

**LAPORAN PRAKTIKUM
DATA WAREHOUSE**

**JOBSHEET 2
DATABASE OPERASIONAL**



Oleh:

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SIB 2B

PROGRAM STUDI SISTEM INFORMASI BISNIS

JURUSAN TEKNOLOGI INFORMASI

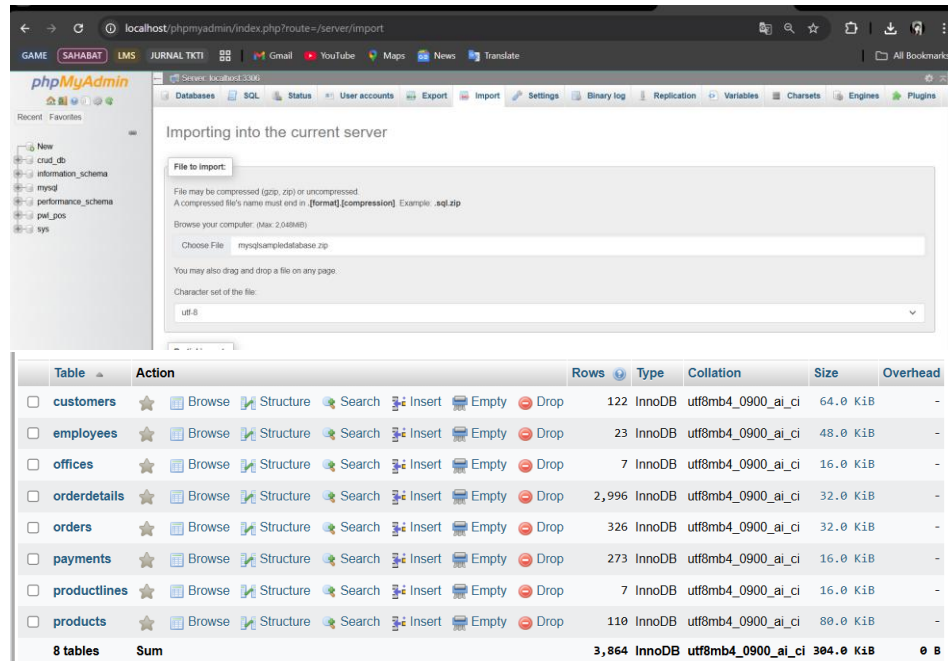
POLITEKNIK NEGERI MALANG

2025/2026

TUGAS 1

1. Import data perusahaan tersebut pada DBMS MySQL!

Jawaban:



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

Jawaban:

| Tabel 1 | Tabel 2 | Jenis relasi |
|--------------|---------------|--------------|
| productlines | products | one to many |
| products | orderdetails | one to many |
| orders | orederdetails | one to many |
| orders | customers | many to one |
| payments | customers | many to one |
| customers | employees | many to one |
| employees | offices | many to one |
| employess | employess | many to one |

3. Analisa jumlah field pada setiap tabel!

Jawaban:

| Nama Tabel | Jumlah Field |
|--------------|--------------|
| productlines | 4 |
| products | 9 |
| orderdetails | 5 |
| offices | 9 |
| employees | 8 |
| payments | 4 |
| customers | 13 |
| orders | 7 |

PRAKTIKUM 1

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

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

maka hasil dari query tersebut adalah data **Employee** beserta **Manajernya** dan **Customer** yang ia miliki. perhatikan hasil data dengan seksama.

Jawaban:

```
1 SELECT employee.*, manager.*, cust.*
2 FROM employees AS employee
3 JOIN employees AS manager ON employee.reportsTo = manager.employeeNumber
4 JOIN customers AS cust ON employee.employeeNumber = cust.salesRepEmployeeNumber;
```

| employeeNumber | lastName | firstName | extension | email | officeCode | reportsTo | jobTitle | employeeNumber | lastName | firstName | extension | email | officeCode | reportsTo | jobTitle | customerNumber | customerName | contactLastName | contactFirstName | phone | addressLine1 | addressLine2 | city | state | postalCode | country | salesRepEmployeeNumber | creditLimit | |
|----------------|-----------|-----------|-----------|---------------------------|------------|-----------|-----------|----------------|----------|-----------|-----------|---------------------|------------|-----------|--------------------|----------------|------------------------------|-----------------|------------------|------------|------------------------------|--------------|------|---------------|------------|---------|------------------------|-------------|------------|
| 1102 | Jennings | Leslie | 42021 | ljennings@saleslodge.com | 1 | 1142 | Sales Rep | 1142 | Bow | Anthony | 45428 | abow@saleslodge.com | 1 | 1002 | Sales Manager (NH) | 104 | Mt. Olin Distributors LLC | Nelson | Susan | 4155514420 | 5077 Strong St. | | U.S. | San Rafael | CA | 94762 | USA | 1102 | 21000.00 |
| 1102 | Jennings | Leslie | 42021 | ljennings@saleslodge.com | 1 | 1142 | Sales Rep | 1142 | Bow | Anthony | 45428 | abow@saleslodge.com | 1 | 1002 | Sales Manager (NH) | 129 | Mt. Wilson Co. | Murphy | Joan | 4055519791 | 1007 North Providence Street | | U.S. | San Francisco | CA | 94217 | USA | 1102 | 84000.00 |
| 1102 | Jennings | Leslie | 42021 | ljennings@saleslodge.com | 1 | 1142 | Sales Rep | 1142 | Bow | Anthony | 45428 | abow@saleslodge.com | 1 | 1002 | Sales Manager (NH) | 131 | Terrence Stone Inc. | Hopewell | Joel | 4055515502 | 34825 Feltz Circle | | U.S. | Burlington | CA | 94217 | USA | 1102 | 84000.00 |
| 1102 | Jennings | Leslie | 42021 | ljennings@saleslodge.com | 1 | 1142 | Sales Rep | 1142 | Bow | Anthony | 45428 | abow@saleslodge.com | 1 | 1002 | Sales Manager (NH) | 132 | Coronado CR House Co. | Brown | Julia | 4055511380 | 1724 Strong St. | | U.S. | San Francisco | CA | 94217 | USA | 1102 | 103000.00 |
| 1102 | Jennings | Leslie | 42021 | ljennings@saleslodge.com | 1 | 1142 | Sales Rep | 1142 | Bow | Anthony | 45428 | abow@saleslodge.com | 1 | 1002 | Sales Manager (NH) | 410 | The Top Gun Sports Warehouse | Pinto | Sam | 4095518186 | 1086 Ingle Ct. | | U.S. | San Jose | CA | 94217 | USA | 1102 | 719000.00 |
| 1102 | Jennings | Leslie | 42021 | ljennings@saleslodge.com | 1 | 1142 | Sales Rep | 1142 | Bow | Anthony | 45428 | abow@saleslodge.com | 1 | 1002 | Sales Manager (NH) | 487 | Signal Collection LLC | Taylor | Dan | 4155514412 | 2753 Feltz Circle | | U.S. | Burlington | CA | 94217 | USA | 1102 | 65000.00 |
| 1102 | Thompson | Leslie | 44005 | lthompson@saleslodge.com | 1 | 1142 | Sales Rep | 1142 | Bow | Anthony | 45428 | abow@saleslodge.com | 1 | 1002 | Sales Manager (NH) | 112 | Signal CR House | King | Joan | 7020010088 | 8485 Strong St. | | U.S. | Las Vegas | NV | 89109 | USA | 1102 | 719000.00 |
| 1102 | Thompson | Leslie | 44005 | lthompson@saleslodge.com | 1 | 1142 | Sales Rep | 1142 | Bow | Anthony | 45428 | abow@saleslodge.com | 1 | 1002 | Sales Manager (NH) | 219 | Bowens & Toys Co. | Young | Mary | 3105512275 | 4287 Douglas Ave. | | U.S. | Oakdale | CA | 92061 | USA | 1102 | 111000.00 |
| 1102 | Thompson | Leslie | 44005 | lthompson@saleslodge.com | 1 | 1142 | Sales Rep | 1142 | Bow | Anthony | 45428 | abow@saleslodge.com | 1 | 1002 | Sales Manager (NH) | 295 | Concannon Mtn Design Co. | Thompson | Valerie | 7601919441 | 361 Foothill Circle | | U.S. | San Diego | CA | 92127 | USA | 1102 | 999000.00 |
| 1102 | Thompson | Leslie | 44005 | lthompson@saleslodge.com | 1 | 1142 | Sales Rep | 1142 | Bow | Anthony | 45428 | abow@saleslodge.com | 1 | 1002 | Sales Manager (NH) | 347 | Star 'N' Lot Hardware Ltd. | Chandler | Blair | 2105514435 | 6347 Douglas Ave. | | U.S. | Los Angeles | CA | 91033 | USA | 1102 | 277000.00 |
| 1102 | Thompson | Leslie | 44005 | lthompson@saleslodge.com | 1 | 1142 | Sales Rep | 1142 | Bow | Anthony | 45428 | abow@saleslodge.com | 1 | 1002 | Sales Manager (NH) | 475 | Red Cloud Collections Co. | Thompson | Steve | 6170515522 | 3075 Feltz Circle | | U.S. | Burlington | CA | 94219 | USA | 1102 | 56400.00 |
| 1102 | Finelli | Joan | 42173 | jfinelli@saleslodge.com | 2 | 1142 | Sales Rep | 1142 | Bow | Anthony | 45428 | abow@saleslodge.com | 1 | 1002 | Sales Manager (NH) | 173 | Cambridge Collections Co. | Tsang | Jerry | 6170515533 | 4038 Boston Ave. | | U.S. | Cambridge | MA | 02147 | USA | 1102 | 43400.00 |
| 1102 | Finelli | Joan | 42173 | jfinelli@saleslodge.com | 2 | 1142 | Sales Rep | 1142 | Bow | Anthony | 45428 | abow@saleslodge.com | 1 | 1002 | Sales Manager (NH) | 254 | China Road Collections | Blanch | Miguel | 6170515535 | 7155 Somerville Dr. | | U.S. | Burlington | MA | 01803 | USA | 1102 | 949100.00 |
| 1102 | Finelli | Joan | 42173 | jfinelli@saleslodge.com | 2 | 1142 | Sales Rep | 1142 | Bow | Anthony | 45428 | abow@saleslodge.com | 1 | 1002 | Sales Manager (NH) | 320 | Mt. Constance LLC | Huang | Wing | 6880516660 | 4071 Hinkle Dr. | | U.S. | New Bedford | MA | 01935 | USA | 1102 | 84000.00 |
| 1102 | Finelli | Joan | 42173 | jfinelli@saleslodge.com | 2 | 1142 | Sales Rep | 1142 | Bow | Anthony | 45428 | abow@saleslodge.com | 1 | 1002 | Sales Manager (NH) | 330 | Classic CR House, Inc. | Carverston | Francisco | 2105514402 | 752 First Street | | U.S. | Philadelphia | PA | 17125 | USA | 1102 | 871000.00 |
| 1102 | Finelli | Joan | 42173 | jfinelli@saleslodge.com | 2 | 1142 | Sales Rep | 1142 | Bow | Anthony | 45428 | abow@saleslodge.com | 1 | 1002 | Sales Manager (NH) | 379 | Concannon Mt. Lake Inc. | Nelson | Alan | 6170515550 | 7123 Douglas Ave. | | U.S. | Burlington | MA | 01803 | USA | 1102 | 701000.00 |
| 1102 | Finelli | Joan | 42173 | jfinelli@saleslodge.com | 2 | 1142 | Sales Rep | 1142 | Bow | Anthony | 45428 | abow@saleslodge.com | 1 | 1002 | Sales Manager (NH) | 495 | Deseret Collections | Francis | Valerie | 6170515551 | 4251 Ingle Ct. | | U.S. | Boston | MA | 01803 | USA | 1102 | 811000.00 |
| 1216 | Patterson | Steve | 44324 | spatterson@saleslodge.com | 2 | 1142 | Sales Rep | 1142 | Bow | Anthony | 45428 | abow@saleslodge.com | 1 | 1002 | Sales Manager (NH) | 137 | Deseret Classics Inc. | Loring | Karen | 2105511001 | 7586 Plympton St. | | U.S. | Albany | PA | 91247 | USA | 1216 | 660000.00 |
| 1216 | Patterson | Steve | 44324 | spatterson@saleslodge.com | 2 | 1142 | Sales Rep | 1142 | Bow | Anthony | 45428 | abow@saleslodge.com | 1 | 1002 | Sales Manager (NH) | 198 | Autobank Classics Inc. | Taylor | Leslie | 6170515544 | 10786 Plympton St. | | U.S. | Burlington | MA | 01803 | USA | 1216 | 218000.00 |
| 1216 | Patterson | Steve | 44324 | spatterson@saleslodge.com | 2 | 1142 | Sales Rep | 1142 | Bow | Anthony | 45428 | abow@saleslodge.com | 1 | 1002 | Sales Manager (NH) | 286 | Martha's Real Estate Co. | Hernandez | Maria | 6170515552 | 30323 Somerville Dr. | | U.S. | Cambridge | MA | 02147 | USA | 1216 | 1217000.00 |
| 1216 | Patterson | Steve | 44324 | spatterson@saleslodge.com | 2 | 1142 | Sales Rep | 1142 | Bow | Anthony | 45428 | abow@saleslodge.com | 1 | 1002 | Sales Manager (NH) | 362 | Shelburne Agency Inc. | Yoshida | Joel | 6170515560 | 8916 Somerville Dr. | | U.S. | Boston | MA | 02103 | USA | 1216 | 478000.00 |
| 1216 | Patterson | Steve | 44324 | spatterson@saleslodge.com | 2 | 1142 | Sales Rep | 1142 | Bow | Anthony | 45428 | abow@saleslodge.com | 1 | 1002 | Sales Manager (NH) | 831 | China Road Collections Co. | Young | Emily | 6880516647 | 2184 Long Street Avenue | | U.S. | New Bedford | MA | 01935 | USA | 1216 | 1140000.00 |
| 1216 | Tsang | Foon Yue | 42043 | ftsang@saleslodge.com | 3 | 1142 | Sales Rep | 1142 | Bow | Anthony | 45428 | abow@saleslodge.com | 1 | 1002 | Sales Manager (NH) | 611 | Macintosh Machine Inc. | Young | Jeff | 2105517411 | 4892 Feltz Circle | Suite 400 | U.S. | NYC | NY | 10022 | USA | 1216 | 1089000.00 |

1

Done

1

Number of rows

20

Filter on

Search by text

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.

Jawaban:

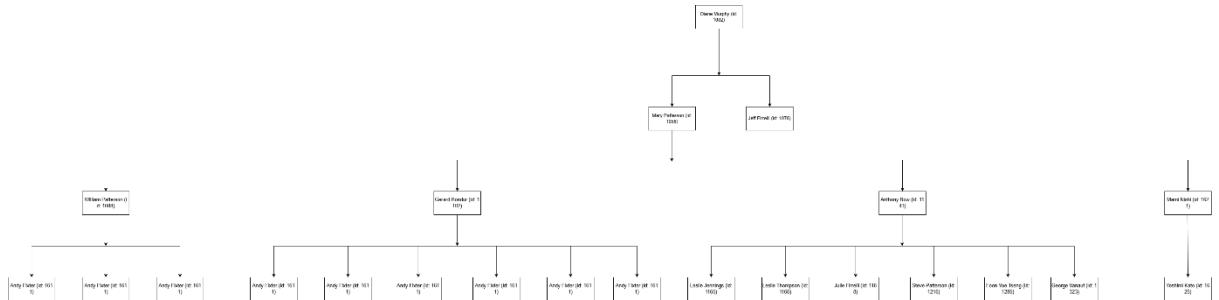
```
1 SELECT manager.employeeNumber AS id_manager,
2       CONCAT(manager.firstName, ' ', manager.lastName) AS Manager,
3       employee.employeeNumber AS id_staff,
4       CONCAT(employee.firstName, ' ', employee.lastName) AS staff
5 FROM employees employee, employees manager
6 WHERE employee.reportsTo = 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 | 1286 | Foon Yue Tseng |
| 1143 | Anthony Bow | 1323 | George Vanaufr |
| 1002 | Diane Murphy | 1056 | Mary Patterson |
| 1002 | Diane Murphy | 1076 | Jeff Firrelli |
| 1102 | Gerard Bondur | 1337 | Louie 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. Gambarlah hirarki organisasi berdasarkan atasan dari setiap pegawai sesuai dengan hasil praktikum diatas!

Jawaban:



Link

draw.io:

https://drive.google.com/file/d/1hhDh0zhWx30r7_xoZ7O95fCVf_OT6oT7/view?usp=sharing

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**.

Jawaban:

```

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 employees employee
8 JOIN employees manager ON employee.reportsTo = manager.employeeNumber
9 LEFT JOIN customers cust ON employee.employeeNumber = cust.salesRepEmployeeNumber
10 GROUP BY employee.employeeNumber, manager.employeeNumber
11 ORDER BY 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 | 5 |
| 1143 | Anthony Bow | 1216 | Stevie 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 Kino | 5 |

TUGAS 3

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

Jawaban: Pamela Castillo (id: 1401) dengan total 10 customer.

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!

Jawaban:

| RANK | Pegawai | Total Customer | Keterangan |
|------|----------------|----------------|------------------------------------------------------------------------------------------------------------|
| 1 | Gerrard Bondur | 46 | Bawahan: 6 staff dengan total_cust = 6+7+10+8+9+6 = 46 |
| 2 | Mary Patterson | 22 | Bawahan: William Patterson (5+5+5=15) + Gerard Bondur (6+7+10+8+9+6=46) + Anthony Bow (8) + Mami Nishi (5) |
| 3 | Diane Murphy | 8 | Bawahan: Mary Patterson (0) + Jeff Firrelli (0) + Anthony Bow (8) |
| 4 | Anthony Bow | 8 | Bawahan: 6 staff dengan total_cust = 6+6+6+6+7+8 = 39 |

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

Jawaban: Untuk mendapatkan ranking berdasarkan jumlah omset, perlu mengambil data dari tabel orders dan payments terlebih dahulu

```

1 SELECT e.employeeNumber,
2       CONCAT(e.firstName, ' ', e.lastName) AS Nama_Pegawai,
3       SUM(p.amount) AS Total_Omset
4 FROM employees e
5 JOIN customers c ON e.employeeNumber = c.salesRepEmployeeNumber
6 JOIN payments p ON c.customerNumber = p.customerNumber
7 GROUP BY e.employeeNumber
8 ORDER BY Total_Omset DESC;

```

| employeeNumber | Nama_Pegawai | Total_Omset |
|----------------|------------------|-------------|
| 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 |

Hasil dari query tersebut sudah menampilkan ranking pegawai berdasarkan omset yang mereka hasilkan.

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?

Jawaban:

| KPI | Field yang Dibutuhkan |
|-----------------------------------|-----------------------|
| Jumlah customer yang bertransaksi | 7 Field |
| Jumlah omset yang didapat | 9 Field |

- Jumlah customer yang bertransaksi membutuhkan 7 field dari tabel employees, customers, dan hasil perhitungan dari COUNT(customerNumber).
 - Jumlah omset yang didapat membutuhkan 9 field, termasuk amount dari tabel payments dan hasil perhitungan dari SUM(amount).
5. Buatlah report pertahun untuk KPI "Jumlah omset yang didapat" pada Foon Yue Tseng dan Pamela Castillo. Serta gambarkan grafiknya (grafik garis).

Jawaban:

- Cek jumlah omset yang didapatkan Foon Yue Tseng dan Pamela Castillo:

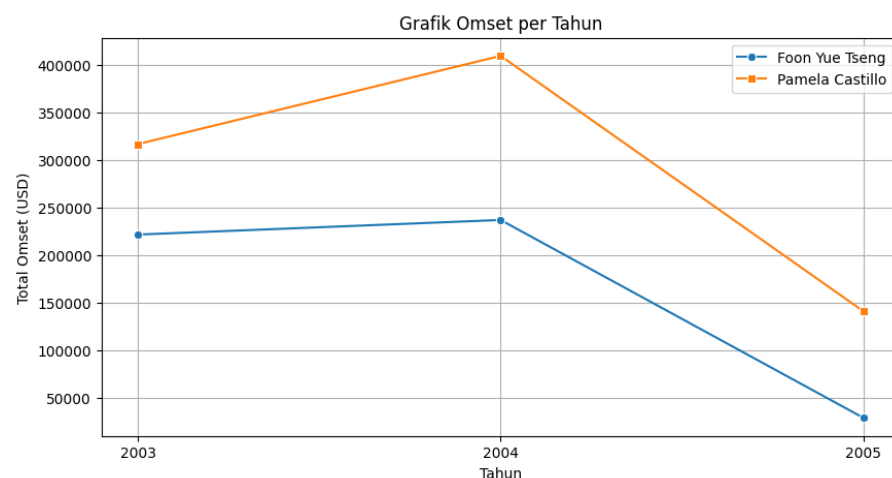
```

1 SELECT e.employeeNumber,
2        CONCAT(e.firstName, ' ', e.lastName) AS Nama,
3        YEAR(o.orderDate) AS Tahun,
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 WHERE e.employeeNumber IN (1286, 1401) -- ID Foon Yue Tseng & Pamela Castillo
10 GROUP BY e.employeeNumber, Tahun
11 ORDER BY Tahun;

```

| employeeNumber | Nama | Tahun | Total_Omset |
|----------------|-----------------|-------|-------------|
| 1286 | Foon Yue Tseng | 2003 | 221887.03 |
| 1401 | Pamela Castillo | 2003 | 317104.78 |
| 1286 | Foon Yue Tseng | 2004 | 237255.26 |
| 1401 | Pamela Castillo | 2004 | 409910.07 |
| 1286 | Foon Yue Tseng | 2005 | 29070.38 |
| 1401 | Pamela Castillo | 2005 | 141205.70 |

- Grafik



Link Google Colab:

https://colab.research.google.com/drive/1o7O__OepleZaKu1t-jfGxlQqd3rhD-TL?usp=sharing

- Analisis tren Grafik
 - 1) Tren Omset per Tahun
 - Foon Yue Tseng mengalami kenaikan dari 221,887.03 (2003) menjadi 237,255.26 (2004), tetapi mengalami penurunan drastis pada 2005 menjadi 29,070.38.
 - Pamela Castillo menunjukkan tren yang lebih fluktuatif. Omsetnya meningkat dari 317,104.78 (2003) menjadi 409,910.07 (2004), lalu menurun cukup signifikan ke 141,205.70 (2005).
 - 2) Perbandingan Kinerja
 - Pamela Castillo memiliki omset lebih tinggi dibandingkan Foon Yue Tseng di setiap tahun.
 - Pada 2004, Pamela Castillo mencapai puncak omsetnya, yaitu 409,910.07, yang merupakan nilai tertinggi dibandingkan semua data lainnya.
 - 3) Penurunan Omset di 2005
 - Kedua staff mengalami penurunan drastis di tahun 2005, dengan Foon Yue Tseng memiliki penurunan lebih tajam dibandingkan Pamela Castillo.

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 |
|-------------|------|------|------|
| ... | | | |
| ... | | | |

Analisislah terlebih dahulu:

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

Jawaban:

- branchName: Nama Cabang
 - year(orderDate): Tahun Penjualan
 - SUM(amount): Total Omset per Cabang per Tahun
 - orderNumber: ID Transaksi
 - customerNumber: ID Pelanggan
 - salesRepEmployeeNumber: ID Sales yang menangani transaksi
2. Bentuk query dengan memperhatikan relasi antar tabel.
 - offices: Menyimpan data cabang perusahaan.

- employees: Menyimpan data karyawan (termasuk sales).
- customers: Menyimpan data pelanggan, termasuk sales yang menangani.
- orders: Menyimpan informasi pesanan, termasuk tanggal order dan pelanggan.
- orderdetails: Menyimpan detail pesanan, seperti jumlah dan harga barang yang dibeli.
- payments: Menyimpan informasi pembayaran dari pelanggan (total omset).

Query SQL:

```
SELECT o.city AS branchName, 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 o ON
e.officeCode = o.officeCode GROUP BY o.city, YEAR(p.paymentDate) ORDER
BY o.city, YEAR(p.paymentDate);
```

SOAL BONUS:

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

Jawaban:

Report Analisis waktu oaling sibuk dalam setahun: menentukan bulan paling sibuk dalam setahun berdasarkan jumlah transaksi (orders) yang terjadi.

1) Field yang Dibutuhkan:

- Tahun (YEAR(orderDate)): Untuk melihat perubahan tiap tahun.
- Bulan (MONTH(orderDate)): Untuk melihat pola bulanan.
- Jumlah Order (COUNT(orderNumber)): Untuk menghitung total transaksi tiap bulan.
- Total Omset (SUM(priceEach * quantityOrdered)): Untuk melihat dampak penjualan.

2) Query SQL untuk Report

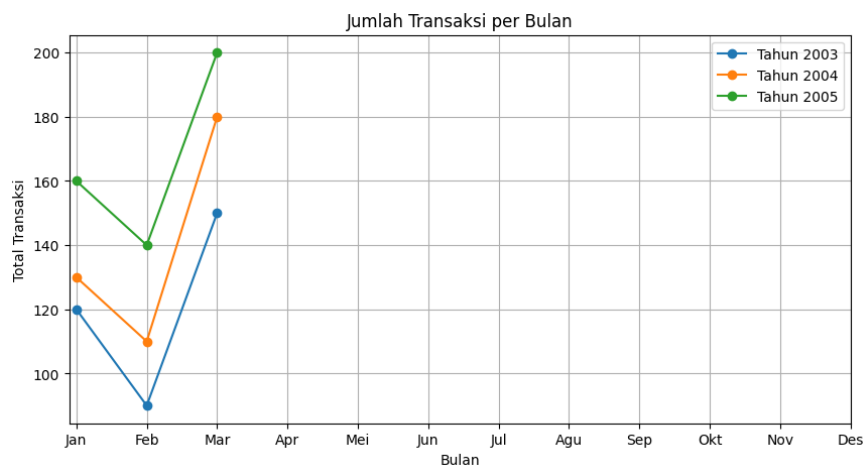
```
SELECT YEAR(o.orderDate) AS Tahun, MONTH(o.orderDate) AS Bulan,
COUNT(o.orderNumber) AS Total_Transaksi, SUM(od.priceEach *
od.quantityOrdered) AS Total_Omset FROM orders o JOIN orderdetails od ON
o.orderNumber = od.orderNumber GROUP BY Tahun, Bulan ORDER BY Tahun
ASC, Bulan ASC;
```

3) Struktur Tabel Report

| Tahun | Bulan | Total Transaksi | Total Omset |
|-------|---------|-----------------|-------------|
| 2003 | 1 (Jan) | 120 | 320,000 |
| 2003 | 2 (Feb) | 90 | 275,000 |
| 2003 | 3 (Mar) | 150 | 400,000 |
| 2004 | 1 (Jan) | 130 | 350,000 |
| 2004 | 2 (Feb) | 110 | 300,000 |
| 2004 | 3 (Mar) | 180 | 500,000 |
| 2005 | 1 (Jan) | 160 | 420,000 |
| 2005 | 2 (Feb) | 140 | 380,000 |

| | | | |
|------|---------|-----|---------|
| 2005 | 3 (Mar) | 200 | 550,000 |
|------|---------|-----|---------|

4) Grafik Report (Grafik Garis - Tren Transaksi Bulanan)



Link Google Colab: https://colab.research.google.com/drive/1o7O__OepleZaKult-jfGxlQqd3rhD-TL?usp=sharing