DATA WAREHOUSE
JOBSHEET 2
DATABASE OPERASIONAL

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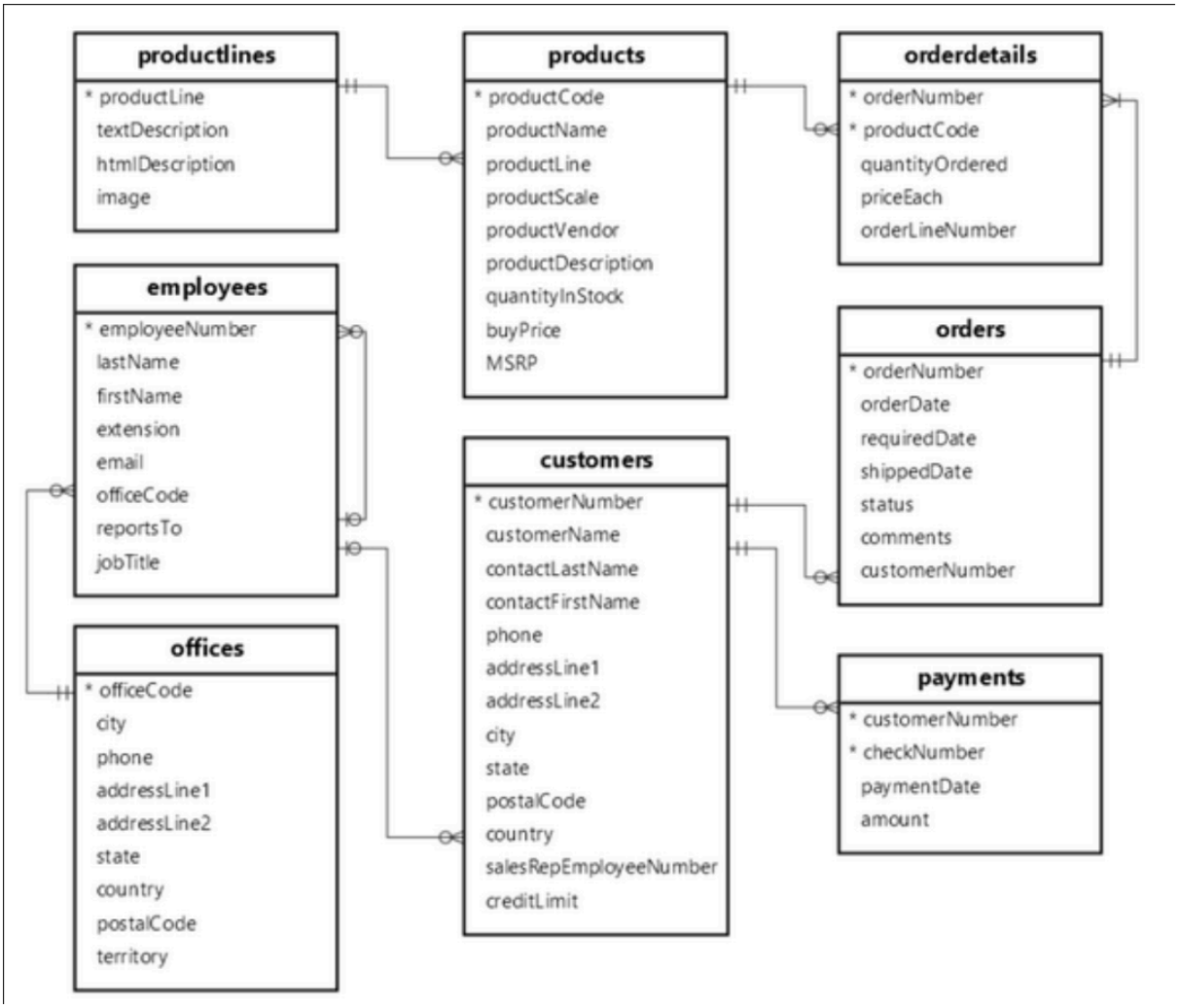
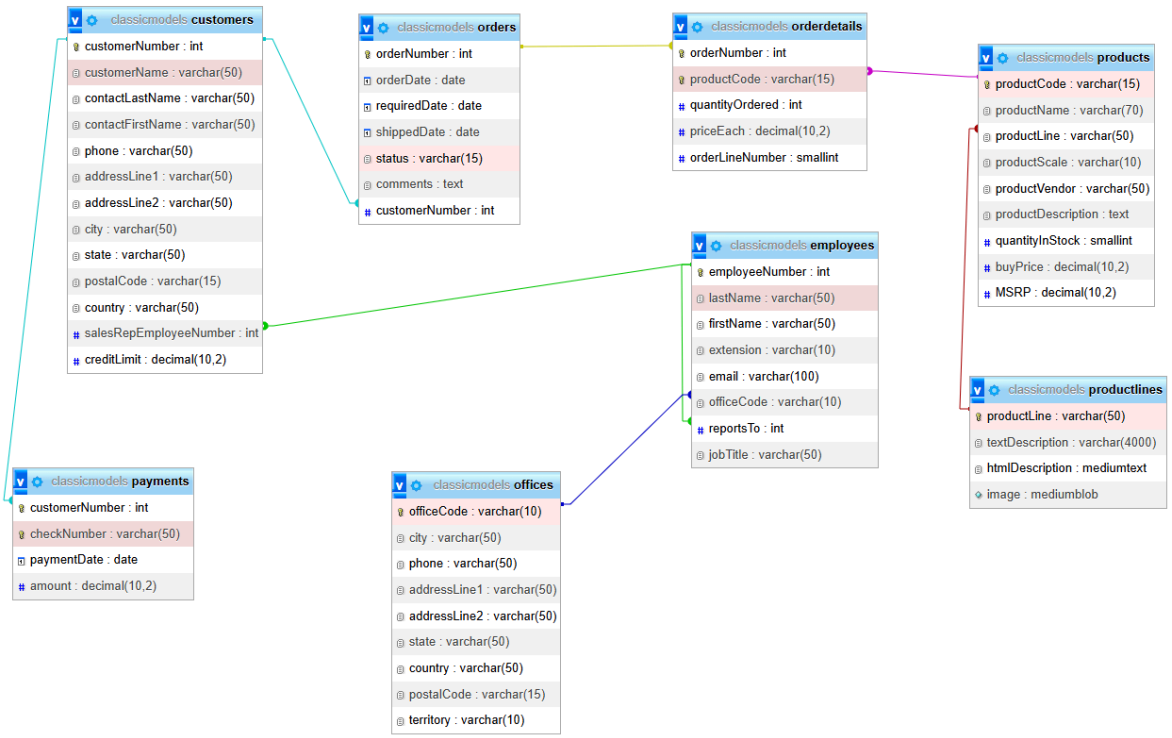
Studi Kasus
LegendVehicle merupakan perusahan jual-beli tukar-tambah kendaraan klasik. Perusahaan ini memiliki cabang di berbagai negara. LegendVehicle memiliki sistem informasi ERP sendiri. Salah satu modul dari sistem ERP tersebut adalah modul penjualan. Desain database dari modul tersebut adalah sebagai berikut:



hasil tugas saya

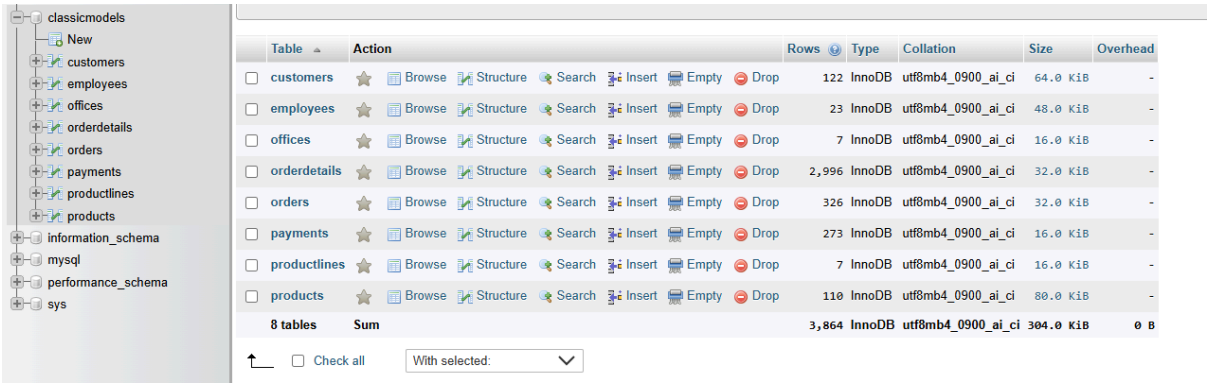


Tugas 1

1. Import data perusahaan tersebut pada DBMS MySQL!
2. Analisa struktur data dari database perusahaan tersebut, dalam bentuk tabel, analisa hubungan setiap tabel nya!
3. Analisa jumlah field pada setiap tabel!

Jawab

1. sudah berhasil



2. hasil analisa hubungan setiap tabel

TABEL PERTAMA	TABEL KEDUA	RELASI

customers	orders	one to many(1:M)
orders	orders details	one to many(1:M)
orders details	products	many to one(M:1)
products	productlines	many to one(M:1)
customers	payments	one to many(1:M)
customers	employees	many to one(M:1)
employees	offices	many to one(M:1)
employees	employees	one to many(atasan bawahan)

3. jumlah field tabel

TABEL	**JUMLAH FIELD**
customers	13 field
orders	7 field
orders details	5 field
product	9 field
productlines	4 field
payments	4 field
employees	8 field
offices	9 field

PRAKTIKUM 1

PRAKTIKUM 1

1. Jalankan **query** berikut pada **DBMS MySql** yang telah tersedia **data Perusahaan LegendVehicle.**

```
SELECT *
FROM employees employe, employes manager, customer cust
WHERE employee.reportsTo=manager.employeeNumber
AND employee.employeeNumber=cust.salesRepEmployeeNumber;
```

maka hasil dari query tersebut adalah data **Employee** beserta **Manajernya** dan **Customer** yang ia miliki. perhatikan hasil data dengan seksama.

2. Buka **tab baru** pada browser untuk melakukan eksekusi **query** berikut:

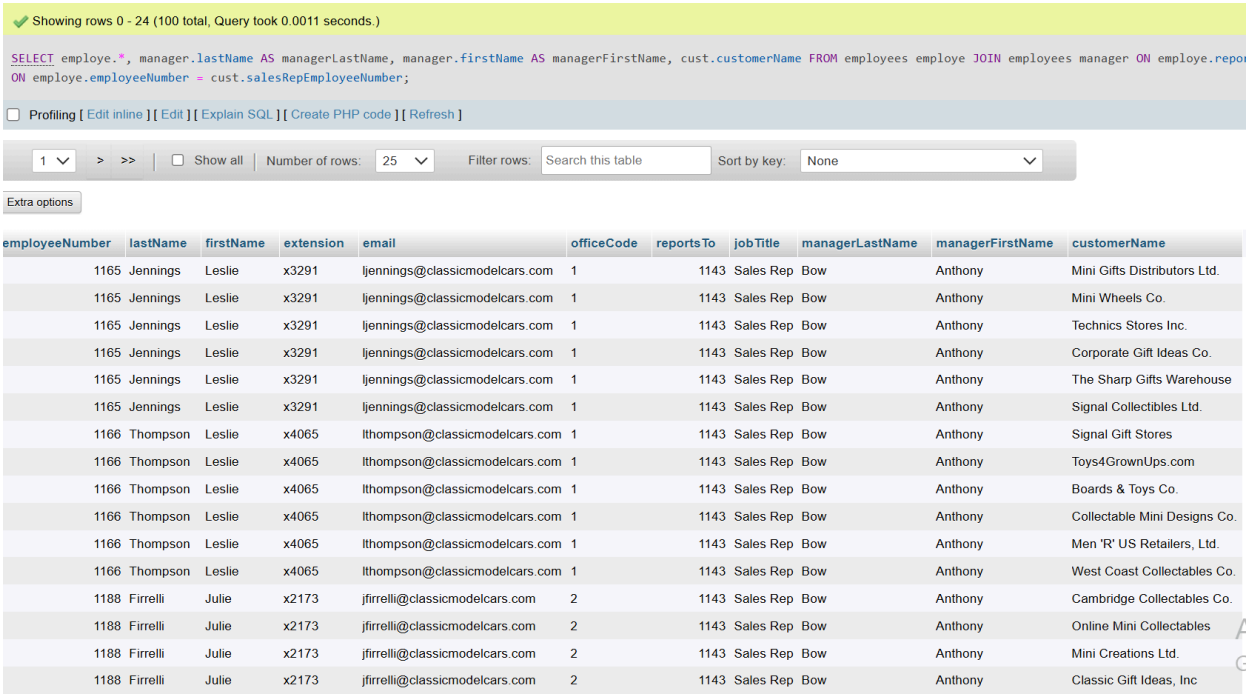
```
SELECT manager.employeeNumber as id_manager,
CONCAT(manager.firstName," ,manager.lastName) as Manager,
employee.employeeNumber as id_staff,
CONCAT(employee.firstName," ",employee.lastName) as staff
FROM employees employee, employees manager
WHERE employee.reportsTo=manager.employeeNumber
ORDER BY manager.firstName;
```

dari hasil **query** diatas maka akan ditemukan atasan dari setiap pegawai.

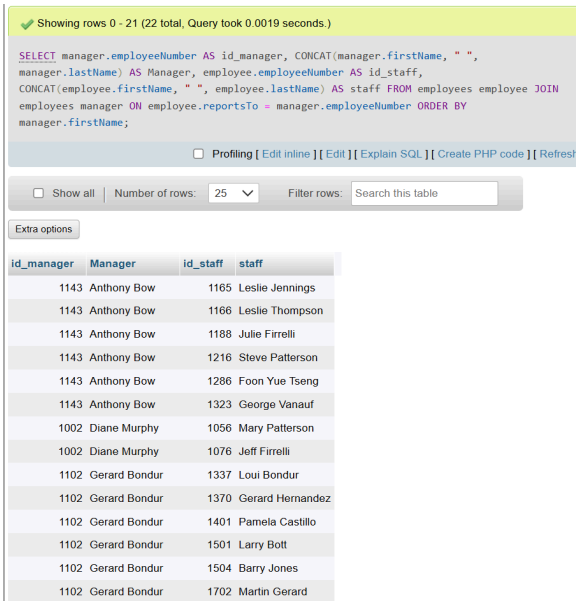
Jawab

1. terdapat error, penulisan yang benar harusnya employees bukan employes dan customers bukan customer,dsb.
   SELECT *
   FROM employees employe, employees manager, customers cust
   WHERE employe.reportsTo = manager.employeeNumber
   AND employe.employeeNumber = cust.salesRepEmployeeNumber;

   atau yang lebih rapih
   SELECT employe.*, manager.lastName AS managerLastName,
   manager.firstName AS managerFirstName, cust.customerName
   FROM employees employe
   JOIN employees manager ON employe.reportsTo = manager.employeeNumber
   JOIN customers cust ON employe.employeeNumber =
   cust.salesRepEmployeeNumber;

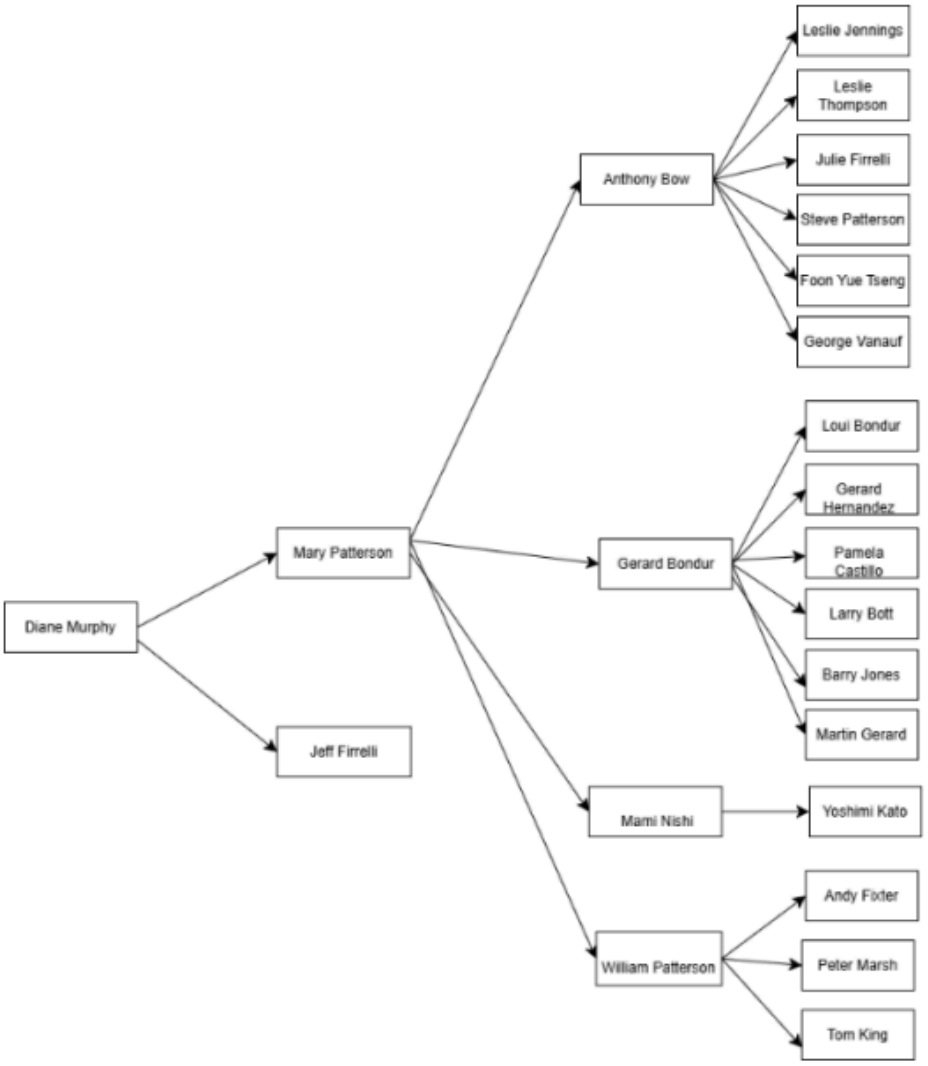


2. dari yg di soal ada yang dimodifikasi menjadi
   SELECT
      manager.employeeNumber AS id_manager,
      CONCAT(manager.firstName, " ", manager.lastName) AS Manager,
      employee.employeeNumber AS id_staff,
      CONCAT(employee.firstName, " ", employee.lastName) AS staff
   FROM employees employee
   JOIN employees manager ON employee.reportsTo =
   manager.employeeNumber
   ORDER BY manager.firstName;



TUGAS 2

Gambarlah hirarki organisasi berdasarkan atasan dari setiap pegawai sesuai dengan hasil prkatikum diatas!



Buka tab baru pada browser untuk melakukan eksekusi query berikut:

```
SELECT manager.employeeNumber as id_manager,
concat(manager.firstName," ",manager.lastName) as Manager,
employee.employeeNumber as id_staff, concat(employee.firstName,"
",employee.lastName) as staff,
count(cust.customerNumber) as total_cust
FROM employees employee join employees manager on
employee.reportsTomanager.employeeNumber
left join customers cust on employee.employeeNumber=cust.salesRepEmployeeNumber
GROUP BY employee.employeeNumber
ORDER BY manager.firstName;
```

jawab
query yang sudah di perbaiki

```
SELECT
    manager.employeeNumber AS id_manager,
    CONCAT(manager.firstName, " ", manager.lastName) AS Manager,
    employee.employeeNumber AS id_staff,
    CONCAT(employee.firstName, " ", employee.lastName) AS staff,
    COUNT(cust.customerNumber) AS total_cust
FROM employees employee
JOIN employees manager ON employee.reportsTo =
manager.employeeNumber
LEFT JOIN customers cust ON employee.employeeNumber =
cust.salesRepEmployeeNumber
GROUP BY
    manager.employeeNumber,
    manager.firstName,
    manager.lastName,
    employee.employeeNumber,
    employee.firstName,
    employee.lastName
ORDER BY manager.firstName;
```

id_manager	Manager	id_staff	staff	total_cust
1143	Anthony Bow	1165	Leslie Jennings	6
1143	Anthony Bow	1166	Leslie Thompson	6
1143	Anthony Bow	1188	Julie Firrelli	6
1143	Anthony Bow	1216	Steve Patterson	6
1143	Anthony Bow	1286	Foon Yue Tseng	7
1143	Anthony Bow	1323	George Vanauf	8
1002	Diane Murphy	1056	Mary Patterson	0
1002	Diane Murphy	1076	Jeff Firrelli	0
1102	Gerard Bondur	1337	Loui Bondur	6
1102	Gerard Bondur	1370	Gerard Hernandez	7
1102	Gerard Bondur	1401	Pamela Castillo	10
1102	Gerard Bondur	1501	Larry Bott	8
1102	Gerard Bondur	1504	Barry Jones	9
1102	Gerard Bondur	1702	Martin Gerard	6
1621	Mami Nishi	1625	Yoshimi Kato	0
1056	Mary Patterson	1088	William Patterson	0
1056	Mary Patterson	1102	Gerard Bondur	0
1056	Mary Patterson	1143	Anthony Bow	0
1056	Mary Patterson	1621	Mami Nishi	5
1088	William Patterson	1611	Andy Fixter	5
1088	William Patterson	1612	Peter Marsh	5
1088	William Patterson	1619	Tom King	0

dari query tersebut menghasilkan jumlah customer dari setiap staff.
Jika perusahaan tersebut memiliki KPI (Key Performances Indicator) "Jumlah customer yang bertransaksi" maka jawablah pertanyaan-pertanyaan berikut!

TUGAS 3

1. Siapakah staff dengan hirarki paling bawah yang berprestasi dilihat dari jumlah customer terbanyak?
   Staff paling bawah dengan jumlah customer terbanyak adalah Pamela Castillo dengan jumlah total customer 10.

2. Jika KPI atasan dihitung dari customer yang dimilikinya dijumlah dengan customer dari staff dibawahnya, urutkan ranking prestasi keseluruhan pegawai beserta keterangan jumlah customer yang dimilikinya!

```sql
WITH RECURSIVE StaffHierarchy AS (
    -- Menghitung jumlah customer langsung yang dimiliki setiap pegawai
    SELECT
        emp.employeeNumber,
        emp.firstName,
        emp.lastName,
        emp.reportsTo,
        COUNT(cust.customerNumber) AS total_customers
    FROM employees emp
    LEFT JOIN customers cust ON emp.employeeNumber = cust.salesRepEmployeeNumber
    GROUP BY emp.employeeNumber, emp.firstName, emp.lastName, emp.reportsTo

    UNION ALL

    -- Menambahkan jumlah customer dari bawahan ke atasan secara rekursif
    SELECT
        mgr.employeeNumber,
        mgr.firstName,
        mgr.lastName,
        mgr.reportsTo,
        sh.total_customers
    FROM employees mgr
    JOIN StaffHierarchy sh ON mgr.employeeNumber = sh.reportsTo
)

-- Menghitung total customer yang dimiliki setiap pegawai (langsung + bawahan)
SELECT
    employeeNumber,
    firstName,
    lastName,
    SUM(total_customers) AS total_customers_final
FROM StaffHierarchy
GROUP BY employeeNumber, firstName, lastName
ORDER BY total_customers_final DESC;
```

hasil query,

employeeNumber	firstName	lastName	total_customers_final
1002	Diane	Murphy	100
1056	Mary	Patterson	100
1102	Gerard	Bondur	46
1143	Anthony	Bow	39
1088	William	Patterson	10
1401	Pamela	Castillo	10
1504	Barry	Jones	9
1323	George	Vanauf	8
1501	Larry	Bott	8
1286	Foon Yue	Tseng	7
1370	Gerard	Hernandez	7
1165	Leslie	Jennings	6
1166	Leslie	Thompson	6
1188	Julie	Firrelli	6
1216	Steve	Patterson	6
1337	Loui	Bondur	6
1702	Martin	Gerard	6
1611	Andy	Fixter	5
1612	Peter	Marsh	5
1621	Mami	Nishi	5
1076	Jeff	Firrelli	0
1619	Tom	King	0
1625	Yoshimi	Kato	0

3. Analisa kembali data LegendVehicle untuk mendapatkan ranking pegawai berdasarkan KPI "Jumlah omset yang didapat". Urutkan ranking pegawai beserta keterangan dana yang didapat!

```sql
WITH StaffSales AS (
    -- Menghitung total omset langsung dari pegawai yang tidak memiliki bawahan
    SELECT
        e.employeeNumber,
        CONCAT(e.firstName, ' ', e.lastName) AS staff_name,
        COALESCE(SUM(p.amount), 0) AS total_sales
    FROM employees e
    LEFT JOIN customers c ON e.employeeNumber = c.salesRepEmployeeNumber
    LEFT JOIN payments p ON c.customerNumber = p.customerNumber
    WHERE e.employeeNumber NOT IN (SELECT DISTINCT reportsTo FROM employees WHERE reportsTo IS NOT NULL)
    GROUP BY e.employeeNumber, e.firstName, e.lastName
)

-- Memberikan ranking berdasarkan omset
SELECT
    employeeNumber,
    staff_name,
    total_sales,
    RANK() OVER (ORDER BY total_sales DESC) AS ranking
FROM StaffSales;
```

employeeNumber	staff_name	total_sales	ranking
1370	Gerard Hernandez	1112003.81	1
1165	Leslie Jennings	989906.55	2
1401	Pamela Castillo	750201.87	3
1501	Larry Bott	686653.25	4
1504	Barry Jones	637672.65	5
1323	George Vanauf	584406.80	6
1337	Loui Bondur	569485.75	7
1611	Andy Fixter	509385.82	8
1612	Peter Marsh	497907.16	9
1286	Foon Yue Tseng	488212.67	10
1216	Steve Patterson	449219.13	11
1702	Martin Gerard	387477.47	12
1188	Julie Firrelli	386663.20	13
1166	Leslie Thompson	347533.03	14
1076	Jeff Firrelli	0.00	15
1619	Tom King	0.00	15
1625	Yoshimi Kato	0.00	15

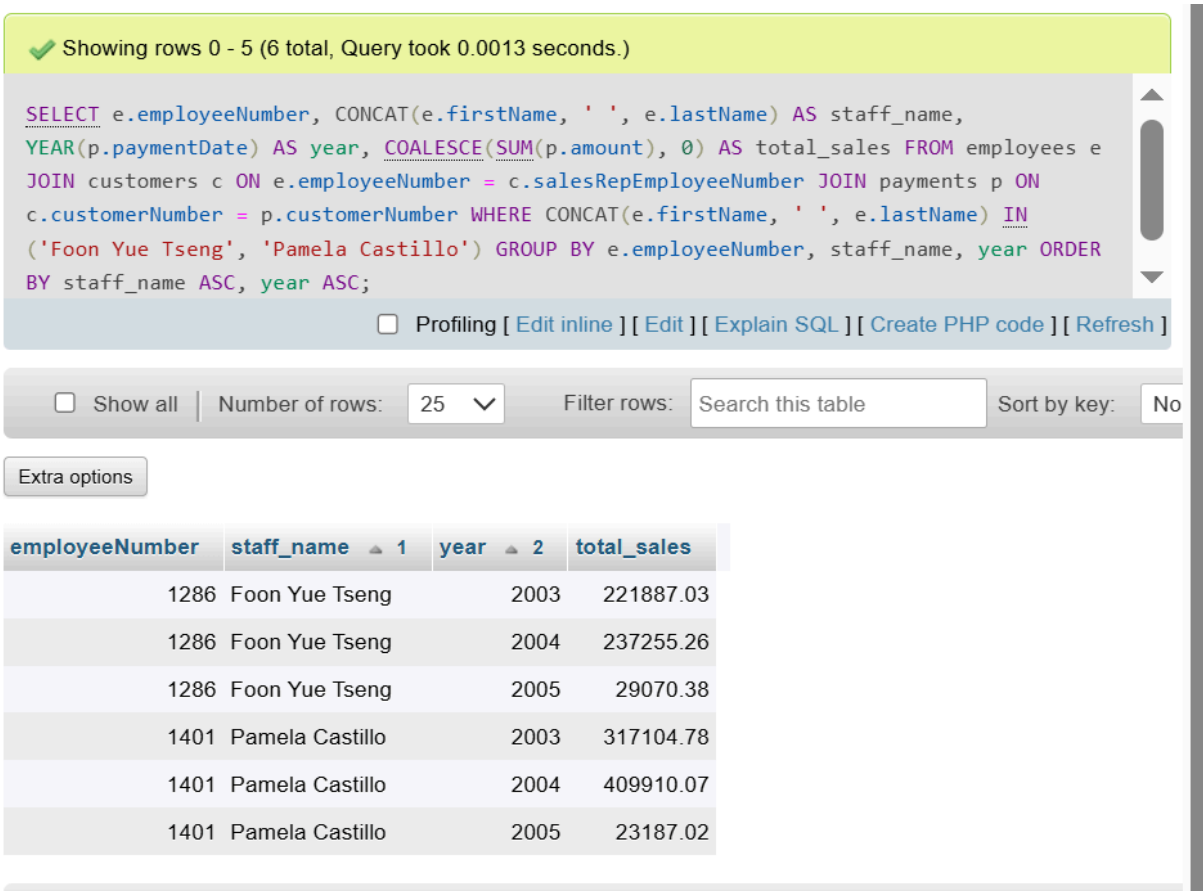
Show all | Number of rows: 25 Filter rows: Searc

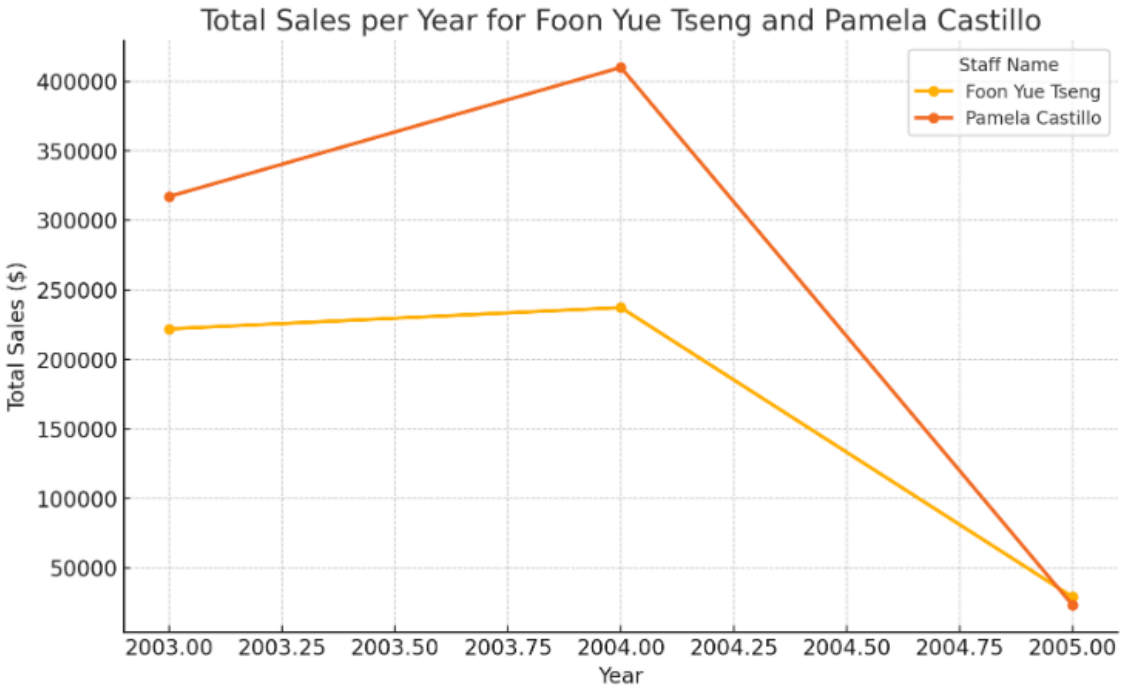
4. Jika KPI yang pertama merupakan "Jumlah customer yang bertransaksi" sedangkan KPI yang kedua "Jumlah omset yang didapat". Maka, berapakah jumlah field yang dibutuhkan untuk mendapatkan informasi tersebut?

   KPI pertama 4 field yaitu employeeNumber sebagai ID pegawai, staff_name sebagai nama pegawai, total_customers yang menunjukkan jumlah customer yang bertransaksi, serta ranking_customers untuk menentukan peringkat pegawai berdasarkan jumlah customer.

   KPI kedua empat field, yaitu employeeNumber dan staff_name untuk mengidentifikasi pegawai, total_sales yang menunjukkan jumlah omset yang didapat, serta ranking_sales sebagai peringkat pegawai berdasarkan omset.

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




Total Sales per Year for Foon Yue Tseng and Pamela Castillo
Staff Name
Foon Yue Tseng
Pamela Castillo
Total Sales ($)
400000
350000
300000
250000
200000
150000
100000
50000
2003.00
2003.25
2003.50
2003.75
2004.00
2004.25
2004.50
2004.75
2005.00
Year