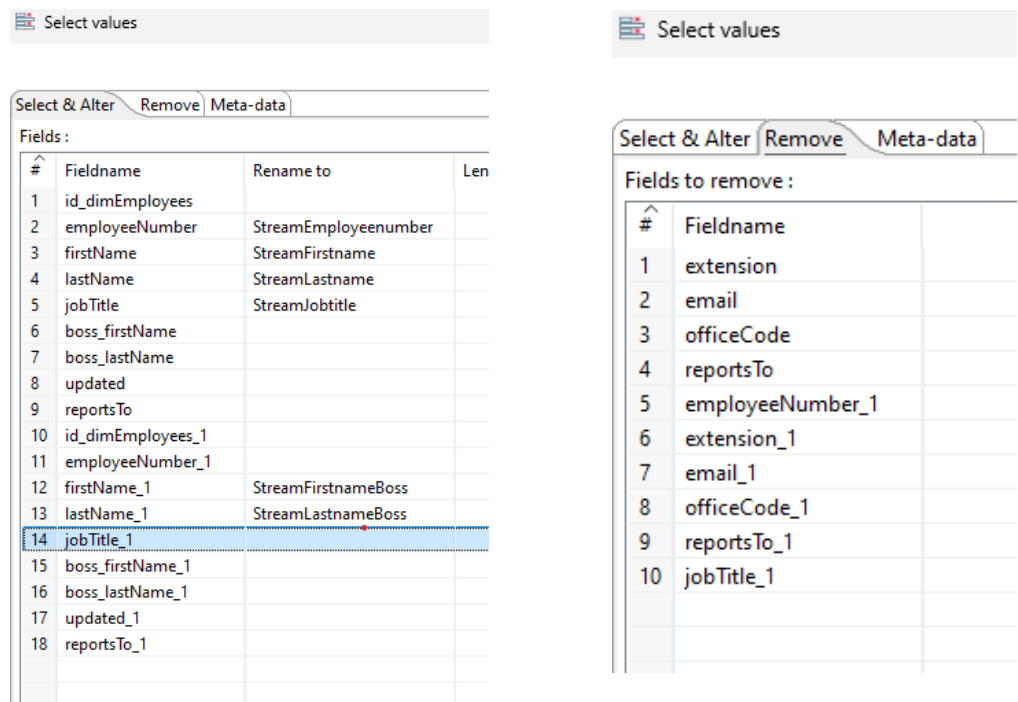
1. Drag and drop beberapa objek



2. Konfigurasi table input



3. Konfigurasi select values dan remove



4. Database lookup

Database lookup

Step name

Database lookup

Connection

conn_oltp_resources

Edit...

New...

Lookup schema

dw_legendvehicle

Lookup table

dimemployees

Enable cache?

☐

Cache size in rows (0=cache all)

0

Load all data from table

☐

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

#	Table field	Comparator	Field1	Field2
1	StreamEmployeeNumber	=	StreamEmployeeNumber	
2	StreamFirstname	=	StreamFirstname	
3	StreamLastname	=	StreamLastname	
4	StreamJobtitle	=	StreamJobtitle	
5	StreamFirstnameBoss	=	StreamFirstnameBoss	
6	StreamLastnameBoss	=	StreamLastnameBoss	

Values to return from the lookup table:

#	Field	New name	Default	Type
1	employeeNumber	employeeNumber		Integer
2	firstName	firstName		String
3	lastName	lastName		String
4	jobTitle	jobTitle		String
5	boss_firstName	boss_firstName		String
6	boss_lastName	boss_lastName		String

Do not pass the row if the lookup fails

☐

Fail on multiple results?

☐

5. Konfigurasi filter rows

Filter rows

Step name

Filter rows

Send 'true' data to step:

Table output

Send 'false' data to step:

The condition:

☐

employeeNumber IS NULL

AND

firstName IS NULL

AND

lastName IS NULL

AND

jobTitle IS NULL

AND

boss_firstName IS NULL

AND

boss_lastName IS NULL

6. Konfigurasi table output

Table output

Step name

Table output

Connection

conn_oltp_resources

Target schema

dw_legendvehicle

Target table

dimemployees

Commit size

1000

Truncate table

☐

Ignore insert errors

☐

Specify database fields

☒

Main options

Database fields

Fields to insert:

#	Table field	Stream field
1	employee...	StreamEmpl...
2	firstName	StreamFirstn...
3	lastName	StreamLastn...
4	jobTitle	StreamJobtitle
5	boss_firstN...	StreamFirstn...
6	boss_lastN...	StreamLastn...

7. Isi table database

id_dimEmployees	employeeNumber	firstName	lastName	jobtitle	boss_firstname	boss_lastname	updated
	1	1002 Diane	Murphy	President	NULL	NULL	2025-03-13
	2	1056 Mary	Patterson	VP Sales	Diane	Murphy	2025-03-13
	3	1076 Jeff	Firrelli	VP Marketing	Diane	Murphy	2025-03-13
	4	1088 William	Patterson	Sales Manager (APAC)	Mary	Patterson	2025-03-13
	5	1102 Gerard	Bondur	Sale Manager (EMEA)	Mary	Patterson	2025-03-13
	6	1143 Anthony	Bow	Sales Manager (NA)	Mary	Patterson	2025-03-13
	7	1165 Leslie	Jennings	Sales Rep	Anthony	Bow	2025-03-13
	8	1166 Leslie	Thompson	Sales Rep	Anthony	Bow	2025-03-13
	9	1188 Julie	Firrelli	Sales Rep	Anthony	Bow	2025-03-13
	10	1216 Steve	Patterson	Sales Rep	Anthony	Bow	2025-03-13
	11	1286 Foon Yue	Tseng	Sales Rep	Anthony	Bow	2025-03-13
	12	1323 George	Vanauf	Sales Rep	Anthony	Bow	2025-03-13
	13	1337 Loui	Bondur	Sales Rep	Gerard	Bondur	2025-03-13
	14	1370 Gerard	Hernandez	Sales Rep	Gerard	Bondur	2025-03-13
	15	1401 Pamela	Castillo	Sales Rep	Gerard	Bondur	2025-03-13
	16	1501 Larry	Bott	Sales Rep	Gerard	Bondur	2025-03-13
	17	1504 Barry	Jones	Sales Rep	Gerard	Bondur	2025-03-13
	18	1611 Andy	Fixter	Sales Rep	William	Patterson	2025-03-13
	19	1612 Peter	Marsh	Sales Rep	William	Patterson	2025-03-13
	20	1619 Tom	King	Sales Rep	William	Patterson	2025-03-13
	21	1621 Mami	Nishi	Sales Rep	Mary	Patterson	2025-03-13
	22	1625 Yoshimi	Kato	Sales Rep	Mami	Nishi	2025-03-13

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	SS Data Input	SS Data Output	Keterangan
Table Input	Data awal dari sumber (OLTP)	Data mentah masuk ke proses ETL	Mengambil data dari database operasional
Select Values	Data awal	Data dengan kolom yang dipilih	Memilih hanya kolom yang dibutuhkan
Database Lookup	Data dari tahap sebelumnya	Data dengan informasi tambahan dari lookup table	Menambahkan data dari tabel lain berdasarkan kunci tertentu
Filter Rows	Data dengan lookup	Data yang sudah difilter sesuai kriteria	Menghapus data yang tidak memenuhi syarat
Table Output	Data hasil transformasi	Data akhir yang siap disimpan ke OLAP atau data warehouse	Menyimpan hasil transformasi ke tujuan akhir

2. Jika proses itu di ulangi (di run kembali) apakah data akan redundant?
 - Ya, data bisa menjadi redundant jika: Tidak ada mekanisme untuk menghindari duplikasi, seperti TRUNCATE TABLE sebelum memasukkan data baru.
3. Tambahkan nama anda pada table employee di OLTP. jalankan kembali transformasi ini. Amati hasilnya, apa yang terjadi?

<input type="checkbox"/>				1611	Fixter	Andy	x101	afixter@classicmodelcars.com	6	1088	Sales Rep
<input type="checkbox"/>				1612	Marsh	Peter	x102	pmarsh@classicmodelcars.com	6	1088	Sales Rep
<input type="checkbox"/>				1619	King	Tom	x103	tking@classicmodelcars.com	6	1088	Sales Rep
<input type="checkbox"/>				1621	Nishi	Mami	x101	mnishi@classicmodelcars.com	5	1056	Sales Rep
<input type="checkbox"/>				1625	Kato	Yoshimi	x102	ykato@classicmodelcars.com	5	1621	Sales Rep
<input type="checkbox"/>				1702	Gerard	Martin	x2312	mgerard@classicmodelcars.com	4	1102	Sales Rep
<input type="checkbox"/>				1899	adi	wahyu	x987	wahyutpt20@gmail.com	1	1401	Sales Manager (NA)

id_dimEmployees	employeeNumber	firstName	lastName	jobtitle	boss_firstname	boss_lastname	updated
1	1002	Diane	Murphy	President	NULL	NULL	2025-03-13
2	1056	Mary	Patterson	VP Sales	Diane	Murphy	2025-03-13
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8	1166	Leslie	Thompson	Sales Rep	Anthony	Bow	2025-03-13
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14	1370	Gerard	Hernandez	Sales Rep	Gerard	Bondur	2025-03-13
15	1401	Pamela	Castillo	Sales Rep	Gerard	Bondur	2025-03-13
16	1501	Larry	Bott	Sales Rep	Gerard	Bondur	2025-03-13
17	1504	Barry	Jones	Sales Rep	Gerard	Bondur	2025-03-13
18	1611	Andy	Fixter	Sales Rep	William	Patterson	2025-03-13
19	1612	Peter	Marsh	Sales Rep	William	Patterson	2025-03-13
20	1619	Tom	King	Sales Rep	William	Patterson	2025-03-13
21	1621	Mami	Nishi	Sales Rep	Mary	Patterson	2025-03-13
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