

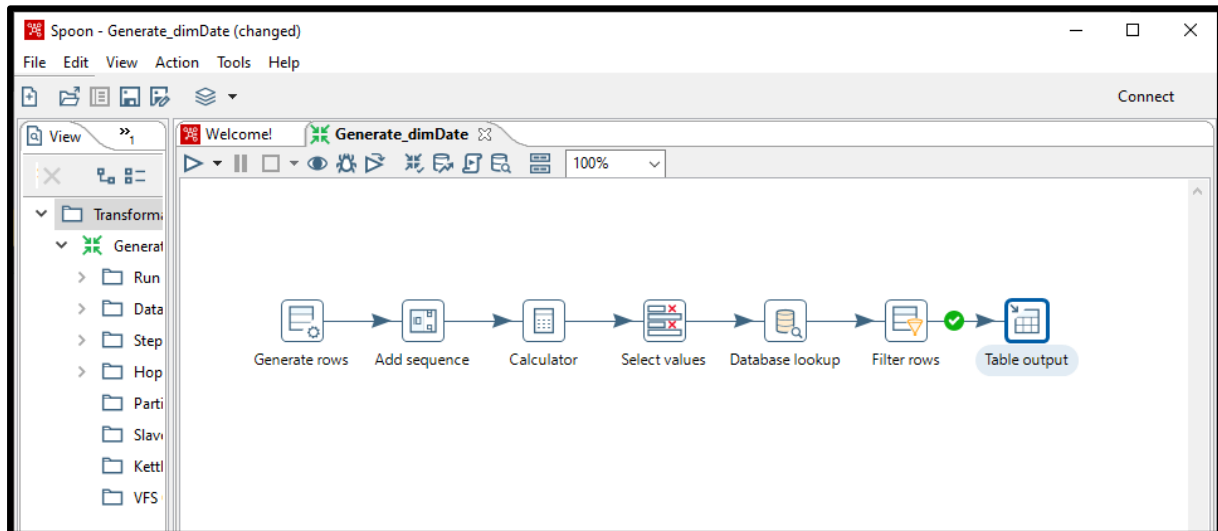
# Pengerjaan Jobsheet 3

## Mata Kuliah: Data Warehouse

### Database Analytical

Nama : Aditya Yuhanda Putra

Kelas : SIB 2A



Server: localhost:3306 » Database: dw\_legendvehicle » Table: dimdate

Showing rows 0 - 499 (1825 total, Query took 0.0019 seconds.)

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

☐ Profiling [ [Edit inline](#) ] [ [Edit](#) ] [ [Explain SQL](#) ] [ [Create PHP code](#) ] [ [Refresh](#) ]

1 > >> | Number of rows: 500 | Filter rows: Search this table | Sort by key:

Extra options

	id_dimDate	date	year	month	day
<input type="checkbox"/> Edit Copy Delete	1	2003-01-01	2003	1	1
<input type="checkbox"/> Edit Copy Delete	2	2003-01-02	2003	1	2
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<input type="checkbox"/> Edit Copy Delete	4	2003-01-04	2003	1	4
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<input type="checkbox"/> Edit Copy Delete	16	2003-01-16	2003	1	16
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<input type="checkbox"/> Edit Copy Delete	18	2003-01-18	2003	1	18
<input type="checkbox"/> Edit Copy Delete	19	2003-01-19	2003	1	19

Console

## 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	SS data input				SS data output						Keterangan																																																																																																																																																																																																																																																																						
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Menyimpan hasil akhir ke dalam database sesuai dengan struktur tabel yang telah ditentukan.

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		<table><tr><th>#</th><th>employee...</th><th>lastName</th><th>firstName</th><th>extension</th><th>email</th><th>officeCode</th><th>report...</th></tr><tr><td>1</td><td>1002</td><td>Murphy</td><td>Diane</td><td>x5800</td><td>dmurphy@classicmodelcars.com</td><td>1</td><td>&lt;nu</td></tr><tr><td>2</td><td>1056</td><td>Patterson</td><td>Mary</td><td>x4611</td><td>mpatterson@classicmodelcars.com</td><td>1</td><td>10</td></tr><tr><td>3</td><td>1076</td><td>Firelli</td><td>Jeff</td><td>x9273</td><td>jfirelli@classicmodelcars.com</td><td>1</td><td>10</td></tr><tr><td>4</td><td>1088</td><td>Patterson</td><td>William</td><td>x4871</td><td>wpatterson@classicmodelcars.com</td><td>6</td><td>10</td></tr><tr><td>5</td><td>1102</td><td>Bondur</td><td>Gerard</td><td>x5408</td><td>gbondur@classicmodelcars.com</td><td>4</td><td>10</td></tr><tr><td>6</td><td>1143</td><td>Bow</td><td>Anthony</td><td>x5428</td><td>abow@classicmodelcars.com</td><td>1</td><td>10</td></tr><tr><td>7</td><td>1165</td><td>Jennings</td><td>Leslie</td><td>x5291</td><td>ljennings@classicmodelcars.com</td><td>1</td><td>11</td></tr><tr><td>8</td><td>1166</td><td>Thompson</td><td>Leslie</td><td>x4065</td><td>lthompson@classicmodelcars.com</td><td>1</td><td>11</td></tr><tr><td>9</td><td>1188</td><td>Firelli</td><td>Julie</td><td>x2173</td><td>jfirelli@classicmodelcars.com</td><td>2</td><td>11</td></tr><tr><td>10</td><td>1216</td><td>Patterson</td><td>Steve</td><td>x4334</td><td>spatterson@classicmodelcars.com</td><td>2</td><td>11</td></tr><tr><td>11</td><td>1286</td><td>Tseng</td><td>Foon Yue</td><td>x2248</td><td>ftseng@classicmodelcars.com</td><td>3</td><td>11</td></tr><tr><td>12</td><td>1323</td><td>Vanau</td><td>George</td><td>x4102</td><td>gvanauf@classicmodelcars.com</td><td>3</td><td>11</td></tr><tr><td>13</td><td>1337</td><td>Bondur</td><td>Loui</td><td>x5403</td><td>lbondur@classicmodelcars.com</td><td>4</td><td>11</td></tr></table>	#	employee...	lastName	firstName	extension	email	officeCode	report...	1	1002	Murphy	Diane	x5800	dmurphy@classicmodelcars.com	1	<nu	2	1056	Patterson	Mary	x4611	mpatterson@classicmodelcars.com	1	10	3	1076	Firelli	Jeff	x9273	jfirelli@classicmodelcars.com	1	10	4	1088	Patterson	William	x4871	wpatterson@classicmodelcars.com	6	10	5	1102	Bondur	Gerard	x5408	gbondur@classicmodelcars.com	4	10	6	1143	Bow	Anthony	x5428	abow@classicmodelcars.com	1	10	7	1165	Jennings	Leslie	x5291	ljennings@classicmodelcars.com	1	11	8	1166	Thompson	Leslie	x4065	lthompson@classicmodelcars.com	1	11	9	1188	Firelli	Julie	x2173	jfirelli@classicmodelcars.com	2	11	10	1216	Patterson	Steve	x4334	spatterson@classicmodelcars.com	2	11	11	1286	Tseng	Foon Yue	x2248	ftseng@classicmodelcars.com	3	11	12	1323	Vanau	George	x4102	gvanauf@classicmodelcars.com	3	11	13	1337	Bondur	Loui	x5403	lbondur@classicmodelcars.com	4	11	Proses <b>Extract</b> , mengambil data dari database OLTP dengan query <b>SELECT * FROM employees e LEFT JOIN employees r ON e.reportsTo=r.employeeNumber;</b>																																																																																																									
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Database Lookup 3	<div><div>stream... streamLast... streamFirs... streamDate streamAm... id_d...</div><div><div>1370 Hernandez Gerard Sales Rep Bondur Gerard 2004/10/19 00:00:00.000 6066.78 14 658 &lt;null&gt; &lt;null&gt; &lt;null&gt;</div><div>1370 Hernandez Gerard Sales Rep Bondur Gerard 2003/06/05 00:00:00.000 14571.44 14 156 &lt;null&gt; &lt;null&gt; &lt;null&gt;</div><div>1370 Hernandez Gerard Sales Rep Bondur Gerard 2004/12/18 00:00:00.000 1676.14 14 718 &lt;null&gt; &lt;null&gt; &lt;null&gt;</div><div>1166 Thompson Leslie Sales Rep Bow Anthony 2004/12/17 00:00:00.000 14191.12 8 717 &lt;null&gt; &lt;null&gt; &lt;null&gt;</div><div>1166 Thompson Leslie Sales Rep Bow Anthony 2003/06/06 00:00:00.000 32641.98 8 157 &lt;null&gt; &lt;null&gt; &lt;null&gt;</div><div>1166 Thompson Leslie Sales Rep Bow Anthony 2004/08/20 00:00:00.000 33347.88 8 598 &lt;null&gt; &lt;null&gt; &lt;null&gt;</div><div>1611 Fixter Andy Sales Rep Patterson William 2003/05/20 00:00:00.000 45864.03 18 140 &lt;null&gt; &lt;null&gt; &lt;null&gt;</div><div>1611 Fixter Andy Sales Rep Patterson William 2004/12/15 00:00:00.000 82261.22 18 715 &lt;null&gt; &lt;null&gt; &lt;null&gt;</div><div>1611 Fixter Andy Sales Rep Patterson William 2003/05/31 00:00:00.000 7565.08 18 151 &lt;null&gt; &lt;null&gt; &lt;null&gt;</div></div></div>	
Filter Rows	<div><div>stream... streamLast... streamFirs... streamDate streamAm... id_d...</div><div><div>1370 Hernandez Gerard Sales Rep Bondur Gerard 2004/10/19 00:00:00.000 6066.78 14 658 &lt;n... &lt;n... &lt;n...</div><div>1370 Hernandez Gerard Sales Rep Bondur Gerard 2003/06/05 00:00:00.000 14571.44 14 156 &lt;n... &lt;n... &lt;n...</div><div>1370 Hernandez Gerard Sales Rep Bondur Gerard 2004/12/18 00:00:00.000 1676.14 14 718 &lt;n... &lt;n... &lt;n...</div><div>1166 Thompson Leslie Sales Rep Bow Anthony 2004/12/17 00:00:00.000 14191.12 8 717 &lt;n... &lt;n... &lt;n...</div><div>1166 Thompson Leslie Sales Rep Bow Anthony 2003/06/06 00:00:00.000 32641.98 8 157 &lt;n... &lt;n... &lt;n...</div><div>1166 Thompson Leslie Sales Rep Bow Anthony 2004/08/20 00:00:00.000 33347.88 8 598 &lt;n... &lt;n... &lt;n...</div><div>1611 Fixter Andy Sales Rep Patterson William 2003/05/20 00:00:00.000 45864.03 18 140 &lt;n... &lt;n... &lt;n...</div><div>1611 Fixter Andy Sales Rep Patterson William 2004/12/15 00:00:00.000 82261.22 18 715 &lt;n... &lt;n... &lt;n...</div><div>1611 Fixter Andy Sales Rep Patterson William 2003/05/31 00:00:00.000 7565.08 18 151 &lt;n... &lt;n... &lt;n...</div></div></div>	
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2. Jika proses itu di ulangi ( di run kembali ) apakah data akan redudant?

➤ Run Pertama :

2025/03/17 22:54:41 - Spoon - Transformation opened.  
2025/03/17 22:54:41 - Spoon - Launching transformation [Fakta\_Pembayaran]...  
2025/03/17 22:54:41 - Spoon - Started the transformation execution.  
2025/03/17 22:54:42 - Fakta\_Pembayaran - Dispatching started for transformation [Fakta\_Pembayaran]  
2025/03/17 22:54:42 - Table output.0 - Connected to database [conn\_dw\_destination] (commit=1000)  
2025/03/17 22:54:43 - Select values.0 - Finished processing (I=0, O=0, R=273, W=273, U=0, E=0)  
2025/03/17 22:54:43 - Table input.0 - Finished reading query, closing connection  
2025/03/17 22:54:43 - Table input.0 - Finished processing (I=273, O=0, R=0, W=273, U=0, E=0)  
2025/03/17 22:54:43 - Database lookup.0 - Finished processing (I=273, O=0, R=273, W=273, U=0, E=0)  
2025/03/17 22:54:43 - Database lookup 2.0 - Finished processing (I=273, O=0, R=273, W=273, U=0, E=0)  
2025/03/17 22:54:43 - Database lookup 3.0 - Finished processing (I=0, O=0, R=273, W=273, U=0, E=0)  
2025/03/17 22:54:43 - Filter rows.0 - Finished processing (I=0, O=0, R=273, W=273, U=0, E=0)  
2025/03/17 22:54:44 - Table output.0 - Finished processing (I=0, O=273, R=273, W=273, U=0, E=0)  
2025/03/17 22:54:44 - Spoon - The transformation has finished!!

➤ Run kedua

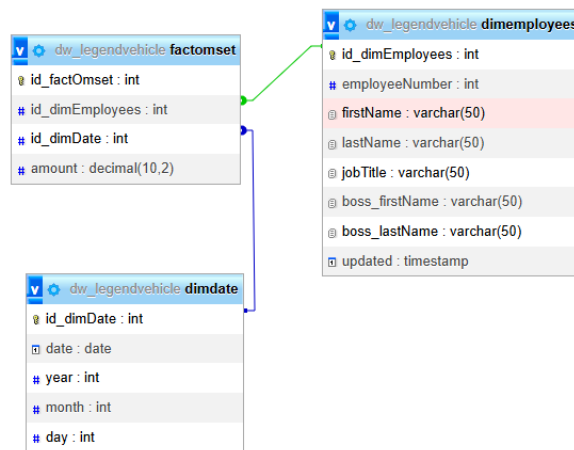
2025/03/17 23:14:43 - Spoon - Transformation opened.  
2025/03/17 23:14:43 - Spoon - Launching transformation [Fakta\_Pembayaran]...  
2025/03/17 23:14:43 - Spoon - Started the transformation execution.  
2025/03/17 23:14:43 - Fakta\_Pembayaran - Dispatching started for transformation [Fakta\_Pembayaran]  
2025/03/17 23:14:43 - Table output.0 - Connected to database [conn\_dw\_destination] (commit=1000)  
2025/03/17 23:14:43 - Table input.0 - Finished reading query, closing connection  
2025/03/17 23:14:43 - Table input.0 - Finished processing (I=273, O=0, R=0, W=273, U=0, E=0)  
2025/03/17 23:14:43 - Select values.0 - Finished processing (I=0, O=0, R=273, W=273, U=0, E=0)  
2025/03/17 23:14:43 - Database lookup.0 - Finished processing (I=273, O=0, R=273, W=273, U=0, E=0)  
2025/03/17 23:14:43 - Database lookup 2.0 - Finished processing (I=273, O=0, R=273, W=273, U=0, E=0)  
2025/03/17 23:14:44 - Database lookup 3.0 - Finished processing (I=273, O=0, R=273, W=273, U=0, E=0)  
2025/03/17 23:14:44 - Filter rows.0 - Finished processing (I=0, O=0, R=273, W=0, U=0, E=0)  
2025/03/17 23:14:44 - Spoon - The transformation has finished!!



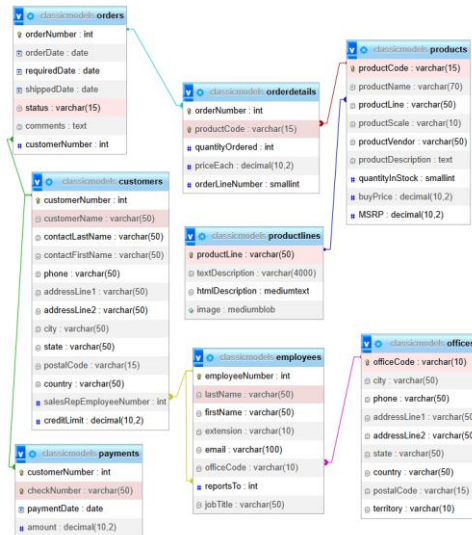
- Terlihat ketika filter rows yang di run kedua itu tidak melakukan Write lagi, yang berarti tidak ada penambahan data di tabel factomset selama tidak ada data baru yang ditambahkan

## TUGAS 4

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



- OLTP classicmodel



- Perbedaan:

Aspek	OLTP (legendVehicle - Jobsheet 2)	OLAP (dw legendVehicle - Jobsheet 4)
Tujuan	Menyimpan dan memproses transaksi operasional harian (CRUD)	Menganalisis data transaksi dalam bentuk ringkasan dan histori
Struktur Data	Normalisasi tinggi untuk efisiensi penyimpanan dan menghindari redundansi	Denormalisasi untuk mempercepat query analisis
Kompleksitas Query	Query pendek dan sering dilakukan	Query kompleks untuk agregasi dan analisis
Frekuensi Perubahan Data	Sering diperbarui dengan transaksi baru	Data statis dan hanya diperbarui secara periodik

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

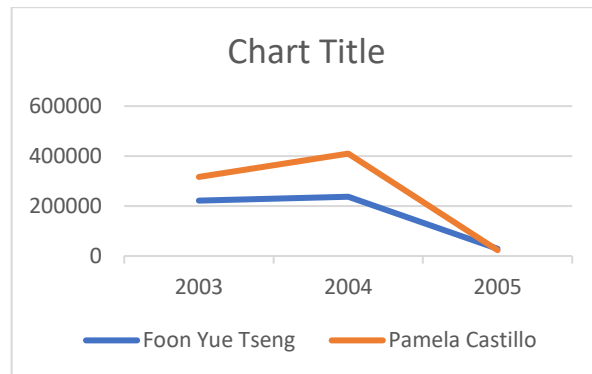
➤ Query :

```
1 SELECT
2     e.firstName, e.lastName,
3     d.year,
4     SUM(f.amount) AS total_omset
5 FROM factOmset f
6 JOIN dimEmployees e ON f.id_dimEmployees = e.id_dimEmployees
7 JOIN dimDate d ON f.id_dimDate = d.id_dimDate
8 WHERE e.firstName IN ('Foon Yue', 'Pamela') AND e.lastName IN ('Tseng', 'Castillo')
9 GROUP BY e.firstName, e.lastName, d.year
10 ORDER BY e.firstName, e.lastName, d.year;
```

➤ Data:

firstName	lastName	year	total_omset
Foon Yue	Tseng	2003	221887.03
Foon Yue	Tseng	2004	237255.26
Foon Yue	Tseng	2005	29070.38
Pamela	Castillo	2003	317104.78
Pamela	Castillo	2004	409910.07
Pamela	Castillo	2005	23187.02

➤ Grafik :



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

➤ Sumber Data

- Jobsheet 2: Mengambil data langsung dari OLTP (employees, customers, payments).
- Nomor 2: Mengambil data dari OLAP (factOmset, dimEmployees, dimDate).

➤ Struktur Tabel

- Jobsheet 2 masih menggunakan tabel transaksi asli, jadi harus melakukan banyak JOIN untuk mendapatkan nama karyawan dan tahun pembayaran.
- Nomor 2 sudah menggunakan dimensi (dimEmployees, dimDate), jadi query lebih simpel karena tabel sudah diringkas dalam data warehouse.

➤ Efisiensi Query

- Jobsheet 2 memproses data langsung dari transaksi, jadi lebih berat.
- Nomor 2 lebih cepat karena data sudah diproses dan disimpan di OLAP.

➤ Penggunaan Tahun

- Jobsheet 2: Harus pakai YEAR(p.paymentDate) untuk ambil tahun dari transaksi.
- Nomor 2: Tinggal ambil d.year karena sudah ada di dimDate.

4. Simpulkan dengan bahasa sendiri, apa perbedaan OLTP dan OLAP?
- OLTP itu buat nyimpen transaksi harian, kayak data penjualan atau order pelanggan. Struktur datanya rapi banget (ternormalisasi) biar update cepat.
  - OLAP lebih ke analisis. Datanya udah diringkas, jadi lebih gampang buat laporan atau cari tren bisnis. Ini yang dipakai kalau bos mau lihat omset tahunan tanpa nunggu lama.
  - Singkatnya, OLTP = buat kerjaan harian, OLAP = buat laporan dan analisis.