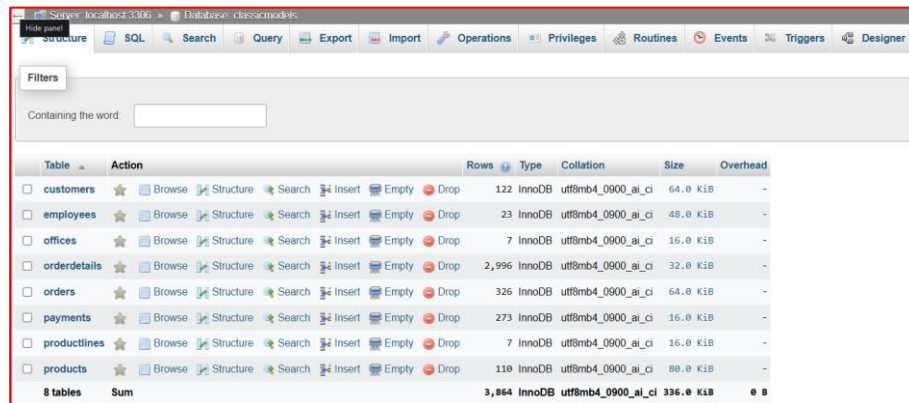


## Jobsheet 2 – Database Operasional

### 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!

NO	Tabel 1	Tabel 2	Jenis Relasi
1	productlines	products	1 to Many
2	products	orderdetails	1 to Many
3	orderdetails	orders	Many to 1
4	orders	customers	Many to 1
5	customers	payments	1 to Many
6	customers	employees	Many to 1
7	employees	employees	Many to 1
8	employees	offices	Many to 1

3. Analisa jumlah field pada setiap tabel!

NO	Nama Tabel	Jumlah Field
1	productlines	4
2	products	9
3	orderdetails	5
4	orders	7
5	customers	13
6	payments	4
7	employees	8
8	offices	9

## Analisa Data

### Praktikum 1

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

```
1 SELECT *
2 FROM employees employee, employees manager, customer cust
3 WHERE employee.reportsTo=manager.employeeNumber
4 AND employee.employeeNumber=cust.salesRepEmployeeNumber;
```

Showing rows 0 - 1 (0 total. Query took 0.0019 seconds.)

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

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

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

Extra options

Partial text ☒ Show binary contents ☐ Show BLOB contents ☐ Hide browser transformation ☒ Web-Known Text ☐ Web-Known Binary

Go

employeeNumber	lastName	firstName	extension	email	officeCode	reportsTo	jobTitle	employeeNumber	lastName	firstName	extension	email	officeCode	reportsTo	jobTitle	customerNumber	customerName	contactLastName
1102	Jennings	Leslie	x3291	ljennings@classicmodcars.com	1	1143	Sales Rep	1143	Bow	Anthony	x5428	abow@classicmodcars.com	1	1056	Sales Manager (RM)	124	Mini Gifts Distributors Ltd.	Nelson
1102	Jennings	Leslie	x3291	ljennings@classicmodcars.com	1	1143	Sales Rep	1143	Bow	Anthony	x5428	abow@classicmodcars.com	1	1056	Sales Manager (RM)	129	Mini Wheels Co.	Murphy
1102	Jennings	Leslie	x3291	ljennings@classicmodcars.com	1	1143	Sales Rep	1143	Bow	Anthony	x5428	abow@classicmodcars.com	1	1056	Sales Manager (RM)	161	Technics Stores Inc.	Hashimoto
1102	Jennings	Leslie	x3291	ljennings@classicmodcars.com	1	1143	Sales Rep	1143	Bow	Anthony	x5428	abow@classicmodcars.com	1	1056	Sales Manager (RM)	321	Corporate Gift Ideas Co.	Brown
1102	Jennings	Leslie	x3291	ljennings@classicmodcars.com	1	1143	Sales Rep	1143	Bow	Anthony	x5428	abow@classicmodcars.com	1	1056	Sales Manager (RM)	495	The Sharp Gifts Warehouse	Fick
1102	Jennings	Leslie	x3291	ljennings@classicmodcars.com	1	1143	Sales Rep	1143	Bow	Anthony	x5428	abow@classicmodcars.com	1	1056	Sales Manager (RM)	401	Signal Collectibles Ltd.	Taylor
1102	Thompson	Leslie	x4055	lthompson@classicmodcars.com	1	1143	Sales Rep	1143	Bow	Anthony	x5428	abow@classicmodcars.com	1	1056	Sales Manager (RM)	112	Signal Gift Stores	King

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;
```

Showing rows 0 - 21 (22 total. Query took 0.0050 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, employees manager WHERE employee.reportsTo=manager.employeeNumber ORDER BY manager.firstName]]

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

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

Extra options

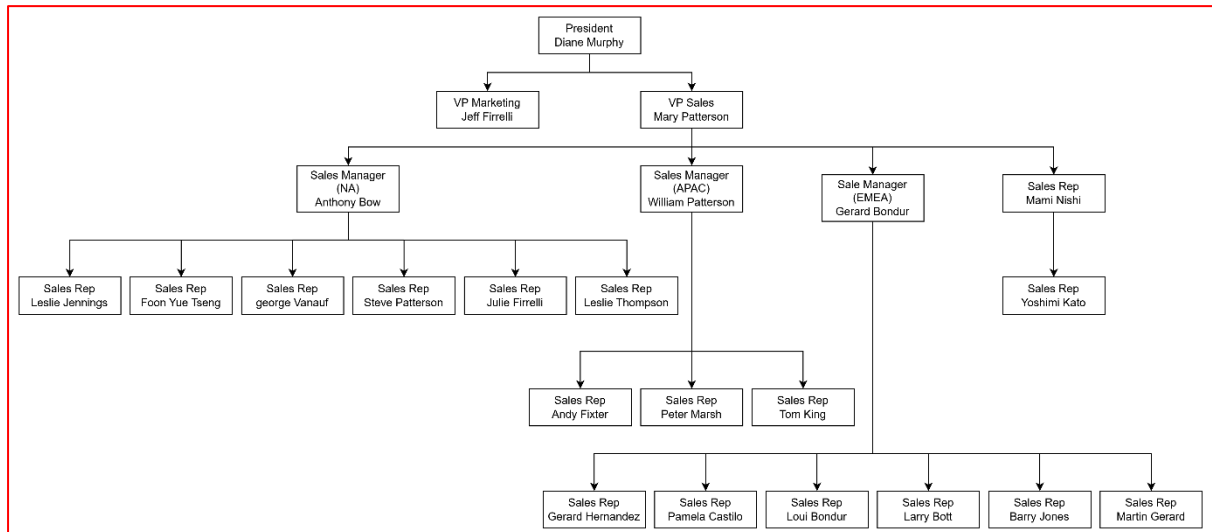
Partial text ☒ Show binary contents ☐ Show BLOB contents ☐ Hide browser transformation ☒ Web-Known Text ☐ Web-Known Binary

Go

id_manager	Manager	id_staff	staff
1143	Anthony Bow	1102	Leslie Jennings
1143	Anthony Bow	1108	Leslie Thompson
1143	Anthony Bow	1108	Julie Finkel
1143	Anthony Bow	1216	Steve Patterson
1143	Anthony Bow	1286	Yusef Yusef
1143	Anthony Bow	1323	George Vansaul
1002	Clara Murphy	1005	Mary Patterson
1002	Clara Murphy	1016	Jeff Finkel
1102	Gerard Bender	1137	Leslie Bender
1102	Gerard Bender	1137	Gerard Hernandez
1102	Gerard Bender	1401	Parvika Castillo
1102	Gerard Bender	1501	Larry Scott
1102	Gerard Bender	1504	Larry Jones
1102	Gerard Bender	1702	Martin Gerard
1621	Maria Nishi	1625	Yoshiko Kato
1005	Mary Patterson	1008	William Patterson
1005	Mary Patterson	1102	Gerard Bender
1005	Mary Patterson	1143	Anthony Bow
1005	Mary Patterson	1621	Maria Nishi
1005	William Patterson	1611	Andy Fisher
1005	William Patterson	1612	Peter Smith
1005	William Patterson	1616	Tam King

## Tugas 2

1. Gambarkan hirarki organisasi berdasarkan atasan dari setiap pegawai sesuai dengan hasil prkatikum diatas!



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, concat(employee.firstName, " ", employee.lastName) as staff,
4 count(cust.customerNumber) as total_cust
5 FROM employees employee join employees manager on
6 employee.reportsTo=manager.employeeNumber
7 left join customers cust on employee.employeeNumber=cust.salesRepEmployeeNumber
8 GROUP BY employee.employeeNumber
9 ORDER BY manager.firstName;
```

dari query tersebut menghasilkan jumlah **customer** dari setiap **staff**.

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	1379	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
1021	Mami Nishi	1025	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	1021	Mami Nishi	5
1088	William Patterson	1011	Andy Fixter	5
1088	William Patterson	1012	Peter Marsh	5
1088	William Patterson	1019	Tom King	0

## Tugas 3

1. Siapakah staff dengan hirarki paling bawah yang berprestasi dilihat dari jumlah customer terbanyak?

Your SQL query has been executed successfully.

```
SELECT employee.employeeNumber AS id_staff, CONCAT(employee.firstName, ' ', employee.lastName) AS staff, COUNT(cust.customerNumber) AS total_cust FROM employees AS employee LEFT JOIN customers AS cust ON employee.employeeNumber = cust.salesRepEmployeeNumber WHERE employee.employeeNumber NOT IN (SELECT DISTINCT reportsTo FROM employees WHERE reportsTo IS NOT NULL) GROUP BY employee.employeeNumber, employee.firstName, employee.lastName ORDER BY total_cust DESC LIMIT 1;
```

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

Extra options

id_staff	staff	total_cust
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!

Showing rows 0 - 23 (23 total, Query took 0.020 seconds.)

```
WITH CustomerCount AS ( SELECT employee.employeeNumber AS id_staff, CONCAT(employee.firstName, ' ', employee.lastName) AS staff, employee.reportsTo AS id_manager, COUNT(cust.customerNumber) AS total_cust FROM employees AS employee LEFT JOIN customers AS cust ON employee.employeeNumber = cust.salesRepEmployeeNumber WHERE employee.employeeNumber NOT IN (SELECT DISTINCT reportsTo FROM employees WHERE reportsTo IS NOT NULL) GROUP BY employee.employeeNumber, employee.firstName, employee.lastName, employee.reportsTo ), ManagerCust AS ( SELECT mgr.id_staff AS id_manager, mgr.staff AS staff, SUM(emp.total_cust) AS total_cust FROM employees AS emp LEFT JOIN CustomerCount AS cust ON emp.id_manager = cust.id_manager GROUP BY mgr.id_staff, mgr.staff, mgr.total_cust ), RankedSales AS ( SELECT * FROM RankedSales; )
```

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

Extra options

EmployeeNumber	EmployeeName	direct_customers	team_customers	total_customers
1102	Gerard Bondur	0	46	46
1143	Anthony Boni	0	38	38
1080	Vikram Patterson	0	18	18
1401	Pamela Castillo	10	N/A	10
1504	Barry Jones	9	N/A	9
1323	George Vanau	6	N/A	6
1501	Larry Bott	8	N/A	8
1286	Foon Yue Tseng	7	N/A	7
1370	Gerard Hernandez	7	N/A	7
1165	Leslie Jennings	5	N/A	5
1166	Leslie Thompson	5	N/A	5
1188	Julie Firrelli	6	N/A	6
1216	Steve Patterson	6	N/A	6
1337	Lou Bondur	6	N/A	6
1702	Martin Gerard	6	N/A	6
1095	Mary Patterson	0	5	5
1611	Andy Fixter	5	N/A	5
1612	Peter Marsh	5	N/A	5
1621	Mami Nishi	5	0	5
1092	Diane Murphy	0	0	0
1078	Jeff Fereb	0	N/A	0
1619	Tom King	0	N/A	0
1625	Yvesee Kato	0	N/A	0

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

Showing rows 0 - 14 (15 total, Query took 0.0271 seconds.)

```
WITH SalesData AS ( SELECT c.salesRepEmployeeNumber AS employeeNumber, CONCAT(e.firstName, ' ', e.lastName) AS employeeName, SUM(od.quantityOrdered * od.priceEach) AS total_sales FROM customers c JOIN employees e ON c.salesRepEmployeeNumber = e.employeeNumber JOIN orders o ON c.customerNumber = o.customerNumber JOIN orderdetails od ON o.orderNumber = od.orderNumber GROUP BY c.salesRepEmployeeNumber, e.firstName, e.lastName ), RankedSales AS ( SELECT employeeNumber, employeeName, total_sales, RANK() OVER (ORDER BY total_sales DESC) AS ranking FROM SalesData )
```

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

Extra options

employeeNumber	employeeName	total_sales	ranking
1370	Gerard Hernandez	1258577.81	1
1165	Leslie Jennings	1081530.54	2
1401	Pamela Castillo	868220.55	3
1501	Larry Bott	732096.79	4
1504	Barry Jones	704853.91	5
1323	George Vanau	669377.05	6
1612	Peter Marsh	584593.76	7
1337	Lou Bondur	569485.75	8
1611	Andy Fixter	562582.59	9
1216	Steve Patterson	505875.42	10
1286	Foon Yue Tseng	488212.67	11
1621	Mami Nishi	457110.07	12
1702	Martin Gerard	387477.47	13
1188	Julie Firrelli	386663.20	14
1166	Leslie Thompson	347533.03	15

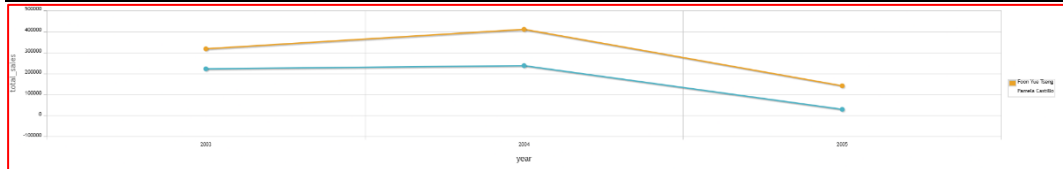
4. Jika KPI yang pertama merupakan "**Jumlah customer yang bertransaksi**" sedangkan KPI yang kedua "**Jumlah omset yang didapat**". Maka, berapakah jumlah field yang dibutuhkan untuk mendapatkan informasi tersebut?

KPI	Jumlah Field
Jumlah customer yang bertransaksi	3 field: employeeNumber, customerNumber, salesRepEmployeeNumber.

Jumlah omset yang didapat	5 field: employeeNumber, salesRepEmployeeNumber, orderNumber, quantityOrdered, priceEach.
---------------------------	---

5. 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	141205.70



## Studi Kasus

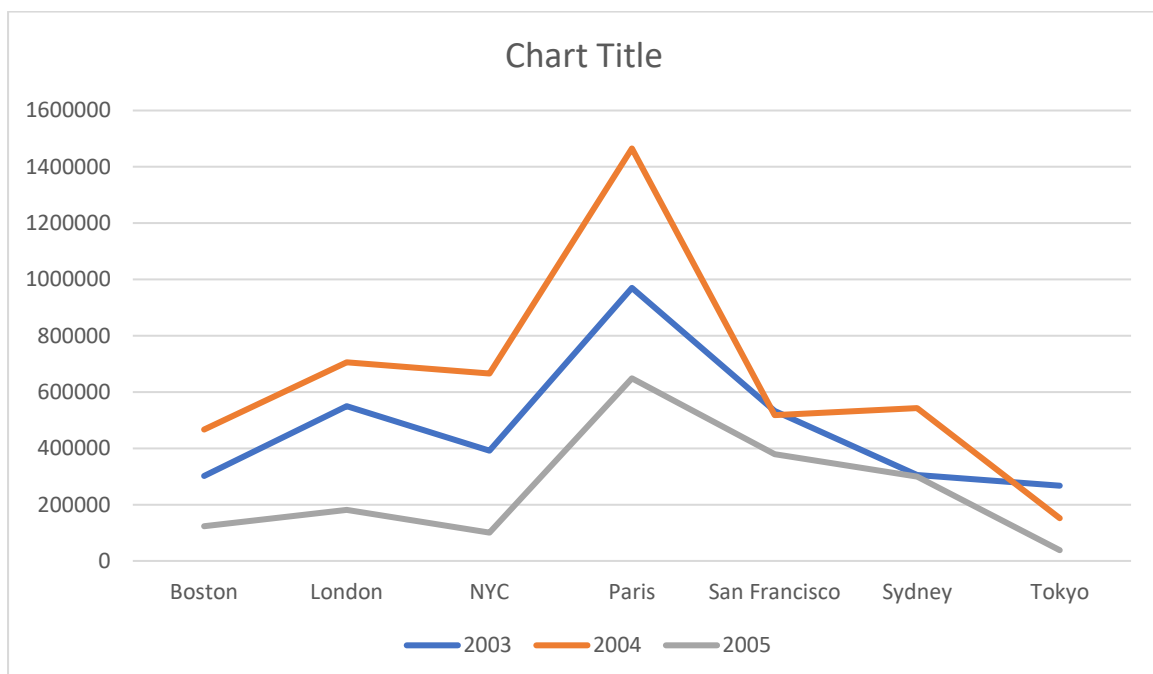
- Field apa saja yang diperlukan untuk menampilkan penjualan di setiap cabang.
  - Nama Cabang : offices.officeCode, offices.city.
  - Tahun Penjualan : orders.orderDate.
  - Total Omset : orderdetails.quantityOrdered, orderdetails.priceEach.
- Bentuk query dengan memperhatikan relasi antar tabel.

```

1 SELECT
2   o.city AS Nama_Cabang,
3   SUM(CASE WHEN YEAR(ord.orderDate) = 2003 THEN od.quantityOrdered * od.priceEach ELSE 0 END) AS `2003`,
4   SUM(CASE WHEN YEAR(ord.orderDate) = 2004 THEN od.quantityOrdered * od.priceEach ELSE 0 END) AS `2004`,
5   SUM(CASE WHEN YEAR(ord.orderDate) = 2005 THEN od.quantityOrdered * od.priceEach ELSE 0 END) AS `2005`
6 FROM offices o
7 JOIN employees e ON o.officeCode = e.officeCode
8 JOIN customers c ON e.employeeNumber = c.salesRepEmployeeNumber
9 JOIN orders ord ON c.customerNumber = ord.customerNumber
10 JOIN orderdetails od ON ord.orderNumber = od.orderNumber
11 GROUP BY o.city
12 ORDER BY o.city;

```

Nama Cabang	2003	2004	2005
Boston	301781.38	467177.07	123580.17
London	549551.94	706014.52	181384.24
NYC	391175.53	665317.99	101096.20
Paris	969959.90	1465229.84	648571.84
San Francisco	532681.13	517408.62	378973.82
Sydney	304949.11	542996.02	299231.22
Tokyo	267249.40	151761.45	38099.22



## Soal Bonus

buatlah report lain dengan sumber data OLTP yang sama, analisa field yang digunakan, bentuk struktur query dan tuliskan dalam tabel serta grafiknya.

Penjualan per Bulan setiap tahun

1. Field

- Orders.orderNumber, orders.orderDate(MONTHNAME dan YEAR).

2. Query

- SELECT
- MONTHNAME(o.orderDate) AS Bulan,
- COUNT(CASE WHEN YEAR(o.orderDate) = 2003 THEN o.orderNumber END) AS `2003`,
- COUNT(CASE WHEN YEAR(o.orderDate) = 2004 THEN o.orderNumber END) AS `2004`,
- COUNT(CASE WHEN YEAR(o.orderDate) = 2005 THEN o.orderNumber END) AS `2005`
- FROM orders o
- GROUP BY MONTH(o.orderDate), MONTHNAME(o.orderDate)
- ORDER BY MONTH(o.orderDate);

3. Tabel

Bulan	2003	2004	2005
January	5	8	12
February	3	11	12
March	6	8	13
April	7	10	12
May	6	8	15
June	7	12	0
July	7	11	0
August	5	12	0
September	8	12	0
October	18	13	0
November	30	33	0
December	9	13	0

#### 4. Grafik

