

DATA WAREHOUSE

JOBSHEET 2

Database Operasional



Oleh:

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SIB 2B

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POLITEKNIK NEGERI MALANG

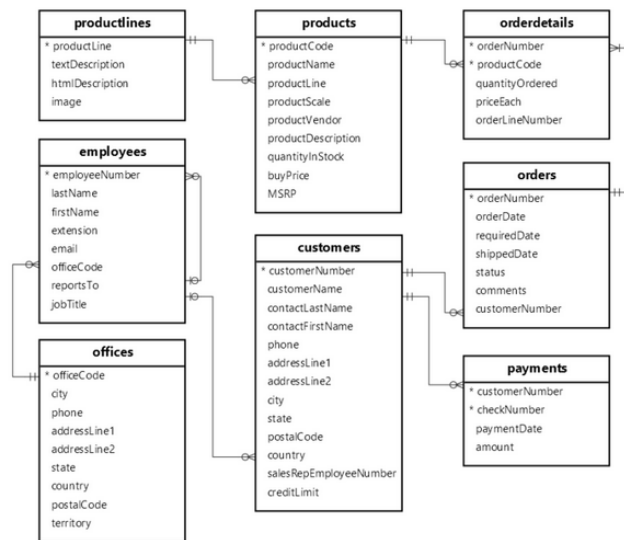
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Tugas 1

1. Import data perusahaan tersebut pada DBMS MySQL!

| | CustomerNumber | CustomerName | ContactLastName | ContactFirstName | phone | addressLine1 | addressLine2 | city | state | postalCode | country | sales |
|--|----------------|------------------------------|-----------------|------------------|--------------|------------------------------|--------------|------------|----------|------------|-----------|-------|
| | 103 | Atelier graphique | Schmitt | Carine | 40 32 2555 | 54, rue Royale | NULL | Nantes | NULL | 44000 | France | |
| | 112 | Signal Gift Stores | King | Jean | 7025551838 | 8489 Strong St. | NULL | Las Vegas | NV | 83030 | USA | |
| | 114 | Australian Collectors, Co. | Ferguson | Peter | 03 9520 4555 | 636 St Kilda Road | Level 3 | Melbourne | Victoria | 3004 | Australia | |
| | 119 | La Rochelle Gifts | Labruno | Janine | 40 67 8555 | 67, rue des Cinquante Otages | NULL | Nantes | NULL | 44000 | France | |
| | 121 | Baane Mini Imports | Bergulfson | Jonas | 07-98 9555 | Erling Skakkes gate 78 | NULL | Stavern | NULL | 4110 | Norway | |
| | 124 | Mini Gifts Distributors Ltd. | Nelson | Susan | 4155551450 | 5677 Strong St. | NULL | San Rafael | CA | 97562 | USA | |

2. Analisa struktur data dari database perusahaan tersebut, dalam bentuk tabel, analisa hubungan setiap tabel nya!



| Tabel 1 | Tabel 2 | Relational Type |
|--------------|--------------|---|
| productlines | Product | One to many |
| Product | Orderdetails | One to many |
| Orderdetails | Orders | Many to one |
| Customers | Orders | One to many |
| Customers | Payments | One to many |
| Employees | Office | Many to one |
| Employees | Employees | Self-referencing(Tabel yang mereferensikan dirinya) |
| Employees | Cutomers | One to many |

3. Analisa jumlah field pada setiap table

| Nama table | Jumlah |
|--------------|--------|
| Customers | 13 |
| Employees | 8 |
| offices | 9 |
| Orderdetails | 5 |
| Orders | 7 |
| Payments | 4 |
| Productlines | 4 |
| products | 9 |

A. Analisa Data

PERINGATAN: jika menemukan "ERROR" maka, Beranilah untuk menemukan dimana letak kesalahan untuk memberikan solusi. Jangan hanya bisa menyalahkan namun, tidak dapat memberikan solusinya.

PRAKTIKUM 1

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

SELECT *

FROM employees employe, employees manager, **customer** cust

WHERE employee.reportsTo=manager.employeeNumber

AND employee.employeeNumber=cust.salesRepEmployeeNumber;

query tersebut error karena terdapa typo pada bagian customer seharusnya yang benar adalah customers, query yang benar :

SELECT * FROM employees employee, employees manager, **customers** cust

WHERE employee.reportsTo = manager.employeeNumber

AND employee.employeeNumber = cust.salesRepEmployeeNumber;

Extra options

| employeeNumber | lastName | firstName | extension | email | officeCode | reportsTo | jobTitle | employeeNumber | lastName | firstName | extension | email | officeCode |
|----------------|----------|-----------|-----------|--------------------------------|------------|-----------|-----------|----------------|----------|-----------|-----------|---------------------------|------------|
| 1165 | Jennings | Leslie | x3291 | ljennings@classicmodelcars.com | 1 | 1143 | Sales Rep | 1143 | Bow | Anthony | x5428 | abow@classicmodelcars.com | 1 |
| 1165 | Jennings | Leslie | x3291 | ljennings@classicmodelcars.com | 1 | 1143 | Sales Rep | 1143 | Bow | Anthony | x5428 | abow@classicmodelcars.com | 1 |
| 1165 | Jennings | Leslie | x3291 | ljennings@classicmodelcars.com | 1 | 1143 | Sales Rep | 1143 | Bow | Anthony | x5428 | abow@classicmodelcars.com | 1 |

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.

Query tersebut salah di karenakan pada bagian (manager.firstName," ",manager.lastName) tanda kutip (") menandakan string yang harus di tutup tetapi makah di akhiri dengan manager.lastName, query yang benar

```
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;
```

| Extra options | | | |
|---------------|-------------------|----------|------------------|
| id_manager | Manager | id_staff | staff |
| 1143 | Anthony Bow | 1165 | LeslieJennings |
| 1143 | Anthony Bow | 1166 | LeslieThompson |
| 1143 | Anthony Bow | 1188 | JulieFirrelli |
| 1143 | Anthony Bow | 1216 | StevePatterson |
| 1143 | Anthony Bow | 1286 | Foon YueTseng |
| 1143 | Anthony Bow | 1323 | GeorgeVanauf |
| 1002 | Diane Murphy | 1056 | MaryPatterson |
| 1002 | Diane Murphy | 1076 | JeffFirrelli |
| 1102 | Gerard Bondur | 1337 | LouiBondur |
| 1102 | Gerard Bondur | 1370 | GerardHernandez |
| 1102 | Gerard Bondur | 1401 | PamelaCastillo |
| 1102 | Gerard Bondur | 1501 | LarryBott |
| 1102 | Gerard Bondur | 1504 | BarryJones |
| 1102 | Gerard Bondur | 1702 | MartinGerard |
| 1621 | Mami Nishi | 1625 | YoshimiKato |
| 1056 | Mary Patterson | 1088 | WilliamPatterson |
| 1056 | Mary Patterson | 1102 | GerardBondur |
| 1056 | Mary Patterson | 1143 | AnthonyBow |
| 1056 | Mary Patterson | 1621 | MamiNishi |
| 1088 | William Patterson | 1611 | AndyFixter |
| 1088 | William Patterson | 1612 | PeterMarsh |
| 1088 | William Patterson | 1619 | TomKing |

TUGAS 2

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

CEO : Diane Murphy

Manajer yang Melapor ke Diane Murphy:

- Mary Patterson
- Jeff Firrelli

Pegawai yang Melapor ke Mary Patterson:

- William Patterson
- Gerard Bondur
- Anthony Bow
- Mami Nishi

Pegawai yang Melapor ke William Patterson:

- Andy Fixter
- Peter Marsh
- Tom King

Pegawai yang Melapor ke Gerard Bondur:

- Loui Bondur
- Gerard Hernandez
- Pamela Castillo
- Larry Bott
- Barry Jones
- Martin Gerard

Pegawai yang Melapor ke Anthony Bow:

- Leslie Jennings
- Leslie Thompson
- Julie Firrelli
- Steve Patterson
- Foon Yue Tseng
- George Vanauf

Pegawai yang Melapor ke Mami Nishi:

- Yoshimi Kato

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,  
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;  
dari query tersebut menghasilkan jumlah customer dari setiap staff.
```

Query tersebut salah dikarenakan tidak adanya spasi pada bagian
'employee.reports**T**omanager.employeeNumber ' seharusnya seperti ini employee.**reportsTo** =
manager.employeeNumber

| 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 |

Jika perusahaan tersebut memiliki **KPI (Key Performances Indicator) "Jumlah customer yang bertransaksi"** maka jawablah pertanyaan-pertanyaan berikut!

TUGAS 3

- Siapakah staff dengan hirarki paling bawah yang berprestasi dilihat dari jumlah customer terbanyak?
 - Pamela Castillo (1401) - 10 Customer
- 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. Gerard Bondur

Memiliki 6 customer langsung.

Ditambah dengan customer dari bawahannya:

Loui Bondur (6)

Gerard Hernandez (7)

Pamela Castillo (10)

Larry Bott (8)

Barry Jones (9)

Martin Gerard (6)

Total: 46 customer

2. Anthony Bow

Memiliki 0 customer langsung.

Ditambah dengan customer dari bawahannya:

Leslie Jennings (6)

Leslie Thompson (6)

Julie Firrelli (6)

Steve Patterson (6)

Foon Yue Tseng (7)

George Vanauf (8)

Total: 39 customer

4. Mary Patterson

Memiliki 0 customer langsung.

Ditambah dengan customer dari bawahannya:

Mami Nishi (5)

Total: 5 customer

3.. William Patterson

Memiliki 0 customer langsung.

Ditambah dengan customer dari bawahannya:

Andy Fixter (5)

Peter Marsh (5)

Total: 10 customer

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

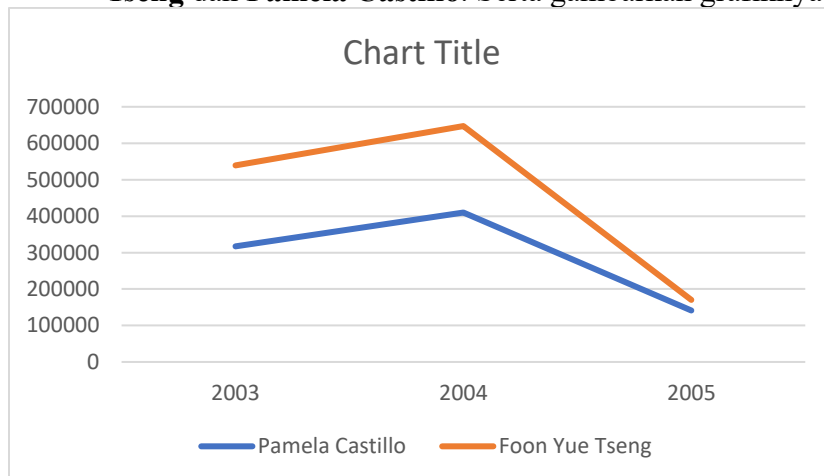
```
1 SELECT
2     e.employeeNumber AS id_pegawai,
3     CONCAT(e.firstName, ' ', e.lastName) AS nama_pegawai,
4     SUM(od.quantityOrdered * od.priceEach) AS total_omset
5 FROM employees e
6 JOIN customers c ON e.employeeNumber = c.salesRepEmployeeNumber
7 JOIN orders o ON c.customerNumber = o.customerNumber
8 JOIN orderdetails od ON o.orderNumber = od.orderNumber
9 GROUP BY e.employeeNumber
10 ORDER BY total_omset DESC;
11
```


| id_pegawai | nama_pegawai | total_omset |
|------------|------------------|-------------|
| 1165 | Leslie Jennings | 1081530.54 |
| 1166 | Leslie Thompson | 347533.03 |
| 1188 | Julie Firrelli | 386663.20 |
| 1216 | Steve Patterson | 505875.42 |
| 1286 | Foon Yue Tseng | 488212.67 |
| 1323 | George Vanauf | 669377.05 |
| 1337 | Loui Bondur | 569485.75 |
| 1370 | Gerard Hernandez | 1258577.81 |
| 1401 | Pamela Castillo | 868220.55 |
| 1501 | Larry Bott | 732096.79 |
| 1504 | Barry Jones | 704853.91 |
| 1611 | Andy Fixter | 562582.59 |
| 1612 | Peter Marsh | 584593.76 |
| 1621 | Mami Nishi | 457110.07 |
| 1702 | Martin Gerard | 387477.47 |

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 | FIELD DIBUTUHKAN |
|-----------------------------------|--------------|--|
| Jumlah customer yang bertransaksi | 3 | employeeNumber, nama pegawai, total customer |
| Jumlah omset yang didapat | 3 | EmployeeNumber, nama pegawai, total omset |

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



```

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

```

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.

Analisalah terlebih dahulu:

1. Field apa saja yang diperlukan untuk menampilkan penjualan di setiap cabang.
2. Bentuk query dengan memperhatikan relasi antar tabel.

| Field | Asal Tabel | Keterangan |
|--------------------------|------------|---|
| c.city | customers | Nama kota pelanggan yang berfungsi sebagai cabang |
| YEAR(r.payment Date) | payments | Tahun dari tanggal pembayaran |
| SUM(r.amount) | payments | Total omzet berdasarkan pembayaran pelanggan |
| c.customerNumber | customers | ID pelanggan (ada kesalahan dalam query ini, harusnya tidak di-join dengan dirinya sendiri) |
| c.salesRepEmployeeNumber | customers | ID pegawai yang bertanggung jawab atas pelanggan |

| | | |
|------------------|-----------|-------------------------------------|
| e.employeeNumber | employees | ID pegawai yang menangani pelanggan |
| e.officeCode | employees | Kode kantor pegawai |
| b.officeCode | offices | Kode kantor cabang |

SELECT c.city AS cabang, YEAR(r.paymentDate) AS tahun, SUM(r.amount) AS tomset
FROM payments r JOIN customers c ON c.customerNumber = c.customerNumber JOIN
employees e ON c.salesRepEmployeeNumber = e.employeeNumber JOIN offices b ON
e.officeCode = b.officeCode GROUP BY c.city, YEAR(r.paymentDate) ORDER BY `to
mset` DESC

| <u>cabang</u> | <u>tahun</u> | <u>tomset</u> ▾ 1 |
|---------------|--------------|-------------------|
| NYC | 2004 | 21566641.25 |
| NYC | 2003 | 16251088.50 |
| Madrid | 2004 | 12939984.75 |
| Paris | 2004 | 12939984.75 |
| Brickhaven | 2004 | 12939984.75 |
| Paris | 2003 | 9750653.10 |
| Brickhaven | 2003 | 9750653.10 |
| Madrid | 2003 | 9750653.10 |
| Auckland | 2004 | 8626656.50 |

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

saya ingin menampilkan nama cabang, total produk terjual beserta tahun

query :

SELECT

o.city AS nama_cabang,

YEAR(o2.orderDate) AS tahun,

SUM(od.quantityOrdered) AS total_produk_terjual

FROM offices o

JOIN employees e ON o.officeCode = e.officeCode

JOIN customers c ON e.employeeNumber = c.salesRepEmployeeNumber

JOIN orders o2 ON c.customerNumber = o2.customerNumber

```
JOIN orderdetails od ON o2.orderNumber = od.orderNumber
GROUP BY o.city, tahun
ORDER BY tahun DESC, total_produk_terjual DESC;
```

| Nama cabang | Tahun | Total produk terjual |
|---------------|-------|----------------------|
| Paris | 2004 | 15971 |
| Paris | 2003 | 10694 |
| London | 2004 | 7659 |
| NYC | 2004 | 7429 |
| Paris | 2005 | 7222 |
| San Francisco | 2003 | 6151 |
| London | 2003 | 6017 |
| Sydney | 2004 | 5938 |
| San Francisco | 2004 | 5697 |
| Boston | 2004 | 5101 |
| San Francisco | 2005 | 4062 |
| NYC | 2003 | 3899 |
| Sydney | 2003 | 3529 |
| Sydney | 2005 | 3411 |
| Boston | 2003 | 3298 |

Saya hanya mengambil data 15 sampel, maka dari itu ada beberapa data yang kosong

