TUGAS MODUL 6

LAPORAN PRAKTIKUM BASIS DATA

"AGREGASI DAN GROUPING"

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BAB I

TEORI DASAR

A. FUNGSI AGREGASI DAN GROUPING

1. AGREGASI

Agregasi adalah sebuah teknik dalam SQL yang digunakan untuk mendapatkan nilai tertentu dari data yang telah dikelompokkan. Pengelompokan data dapat didasarkan pada satu kolom/kombinasi dari beberapa kolom yang dipilih. Berikut ini fungsi agregasi:

1. MAX, mencari data terbesar dari sekelompok data.
2. MIN, mencari data terkecil dari sekelompok data.
3. COUNT, mencari cacah data dari sekelompok data.
4. SUM, mencari jumlah dari sekumpulan data numerik.
5. AVG, mencari nilai rerata dari sekumpulan data numerik.

2. GROUPING

fungsi untuk mengelompokkan suatu data berdasarkan satu field/kolom yang diperlukan pada suatu table. Berikut ini adalah fungsi grouping:

1. ORDER BY, Digunakan untuk menampilkan data secra terurut berdasarkan nilai

tertentu. Ada dua jenis yaitu ASCENDING dan DESCENDING.

2. GROUP BY, Digunakan untuk mengelompokan beberapa data pada perintah SELECT.

3. HAVING, Fungsi ini hampir sama dengan fungsi WHERE, hanya saja WHERE tidak

dapat digunakan dengan fungsi agregasi.

BAB II

PEMBAHASAN DAN ANALISIS

1. Tambahkan data tabel produk

```
MariaDB [northwind]> alter table produk add harga int(9);
Query OK, 0 rows affected (0.024 sec)
Records: 0  Duplicates: 0  Warnings: 0

MariaDB [northwind]> update produk set harga = 7000 where produk_id = "P109";
Query OK, 1 row affected (0.013 sec)
Rows matched: 1  Changed: 1  Warnings: 0

MariaDB [northwind]> update produk set harga = 10000 where produk_id = "P114";
Query OK, 1 row affected (0.008 sec)
Rows matched: 1  Changed: 1  Warnings: 0

MariaDB [northwind]> update produk set harga = 15000 where produk_id = "P115";
Query OK, 1 row affected (0.008 sec)
Rows matched: 1  Changed: 1  Warnings: 0

MariaDB [northwind]> update produk set harga = 1200 where produk_id = "P123";
Query OK, 1 row affected (0.002 sec)
Rows matched: 1  Changed: 1  Warnings: 0

MariaDB [northwind]> update produk set harga = 12000 where produk_id = "P123";
Query OK, 1 row affected (0.008 sec)
Rows matched: 1  Changed: 1  Warnings: 0

MariaDB [northwind]> update produk set harga = 5000 where produk_id = "P235";
Query OK, 1 row affected (0.008 sec)
Rows matched: 1  Changed: 1  Warnings: 0

MariaDB [northwind]> update produk set harga = 4000 where produk_id = "P311";
Query OK, 1 row affected (0.008 sec)
Rows matched: 1  Changed: 1  Warnings: 0

MariaDB [northwind]> update produk set harga = 15000 where produk_id = "P333";
Query OK, 1 row affected (0.003 sec)
Rows matched: 1  Changed: 1  Warnings: 0

MariaDB [northwind]> update produk set harga = 60000 where produk_id = "P441";
Query OK, 1 row affected (0.002 sec)
Rows matched: 1  Changed: 1  Warnings: 0

MariaDB [northwind]> update produk set harga = 2000 where produk_id = "P453";
Query OK, 1 row affected (0.007 sec)
Rows matched: 1  Changed: 1  Warnings: 0

MariaDB [northwind]> update produk set harga = 5000 where produk_id = "P552";
Query OK, 1 row affected (0.008 sec)
Rows matched: 1  Changed: 1  Warnings: 0

MariaDB [northwind]> update produk set harga = 8000 where produk_id = "P882";
Query OK, 1 row affected (0.008 sec)
Rows matched: 1  Changed: 1  Warnings: 0

MariaDB [northwind]> insert into produk values
    -> ("P150", "Kretendeng", "80 pcs", "S001", 8000),
    -> ("P792", "Miesadap", "30 pcs", "S007", 3000),
    -> ("P204", "Somos", "50 pcs", "S002", 6000),
    -> ("P561", "Marijan", "40 pcs", "S005", 20000);
Query OK, 4 rows affected (0.008 sec)
Records: 4  Duplicates: 0  Warnings: 0

MariaDB [northwind]> select * from produk;
+------------+-----------------+-------------+--------------+-------+
| produk_id  | produk_nama     | jumlah_stok | suppliers_id | harga |
+------------+-----------------+-------------+--------------+-------+
| P109       | The Kotak 300 m | 40 pcs      | S002         |  7000 |
| P114       | Milo 100 ml     | 800 pcs     | S001         | 10000 |
| P115       | Millo 150 ml    | 50 pcs      | S003         | 15000 |
| P123       | Gulaku 1 Kg     | 100 pcs     | S005         | 12000 |
| P150       | Kretendeng      | 80 pcs      | S001         |  8000 |
| P204       | Somos           | 50 pcs      | S002         |  6000 |
| P235       | Aqua 250 ml     | 300 pcs     | S001         |  5000 |
| P311       | Grand 320 ml    | 400 pcs     | S003         |  4000 |
| P333       | Sari Roti 100 g | 30 pcs      | S005         | 15000 |
| P441       | Rojo Lele 5 kg  | 60 pcs      | S002         | 60000 |
| P453       | Garam 30 gram   | 20 pcs      | S006         |  2000 |
| P552       | Aqua 1 L        | 300 pcs     | S001         |  5000 |
| P561       | Marijan         | 40 pcs      | S005         | 20000 |
| P792       | Miesadap        | 30 pcs      | S007         |  3000 |
| P882       | Indomilk 25 ml  | 200 pcs     | S004         |  8000 |
+------------+-----------------+-------------+--------------+-------+
15 rows in set (0.001 sec)
```

2. **Tabel pegawai, tambahkan kolom alamat (VARCHAR 50) dan jenis kelamin (VARCHAR 15) serta menambahkan 3 orang pegawai**

```
MariaDB [northwind]> alter table pegawai add jenis_kelamin varchar(15);
Query OK, 0 rows affected (0.023 sec)
Records: 0  Duplicates: 0  Warnings: 0

MariaDB [northwind]> alter table pegawai add alamat varchar(50);
Query OK, 0 rows affected (0.025 sec)
Records: 0  Duplicates: 0  Warnings: 0
```

```
MariaDB [northwind]> insert into pegawai values
    -> ("Pg_007", "Dani", "Staff", "Laki-laki", "Jl. Suka Maju"),
    -> ("Pg_008", "Doni", "Staff", "Laki-laki", "Jl. Suka Mundur"),
    -> ("Pg_009", "Dian", "Staff", "Perempuan", "Jl. Ryacudu");
Query OK, 3 rows affected (0.004 sec)
Records: 3  Duplicates: 0  Warnings: 0

MariaDB [northwind]> select * from pegawai;
+------------+--------------+---------+---------------+-----------------+
| id_pegawai | pegawai_nama | jabatan | jenis_kelamin | alamat
|
+------------+--------------+---------+---------------+-----------------+
| pg_001     | Santi        | Casier  | NULL          | NULL
|
| Pg_002     | Siska        | Casier  | NULL          | NULL
|
| Pg_003     | Nuri         | Casier  | NULL          | NULL
|
| Pg_004     | Jamal        | Casier  | NULL          | NULL
|
| Pg_007     | Dani         | Staff   | Laki-laki     | Jl. Suka Maju   |
| Pg_008     | Doni         | Staff   | Laki-laki     | Jl. Suka Mundur |
| Pg_009     | Dian         | Staff   | Perempuan     | Jl. Ryacudu     |
| pg_201     | Santo        | Casier  | NULL          | NULL
|
| pg_300     | Yaya         | Manager | NULL          | NULL
|
+------------+--------------+---------+---------------+-----------------+
9 rows in set (0.001 sec)
```

3. **Tabel pembeli, tambahkan kolom kota (VARCHAR 25)**

```
MariaDB [northwind]> alter table pembeli add kota varchar(25);
Query OK, 0 rows affected (0.024 sec)
Records: 0  Duplicates: 0  Warnings: 0

MariaDB [northwind]> update pembeli set kota = "Jakarta" where id_pembeli = "C_800";
Query OK, 1 row affected (0.007 sec)
Rows matched: 1  Changed: 1  Warnings: 0

MariaDB [northwind]> update pembeli set kota = "Bandung" where id_pembeli = "C_810";
Query OK, 1 row affected (0.002 sec)
Rows matched: 1  Changed: 1  Warnings: 0

MariaDB [northwind]> update pembeli set kota = "Yogyakarta" where id_pembeli = "C_890";
Query OK, 1 row affected (0.007 sec)
Rows matched: 1  Changed: 1  Warnings: 0

MariaDB [northwind]> update pembeli set kota = "Bandar Lampung" where id_pembeli = "C_901";
Query OK, 1 row affected (0.008 sec)
Rows matched: 1  Changed: 1  Warnings: 0

MariaDB [northwind]> update pembeli set kota = "Surabaya" where id_pembeli = "C_991";
Query OK, 1 row affected (0.007 sec)
Rows matched: 1  Changed: 1  Warnings: 0

MariaDB [northwind]> select * from pembeli;
+------------+--------------+----------------+-----------------+
| id_pembeli | pembeli_nama | pembeli_kontak | kota            |
+------------+--------------+----------------+-----------------+
| C_800      | Egi          | 0812521221     | Jakarta         |
| C_810      | Ardi         | 0862145121     | Bandung         |
| C_890      | Prasetya     | 08521116464    | Yogyakarta      |
| C_901      | Rudi         | 081231511      | Bandar Lampung  |
| C_991      | Andi         | 085212021111   | Surabaya        |
+------------+--------------+----------------+-----------------+
5 rows in set (0.001 sec)
```

4. **Tambahkan kolom kota pada tabel Suppliers kemudian diurutkan.**

```
MariaDB [northwind]> update suppliers set kota = "Bekasi" where suppliers_id = "S001";
Query OK, 1 row affected (0.007 sec)
Rows matched: 1  Changed: 1  Warnings: 0

MariaDB [northwind]> update suppliers set kota = "Depok" where suppliers_id = "S002";
Query OK, 1 row affected (0.008 sec)
Rows matched: 1  Changed: 1  Warnings: 0

MariaDB [northwind]> update suppliers set kota = "Semarang" where suppliers_id = "S003";
Query OK, 1 row affected (0.002 sec)
Rows matched: 1  Changed: 1  Warnings: 0

MariaDB [northwind]> update suppliers set kota = "Kediri" where suppliers_id = "S004";
Query OK, 1 row affected (0.007 sec)
Rows matched: 1  Changed: 1  Warnings: 0

MariaDB [northwind]> update suppliers set kota = "Bengkulu" where suppliers_id = "S005";
Query OK, 1 row affected (0.002 sec)
Rows matched: 1  Changed: 1  Warnings: 0

MariaDB [northwind]> update suppliers set kota = "Medan" where suppliers_id = "S006";
Query OK, 1 row affected (0.008 sec)
Rows matched: 1  Changed: 1  Warnings: 0

MariaDB [northwind]> select * from suppliers;
+-------------+--------------+-------------+----------+
| suppliers_id | company_nama | nama_kontak | kota     |
+-------------+--------------+-------------+----------+
| S001         | Semua Terang | Ali         | Bekasi   |
| S002         | Suka Maju    | Rahmat      | Depok    |
| S003         | Maju Terus   | Daryono     | Semarang |
| S004         | Pelita Baru  | Puspa       | Kediri   |
| S005         | Surya Kun    | Siti        | Bengkulu |
| S006         | Ceria Kasih  | Topan       | Medan    |
+-------------+--------------+-------------+----------+
6 rows in set (0.001 sec)
```

5. **Tampilkan nilai maksimal pada kolom jumlah stok**

```
MariaDB [northwind]> select MAX(jumlah_stok) from produk;
+------------------+
| MAX(jumlah_stok) |
+------------------+
| 800 pcs          |
+------------------+
1 row in set (0.008 sec)
```

6. **Tampilkan nilai rataan dari table produk pada tabel jumlah stok.**

```
MariaDB [northwind]> select AVG(jumlah_stok) from produk;
+---------------------+
| AVG(jumlah_stok)    |
+---------------------+
| 166.66666666666666 |
+---------------------+
1 row in set, 15 warnings (0.008 sec)
```

7. **Tambahkan kolom harga pada tabel produk kemudian tentukan nilai rataan dari tabel tersebut (harga harus kenyataan).**

```
MariaDB [northwind]> select AVG(harga) from produk;
+-------------+
| AVG(harga) |
+-------------+
| 12000.0000 |
+-------------+
1 row in set (0.007 sec)
```

8. **Tampilkan produk nama,Supliers id, harga yang nilainya besar dari “10,000”.**

```
MariaDB [northwind]> select produk_nama, suppliers_id , harga from produk having harga > 10000;
+-----------------+--------------+-------+
| produk_nama     | suppliers_id | harga |
+-----------------+--------------+-------+
| Millo 150 ml    | S003         | 15000 |
| Gulaku 1 Kg     | S005         | 12000 |
| Sari Roti 100 g | S005         | 15000 |
| Rojo Lele 5 kg  | S002         | 60000 |
| Marijan         | S005         | 20000 |
+-----------------+--------------+-------+
5 rows in set (0.008 sec)
```

9. **Tampilkan total harga dari tabel produk.**

```
MariaDB [northwind]> select SUM(harga) from produk;
+------------+
| SUM(harga) |
+------------+
|     180000 |
+------------+
1 row in set (0.001 sec)
```

10. **Tampilkan jumlah pegawai**.

```
MariaDB [northwind]> select COUNT(id_pegawai) from pegawai;
+--------------------+
| COUNT(id_pegawai) |
+--------------------+
|                  9 |
+--------------------+
1 row in set (0.001 sec)
```

11. **Tampilkan nilai rataan dan maksimum data Jumlah beli dari tabel Transaksi**.

```
MariaDB [northwind]> select AVG(jumlah_beli), MAX(jumlah_beli) from transaksi;
+-------------------+-------------------+
| AVG(jumlah_beli)  | MAX(jumlah_beli) |
+-------------------+-------------------+
| 4.833333333333333 | 3 pcs             |
+-------------------+-------------------+
1 row in set, 6 warnings (0.018 sec)
```

12. **Tampilkan Company nama, Produk Id, Supplier id ketika Jumlah stok > 50 pcs**.

```
MariaDB [northwind]> select company_nama, produk_id, suppliers_id from suppliers natural join produk where
jumlah_stok > 50 group by company_nama, suppliers_id;
+--------------+-----------+--------------+
| company_nama | produk_id | suppliers_id |
+--------------+-----------+--------------+
| Maju Terus   | P311      | S003         |
| Pelita Baru  | P882      | S004         |
| Semua Terang | P114      | S001         |
| Suka Maju    | P441      | S002         |
| Surya Kun    | P123      | S005         |
+--------------+-----------+--------------+
5 rows in set, 14 warnings (0.016 sec)
```

13. **Tampilkan data dari tabel Transaksi dan pegawai**.

```
MariaDB [northwind]> select * from transaksi natural join pegawai;
+------------+-------------+------------+-----------+---------------+-------------+--------------+---------+--------+---------------+
| id_pegawai | id_transaksi | id_pembeli | produk_id | tgl_transaksi | jumlah_beli | pegawai_nama | jabatan | alamat | jenis_kelamin |
+------------+-------------+------------+-----------+---------------+-------------+--------------+---------+--------+---------------+
| Pg_002     |           1 | C_901      | P552      | 2017-09-12    | 3 pcs       | Siska        | Casier  | NULL   | NULL          |
| Pg_003     |           2 | C_901      | P109      | 2017-09-15    | 10 pcs      | Nuri         | Casier  | NULL   | NULL          |
| Pg_001     |           3 | C_810      | P114      | 2017-09-15    | 2 pcs       | Santi        | Casier  | NULL   | NULL          |
| Pg_004     |           4 | C_991      | P333      | 2017-09-18    | 3 pcs       | Jamal        | Casier  | NULL   | NULL          |
| Pg_001     |           5 | C_800      | P552      | 2017-09-18    | 1 pcs       | Santi        | Casier  | NULL   | NULL          |
| Pg_002     |           6 | C_810      | P123      | 2017-09-20    | 10 pcs      | Siska        | Casier  | NULL   | NULL          |
+------------+-------------+------------+-----------+---------------+-------------+--------------+---------+--------+---------------+
6 rows in set (0.007 sec)
```

14. **Tampilkan Jumlah laki-laki dan perempuan pada tabel pegawai**.

```
MariaDB [northwind]> select jenis_kelamin, COUNT(jenis_kelamin) from pegawai group by jenis_kelamin;
+---------------+----------------------+
| jenis_kelamin | COUNT(jenis_kelamin) |
+---------------+----------------------+
| NULL          |                    0 |
| Laki-laki     |                    2 |
| Perempuan     |                    1 |
+---------------+----------------------+
3 rows in set (0.001 sec)
```

15. **Tampilkan stok barang yang :**
    a. Paling banyak.
    b. Paling sedikit.
    c. Rataan stok.
    d. Total dari barang tersebut.

```
MariaDB [northwind]> select MAX(jumlah_stok) as stok_terbanyak, MIN(jumlah_stok) as stok_tersedikit,
 AVG(jumlah_stok) as rataan_stok, SUM(jumlah_stok) as total_barang from produk;
+----------------+-----------------+--------------------+--------------+
| stok_terbanyak | stok_tersedikit | rataan_stok        | total_barang |
+----------------+-----------------+--------------------+--------------+
| 800 pcs        | 100 pcs         | 166.66666666666666 |         2500 |
+----------------+-----------------+--------------------+--------------+
1 row in set, 30 warnings (0.004 sec)
```

BAB III

KESIMPULAN

Berdasarkan modul praktikum SQL agregasi dan grouping, dapat disimpulkan bahwa:

1. Agregasi adalah proses penghitungan nilai-nilai statistik dari sekelompok data, seperti rata-rata, jumlah, atau nilai maksimum.

2. SQL menyediakan beberapa fungsi agregasi bawaan, seperti SUM, AVG, COUNT, MAX, dan MIN.

3. Fungsi-fungsi agregasi dapat digunakan bersamaan dengan pernyataan GROUP BY untuk mengelompokkan data berdasarkan kriteria tertentu sebelum melakukan agregasi.

4. SQL juga menyediakan fungsi GROUP BY, HAVING untuk memfilter kelompok data yang memenuhi kriteria tertentu setelah dilakukan agregasi.

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