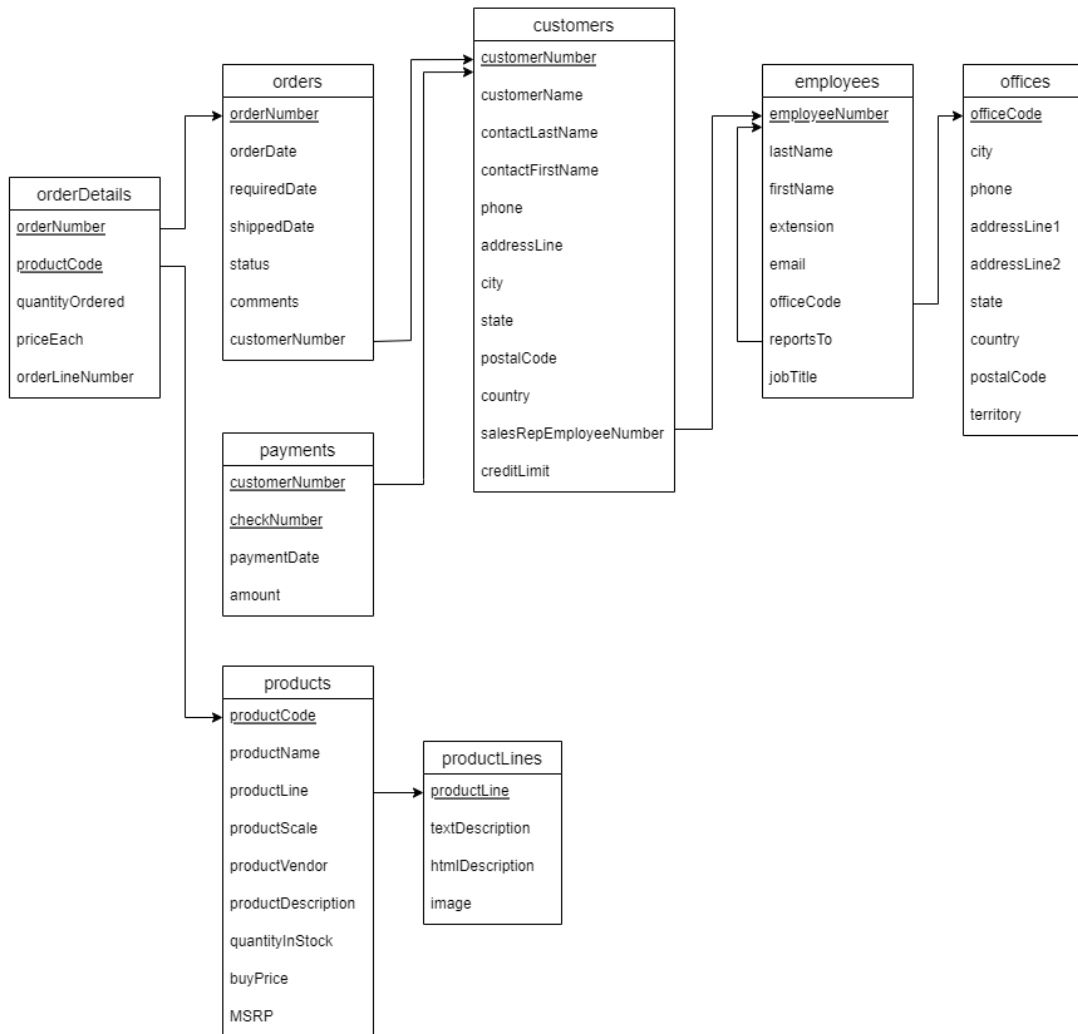# Lembar Kerja Praktikum 2 IF2240 Basis Data

Materi: SQL (Part 2 & Part 3)

I. Skema Basis Data

Diberikan skema basis data sebagai [berikut](), yang tersimpan dalam database `prak2`. Database ini memiliki isi yang sama dengan database `prak1`.

I. Soal

1. Buatlah query yang menampilkan 6 negara dengan pelanggan terbanyak terurut menurun berdasarkan jumlah pelanggan.
   (clue: Gunakan LIMIT untuk membatasi jumlah *rows* yang ditampilkan)

QUERY:
SELECT country
    -> FROM customers
    -> GROUP BY country
    -> ORDER BY COUNT(*) DESC
    -> LIMIT 6;

SCREENSHOT:

```
MariaDB [prak1]> SELECT country
    -> FROM customers
    -> GROUP BY country
    -> ORDER BY COUNT(*) DESC
    -> LIMIT 6;
+-----------+
| country   |
+-----------+
| USA       |
| Germany   |
| France    |
| Spain     |
| Australia |
| UK        |
+-----------+
6 rows in set (0.001 sec)
```

---

2. Tuliskan query yang memberikan nama customer, nama lengkap kontak pelanggan tersebut, negara, tanggal, serta jumlah pembayaran (amount) yang dilakukan pada April 2005!
   (clue: gunakan CONCAT() untuk menggabungkan string, YEAR() dan MONTH() untuk mengambil tahun dan bulan dari tanggal)

QUERY:
SELECT customerName, CONCAT(contactFirstName, ' ', contactLastName) AS fullName, country, paymentDate, amount
    -> FROM customers NATURAL JOIN payments
    -> WHERE YEAR(paymentDate) = 2005 AND MONTH(paymentDate) = 4;

SCREENSHOT:

```
MariaDB [prak1]> SELECT customerName, CONCAT(contactFirstName, ' ', contactLastName) AS f
ullName, country, paymentDate, amount
    -> FROM customers NATURAL JOIN payments
    -> WHERE YEAR(paymentDate) = 2005 AND MONTH(paymentDate) = 4;
+-----------------------------+--------------------+-----------+-------------+----------+
| customerName                | fullName           | country   | paymentDate | amount   |
+-----------------------------+--------------------+-----------+-------------+----------+
| Mini Gifts Distributors Ltd.| Susan Nelson       | USA       | 2005-04-16  | 83598.04 |
| Anna's Decorations, Ltd     | Anna O'Hara        | Australia | 2005-04-30  | 29848.52 |
| Auto Canal+ Petit           | Dominique Perrier  | France    | 2005-04-23  | 12190.85 |
| Scandinavian Gift Ideas     | Martha Larsson     | Sweden    | 2005-04-18  | 27966.54 |
| FunGiftIdeas.com            | Violeta Benitez    | USA       | 2005-04-15  | 30293.77 |
+-----------------------------+--------------------+-----------+-------------+----------+
5 rows in set (0.008 sec)
```

3. Buatlah query untuk menampilkan nama customer yang mengandung nama "Mini" beserta jumlah dari seluruh produk yang pernah mereka pesan. Urutkan berdasarkan customer dengan jumlah pemesanan produk terbanyak.

QUERY:
SELECT customerName, COUNT(*) AS total_order
    -> FROM customers NATURAL JOIN orders
    -> WHERE customerName LIKE '%Mini%'
    -> GROUP BY customerName
    -> ORDER BY COUNT(*) DESC;

SCREENSHOT:
```
MariaDB [prak1]> SELECT customerName, COUNT(*) AS total_order
    -> FROM customers NATURAL JOIN orders
    -> WHERE customerName LIKE '%Mini%'
    -> GROUP BY customerName
    -> ORDER BY COUNT(*) DESC;
+-----------------------------+-------------+
| customerName                | total_order |
+-----------------------------+-------------+
| Mini Gifts Distributors Ltd.|          17 |
| Baane Mini Imports          |           4 |
| Mini Creations Ltd.         |           3 |
| Mini Caravy                 |           3 |
| Marseille Mini Autos        |           3 |
| Mini Auto Werke             |           3 |
| Mini Wheels Co.             |           3 |
| Online Mini Collectables    |           2 |
| Collectable Mini Designs Co.|           2 |
| Mini Classics               |           2 |
+-----------------------------+-------------+
```

4. Buatlah query untuk menampilkan nama depan pegawai dan kode kantor pegawai yang telah melayani lebih dari 7 pelanggan. Tampilkan juga banyak pelanggan yang dilayani dan urutkan mengecil berdasarkan banyak pelanggan dilayani.

QUERY:
SELECT e.firstName, e.officeCode, COUNT(*) as customer_served
FROM employees e NATURAL JOIN customers c
WHERE e.employeeNumber = c.salesRepEmployeeNumber

```
GROUP BY e.employeeNumber
HAVING COUNT(*) > 7
ORDER BY COUNT(*) DESC;
```

SCREENSHOT:

```
MariaDB [prak1]> SELECT e.firstName, e.officeCode, COUNT(*) as customer_served
    -> FROM employees e NATURAL JOIN customers c
    -> WHERE e.employeeNumber = c.salesRepEmployeeNumber
    -> GROUP BY e.employeeNumber
    -> HAVING COUNT(*) > 7
    -> ORDER BY COUNT(*) DESC;
+-----------+------------+-----------------+
| firstName | officeCode | customer_served |
+-----------+------------+-----------------+
| Pamela    | 4          |              10 |
| Barry     | 7          |               9 |
| George    | 3          |               8 |
| Larry     | 7          |               8 |
+-----------+------------+-----------------+
4 rows in set (0.001 sec)
```

5. Buatlah query untuk menampilkan nomor pegawai, nama lengkap pegawai (`firstName` dan `lastName`), dan alamat email dari pegawai yang melayani pelanggan dengan 2 pemesanan terbanyak. Tampilkan juga nama pelanggan dan jumlah pemesanan yang dilakukannya.

QUERY:
```
SELECT employeeNumber, CONCAT(firstName, ' ', lastName) as
employee_full_name, email, customerName, COUNT(*) AS total_order
FROM employees e NATURAL JOIN customers c  NATURAL JOIN orders o
WHERE e.employeeNumber = c.salesRepEmployeeNumber
GROUP BY c.customerName
ORDER BY COUNT(*) DESC
LIMIT 2;
```

SCREENSHOT:

```
MariaDB [prak1]> SELECT employeeNumber, CONCAT(firstName, ' ', lastName) as employee_full_name, email, customerName, COUNT(*)
AS total_order
    -> FROM employees e NATURAL JOIN customers c  NATURAL JOIN orders o
    -> WHERE e.employeeNumber = c.salesRepEmployeeNumber
    -> GROUP BY c.customerName
    -> ORDER BY COUNT(*) DESC
    -> LIMIT 2;
+----------------+--------------------+------------------------------+--------------------------+-------------+
| employeeNumber | employee_full_name | email                        | customerName             | total_order |
+----------------+--------------------+------------------------------+--------------------------+-------------+
|           1370 | Gerard Hernandez   | ghernande@classicmodelcars.com | Euro+ Shopping Channel   |          26 |
|           1165 | Leslie Jennings    | ljennings@classicmodelcars.com | Mini Gifts Distributors Ltd. |      17 |
+----------------+--------------------+------------------------------+--------------------------+-------------+
2 rows in set (0.001 sec)
```

6. Buatlah query untuk menampilkan nama pelanggan yang memiliki total pembayaran lebih dari 50000 dan dilayani oleh pegawai yang bekerja di kantor yang terletak di negara "Australia".

QUERY:

```
(SELECT customerName
FROM customers c, payments p
WHERE p.customerNumber = c.customerNumber
GROUP BY c.customerNumber
HAVING SUM(amount) > 50000)
INTERSECT
(SELECT customerName
FROM customers c, employees e, offices o
WHERE e.employeeNumber = c.salesRepEmployeeNumber AND e.officeCode =
o.officeCode AND o.country = "Australia");
```

SCREENSHOT:

```
MariaDB [prak1]> (SELECT customerName
    -> FROM customers c, payments p
    -> WHERE p.customerNumber = c.customerNumber
    -> GROUP BY c.customerNumber
    -> HAVING SUM(amount) > 50000)
    -> INTERSECT
    -> (SELECT customerName
    -> FROM customers c, employees e, offices o
    -> WHERE e.employeeNumber = c.salesRepEmployeeNumber AND e.officeCode = o.officeCode AND o.country = "
Australia");
+-----------------------------+
| customerName                |
+-----------------------------+
| Australian Collectors, Co.  |
| Handji Gifts& Co            |
| Anna's Decorations, Ltd     |
| Souveniers And Things Co.   |
| Down Under Souveniers, Inc  |
| Australian Gift Network, Co |
| GiftsForHim.com             |
| Extreme Desk Decorations, Ltd |
| Kelly's Gift Shop           |
+-----------------------------+
9 rows in set (0.003 sec)
```

7. Buatlah query untuk menampilkan nomor order dan nama produk dengan kategori "Classic Cars" yang pernah dipesan dengan harga jual yang memberikan keuntungan 35-36% atau 104-105%. Tampilkan juga persentase keuntungan dari pemesanan produk tersebut serta urutkan mengecil berdasarkan persentase tersebut.

QUERY:
```
SELECT DISTINCT od.orderNumber, p.productName, (priceEach - buyPrice)/buyPrice
* 100 AS percentage
FROM orders o, orderDetails od, products p
WHERE p.productLine = "Classic Cars" AND od.productCode = p.productCode AND
p.productLine = "Classic Cars"
HAVING ((percentage BETWEEN 35 AND 36) OR (percentage BETWEEN 104 AND
105))
ORDER BY percentage DESC;
```

SCREENSHOT:

```
MariaDB [prak1]> SELECT DISTINCT od.orderNumber, p.productName, (priceEach - buyPrice)/buyPrice * 100 AS p
ercentage
    -> FROM orders o, orderDetails od, products p
    -> WHERE p.productLine = "Classic Cars" AND od.productCode = p.productCode AND p.productLine = "Classi
c Cars"
    -> HAVING ((percentage BETWEEN 35 AND 36) OR (percentage BETWEEN 104 AND 105))
    -> ORDER BY percentage DESC;
+-------------+----------------------------------+------------+
| orderNumber | productName                      | percentage |
+-------------+----------------------------------+------------+
|       10419 | 1999 Indy 500 Monte Carlo SS     | 104.651163 |
|       10203 | 1982 Lamborghini Diablo          | 104.618227 |
|       10147 | 1982 Lamborghini Diablo          | 104.618227 |
|       10310 | 1982 Lamborghini Diablo          | 104.618227 |
|       10192 | 1982 Lamborghini Diablo          | 104.618227 |
|       10343 | 1948 Porsche Type 356 Roadster   | 104.552767 |
|       10266 | 1948 Porsche Type 356 Roadster   | 104.552767 |
|       10424 | 1952 Alpine Renault 1300         | 104.341651 |
|       10304 | 1952 Alpine Renault 1300         | 104.341651 |
|       10247 | 2001 Ferrari Enzo                | 104.341458 |
|       10117 | 2001 Ferrari Enzo                | 104.341458 |
|       10185 | 2001 Ferrari Enzo                | 104.341458 |
|       10150 | 1982 Camaro Z28                  | 104.341285 |
|       10310 | 1992 Ferrari 360 Spider red      | 104.338896 |
|       10159 | 1957 Corvette Convertible        | 104.275704 |
|       10282 | 1969 Ford Falcon                 | 104.166165 |
|       10127 | 1969 Ford Falcon                 | 104.166165 |
|       10314 | 1969 Ford Falcon                 | 104.166165 |
|       10260 | 1969 Ford Falcon                 | 104.166165 |
|       10204 | 1957 Ford Thunderbird            | 104.150833 |
|       10404 | 1968 Dodge Charger               |  35.936668 |
|       10253 | 1968 Dodge Charger               |  35.936668 |
|       10320 | 1968 Dodge Charger               |  35.936668 |
|       10394 | 1970 Triumph Spitfire            |  35.933420 |
|       10288 | 1970 Chevy Chevelle SS 454       |  35.824533 |
|       10380 | 1970 Chevy Chevelle SS 454       |  35.824533 |
|       10254 | 1970 Chevy Chevelle SS 454       |  35.824533 |
|       10239 | 1956 Porsche 356A Coupe          |  35.717192 |
|       10203 | 1948 Porsche 356-A Roadster      |  35.714286 |
|       10278 | 1948 Porsche 356-A Roadster      |  35.714286 |
|       10287 | 1993 Mazda RX-7                  |  35.588552 |
|       10393 | 1998 Chrysler Plymouth Prowler   |  35.484189 |
|       10407 | 1952 Citroen-15CV                |  35.471024 |
|       10173 | 1952 Citroen-15CV                |  35.471024 |
+-------------+----------------------------------+------------+
34 rows in set (0.288 sec)
```

8. Buatlah query untuk menampilkan nomor pelanggan, nama pelanggan, rata-rata nominal dari semua pembayaran yang dilakukan pelanggan tersebut, dan banyak transaksi yang telah dilakukan oleh pelanggan dengan total semua pembayaran melebihi 500000. Urutkan mengecil berdasarkan banyak transaksi.

QUERY:
SELECT c.customerNumber, c.customerName, AVG(amount) as avgPayment, COUNT(checkNumber) as countPayment
FROM customers c NATURAL JOIN payments p
WHERE c.customerNumber = p.customerNumber
GROUP BY p.customerNumber
HAVING SUM(p.amount) > 500000
ORDER BY countPayment DESC;

SCREENSHOT:

```
MariaDB [prak1]> SELECT c.customerNumber, c.customerName, AVG(amount) as avgPayment, COUNT(checkNumber) as
 countPayment
    -> FROM customers c NATURAL JOIN payments p
    -> WHERE c.customerNumber = p.customerNumber
    -> GROUP BY p.customerNumber
    -> HAVING SUM(p.amount) > 500000
    -> ORDER BY countPayment DESC;
+----------------+----------------------------+--------------+--------------+
| customerNumber | customerName               | avgPayment   | countPayment |
+----------------+----------------------------+--------------+--------------+
|            141 | Euro+ Shopping Channel     | 55056.844615 |           13 |
|            124 | Mini Gifts Distributors Ltd. | 64909.804444 |          9 |
+----------------+----------------------------+--------------+--------------+
2 rows in set (0.002 sec)
```

9. Buatlah query yang menampilkan nama customer, nama lengkap kontak customer tersebut, serta nomor telpon dari customer yang belum pernah membuat pesanan sama sekali! Nama lengkap kontak customer dibuat dalam kolom `contactName` yang terdiri dari nama depan dan nama belakang kontak tersebut (jangan lupa spasi).

QUERY:
SELECT customerName, CONCAT(contactFirstName, ' ', contactLastName) AS contactName, phone
    -> FROM customers
    -> WHERE customerNumber not in
    -> (SELECT customerNumber
    -> FROM orders);

SCREENSHOT:

```
MariaDB [prak1]> SELECT customerName, CONCAT(contactFirstName, ' ', contactLastName) AS co
ntactName, phone
    -> FROM customers
    -> WHERE customerNumber not in
    -> (SELECT customerNumber
    -> FROM orders);
+------------------------------+---------------------------+------------------+
| customerName                 | contactName               | phone            |
+------------------------------+---------------------------+------------------+
| Havel & Zbyszek Co           | Zbyszek  Piestrzeniewicz  | (26) 642-7555    |
| American Souvenirs Inc       | Keith Franco              | 2035557845       |
| Porto Imports Co.            | Isabel  de Castro         | (1) 356-5555     |
| Asian Shopping Network, Co   | Brydey Walker             | +612 9411 1555   |
| Nat??rlich Autos             | Horst  Kloss              | 0372-555188      |
| ANG Resellers                | Alejandra  Camino         | (91) 745 6555    |
| Messner Shopping Network     | Renate  Messner           | 069-0555984      |
| Franken Gifts, Co            | Peter  Franken            | 089-0877555      |
| BG&E Collectables            | Ed Harrison               | +41 26 425 50 01 |
| Schuyler Imports             | Bradley Schuyler          | +31 20 491 9555  |
| Der Hund Imports             | Mel Andersen              | 030-0074555      |
| Cramer Spezialit?ñten, Ltd   | Philip  Cramer            | 0555-09555       |
| Asian Treasures, Inc.        | Patricia  McKenna         | 2967 555         |
| SAR Distributors, Co         | Armand Kuger              | +27 21 550 3555  |
| Kommission Auto              | Karin Josephs             | 0251-555259      |
| Lisboa Souveniers, Inc       | Lino  Rodriguez           | (1) 354-2555     |
| Precious Collectables        | Braun Urs                 | 0452-076555      |
| Stuttgart Collectable Exchange | Rita  M??ller           | 0711-555361      |
| Feuer Online Stores, Inc     | Alexander  Feuer          | 0342-555176      |
| Warburg Exchange             | Sven  Ottlieb             | 0241-039123      |
| Anton Designs, Ltd.          | Carmen Anton              | +34 913 728555   |
| Mit Vergn??gen & Co.         | Hanna  Moos               | 0621-08555       |
| Kremlin Collectables, Co.    | Alexander  Semenov        | +7 812 293 0521  |
| Raanan Stores, Inc           | Raanan Altagar,G M        | + 972 9 959 8555 |
+------------------------------+---------------------------+------------------+
24 rows in set (0.006 sec)
```

10. Buatlah *query* yang menampilkan nomor customer dan nama customer yang pernah memesan salah satu atau beberapa di antara 3 produk dengan jumlah order tertinggi. Penentuan produk dengan jumlah order tertinggi dibatasi dalam *range* antara 900 dan 950 order. Nomor customer dan nama customer ditampilkan secara unik.
(clue: Gunakan LIMIT untuk membatasi jumlah *rows* yang ditampilkan)

QUERY:
 SELECT DISTINCT customerNumber, customerName
    -> FROM customers NATURAL JOIN orders NATURAL JOIN orderdetails AS od
    -> NATURAL JOIN
    -> (SELECT productCode FROM
    -> (SELECT productCode, SUM(quantityOrdered) as sumQuant
    -> FROM orderdetails
    -> GROUP BY productCode) AS X
    -> WHERE sumQuant BETWEEN 900 AND 950
    -> ORDER BY sumQuant DESC LIMIT 3)
    -> AS Y
    -> WHERE od.productCode = Y.productCode;

SCREENSHOT:

```
MariaDB [prak1]> SELECT DISTINCT customerNumber, customerName
    -> FROM customers NATURAL JOIN orders NATURAL JOIN orderdetails AS od
    -> NATURAL JOIN
    -> (SELECT productCode FROM
    -> (SELECT productCode, SUM(quantityOrdered) as sumQuant
    -> FROM orderdetails
    -> GROUP BY productCode) AS X
    -> WHERE sumQuant BETWEEN 900 AND 950
    -> ORDER BY sumQuant DESC LIMIT 3)
    -> AS Y
    -> WHERE od.productCode = Y.productCode;
+----------------+---------------------------------+
| customerNumber | customerName                    |
+----------------+---------------------------------+
|            187 | AV Stores, Co.                  |
|            112 | Signal Gift Stores              |
|            496 | Kelly's Gift Shop               |
|            276 | Anna's Decorations, Ltd         |
|            227 | Heintze Collectables            |
|            175 | Gift Depot Inc.                 |
|            124 | Mini Gifts Distributors Ltd.    |
|            363 | Online Diecast Creations Co.    |
|            151 | Muscle Machine Inc              |
|            141 | Euro+ Shopping Channel          |
|            146 | Saveley & Henriot, Co.          |
|            209 | Mini Caravy                     |
|            323 | Down Under Souveniers, Inc      |
|            166 | Handji Gifts& Co                |
|            201 | UK Collectables, Ltd.           |
|            462 | FunGiftIdeas.com                |
|            450 | The Sharp Gifts Warehouse       |
|            282 | Souveniers And Things Co.       |
|            486 | Motor Mint Distributors Inc.    |
|            103 | Atelier graphique               |
|            353 | Reims Collectables              |
|            167 | Herkku Gifts                    |
|            239 | Collectable Mini Designs Co.    |
|            177 | Osaka Souveniers Co.            |
|            386 | L'ordine Souveniers             |
|            298 | Vida Sport, Ltd                 |
|            299 | Norway Gifts By Mail, Co.       |
|            205 | Toys4GrownUps.com               |
|            145 | Danish Wholesale Imports        |
|            382 | Salzburg Collectables           |
|            350 | Marseille Mini Autos            |
|            242 | Alpha Cognac                    |
|            233 | Qu??bec Home Shopping Network    |
|            259 | Toms Spezialit?ñten, Ltd        |
|            114 | Australian Collectors, Co.      |
|            250 | Lyon Souveniers                 |
|            320 | Mini Creations Ltd.             |
|            186 | Toys of Finland, Co.            |
+----------------+---------------------------------+
38 rows in set (0.009 sec)
```