DATA WAREHOUSE

JS 02

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SIB-2B / 25

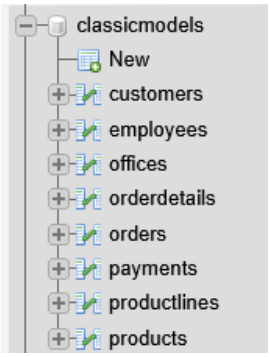
D-IV SISTEM INFORMASI BISNIS

JURUSAN TEKNOLOGI INFORMASI

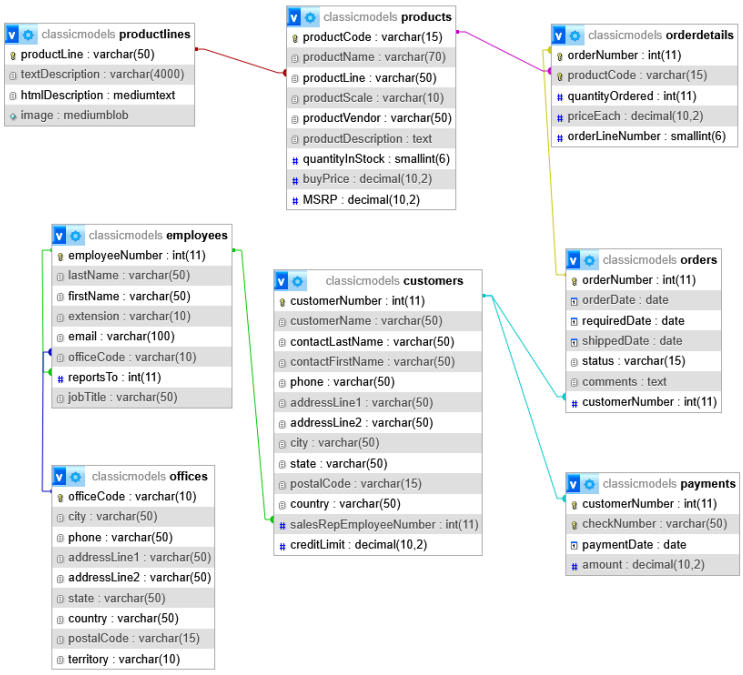
POLITEKNIK NEGERI MALANG

TUGAS 1

1. Import data DBMS MYSQL



2. Analisa struktur data dari database perusahaan tersebut, dalam bentuk tabel



Tabel 1	Tabel 2	Jenis Relasi
productlines	products	One to Many
products	orderdetails	One to Many
orders	orderdetails	One to Many
customers	orders	One to Many
customers	payments	One to Many
employees	customers	One to Many
offices	employees	One to Many

3. **Analisa jumlah field**

Tabel	jumlah
productlines	**4**
products	**9**
orderdetails	**5**
employees	**8**
offices	**9**
customers	**13**
orders	**7**
payments	**4**

A. Analisa Data

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

   Query ini menghasilkan data yang berisi informasi karyawan (Employee), manajernya (Manager), dan pelanggan (Customer) yang ditangani

   SELECT *

   FROM employees employe

   JOIN employees manager ON employe.reportsTo = manager.employeeNumber

   JOIN customers cust ON employe.employeeNumber = cust.salesRepEmployeeNumber;

employeeNumber	lastName	firstName	extension	email	officeCode	reportsTo	jobTitle	employeeNumber	lastName	firstName	extension	email	officeCode	reportsTo	jobTitle	customerNun
1165	Jennings	Leslie	x3291	ljennings@classicmodelcars.com	1	1143	Sales Rep	1143	Bow	Anthony	x5428	abow@classicmodelcars.com	1	1056	Sales Manager (NA)	
1165	Jennings	Leslie	x3291	ljennings@classicmodelcars.com	1	1143	Sales Rep	1143	Bow	Anthony	x5428	abow@classicmodelcars.com	1	1056	Sales Manager (NA)	
1165	Jennings	Leslie	x3291	ljennings@classicmodelcars.com	1	1143	Sales Rep	1143	Bow	Anthony	x5428	abow@classicmodelcars.com	1	1056	Sales Manager (NA)	
1165	Jennings	Leslie	x3291	ljennings@classicmodelcars.com	1	1143	Sales Rep	1143	Bow	Anthony	x5428	abow@classicmodelcars.com	1	1056	Sales Manager (NA)	
1165	Jennings	Leslie	x3291	ljennings@classicmodelcars.com	1	1143	Sales Rep	1143	Bow	Anthony	x5428	abow@classicmodelcars.com	1	1056	Sales Manager (NA)	
1165	Jennings	Leslie	x3291	ljennings@classicmodelcars.com	1	1143	Sales Rep	1143	Bow	Anthony	x5428	abow@classicmodelcars.com	1	1056	Sales Manager (NA)	
1166	Thompson	Leslie	x4065	lthompson@classicmodelcars.com	1	1143	Sales Rep	1143	Bow	Anthony	x5428	abow@classicmodelcars.com	1	1056	Sales Manager (NA)	

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

   JOIN employees manager ON employee.reportsTo = manager.employeeNumber

   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	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	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
1102	Gerard Bondur	1337	Loui Bondur
1621	Mami Nishi	1625	Yoshimi Kato
1056	Mary Patterson	1621	Mami Nishi
1056	Mary Patterson	1088	William Patterson
1056	Mary Patterson	1102	Gerard Bondur
1056	Mary Patterson	1143	Anthony Bow
1088	William Patterson	1611	Andy Fixter
1088	William Patterson	1612	Peter Marsh
1088	William Patterson	1619	Tom King

TUGAS 2

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

   Diane Murphy (President)

- Mary Patterson (VP Sales)
    - William Patterson (Sales Manager APAC)
        - Leslie Jennings (Sales Rep)
        - Leslie Thompson (Sales Rep)
        - Yoshimi Kato (Sales Rep)
        - Tom King (Sales Rep)
    - Gerard Bondur (Sales Manager EMEA)
        - Julie Firrelli (Sales Rep)
        - Anthony Bow (Sales Rep)
        - Martin Gerard (Sales Rep)
    - Steve Patterson (Sales Manager NA)
        - Pamela Castillo (Sales Rep)
        - Larry Bott (Sales Rep)

        - Barry Jones (Sales Rep)
        - Peter Marsh (Sales Rep)
        - Andy Fixter (Sales Rep)
        - Foon Yue Tseng (Sales Rep)
        - George Vanauf (Sales Rep)
        - Mami Nishi (Sales Rep)
- Jeff Firrelli (VP Marketing)

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.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	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
1143	Anthony Bow	1165	Leslie Jennings	6
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	1621	Mami Nishi	5
1056	Mary Patterson	1102	Gerard Bondur	0
1056	Mary Patterson	1143	Anthony Bow	0
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?**

   Pamela Castillo, employee number : 1401, with 10 total customers

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!**

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

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

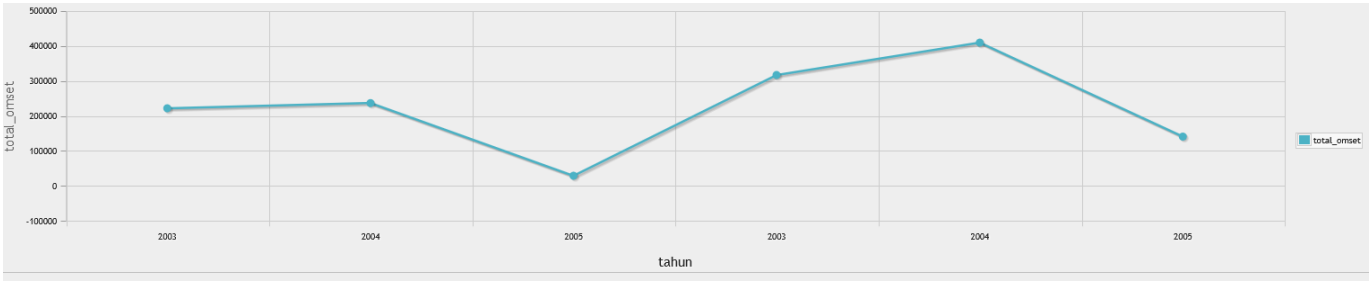
id_pegawai	nama_pegawai	total_omset	ranking
1370	Gerard Hernandez	1258577.81	1
1165	Leslie Jennings	1081530.54	2
1401	Pamela Castillo	868220.55	3
1501	Larry Bott	732096.79	4
1504	Barry Jones	704853.91	5
1323	George Vanauf	669377.05	6
1612	Peter Marsh	584593.76	7
1337	Loui Bondur	569485.75	8
1611	Andy 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?**

No	Nama Field	Keterangan
1	id_pegawai	ID pegawai sebagai identitas unik
2	nama_pegawai	Nama pegawai (gabungan firstName & lastName)
3	total_customer_transacting	KPI 1: Jumlah customer yang bertransaksi
4	total_omset	KPI 2: Total omzet yang didapat
5	ranking	Peringkat pegawai berdasarkan KPI

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

id_pegawai	nama_pegawai	tahun ▲ 2	total_omset
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	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 melaluai OLTP yang ada.

Hasil report yang diinginkan adalah grafik berdasarkan tabel berikut:

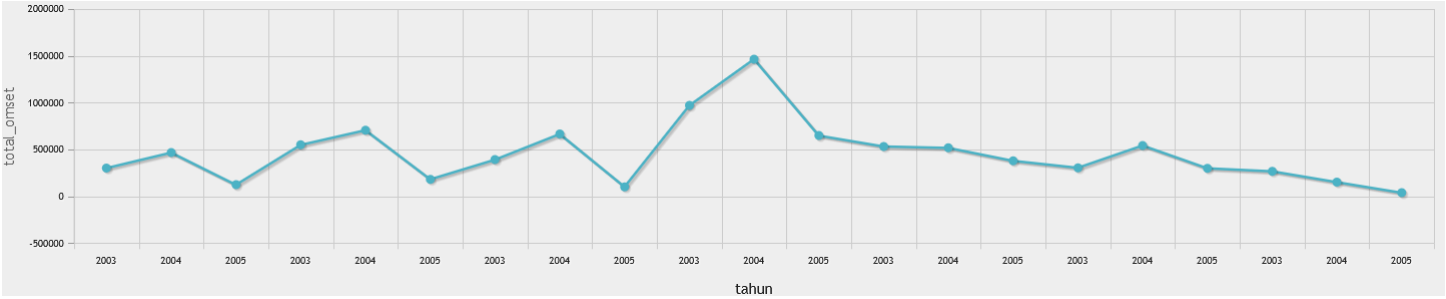
Field yang dibutuhkan

No	Nama Field	Sumber Tabel	Keterangan
1	officeCode	offices	ID cabang
2	city	offices	Nama cabang/kota
3	orderDate	orders	Tanggal transaksi
4	orderNumber	orders	Nomor pesanan
5	quantityOrdered	orderdetails	Jumlah produk dalam pesanan
6	priceEach	orderdetails	Harga per produk
7	total_omset	(perhitungan)	`quantityOrdered * priceEach`

Data yang Dihasilkan

id_cabang	nama_cabang	tahun ▲ 1	total_omset
3	NYC	2003	391175.53
4	Paris	2003	969959.90
5	Tokyo	2003	267249.40
6	Sydney	2003	304949.11
1	San Francisco	2003	532681.13
7	London	2003	549551.94
2	Boston	2003	301781.38
3	NYC	2004	665317.99
4	Paris	2004	1465229.84
5	Tokyo	2004	151761.45
6	Sydney	2004	542996.02
1	San Francisco	2004	517408.62
2	Boston	2004	467177.07
7	London	2004	706014.52
3	NYC	2005	101096.20
4	Paris	2005	648571.84
5	Tokyo	2005	38099.22
6	Sydney	2005	299231.22
1	San Francisco	2005	378973.82
7	London	2005	181384.24
2	Boston	2005	123580.17

Grafik



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

No	Nama Field	Sumber Tabel	Keterangan
1	officeCode	offices	ID Cabang
2	city	offices	Nama Cabang
3	orderDate	orders	Tanggal Order
4	orderNumber	orders	Nomor Order

Data yang dihasilkan

id_cabang	nama_cabang	tahun ▲ 1	total_pesanan
5	Tokyo	2003	7
6	Sydney	2003	12
7	London	2003	18
1	San Francisco	2003	17
2	Boston	2003	9
3	NYC	2003	14
4	Paris	2003	34
5	Tokyo	2004	6
6	Sydney	2004	15
7	London	2004	24
1	San Francisco	2004	17
2	Boston	2004	18
3	NYC	2004	22
4	Paris	2004	49
4	Paris	2005	23
5	Tokyo	2005	3
6	Sydney	2005	11
7	London	2005	5
1	San Francisco	2005	14
2	Boston	2005	5
3	NYC	2005	3

Grafik