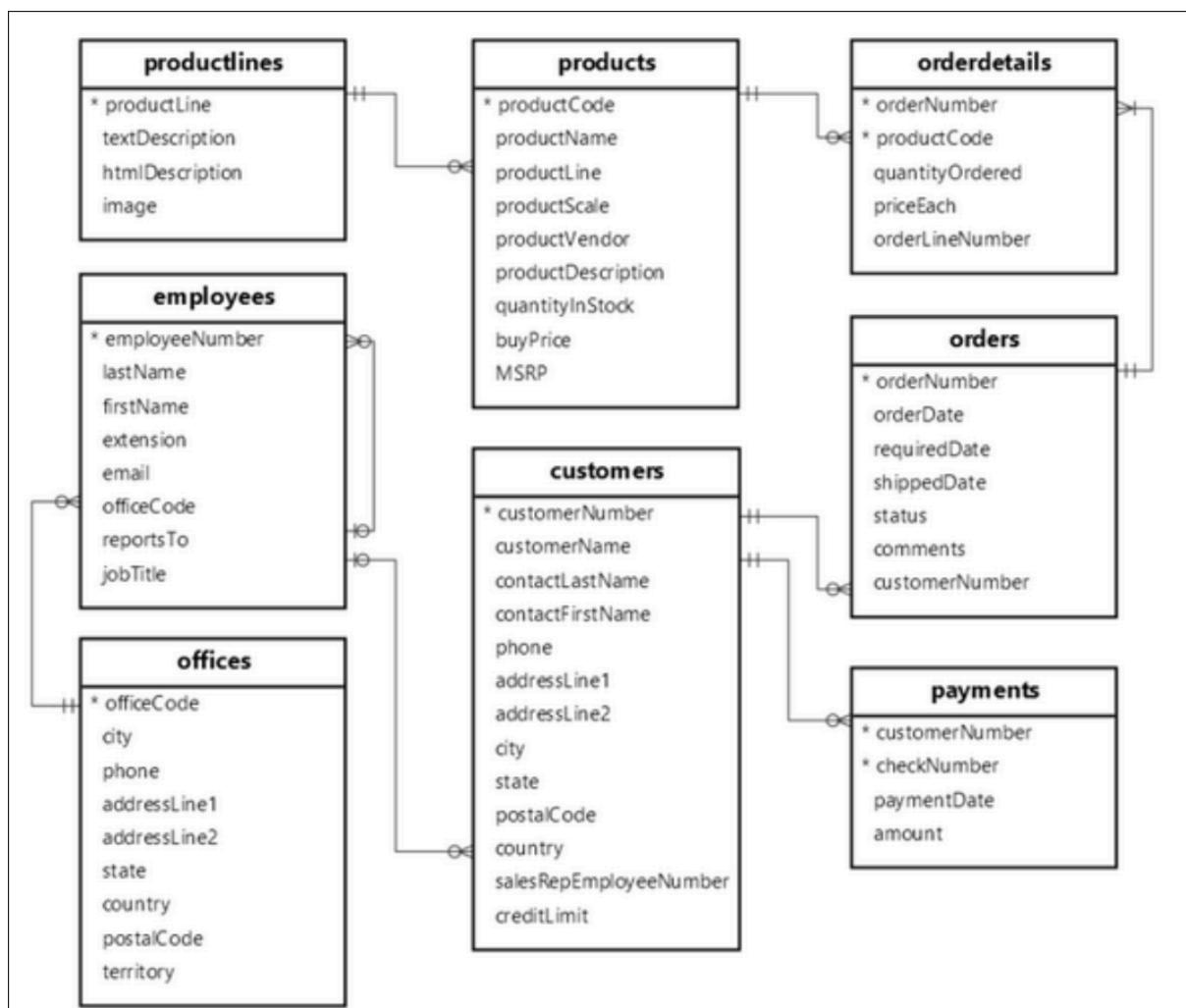


**DATA WAREHOUSE**  
**JOBSHEET 2**  
**DATABASE OPERASIONAL**

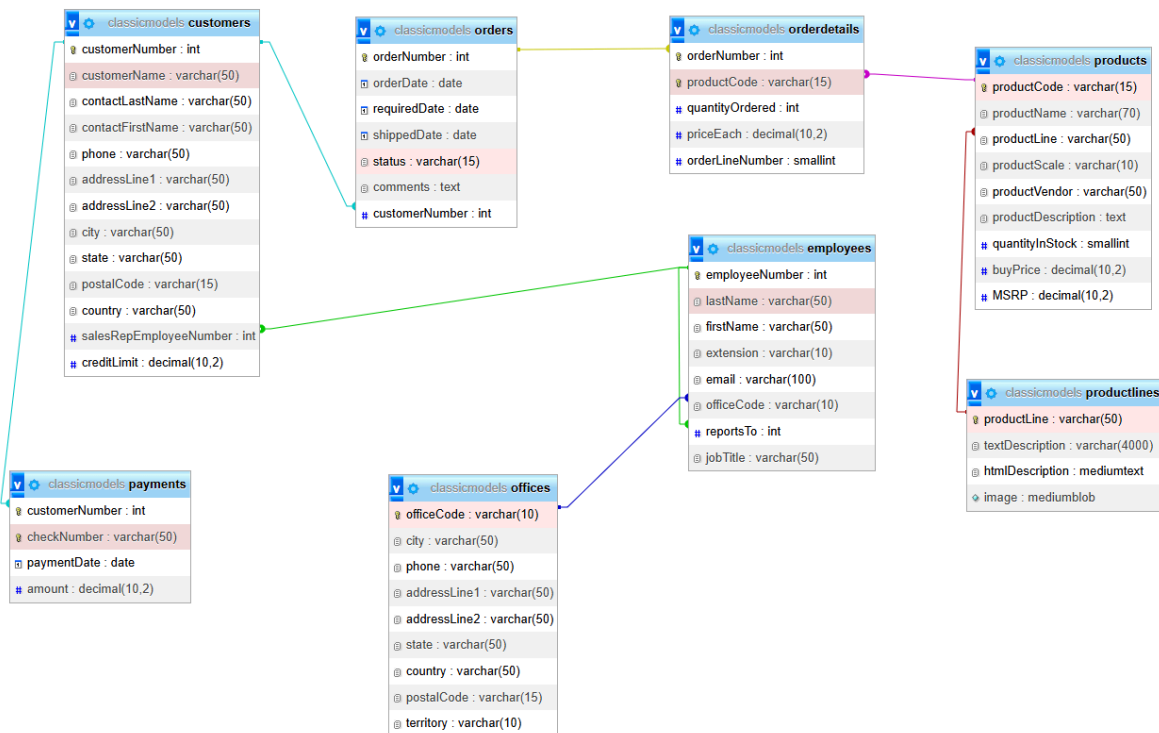
Nama : Muhammad Reishi Fauzi  
Kelas : SIB-2A  
No : 23

**Studi Kasus**

LegendVehicle merupakan perusahaan 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

classicmodels

New

customers

employees

offices

orderdetails

orders

payments

productlines

products

information\_schema

mysql

performance\_schema

sys

Table	Action	Rows	Type	Collation	Size	Overhead
<input type="checkbox"/> customers	★ Browse Structure Search Insert Empty Drop	122	InnoDB	utf8mb4_0900_ai_ci	64.0 K B	-
<input type="checkbox"/> employees	★ Browse Structure Search Insert Empty Drop	23	InnoDB	utf8mb4_0900_ai_ci	48.0 K B	-
<input type="checkbox"/> offices	★ Browse Structure Search Insert Empty Drop	7	InnoDB	utf8mb4_0900_ai_ci	16.0 K B	-
<input type="checkbox"/> orderdetails	★ Browse Structure Search Insert Empty Drop	2,996	InnoDB	utf8mb4_0900_ai_ci	32.0 K B	-
<input type="checkbox"/> orders	★ Browse Structure Search Insert Empty Drop	326	InnoDB	utf8mb4_0900_ai_ci	32.0 K B	-
<input type="checkbox"/> payments	★ Browse Structure Search Insert Empty Drop	273	InnoDB	utf8mb4_0900_ai_ci	16.0 K B	-
<input type="checkbox"/> productlines	★ Browse Structure Search Insert Empty Drop	7	InnoDB	utf8mb4_0900_ai_ci	16.0 K B	-
<input type="checkbox"/> products	★ Browse Structure Search Insert Empty Drop	110	InnoDB	utf8mb4_0900_ai_ci	80.0 K B	-
8 tables	Sum	3,864	InnoDB	utf8mb4_0900_ai_ci	304.0 K B	0 B

Check all

With selected:

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

<b>TABEL</b>	<b>JUMLAH FIELD</b>
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**.

```
1 SELECT *
2 FROM employees employe, employees manager, customer cust
3 WHERE employe.reportsTo=manager.employeeNumber
4 AND employe.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:

```
1 SELECT manager.employeeNumber as id_manager,
2 CONCAT(manager.firstName," ",manager.lastName) as Manager,
3 employee.employeeNumber as id_staff,
4 CONCAT(employee.firstName," ",employee.lastName) as staff
5 FROM employees employee, employees manager
6 WHERE employee.reportsTo=manager.employeeNumber
7 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;

Showing rows 0 - 24 (100 total, Query took 0.0011 seconds.)

```
SELECT employee.*, manager.lastName AS managerLastName, manager.firstName AS managerFirstName, cust.customerName FROM employees employee JOIN employees manager ON employee.reportsTo = manager.employeeNumber;
```

Profiling [ Edit inline ] [ Edit ] [ Explain SQL ] [ Create PHP code ] [ Refresh ]

1 > >> Show all Number of rows: 25 Filter rows: Search this table Sort by key: None

Extra options

employeeNumber	lastName	firstName	extension	email	officeCode	reportsTo	jobTitle	managerLastName	managerFirstName	customerName
1165	Jennings	Leslie	x3291	ljennings@classicmodelcars.com	1	1143	Sales Rep	Bow	Anthony	Mini Gifts Distributors Ltd.
1165	Jennings	Leslie	x3291	ljennings@classicmodelcars.com	1	1143	Sales Rep	Bow	Anthony	Mini Wheels Co.
1165	Jennings	Leslie	x3291	ljennings@classicmodelcars.com	1	1143	Sales Rep	Bow	Anthony	Technics Stores Inc.
1165	Jennings	Leslie	x3291	ljennings@classicmodelcars.com	1	1143	Sales Rep	Bow	Anthony	Corporate Gift Ideas Co.
1165	Jennings	Leslie	x3291	ljennings@classicmodelcars.com	1	1143	Sales Rep	Bow	Anthony	The Sharp Gifts Warehouse
1165	Jennings	Leslie	x3291	ljennings@classicmodelcars.com	1	1143	Sales Rep	Bow	Anthony	Signal Collectibles Ltd.
1166	Thompson	Leslie	x4065	lthompson@classicmodelcars.com	1	1143	Sales Rep	Bow	Anthony	Signal Gift Stores
1166	Thompson	Leslie	x4065	lthompson@classicmodelcars.com	1	1143	Sales Rep	Bow	Anthony	Toys4GrownUps.com
1166	Thompson	Leslie	x4065	lthompson@classicmodelcars.com	1	1143	Sales Rep	Bow	Anthony	Boards & Toys Co.
1166	Thompson	Leslie	x4065	lthompson@classicmodelcars.com	1	1143	Sales Rep	Bow	Anthony	Collectable Mini Designs Co.
1166	Thompson	Leslie	x4065	lthompson@classicmodelcars.com	1	1143	Sales Rep	Bow	Anthony	Men 'R' US Retailers, Ltd.
1166	Thompson	Leslie	x4065	lthompson@classicmodelcars.com	1	1143	Sales Rep	Bow	Anthony	West Coast Collectables Co.
1188	Firrelli	Julie	x2173	jfirrelli@classicmodelcars.com	2	1143	Sales Rep	Bow	Anthony	Cambridge Collectables Co.
1188	Firrelli	Julie	x2173	jfirrelli@classicmodelcars.com	2	1143	Sales Rep	Bow	Anthony	Online Mini Collectables
1188	Firrelli	Julie	x2173	jfirrelli@classicmodelcars.com	2	1143	Sales Rep	Bow	Anthony	Mini Creations Ltd.
1188	Firrelli	Julie	x2173	jfirrelli@classicmodelcars.com	2	1143	Sales Rep	Bow	Anthony	Classic Gift Ideas, Inc

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;

Showing rows 0 - 21 (22 total, Query took 0.0019 seconds.)

```
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;
```

Profiling [ Edit inline ] [ Edit ] [ Explain SQL ] [ Create PHP code ] [ Refresh ]

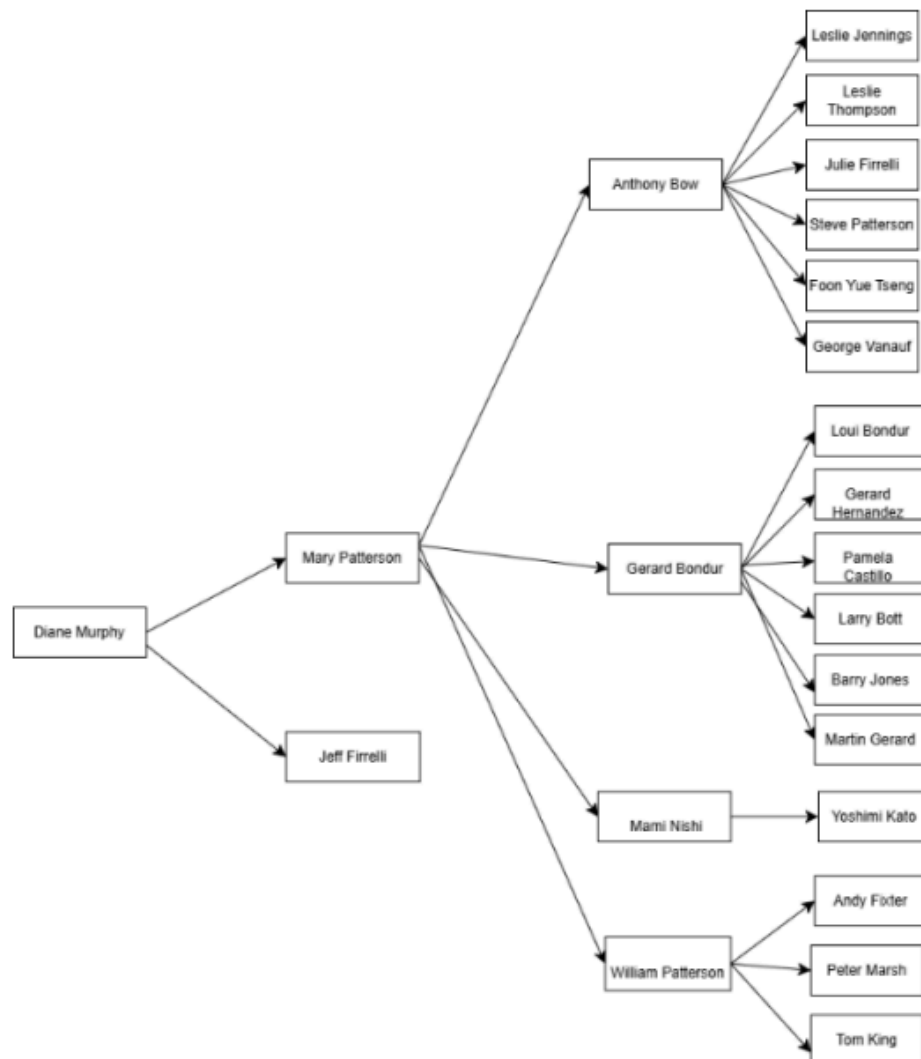
Show all Number of rows: 25 Filter rows: Search this table

Extra options

id_manager	Manager	id_staff	staff
1143	Anthony Bow	1165	Leslie Jennings
1143	Anthony Bow	1166	Leslie Thompson
1143	Anthony Bow	1188	Julie Firrelli
1143	Anthony Bow	1216	Steve Patterson
1143	Anthony Bow	1286	Foon Yue Tseng
1143	Anthony Bow	1323	George Vanauf
1002	Diane Murphy	1056	Mary Patterson
1002	Diane Murphy	1076	Jeff Firrelli
1102	Gerard Bondur	1337	Loui Bondur
1102	Gerard Bondur	1370	Gerard Hernandez
1102	Gerard Bondur	1401	Pamela Castillo
1102	Gerard Bondur	1501	Larry Bott
1102	Gerard Bondur	1504	Barry Jones
1102	Gerard Bondur	1702	Martin Gerard

## 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:

```
1 SELECT manager.employeeNumber as id_manager,  
2 concat(manager.firstName, " ",manager.lastName) as Manager,  
3 employee.employeeNumber as id_staff, concat(employee.firstName, "  
4 count(cust.customerNumber) as total_cust  
5 FROM employees employee join employees manager on  
6 employee.reportsTomanager.employeeNumber  
7 left join customers cust on employee.employeeNumber=cust.salesRepEmployeeNumber  
8 GROUP BY employee.employeeNumber  
9 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.

Showing rows 0 - 0 (1 total, Query took 0.0020 seconds.)

```
WITH StaffTanpaBawahan AS ( -- Ambil semua pegawai yang tidak memiliki bawahan SELECT
e.employeeNumber, CONCAT(e.firstName, ' ', e.lastName) AS employee_name,
COUNT(c.customerNumber) AS total_customers FROM employees e LEFT JOIN customers c ON
e.employeeNumber = c.salesRepEmployeeNumber WHERE e.employeeNumber NOT IN ( SELECT DISTINCT
reportsTo FROM employees WHERE reportsTo IS NOT NULL ) GROUP BY e.employeeNumber,
e.firstName, e.lastName ) -- Ambil staff dengan jumlah customer terbanyak SELECT * FROM
StaffTanpaBawahan ORDER BY total_customers DESC LIMIT 1
```

[ Edit inline ] [ Edit ] [ Create PHP code ]

☐ Show all

Number of rows: 25

Filter rows: Search this table

Extra options

employeeNumber	employee_name	total_customers
1401	Pamela Castillo	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!



```

1 WITH RECURSIVE StaffHierarchy AS (
2     -- Menghitung jumlah customer langsung yang dimiliki setiap pegawai
3     SELECT
4         emp.employeeNumber,
5         emp.firstName,
6         emp.lastName,
7         emp.reportsTo,
8         COUNT(cust.customerNumber) AS total_customers
9     FROM employees emp
10    LEFT JOIN customers cust ON emp.employeeNumber = cust.salesRepEmployeeNumber
11    GROUP BY emp.employeeNumber, emp.firstName, emp.lastName, emp.reportsTo
12
13    UNION ALL
14
15    -- Menambahkan jumlah customer dari bawahan ke atasan secara rekursif
16    SELECT
17        mgr.employeeNumber,
18        mgr.firstName,
19        mgr.lastName,
20        mgr.reportsTo,
21        sh.total_customers
22    FROM employees mgr
23    JOIN StaffHierarchy sh ON mgr.employeeNumber = sh.reportsTo
24 )
25
26 -- Menghitung total customer yang dimiliki setiap pegawai (langsung + bawahan)
27 SELECT
28     employeeNumber,
29     firstName,
30     lastName,
31     SUM(total_customers) AS total_customers_final
32 FROM StaffHierarchy
33 GROUP BY employeeNumber, firstName, lastName
34 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!

```
1 WITH StaffSales AS (  
2   -- Menghitung total omset langsung dari pegawai yang tidak memiliki bawahan  
3   SELECT  
4     e.employeeNumber,  
5     CONCAT(e.firstName, ' ', e.lastName) AS staff_name,  
6     COALESCE(SUM(p.amount), 0) AS total_sales  
7   FROM employees e  
8   LEFT JOIN customers c ON e.employeeNumber = c.salesRepEmployeeNumber  
9   LEFT JOIN payments p ON c.customerNumber = p.customerNumber  
10  WHERE e.employeeNumber NOT IN (SELECT DISTINCT reportsTo FROM employees WHERE reportsTo IS NOT NULL)  
11  GROUP BY e.employeeNumber, e.firstName, e.lastName  
12 )  
13  
14 -- Memberikan ranking berdasarkan omset  
15 SELECT  
16   employeeNumber,  
17   staff_name,  
18   total_sales,  
19   RANK() OVER (ORDER BY total_sales DESC) AS ranking  
20 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:

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).

Showing rows 0 - 5 (6 total, Query took 0.0013 seconds.)

```
SELECT e.employeeNumber, CONCAT(e.firstName, ' ', e.lastName) AS staff_name,
YEAR(p.paymentDate) AS year, COALESCE(SUM(p.amount), 0) AS total_sales FROM employees e
JOIN customers c ON e.employeeNumber = c.salesRepEmployeeNumber JOIN payments p ON
c.customerNumber = p.customerNumber WHERE CONCAT(e.firstName, ' ', e.lastName) IN
('Foon Yue Tseng', 'Pamela Castillo') GROUP BY e.employeeNumber, staff_name, year ORDER
BY staff_name ASC, year ASC;
```

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

☐ Show all | Number of rows: 25 | Filter rows: Search this table | Sort by key: No

Extra options

employeeNumber	staff_name	year	total_sales
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

