

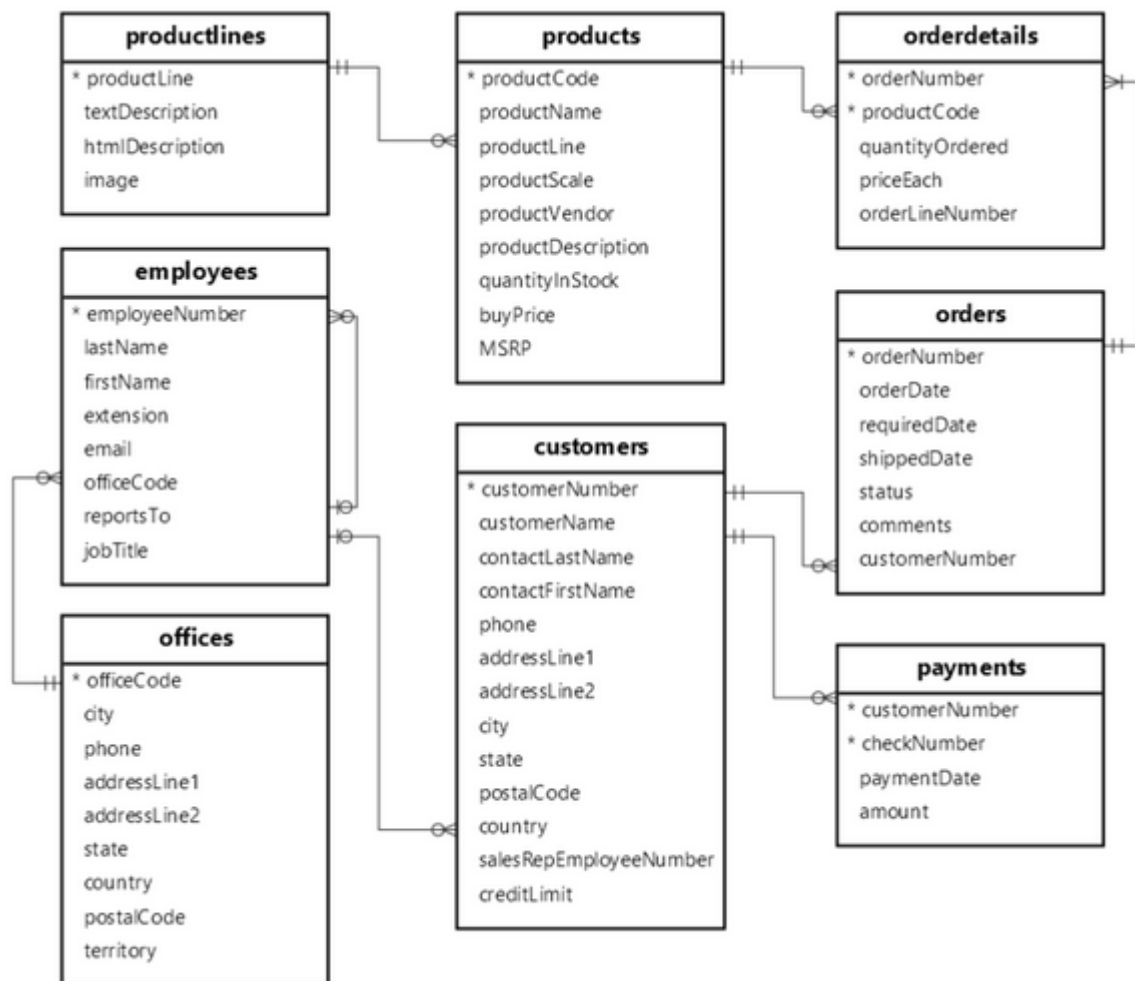


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Jobsheet 2 Database Operasional

Study Case:

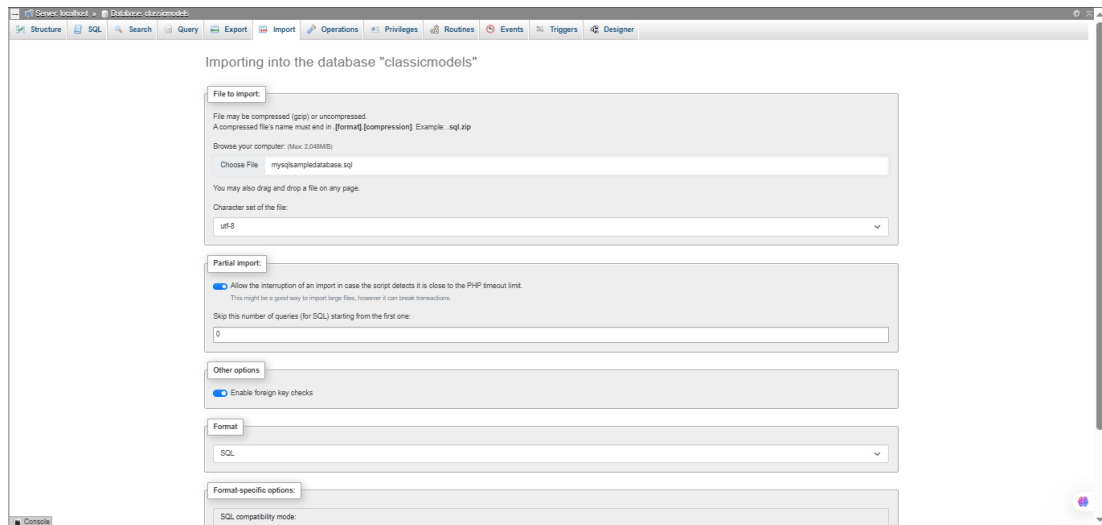
LegendVehicle merupakan perusahaan jual-beli tukar-tambah kendaraan klasik. Perusahaan ini memiliki cabang di berbagai negara. LegendVehicle memiliki sistem informasi ERP sendiri. Salah satu modul dari sistem ERP tersebut adalah modul penjualan. Desain database dari modul tersebut adalah sebagai berikut:



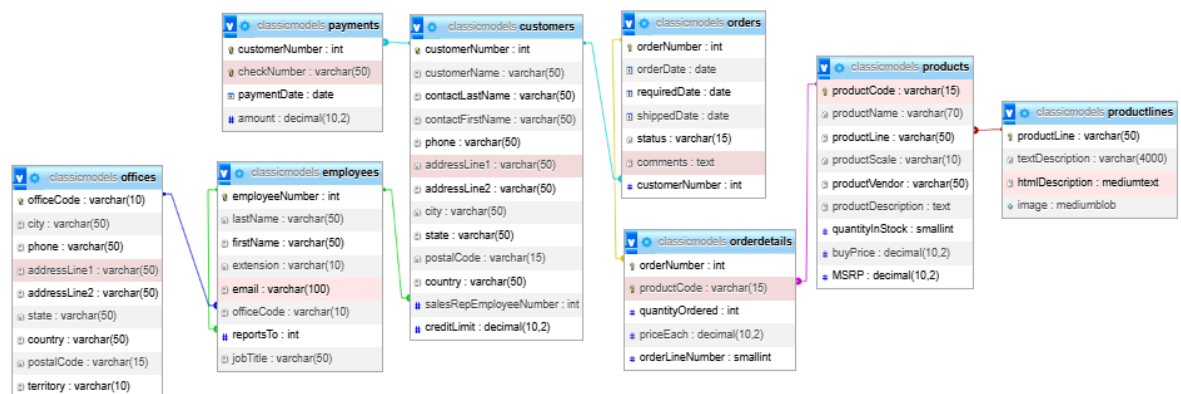
Selain itu proses penjualan kendaraan pada perusahaan tersebut bukan hanya melalui showroom cabang, melainkan reseller-reseller bebas lainnya.

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!



- offices: berisi informasi Perusahaan
- employees: berisi data pegawai perusahaan
- customers: berisi informasi pelanggan Perusahaan
- payments: berisi informasi pembayaran pelanggan
- orders: berisi informasi pesanan pelanggan
- orderdetails: berisi detail pesanan pelanggan
- products: berisi informasi produk
- productlines: berisi informasi kategori produk
- credentials: berisi informasi akses pengguna

| Table 1 | Table 2 | Jenis relasi | Deskripsi |
|---------|-----------|--------------|---|
| offices | employees | One-to-Many | Satu Perusahaan memiliki banyak pegawai |

| | | | |
|--------------|--------------|-------------|---|
| employees | offices | Many-to-One | Banyak pegawai yang bekerja pada satu perusahaan |
| employees | customers | One-to-Many | Satu pegawai dapat mewakili penjualan dari banyak pelanggan |
| customers | payments | One-to-Many | Satu pegawai dapat melakukan banyak pembayaran |
| payments | orders | One-to-One | Satu pembayaran berlaku untuk satu pemesanan |
| customers | orders | One-to-Many | Satu pelanggan dapat melakukan banyak pesanan |
| orders | orderdetails | One-to-Many | Satu pesanan dapat memiliki banyak detail pesanan |
| products | orderdetails | One-to-Many | Satu produk dapat muncul di banyak detail pesanan |
| productlines | products | One-to-Many | Satu kategori produk dapat memiliki banyak produk |

3. Analisa jumlah field pada setiap table!

| Table | Jumlah field | Daftar field |
|-----------|--------------|---|
| offices | 9 | officeCode, city, phone, addressLine1, addressLine2, state, country, postalCode, territory |
| employees | 9 | employeeNumber, lastName, firstName, extension, email, officeCode, reportsTo, jobTitle |
| customers | 9 | customerNumber, customerName, contactLastName, contactFirstName, phone, addressLine1, addressLine2, city, state, postalCode, country, salesRepEmployeeNumber, creditLimit |

| | | |
|--------------|---|---|
| orders | 6 | orderNumber, orderDate, requiredDate, shippedDate, status, comments, customerNumber |
| orderdetails | 5 | orderNumber, productCode, quantityOrdered, priceEach, orderLineNumber |
| payments | 4 | customerNumber, checkNumber, paymentDate, amount |
| products | 9 | productCode, productLine, productScale, productName, productVendor, productDescription, quantityInStock, buyPrice, MSRP |
| productlines | 4 | productLine, textDescription, htmlDescription, image |
| credentials | 3 | username, password, MSRP |

Praktikum 1 Analisa Data

- Menampilkan data 'employee' dan 'manajer' dan 'customer' yang dimiliki

```

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

```

| employeeNumber | lastName | firstName | extension | email | officeCode | reportsTo | jobTitle | employeeNumber | lastName | firstName | extension | email | officeCode | reportsTo | jobTitle | customerNumber | customerName | contactLastName | cont |
|----------------|----------|-----------|-----------|--------------------------------|------------|-----------|-----------|----------------|----------|-----------|-----------|---------------------------|------------|-----------|--------------------|----------------|------------------------------|-----------------|--------|
| 1105 | Jennings | Leslie | x3291 | ljennings@classicmodelcars.com | 1 | 1143 | Sales Rep | 1143 | Bow | Anthony | x5428 | abow@classicmodelcars.com | 1 | 1050 | Sales Manager (NA) | 128 | Mini Wheels Co. | Murphy | Julie |
| 1105 | Jennings | Leslie | x3291 | ljennings@classicmodelcars.com | 1 | 1143 | Sales Rep | 1143 | Bow | Anthony | x5428 | abow@classicmodelcars.com | 1 | 1050 | Sales Manager (NA) | 181 | Technica Stores Inc. | Hashimoto | Juri |
| 1105 | Jennings | Leslie | x3291 | ljennings@classicmodelcars.com | 1 | 1143 | Sales Rep | 1143 | Bow | Anthony | x5428 | abow@classicmodelcars.com | 1 | 1050 | Sales Manager (NA) | 321 | Corporate Gift Ideas Co. | Brown | Julie |
| 1105 | Jennings | Leslie | x3291 | ljennings@classicmodelcars.com | 1 | 1143 | Sales Rep | 1143 | Bow | Anthony | x5428 | abow@classicmodelcars.com | 1 | 1050 | Sales Manager (NA) | 450 | The Sharp Gifts Warehouse | Frick | Sue |
| 1105 | Jennings | Leslie | x3291 | ljennings@classicmodelcars.com | 1 | 1143 | Sales Rep | 1143 | Bow | Anthony | x5428 | abow@classicmodelcars.com | 1 | 1050 | Sales Manager (NA) | 487 | Signal Collectibles Ltd. | Taylor | Sue |
| 1105 | Thompson | Leslie | x4065 | lthompson@classicmodelcars.com | 1 | 1143 | Sales Rep | 1143 | Bow | Anthony | x5428 | abow@classicmodelcars.com | 1 | 1050 | Sales Manager (NA) | 112 | Signal Gift Stores | King | Jean |
| 1105 | Thompson | Leslie | x4065 | lthompson@classicmodelcars.com | 1 | 1143 | Sales Rep | 1143 | Bow | Anthony | x5428 | abow@classicmodelcars.com | 1 | 1050 | Sales Manager (NA) | 205 | Toys4GrownUps.com | Young | Julie |
| 1105 | Thompson | Leslie | x4065 | lthompson@classicmodelcars.com | 1 | 1143 | Sales Rep | 1143 | Bow | Anthony | x5428 | abow@classicmodelcars.com | 1 | 1050 | Sales Manager (NA) | 219 | Boards & Toys Co. | Young | Mary |
| 1105 | Thompson | Leslie | x4065 | lthompson@classicmodelcars.com | 1 | 1143 | Sales Rep | 1143 | Bow | Anthony | x5428 | abow@classicmodelcars.com | 1 | 1050 | Sales Manager (NA) | 236 | Collectable Mini Designs Co. | Thompson | Valeri |
| 1105 | Thompson | Leslie | x4065 | lthompson@classicmodelcars.com | 1 | 1143 | Sales Rep | 1143 | Bow | Anthony | x5428 | abow@classicmodelcars.com | 1 | 1050 | Sales Manager (NA) | 347 | Men R' US Retailers, Ltd. | Chandler | Brian |
| 1105 | Thompson | Leslie | x4065 | lthompson@classicmodelcars.com | 1 | 1143 | Sales Rep | 1143 | Bow | Anthony | x5428 | abow@classicmodelcars.com | 1 | 1050 | Sales Manager (NA) | 475 | West Coast Collectables Co. | Thompson | Steve |
| 1188 | Finelli | Julie | x2173 | jfinelli@classicmodelcars.com | 2 | 1143 | Sales Rep | 1143 | Bow | Anthony | x5428 | abow@classicmodelcars.com | 1 | 1050 | Sales Manager (NA) | 173 | Cambridge Collectables Co. | Tseng | Jerry |
| 1188 | Finelli | Julie | x2173 | jfinelli@classicmodelcars.com | 2 | 1143 | Sales Rep | 1143 | Bow | Anthony | x5428 | abow@classicmodelcars.com | 1 | 1050 | Sales Manager (NA) | 204 | Online Mini Collectables | Barajas | Miguel |

- Menampilkan 'manajer' dari setiap 'employee'

```

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;

```

| 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 | 1288 | 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 |
| 1621 | Mami Nishi | 1625 | Yoshimi Kato |
| 1056 | Mary Patterson | 1088 | William Patterson |
| 1056 | Mary Patterson | 1102 | Gerard Bondur |
| 1056 | Mary Patterson | 1143 | Anthony Bow |
| 1056 | Mary Patterson | 1621 | Mami Nishi |
| 1088 | William Patterson | 1611 | Andy Fixter |
| 1088 | William Patterson | 1612 | Peter Marsh |
| 1088 | William Patterson | 1619 | Tom King |

Tugas 2

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

Anthony Bow (1143)

- ├── Leslie Jennings (1165)
- ├── Leslie Thompson (1168)
- ├── Julie Firrelli (1188)
- ├── Steve Patterson (1216)
- ├── Foon Yue Tseng (1288)
- └── George Vanauf (1323)

Diane Murphy (1002)

- ├── Mary Patterson (1058)
- └── Jeff Firrelli (1076)

Gerard Bondur (1102)

- ├── Loui Bondur (1337)
- ├── Gerard Hernandez (1370)
- ├── Pamela Castillo (1401)
- ├── Larry Bott (1501)
- ├── Barry Jones (1504)
- └── Martin Gerard (1702)

Mami Nishi (1621)

└─ Yoshimi Kato (1625)

Mary Patterson (1056)

└─ William Patterson (1088)

└─ Gerard Bondur (1102)

└─ Anthony Bow (1143)

└─ Mami Nishi (1621)

William Patterson (1088)

└─ Andy Fixter (1611)

└─ Peter Marsh (1612)

└─ Tom King (1619)

2. Menampilkan jumlah 'customers' dari setiap 'employees'

```

1 SELECT
2     manager.employeeNumber AS id_manager,
3     CONCAT(manager.firstName, ' ', manager.lastName) AS Manager,
4     employee.employeeNumber AS id_staff,
5     CONCAT(employee.firstName, ' ', employee.lastName) AS staff,
6     COUNT(cust.customerNumber) AS total_cust
7 FROM
8     employees AS employee
9 JOIN
10    employees AS manager ON employee.reportsTo = manager.employeeNumber
11 LEFT JOIN
12    customers AS cust ON employee.employeeNumber = cust.salesRepEmployeeNumber
13 GROUP BY
14     employee.employeeNumber
15 ORDER BY
16     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 |

Tugas 3

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

| id_staff | staff | total_cust |
|----------|-----------------|------------|
| 1401 | Pamela Castillo | 10 |

```

1 SELECT
2     employee.employeeNumber AS id_staff,
3     CONCAT(employee.firstName, ' ', employee.lastName) AS staff,
4     COUNT(cust.customerNumber) AS total_cust
5 FROM
6     employees AS employee
7 LEFT JOIN
8     customers AS cust ON employee.employeeNumber = cust.salesRepEmployeeNumber
9 WHERE
10    employee.employeeNumber NOT IN (
11        SELECT DISTINCT reportsTo
12        FROM employees
13        WHERE reportsTo IS NOT NULL
14    )
15 GROUP BY
16     employee.employeeNumber
17 ORDER BY
18     total_cust DESC
19 LIMIT 1;

```

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 StaffCustomers AS (
2     SELECT
3         employee.reportsTo AS managerID,
4         COUNT(cust.customerNumber) AS direct_cust
5     FROM
6         employees AS employee
7     LEFT JOIN
8         customers AS cust ON employee.employeeNumber = cust.salesRepEmployeeNumber
9     GROUP BY
10        employee.reportsTo
11 ),
12 ManagerCustomers AS (
13     SELECT
14         employee.employeeNumber AS id_manager,
15         COUNT(cust.customerNumber) AS manager_cust
16     FROM
17         employees AS employee
18     LEFT JOIN
19         customers AS cust ON employee.employeeNumber = cust.salesRepEmployeeNumber
20     GROUP BY
21        employee.employeeNumber
22 )
23
24
25 SELECT
26     m.employeeNumber AS id_manager,
27     CONCAT(m.firstName, ' ', m.lastName) AS Manager,
28     COALESCE(mc.manager_cust, 0) + COALESCE(sc.direct_cust, 0) AS total_kpi
29 FROM
30     employees m
31 LEFT JOIN
32     ManagerCustomers mc ON m.employeeNumber = mc.id_manager
33 LEFT JOIN
34     StaffCustomers sc ON m.employeeNumber = sc.managerID
35 ORDER BY
36     total_kpi DESC;

```

| id_manager | Manager | total_kpi |
|------------|-------------------|-----------|
| 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 |
| 1056 | Mary Patterson | 5 |
| 1611 | Andy Fixter | 5 |
| 1612 | Peter Marsh | 5 |
| 1621 | Mami Nishi | 5 |
| 1002 | Diane Murphy | 0 |
| 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 SELECT
2     e.employeeNumber AS id_staff,
3     CONCAT(e.firstName, ' ', e.lastName) AS staff,
4     SUM(od.quantityOrdered * od.priceEach) AS total_omset
5 FROM
6     employees AS e
7 LEFT JOIN
8     customers AS c ON e.employeeNumber = c.salesRepEmployeeNumber
9 LEFT JOIN
10    orders AS o ON c.customerNumber = o.customerNumber
11 LEFT JOIN
12    orderdetails AS od ON o.orderNumber = od.orderNumber
13 GROUP BY
14     e.employeeNumber
15 ORDER BY
16     total_omset DESC;

```

| id_staff | staff | total_omset |
|----------|-------------------|-------------|
| 1370 | Gerard Hernandez | 1258577.81 |
| 1185 | Leslie Jennings | 1081530.54 |
| 1401 | Pamela Castillo | 888220.55 |
| 1501 | Larry Bott | 732098.79 |
| 1504 | Barry Jones | 704853.91 |
| 1323 | George Vanauf | 689377.05 |
| 1812 | Peter Marsh | 584593.78 |
| 1337 | Loui Bondur | 589485.75 |
| 1811 | Andy Fixter | 562582.59 |
| 1216 | Steve Patterson | 505875.42 |
| 1288 | Foon Yue Tseng | 488212.67 |
| 1821 | Mami Nishi | 457110.07 |
| 1702 | Martin Gerard | 387477.47 |
| 1188 | Julie Firrelli | 388883.20 |
| 1188 | Leslie Thompson | 347533.03 |
| 1002 | Diane Murphy | NULL |
| 1058 | Mary Patterson | NULL |
| 1076 | Jeff Firrelli | NULL |
| 1088 | William Patterson | NULL |
| 1102 | Gerard Bondur | NULL |
| 1143 | Anthony Bow | NULL |
| 1819 | Tom King | NULL |
| 1825 | Yoshimi Kato | NULL |

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 | Deskripsi |
|-----------------------------------|--------------|---|
| Jumlah customer yang bertransaksi | 1 | Kolom 'customerNumber' pada table 'customers' |
| Jumlah omset yang didapat | 2 | Kolom 'quantityOrdered' dan 'priceEach' pada table 'orderdetails' |

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 | 120,000 | 135,000 | 140,000 |
| Pamela Castillo | 110,000 | 145,000 | 130,000 |

```

1 SELECT
2   CONCAT(e.firstName, ' ', e.lastName) AS staff,
3   YEAR(o.orderDate) AS tahun,
4   SUM(od.quantityOrdered * od.priceEach) AS total_omset
5 FROM
6   employees AS e
7 LEFT JOIN
8   customers AS c ON e.employeeNumber = c.salesRepEmployeeNumber
9 LEFT JOIN
10  orders AS o ON c.customerNumber = o.customerNumber
11 LEFT JOIN
12  orderdetails AS od ON o.orderNumber = od.orderNumber
13 WHERE
14   CONCAT(e.firstName, ' ', e.lastName) IN ('Foon Yue Tseng', 'Pamela Castillo')
15 GROUP BY
16   e.employeeNumber, YEAR(o.orderDate)
17 ORDER BY
18   staff, tahun;

```

| staff | tahun | total_omset |
|-----------------|-------|-------------|
| Foon Yue Tseng | NULL | NULL |
| Foon Yue Tseng | 2003 | 221887.03 |
| Foon Yue Tseng | 2004 | 237255.28 |
| Foon Yue Tseng | 2005 | 29070.38 |
| Pamela Castillo | 2003 | 317104.78 |
| Pamela Castillo | 2004 | 409910.07 |
| Pamela Castillo | 2005 | 141205.70 |

Studi Kasus

Pak Huhut merupakan pemegang saham LegendVehicle. dia membutuhkan dashboard untuk melihat perkembangan penjualan (omset) disetiap cabang di tiap tahunnya. Dikarenakan perusahaan tersebut belum merekrut Data Engineer maka, penarikan informasi hanya bisa dilakukan melalui OLTP yang ada. Hasil report yang diinginkan adalah grafik berdasarkan tabel berikut:

| Nama cabang | 2003 | 2004 | 2005 |
|---------------|---------|---------|---------|
| New York | 150,000 | 200,000 | 170,000 |
| San Francisco | 100,000 | 140,000 | 180,000 |
| Tokyo | 180,000 | 210,000 | 190,000 |

Analisalah terlebih dahulu:

1. Field apa saja yang diperlukan untuk menampilkan penjualan di setiap cabang.

| Field | Table | Deskripsi |
|------------------------|--------------|-------------------------------------|
| officeCode | offices | Kode cabang |
| city | offices | Nama cabang |
| orderDate | orders | Tanggal transaksi |
| quantityOrdered | orderdetails | Jumlah item yang dipesan |
| priceEach | orderdetails | Harga per item |
| salesRepEmployeeNumber | customers | Sales yang menangani transaksi |
| emplyeeNumber | employees | Kode pegawai yang melayani customer |
| officeCode | employees | Kode cabang pegawai |

2. Bentuk query dengan memperhatikan relasi antar tabel.

```

1 SELECT
2   o.city AS nama_cabang,
3   YEAR(ord.orderDate) AS tahun,
4   SUM(od.quantityOrdered * od.priceEach) AS total_omset
5 FROM
6   offices o
7 JOIN
8   employees e ON o.officeCode = e.officeCode
9 JOIN
10  customers c ON e.employeeNumber = c.salesRepEmployeeNumber
11 JOIN
12  orders ord ON c.customerNumber = ord.customerNumber
13 JOIN
14  orderdetails od ON ord.orderNumber = od.orderNumber
15 GROUP BY
16   o.city, YEAR(ord.orderDate)
17 ORDER BY
18   o.city, tahun;

```

| nama_cabang | tahun | total_omset |
|---------------|-------|-------------|
| Boston | 2003 | 301781.38 |
| Boston | 2004 | 467177.07 |
| Boston | 2005 | 123580.17 |
| London | 2003 | 549551.94 |
| London | 2004 | 706014.52 |
| London | 2005 | 181384.24 |
| NYC | 2003 | 391175.53 |
| NYC | 2004 | 665317.99 |
| NYC | 2005 | 101096.20 |
| Paris | 2003 | 969959.90 |
| Paris | 2004 | 1465229.84 |
| Paris | 2005 | 648571.84 |
| San Francisco | 2003 | 532681.13 |
| San Francisco | 2004 | 517408.62 |
| San Francisco | 2005 | 378973.82 |
| Sydney | 2003 | 304949.11 |
| Sydney | 2004 | 542996.02 |
| Sydney | 2005 | 299231.22 |
| Tokyo | 2003 | 267249.40 |
| Tokyo | 2004 | 151761.45 |
| Tokyo | 2005 | 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.\

| Product | 2003 | 2004 | 2005 |
|------------------------|---------|---------|---------|
| 1969 Harley Davidson | 500.000 | 600.000 | 700.000 |
| 1940 Ford Pickup Truck | 450.000 | 520.000 | 560.000 |
| 1957 Chevy Pickup | 480.000 | 510.000 | 600.000 |

```

1 SELECT
2     p.productName AS produk,
3     YEAR(o.orderDate) AS tahun,
4     SUM(od.quantityOrdered * od.priceEach) AS total_omset
5 FROM
6     products p
7 JOIN
8     orderdetails od ON p.productCode = od.productCode
9 JOIN
10    orders o ON od.orderNumber = o.orderNumber
11 GROUP BY
12     p.productName, YEAR(o.orderDate)
13 ORDER BY
14     total_omset DESC;
15

```

| produk | tahun | total_omset ▾ 1 |
|--------------------------------------|-------|-----------------|
| 1992 Ferrari 360 Spider red | 2004 | 120381.40 |
| 2001 Ferrari Enzo | 2004 | 105487.46 |
| 1992 Ferrari 360 Spider red | 2003 | 103480.30 |
| 1952 Alpine Renault 1300 | 2004 | 87995.42 |
| 2003 Harley-Davidson Eagle Drag Bike | 2004 | 81636.19 |
| 1980s Black Hawk Helicopter | 2004 | 80076.41 |
| 1969 Ford Falcon | 2004 | 76546.51 |
| 1968 Ford Mustang | 2004 | 73369.72 |
| 1998 Chrysler Plymouth Prowler | 2004 | 69240.97 |
| 1952 Alpine Renault 1300 | 2003 | 67985.34 |
| 2002 Suzuki XREO | 2004 | 64972.96 |
| 1962 LanciaA Delta 16V | 2004 | 64642.73 |
| 1957 Corvette Convertible | 2004 | 62987.27 |
| 1969 Corvair Monza | 2004 | 62422.14 |
| 1976 Ford Gran Torino | 2004 | 60212.55 |
| 1970 Triumph Spitfire | 2004 | 60031.06 |
| 1928 Mercedes-Benz SSK | 2004 | 59979.29 |
| 2001 Ferrari Enzo | 2003 | 59852.24 |
| 1917 Grand Touring Sedan | 2004 | 58143.40 |
| 1972 Alfa Romeo GTA | 2004 | 57600.08 |
| 1969 Ford Falcon | 2003 | 57403.47 |
| 1968 Ford Mustang | 2003 | 56462.25 |
| ATA: B757-300 | 2004 | 56357.28 |
| 1903 Ford Model A | 2004 | 56021.34 |
| 18th century schooner | 2004 | 55492.20 |