

LAPORAN TUGAS DATA WAREHOUSE

Jobsheet 2



Oleh :

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**JURUSAN TEKNOLOGI INFORMASI
PRODI D-IV SISTEM INFORMASI BISNIS
POLITEKNIK NEGERI MALANG
2024**

TUGAS 1

1. Import data perusahaan tersebut pada DBMS MySQL!

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 KiB	-
<input type="checkbox"/> employees	★ Browse Structure Search Insert Empty Drop	23	InnoDB	utf8mb4_0900_ai_ci	48.0 KiB	-
<input type="checkbox"/> offices	★ Browse Structure Search Insert Empty Drop	7	InnoDB	utf8mb4_0900_ai_ci	16.0 KiB	-
<input type="checkbox"/> orderdetails	★ Browse Structure Search Insert Empty Drop	2,996	InnoDB	utf8mb4_0900_ai_ci	32.0 KiB	-
<input type="checkbox"/> orders	★ Browse Structure Search Insert Empty Drop	326	InnoDB	utf8mb4_0900_ai_ci	32.0 KiB	-
<input type="checkbox"/> payments	★ Browse Structure Search Insert Empty Drop	273	InnoDB	utf8mb4_0900_ai_ci	16.0 KiB	-
<input type="checkbox"/> productlines	★ Browse Structure Search Insert Empty Drop	7	InnoDB	utf8mb4_0900_ai_ci	16.0 KiB	-
<input type="checkbox"/> products	★ Browse Structure Search Insert Empty Drop	110	InnoDB	utf8mb4_0900_ai_ci	80.0 KiB	-
8 tables	Sum	3,864	InnoDB	utf8mb4_0900_ai_ci	304.0 KiB	0 B

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

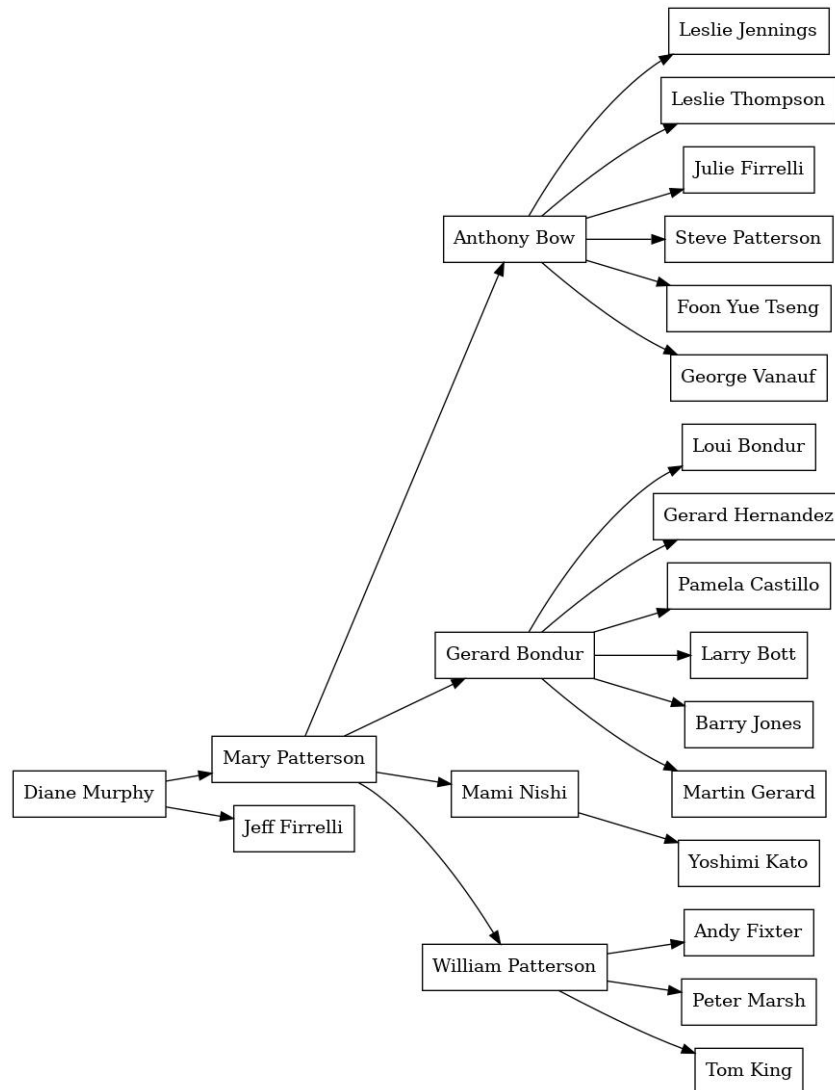
Tabel 1	Tabel 2	Jenis Relasi
productlines	product	one to many
product	orderdetails	one to many
orders	orderdetails	one to many
customers	orders	one to many
customers	payments	one to many
employees	customers	one to many
offices	employees	one to many
employees	employees	one to many

3. Analisa jumlah field pada setiap tabel!

Nama Tabel	Jumlah Field
customers	13
orders	6
orderdetails	4
product	9
productlines	4
employees	6
offices	9
payments	4

TUGAS 2

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



TUGAS 3

1. Siapakah staff dengan hirarki paling bawah yang berprestasi dilihat dari jumlah customer terbanyak?
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!
3. Analisa kembali data LegendVehicle untuk mendapatkan ranking pegawai berdasarkan KPI "Jumlah omset yang didapat". Urutkan ranking pegawai beserta keterangan dana yang didapat!

1. Pamela Castillo dengan total 10 customer

2 .

```
SELECT

    manager.employeeNumber AS id_manager,  CONCAT(manager.firstName, ' ',
manager.lastName) AS    nama_manager, COUNT(DISTINCT cust.customerNumber) AS
    total_customer_direct,                COALESCE(SUM(subordinate.total_customer), 0) AS
    total_customer_bawahan, (COUNT(DISTINCT      cust.customerNumber) +
    COALESCE(SUM(subordinate.total_customer), 0)) AS total_kpi

FROM employees manager

LEFT JOIN employees employee ON manager.employeeNumber = employee.reportsTo

LEFT JOIN customers cust ON manager.employeeNumber = cust.salesRepEmployeeNumber

LEFT JOIN

    ( SELECT e.reportsTo, COUNT(c.customerNumber) AS          total_customer FROM
employees e

    LEFT JOIN customers c ON e.employeeNumber =          c.salesRepEmployeeNumber

    GROUP BY e.reportsTo )

subordinate ON manager.employeeNumber = subordinate.reportsTo

GROUP BY manager.employeeNumber

ORDER BY total_kpi DESC;
```

id_manager	nama_manager	total_customer_direct	total_customer_bawahan	total_kpi ▾ 1
1102	Gerard Bondur	0	276	276
1143	Anthony Bow	0	234	234
1088	William Patterson	0	30	30
1056	Mary Patterson	0	20	20
1401	Pamela Castillo	10	0	10
1504	Barry Jones	9	0	9
1323	George Vanauf	8	0	8
1501	Larry Bott	8	0	8
1286	Foon Yue Tseng	7	0	7
1370	Gerard Hernandez	7	0	7
1165	Leslie Jennings	6	0	6
1166	Leslie Thompson	6	0	6
1188	Julie Firrelli	6	0	6
1216	Steve Patterson	6	0	6
1337	Loui Bondur	6	0	6
1702	Martin Gerard	6	0	6
1611	Andy Fixter	5	0	5
1612	Peter Marsh	5	0	5
1621	Mami Nishi	5	0	5
1002	Diane Murphy	0	0	0
1076	Jeff Firrelli	0	0	0
1619	Tom King	0	0	0
1625	Yoshimi Kato	0	0	0

3.

```
SELECT
```

```
e.employeeNumber AS id_pegawai, CONCAT(e.firstName, ' ', e.lastName) AS nama_pegawai,  
COALESCE(SUM(p.amount), 0) AS total_omset FROM employees e
```

```
LEFT JOIN customers c ON e.employeeNumber = c.salesRepEmployeeNumber
```

```
LEFT JOIN payments p ON c.customerNumber = p.customerNumber GROUP BY e.employeeNumber
```

```
ORDER BY total_omset DESC;
```

id_pegawai	nama_pegawai	total_omset ▾ 1
1370	Gerard Hernandez	1112003.81
1165	Leslie Jennings	989906.55
1401	Pamela Castillo	750201.87
1501	Larry Bott	686653.25
1504	Barry Jones	637672.65
1323	George Vanauf	584406.80
1337	Loui Bondur	569485.75
1611	Andy Fixter	509385.82
1612	Peter Marsh	497907.16
1286	Foon Yue Tseng	488212.67
1621	Mami Nishi	457110.07
1216	Steve Patterson	449219.13
1702	Martin Gerard	387477.47
1188	Julie Firrelli	386663.20
1166	Leslie Thompson	347533.03
1002	Diane Murphy	0.00
1056	Mary Patterson	0.00
1076	Jeff Firrelli	0.00
1088	William Patterson	0.00
1102	Gerard Bondur	0.00
1143	Anthony Bow	0.00
1619	Tom King	0.00
1625	Yoshimi Kato	0.00

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?

```
SELECT

e.employeeNumber,

CONCAT(e.firstName, ' ', e.lastName) AS employeeName,

COUNT(DISTINCT c.customerNumber) AS total_customers,

SUM(p.amount) AS total_revenue

FROM employees e

LEFT JOIN customers c ON e.employeeNumber = c.salesRepEmployeeNumber

LEFT JOIN payments p ON c.customerNumber = p.customerNumber

GROUP BY e.employeeNumber

ORDER BY total_revenue DESC;
```

employeeNumber	employeeName	total_customers	total_revenue ▾ 1
1370	Gerard Hernandez	7	1112003.81
1165	Leslie Jennings	6	989906.55
1401	Pamela Castillo	10	750201.87
1501	Larry Bott	8	686653.25
1504	Barry Jones	9	637672.65
1323	George Vanauf	8	584406.80
1337	Loui Bondur	6	569485.75

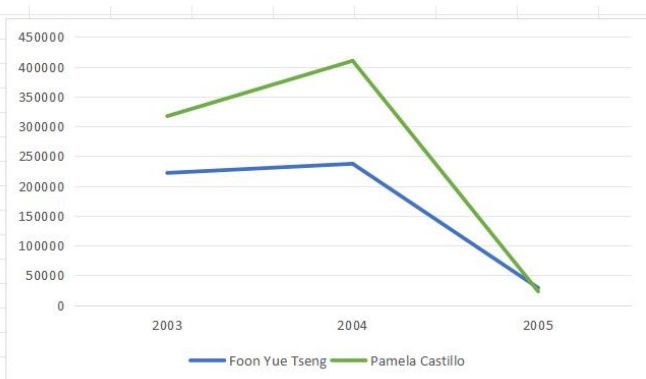
KPI	Jumlah Field
Jumlah customer yang bertransaksi	1(COUNT DISTINCT CustomerNumber)
jumlah omset yang didapatkan	1(SUM(amount))

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

```
SELECT
    e.employeeNumber,
    CONCAT(e.firstName, ' ', e.lastName) AS employeeName,
    YEAR(p.paymentDate) AS tahun,
    SUM(p.amount) AS total_revenue
FROM employees e
JOIN customers c ON e.employeeNumber = c.salesRepEmployeeNumber
JOIN payments p ON c.customerNumber = p.customerNumber
WHERE e.firstName IN ('Foon Yue', 'Pamela') AND e.lastName IN ('Tseng',
'Castillo')
GROUP BY e.employeeNumber, YEAR(p.paymentDate)
ORDER BY tahun, total_revenue DESC;
```

employeeNumber	employeeName	tahun	total_revenue
1401	Pamela Castillo	2003	317104.78
1286	Foon Yue Tseng	2003	221887.03
1401	Pamela Castillo	2004	409910.07
1286	Foon Yue Tseng	2004	237255.26
1286	Foon Yue Tseng	2005	29070.38
1401	Pamela Castillo	2005	23187.02

Tahun	Foon Yue Tseng	Pamela Castillo
2003	221887,03	317104,78
2004	237255,26	409910,07
2005	29070,38	23187,02



STUDI KASUS

Pak Huhut merupakan pemegang saham LegendVehicle. dia membutuhkan dashboard untuk melihat perkembangan penjualan (omset) di setiap 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
...			
...			

Analisa terlebih dahulu:

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

Nama Field	Asal Tabel	Keterangan
officeCode	offices	Kode unik cabang
city	offices	Nama cabang/kota
paymentDate	payments	Tanggal pembayaran
amount	payments	Total transaksi
customerNumber	customers	ID pelanggan
salesRepEmployeeNumber	customers	ID sales representative
employeeNumber	employees	ID karyawan/sales
officeCode	employees	Cabang tempat sales bekerja

2. Bentuk query dengan memperhatikan relasi antar tabel.

```
SELECT

b.officeCode AS cabang,

YEAR(p.paymentDate) AS tahun,

SUM(p.amount) AS total_omset

FROM payments p

JOIN customers c ON p.customerNumber = c.customerNumber

JOIN employees e ON c.salesRepEmployeeNumber = e.employeeNumber

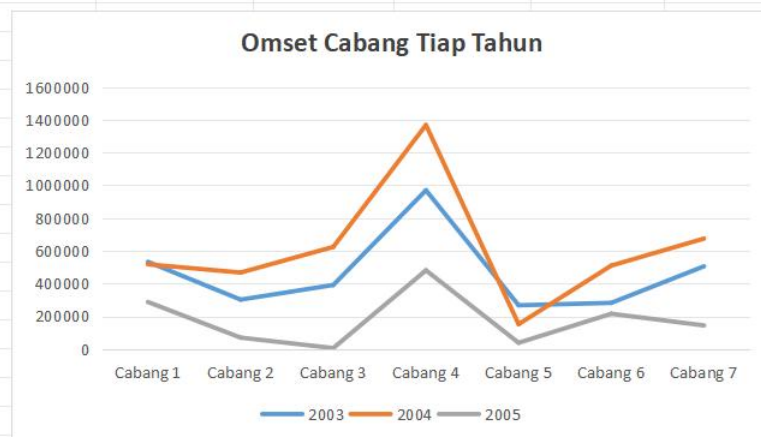
JOIN offices b ON e.officeCode = b.officeCode

GROUP BY b.officeCode, YEAR(p.paymentDate)

ORDER BY tahun, cabang;
```

cabang	tahun	total_omset
1	2003	532681.13
2	2003	301781.38
3	2003	391175.53
4	2003	969959.90
5	2003	267249.40
6	2003	281985.51
7	2003	505384.85
1	2004	517408.62
2	2004	467177.07
3	2004	623872.78
4	2004	1368458.96
5	2004	151761.45
6	2004	509833.62
7	2004	674815.75
1	2005	287349.83
2	2005	66923.88
3	2005	57571.16
4	2005	480750.04
5	2005	38099.22
6	2005	215473.85
7	2005	144125.30

Tahun	Cabang 1	Cabang 2	Cabang 3	Cabang 4	Cabang 5	Cabang 6	Cabang 7
2003	532681,13	301781,4	391175,5	969959,9	267249,4	281985,5	505384,9
2004	517408,62	467177,1	623872,8	1368459	151761,5	509833,6	674815,8
2005	287349,83	69623,88	5757,16	480750,04	38099,22	215473,9	144125,3



SOAL BONUS

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

Report Top 5 Sales dengan Omset Tertinggi

Nama Field	Asal Tabel	Keterangan
employeeNumber	employees	ID Karyawan
firstName + lastName	employees	Nama Sales
SUM(amount)	payments	Total omset yang diperoleh
YEAR(paymentDate)	payments	Tahun transaksi

```
SELECT

e.employeeNumber,

CONCAT(e.firstName, ' ', e.lastName) AS nama_sales,

YEAR(p.paymentDate) AS tahun,

SUM(p.amount) AS total_omset

FROM payments p

JOIN customers c ON p.customerNumber = c.customerNumber

JOIN employees e ON c.salesRepEmployeeNumber = e.employeeNumber

GROUP BY e.employeeNumber, nama_sales, YEAR(p.paymentDate)

ORDER BY tahun, total_omset DESC

LIMIT 5;
```

employeeNumber	nama_sales	tahun ▲ 1	total_omset ▼ 2
1165	Leslie Jennings	2003	413219.85
1401	Pamela Castillo	2003	317104.78
1370	Gerard Hernandez	2003	295246.44
1621	Mami Nishi	2003	267249.40
1501	Larry Bott	2003	261536.95

Tahun	Nama Sales	Total Omzet
2003	Leslie Jennings	413219,85
2003	Pamela Castillo	317104,78
2003	Gerard Hernandez	295246,44
2003	Mami Nishi	267249,4
2003	Larry Bott	261536,95

