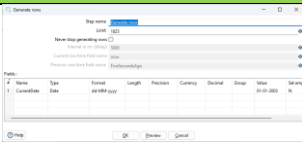
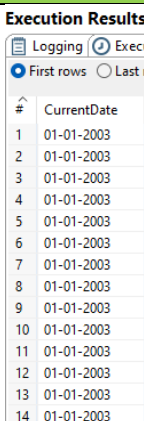
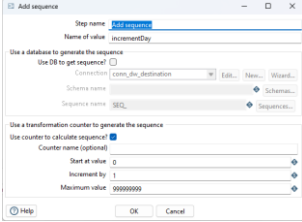
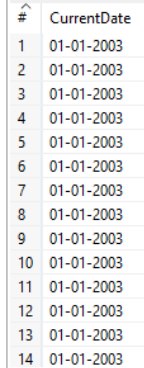

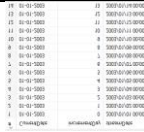
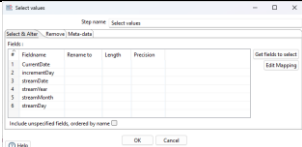
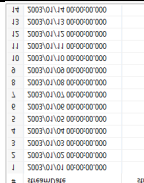


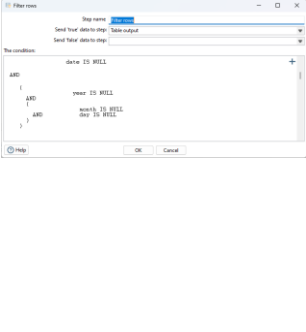
## Jobsheet 3 Data Warehouse

Sufyan Dwi Bagaskara / SIB 2B / 23

### Tugas A

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.

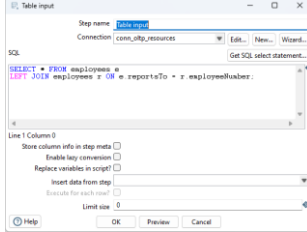
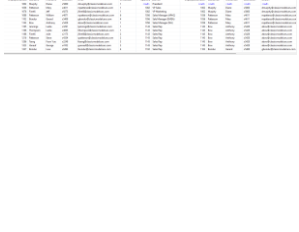
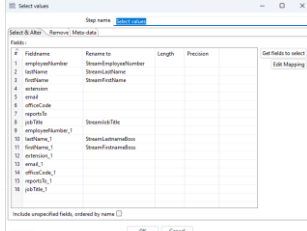
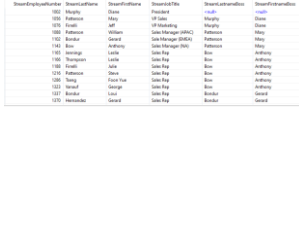
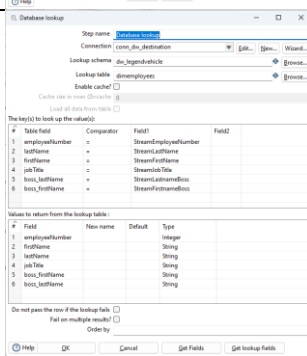

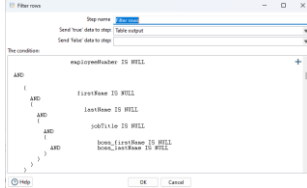

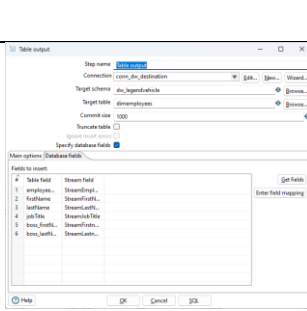
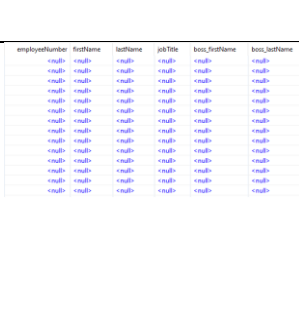
Proses Objek	SS Data Input	SS Data Output	Keterangan
Generate Rows			Membuat Field baru bernama CurrentDate dan mengisinya sebanyak 1825 data dengan value yang sama “01-01-2003”
Add Sequences			Membuat data nomor berurutan yang dimulai dari 0 hingga baris terakhir
Calculator			Memecah tanggal menjadi komponen-komponennya (tahun, bulan, hari) untuk analisis atau pemrosesan lebih lanjut.
Select values			Menghapus kolom yang tidak perlu seperti currentDate dan incrementDay

Database lookup		<table><tr><th>date</th><th>year</th><th>month</th><th>day</th></tr><tr><td>&lt;null&gt;</td><td>&lt;null&gt;</td><td>&lt;null&gt;</td><td>&lt;null&gt;</td></tr><tr><td>&lt;null&gt;</td><td>&lt;null&gt;</td><td>&lt;null&gt;</td><td>&lt;null&gt;</td></tr><tr><td>&lt;null&gt;</td><td>&lt;null&gt;</td><td>&lt;null&gt;</td><td>&lt;null&gt;</td></tr><tr><td>&lt;null&gt;</td><td>&lt;null&gt;</td><td>&lt;null&gt;</td><td>&lt;null&gt;</td></tr><tr><td>&lt;null&gt;</td><td>&lt;null&gt;</td><td>&lt;null&gt;</td><td>&lt;null&gt;</td></tr><tr><td>&lt;null&gt;</td><td>&lt;null&gt;</td><td>&lt;null&gt;</td><td>&lt;null&gt;</td></tr><tr><td>&lt;null&gt;</td><td>&lt;null&gt;</td><td>&lt;null&gt;</td><td>&lt;null&gt;</td></tr><tr><td>&lt;null&gt;</td><td>&lt;null&gt;</td><td>&lt;null&gt;</td><td>&lt;null&gt;</td></tr><tr><td>&lt;null&gt;</td><td>&lt;null&gt;</td><td>&lt;null&gt;</td><td>&lt;null&gt;</td></tr><tr><td>&lt;null&gt;</td><td>&lt;null&gt;</td><td>&lt;null&gt;</td><td>&lt;null&gt;</td></tr><tr><td>&lt;null&gt;</td><td>&lt;null&gt;</td><td>&lt;null&gt;</td><td>&lt;null&gt;</td></tr><tr><td>&lt;null&gt;</td><td>&lt;null&gt;</td><td>&lt;null&gt;</td><td>&lt;null&gt;</td></tr><tr><td>&lt;null&gt;</td><td>&lt;null&gt;</td><td>&lt;null&gt;</td><td>&lt;null&gt;</td></tr><tr><td>&lt;null&gt;</td><td>&lt;null&gt;</td><td>&lt;null&gt;</td><td>&lt;null&gt;</td></tr><tr><td>&lt;null&gt;</td><td>&lt;null&gt;</td><td>&lt;null&gt;</td><td>&lt;null&gt;</td></tr><tr><td>&lt;null&gt;</td><td>&lt;null&gt;</td><td>&lt;null&gt;</td><td>&lt;null&gt;</td></tr><tr><td>&lt;null&gt;</td><td>&lt;null&gt;</td><td>&lt;null&gt;</td><td>&lt;null&gt;</td></tr><tr><td>&lt;null&gt;</td><td>&lt;null&gt;</td><td>&lt;null&gt;</td><td>&lt;null&gt;</td></tr><tr><td>&lt;null&gt;</td><td>&lt;null&gt;</td><td>&lt;null&gt;</td><td>&lt;null&gt;</td></tr><tr><td>&lt;null&gt;</td><td>&lt;null&gt;</td><td>&lt;null&gt;</td><td>&lt;null&gt;</td></tr></table>	date	year	month	day	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	memperkaya data dengan menambahkan informasi dari tabel dimdate berdasarkan tanggal yang telah diolah sebelumnya
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Console				lit		Edit		Copy		Delete	

## Tugas B

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			Mengambil data mentah untuk diolah nanti
Select values			Menyaring Field yang penting saja untuk diolah
Database lookup			Mencari dan mengambil data dari tabel dimemployees di database berdasarkan kunci pencarian yang ditentukan.
Filter rows			Menyaring baris data berdasarkan kondisi yang ditentukan dan mengarahkan baris yang lolos filter ke table output
Table Output			Menulis data yang masuk dari aliran data (stream) ke dalam tabel dimemployees di database "conn_dw_destination" dan skema "dw_legendvehicle".

<div><div><div></div></div></div>		id_dimEmployees	employeeNumber	firstName	lastName	jobTitle	boss_firstName	boss_lastName	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><div></div></div><div><div></div></div></div>		1	1002	Diane	Murphy	President	NULL	NULL	2025-03-12
<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><div></div></div><div><div></div></div></div>		2	1056	Mary	Patterson	VP Sales	Diane	Murphy	2025-03-12
<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><div></div></div><div><div></div></div></div>		3	1076	Jeff	Firrelli	VP Marketing	Diane	Murphy	2025-03-12
<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><div></div></div><div><div></div></div></div>		4	1088	William	Patterson	Sales Manager (APAC)	Mary	Patterson	2025-03-12
<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><div></div></div><div><div></div></div></div>		5	1102	Gerard	Bondur	Sale Manager (EMEA)	Mary	Patterson	2025-03-12
<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><div></div></div><div><div></div></div></div>		6	1143	Anthony	Bow	Sales Manager (NA)	Mary	Patterson	2025-03-12
<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><div></div></div><div><div></div></div></div>		7	1165	Leslie	Jennings	Sales Rep	Anthony	Bow	2025-03-12
<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><div></div></div><div><div></div></div></div>		8	1166	Leslie	Thompson	Sales Rep	Anthony	Bow	2025-03-12
<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><div></div></div><div><div></div></div></div>		9	1188	Julie	Firrelli	Sales Rep	Anthony	Bow	2025-03-12
<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><div></div></div><div><div></div></div></div>		10	1216	Steve	Patterson	Sales Rep	Anthony	Bow	2025-03-12
<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><div></div></div><div><div></div></div></div>		11	1286	Foon Yue	Tseng	Sales Rep	Anthony	Bow	2025-03-12
<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><div></div></div><div><div></div></div></div>		12	1323	George	Vanauf	Sales Rep	Anthony	Bow	2025-03-12
<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><div></div></div><div><div></div></div></div>		13	1337	Loui	Bondur	Sales Rep	Gerard	Bondur	2025-03-12
<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><div></div></div><div><div></div></div></div>		14	1370	Gerard	Hernandez	Sales Rep	Gerard	Bondur	2025-03-12
<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><div></div></div><div><div></div></div></div>		15	1401	Pamela	Castillo	Sales Rep	Gerard	Bondur	2025-03-12
<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><div></div></div><div><div></div></div></div>		16	1501	Larry	Bott	Sales Rep	Gerard	Bondur	2025-03-12
<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><div></div></div><div><div></div></div></div>		17	1504	Barry	Jones	Sales Rep	Gerard	Bondur	2025-03-12
<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><div></div></div><div><div></div></div></div>		18	1611	Andy	Fixter	Sales Rep	William	Patterson	2025-03-12
<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><div></div></div><div><div></div></div></div>		19	1612	Peter	Marsh	Sales Rep	William	Patterson	2025-03-12
<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><div></div></div><div><div></div></div></div>		20	1619	Tom	King	Sales Rep	William	Patterson	2025-03-12
<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><div></div></div><div><div></div></div></div>		21	1621	Mami	Nishi	Sales Rep	Mary	Patterson	2025-03-12
<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><div></div></div><div><div></div></div></div>		22	1625	Yoshimi	Kato	Sales Rep	Mami	Nishi	2025-03-12
<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><div></div></div><div><div></div></div></div>		23	1702	Martin	Gerard	Sales Rep	Gerard	Bondur	2025-03-12

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

Ya, ada potensi terjadinya redundansi data jika proses ETL (Extract, Transform, Load) dijalankan kembali, terutama jika tidak ada mekanisme pencegahan yang tepat.

Penting untuk merancang alur kerja ETL dengan hati-hati untuk mencegah redundansi data.

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

## OLTP Insert

```

1 row inserted.

INSERT INTO `employees` (`employeeNumber`, `lastName`, `firstName`, `extension`, `email`, `officeCode`, `reportsTo`, `jobTitle`) VALUES ('1705', 'Bagaskara', 'Sufyan Dwi', '2000', 'blabla@gmail.com', '3', '1002', 'Sales Rep');
[Edit inline][Edit][Create PHP code]

```

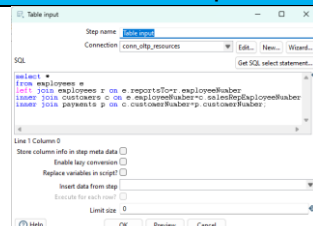
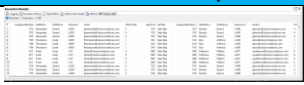
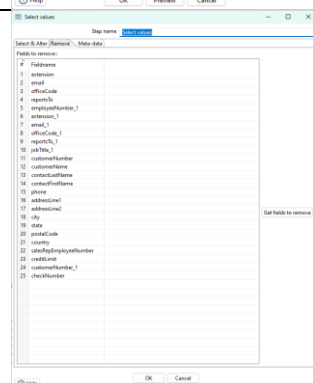
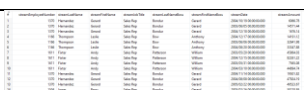
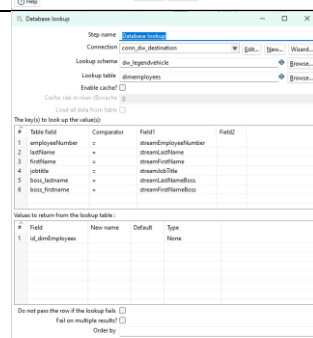
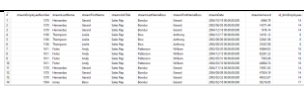
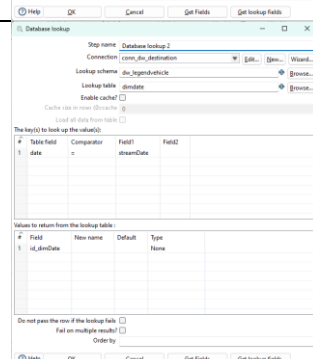
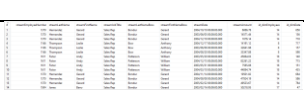
## DW dimeployees

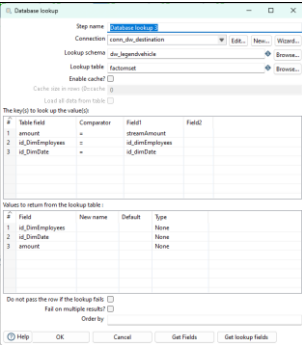
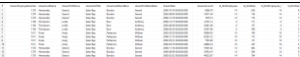
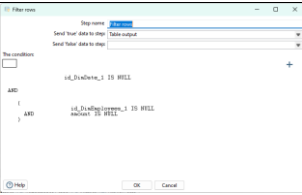

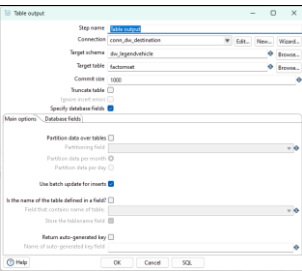

<input type="checkbox"/>				22	1625	Yoshimi	Kato	Sales Rep	Mami	Nishi	2025-03-12
<input type="checkbox"/>				23	1702	Martin	Gerard	Sales Rep	Gerard	Bondur	2025-03-12
<input type="checkbox"/>				24	1705	Sufyan Dwi	Bagaskara	Sales Rep	Diane	Murphy	2025-03-12

Data baru yang di insert di Database OLTP berhasil masuk ke Database DW

## Tugas C

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			mengambil data dari database menggunakan query SQL yang ditentukan.
Select values			memilih dan memanipulasi kolom-kolom data yang akan diproses lebih lanjut.
Database lookup			mencari dan mengambil data tambahan dari tabel database berdasarkan nilai kunci yang ada di aliran data.
Database lookup 2			mencari dan mengambil nilai id_dimDate dari tabel dimdate di database dw_legendvehicle berdasarkan kecocokan nilai kolom date di tabel tersebut dengan nilai streamDate di aliran data.

Database lookup 3			<p>mencari dan mengambil nilai id_dimEmployees, id_dimDate, dan amount dari tabel factomset di database dw_legendvehicle berdasarkan kecocokan nilai streamAmount, id_dimEmployees, dan id_dimDate di aliran data dengan kolom yang sama di tabel factomset.</p>
Filter Rows			<p>menyaring baris data, meneruskan baris yang memenuhi kondisi id_DimDate_1 IS NULL DAN (id_DimEmployees_1 IS NULL ATAU amount IS NULL) ke langkah "Table output", dan membuang baris lainnya.</p>
Table Output			<p>menulis atau memasukkan data yang telah diproses ke dalam tabel factomset di database dw_legendvehicle.</p>

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

Tidak

## Tugas D

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

### **OLTP (Online Transaction Processing):**

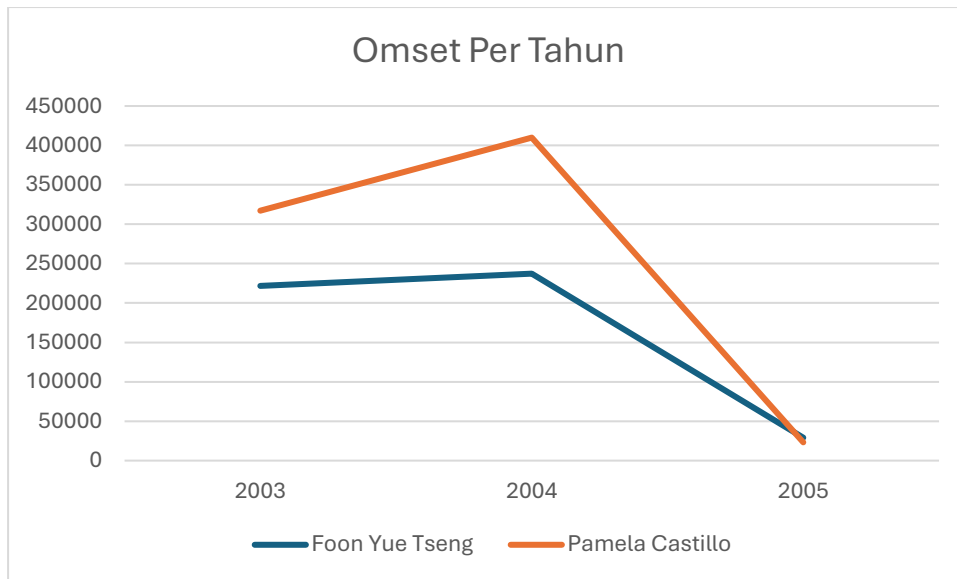
- **Fokus:**
  - Operasi transaksi harian (penambahan, pembaruan, penghapusan data).
- **Struktur:**
  - Normalisasi tinggi, banyak tabel, hubungan kompleks.
- **Kueri:**
  - Sederhana, cepat, melibatkan sedikit data.
- **Kinerja:**
  - Optimasi untuk kecepatan transaksi.
- **Redundansi Data:**
  - meminimalisir redundansi data.
- **Jumlah Tabel:**
  - Lebih banyak.

### **OLAP (Online Analytical Processing):**

- **Fokus:**
  - Analisis data kompleks, pelaporan, pengambilan keputusan.
- **Struktur:**
  - Denormalisasi, lebih sedikit tabel, struktur ringkas (misalnya, skema bintang).
- **Kueri:**
  - Kompleks, melibatkan banyak data.
- **Kinerja:**
  - Optimasi untuk kecepatan kueri analitis.
- **Redundansi Data:**
  - Memperbolehkan redundansi data.
- **Jumlah Tabel:**
  - Lebih sedikit.

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

Nama	2003	2004	2005
Foon Yue Tseng	221887.03	237255.26	29070.38
Pamela Castillo	317104.78	409910.07	23187.02



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

OLTP :

- Memerlukan join banyak tabel untuk mengumpulkan data transaksi yang tersebar.
- Agregasi data lebih kompleks karena harus menghitung dari data mentah.

**OLAP:**

- Join tabel lebih sedikit karena data sudah diagregasi dalam tabel fakta.
- Agregasi data lebih sederhana karena data sudah siap untuk dianalisis.

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

- **OLTP (Toko Kelontong):**

- Fokusnya buat nyimpen dan ngurusin transaksi sehari-hari, kayak pas kasir nyatet barang yang dibeli pelanggan.
- Datanya detail dan terstruktur rapi biar gak ada yang dobel atau salah catat.
- Kerjanya cepat, soalnya tiap transaksi harus langsung diurus.

- **OLAP (Supermarket Besar):**

- Fokusnya buat ngumpulin dan menganalisis data dalam jumlah besar, kayak buat nyari tahu barang apa yang paling laku atau kapan penjualan paling rame.
- Datanya udah diolah dan diringkas biar gampang dianalisis.
- Kerjanya lebih lambat, tapi bisa ngasih gambaran yang lebih luas tentang tren dan pola.