LAPORAN

PRAKTEK BASIS DATA

INNER JOIN, OUTER JOIN DAN SELF JOIN

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SEMESTER 3

JURUSAN TEKNOLOGI INFORMASI

PROGRAM STUDI TEKNIK KOMPUTER

POLITEKNIK NEGERI PADANG

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A. DASAR TEORI

INNER JOIN

Inner join merupakan jenis join yang paling umum yang dapat digunakan pada semua database. Jenis ini dapat digunakan bila ingin merelasikan dua set data yang ada di tabel, letak relasinya setelah pada perintah ON pada join. • Inner join mengembalikan baris-baris dari dua tabel atau lebih yang memenuhi syarat.

OUTER JOIN

Outer join merupakan jenis join yang sedikit berbeda dengan inner join. Pada MySQL, bentuk perintah untuk menerapkan outer join ada 2 yaitu : 1. Left [Outer] Join 2. Right [Outer]Join 3. Full [Outer] Join

Left [Outer] Join • Left outer join (sering disingkat left join) akan mengembalikan seluruh baris dari tabel disebelah kiri yang dikenai kondisi ON dan hanya baris dari tabel disebelah kanan yang memenuhi kondisi join. • Left join Adalah Relasi Antar Table, biasanya Digunakan untuk menghasilkan baris data dari tabel kiri (nama tabel pertama/ Tabel Utama) yang tidak ada pasangan/Tidak Berelasi datanya pada tabel kanan (nama tabel kedua).

Left [Outer] Join without Intersection • Join ini merupakan variasi dari left outer join. Pada join ini kita hanya akan mengambil data dari tabel sebelah kiri yang dikenai kondisi ON yang juga memenuhi kondisi join tanpa data dari tabel sebelah kanan yang memenuhi kondisi join

Right outer join (sering disingkat right join) akan mengembalikan semua baris dari tabel sebelah kanan yang dikenai kondisi ON dengan data dari tabel sebelah kiri yang memenuhi kondisi join. Teknik ini merupakan kebalikan dari left outer join. • RIGHT JOIN digunakan untuk menghasilkan baris data dari tabel kanan (nama tabel kedua/ Tabel Utama) yang tidak ada pasangan datanya/ Tidak Berelasi pada tabel kiri (nama tabel pertama).

Right[Outer] Join without Intersection • Teknik ini merupakan variasi dari right outer join. Pada join ini kita hanya akan mengambil data dari tabel sebelah kanan yang dikenai kondisi ON yang juga memenuhi kondisi join tanpa data dari tabel sebelah kanan yang memenuhi kondisi join

Full[Outer] Join without Intersection • Variasi lain dari full outer join yang akan mengembalikan seluruh data dari kedua tabel yang dikenai ON tanpa data yang memiliki nilai NULL.

OUTER JOIN merupakan tipe join yang mencari referensi data dari suatu table sumber ke table lain dengan tidak menghilangkan data sumber apabila referensi tidak diketemukan.

Untuk menggunakan tipe OUTER JOIN maka perlu memperhatikan beberapa hal berikut :

- perlu dibedakan antara table sumber dan table referensi, ini ditentukan dengan cara menspesifikasikan kedudukan table sumber apakah di kiri (**LEFT**) atau di kanan (**RIGHT**).
- jika tidak ada data dari table referensi yang cocok dengan kondisi join maka hanya data dari table sumber yang ditampilkan tetapi kolom-kolom table referensi akan berisi null.

SELF JOIN

Self join berguna untuk menggabungkan tabel dengan dirinya sendiri. Kami bergabung dengan tabel itu sendiri untuk mengevaluasi baris dengan baris lain di tabel yang sama. Untuk melakukan self-join, kita menggunakan klausa inner join atau left join .

Perintah Join dimana suatu tabel berelasi dengan dirinya sendiri SELECT column_name(s) FROM table1 T1, table1 T2 WHERE condition;

B. ALAT DAN BAHAN
1. PC/Laptop
2. Software XAMPP Control Panel

C. LANGKAH KERJA

1. Jalankan XAMPP

OUTER JOIN – LEFT OUTER JOIN

2. Tampilkan data tgl transaksi, namabarang, jumlah, harga untuk seluruh barang baik yang sudah terjual maupun tidak.

🞦 JOIN ON

```
MariaDB [dbpenjualan]> SELECT tgl,ttrans.kdbrg,nmbrg,jml,hrg
    -> FROM tbrg LEFT JOIN ttrans
    -> ON tbrg.kdbrg = ttrans.kdbrg;
+------------+-------+-------------------------+------+--------+
| tgl        | kdbrg | nmbrg                   | jml  | hrg    |
+------------+-------+-------------------------+------+--------+
| 2008-09-01 | B001  | Komputer Pentium 4      |    5 | 750000 |
| 2008-09-02 | B001  | Komputer Pentium 4      |   20 | 750000 |
| 2008-10-01 | B001  | Komputer Pentium 4      |   10 | 750000 |
| 2008-10-10 | B001  | Komputer Pentium 4      |    5 | 175000 |
| 2007-01-10 | B001  | Komputer Pentium 4      |    5 | 750000 |
| 2006-02-06 | B001  | Komputer Pentium 4      |   12 | 750000 |
| 2005-03-01 | B001  | Komputer Pentium 4      |   10 | 750000 |
| 2006-05-31 | B001  | Komputer Pentium 4      |   40 | 750000 |
| 2008-09-01 | B002  | Notebook ASUS 12 Inch   |    5 | 175000 |
| 2008-09-01 | B002  | Notebook ASUS 12 Inch   |    5 | 175000 |
| 2008-09-01 | B002  | Notebook ASUS 12 Inch   |   15 | 175000 |
| 2008-09-02 | B002  | Notebook ASUS 12 Inch   |   20 | 175000 |
| 2008-09-03 | B002  | Notebook ASUS 12 Inch   |   30 | 225000 |
| 2007-01-10 | B002  | Notebook ASUS 12 Inch   |    1 | 175000 |
| 2008-09-01 | B003  | Disket                  |   20 |  25000 |
| 2007-01-10 | B003  | Disket                  |    3 |  25000 |
| 2008-09-02 | B004  | Hardisk Ext WD 500GB    |   10 | 220000 |
| 2005-03-01 | B004  | Hardisk Ext WD 500GB    |   15 | 220000 |
| 2008-09-01 | B005  | Flasdisk Kingston 8GB   |   10 |  50000 |
| 2008-09-03 | B005  | Flasdisk Kingston 8GB   |   30 |  50000 |
| NULL       | NULL  | Monitor Samsung 15 Inch | NULL |   NULL |
| NULL       | NULL  | Mouse Wireless Logitech | NULL |   NULL |
+------------+-------+-------------------------+------+--------+
22 rows in set (0.001 sec)
```

🞧 USING

```
MariaDB [dbpenjualan]> SELECT tgl,tbrg.kdbrg,nmbrg,jml,hrg
    -> FROM tbrg LEFT JOIN ttrans USING(kdbrg);
+------------+--------+------------------------+------+--------+
| tgl        | kdbrg  | nmbrg                  | jml  | hrg    |
+------------+--------+------------------------+------+--------+
| 2008-09-01 | B001   | Komputer Pentium 4     |    5 | 750000 |
| 2008-09-02 | B001   | Komputer Pentium 4     |   20 | 750000 |
| 2008-10-01 | B001   | Komputer Pentium 4     |   10 | 750000 |
| 2008-10-10 | B001   | Komputer Pentium 4     |    5 | 175000 |
| 2007-01-10 | B001   | Komputer Pentium 4     |    5 | 750000 |
| 2006-02-06 | B001   | Komputer Pentium 4     |   12 | 750000 |
| 2005-03-01 | B001   | Komputer Pentium 4     |   10 | 750000 |
| 2006-05-31 | B001   | Komputer Pentium 4     |   40 | 750000 |
| 2008-09-01 | B002   | Notebook ASUS 12 Inch  |    5 | 175000 |
| 2008-09-01 | B002   | Notebook ASUS 12 Inch  |    5 | 175000 |
| 2008-09-01 | B002   | Notebook ASUS 12 Inch  |   15 | 175000 |
| 2008-09-02 | B002   | Notebook ASUS 12 Inch  |   20 | 175000 |
| 2008-09-03 | B002   | Notebook ASUS 12 Inch  |   30 | 225000 |
| 2007-01-10 | B002   | Notebook ASUS 12 Inch  |    1 | 175000 |
| 2008-09-01 | B003   | Disket                 |   20 |  25000 |
| 2007-01-10 | B003   | Disket                 |    3 |  25000 |
| 2008-09-02 | B004   | Hardisk Ext WD 500GB   |   10 | 220000 |
| 2005-03-01 | B004   | Hardisk Ext WD 500GB   |   15 | 220000 |
| 2008-09-01 | B005   | Flasdisk Kingston 8GB  |   10 |  50000 |
| 2008-09-03 | B005   | Flasdisk Kingston 8GB  |   30 |  50000 |
| NULL       | B006   | Monitor Samsung 15 Inch| NULL |   NULL |
| NULL       | B007   | Mouse Wireless Logitech| NULL |   NULL |
+------------+--------+------------------------+------+--------+
22 rows in set (0.001 sec)
```

OUTER JOIN – RIGHT OUTER JOIN

3. Tampilkan data tgl transaksi, namabarang, jumlah, harga untuk seluruh barang baik yang sudah terjual maupun tidak.

JOIN ON

```
MariaDB [dbpenjualan]> SELECT tgl,ttrans.kdbrg,nmbrg,jml,hrg
    -> FROM ttrans RIGHT JOIN tbrg
    -> ON tbrg.kdbrg = ttrans.kdbrg;
+------------+-------+--------------------------+------+--------+
| tgl        | kdbrg | nmbrg                    | jml  | hrg    |
+------------+-------+--------------------------+------+--------+
| 2008-09-01 | B001  | Komputer Pentium 4       |    5 | 750000 |
| 2008-09-02 | B001  | Komputer Pentium 4       |   20 | 750000 |
| 2008-10-01 | B001  | Komputer Pentium 4       |   10 | 750000 |
| 2008-10-10 | B001  | Komputer Pentium 4       |    5 | 175000 |
| 2007-01-10 | B001  | Komputer Pentium 4       |    5 | 750000 |
| 2006-02-06 | B001  | Komputer Pentium 4       |   12 | 750000 |
| 2005-03-01 | B001  | Komputer Pentium 4       |   10 | 750000 |
| 2006-05-31 | B001  | Komputer Pentium 4       |   40 | 750000 |
| 2008-09-01 | B002  | Notebook ASUS 12 Inch    |    5 | 175000 |
| 2008-09-01 | B002  | Notebook ASUS 12 Inch    |    5 | 175000 |
| 2008-09-01 | B002  | Notebook ASUS 12 Inch    |   15 | 175000 |
| 2008-09-02 | B002  | Notebook ASUS 12 Inch    |   20 | 175000 |
| 2008-09-03 | B002  | Notebook ASUS 12 Inch    |   30 | 225000 |
| 2007-01-10 | B002  | Notebook ASUS 12 Inch    |    1 | 175000 |
| 2008-09-01 | B003  | Disket                   |   20 |  25000 |
| 2007-01-10 | B003  | Disket                   |    3 |  25000 |
| 2008-09-02 | B004  | Hardisk Ext WD 500GB     |   10 | 220000 |
| 2005-03-01 | B004  | Hardisk Ext WD 500GB     |   15 | 220000 |
| 2008-09-01 | B005  | Flasdisk Kingston 8GB    |   10 |  50000 |
| 2008-09-03 | B005  | Flasdisk Kingston 8GB    |   30 |  50000 |
| NULL       | NULL  | Monitor Samsung 15 Inch  | NULL |   NULL |
| NULL       | NULL  | Mouse Wireless Logitech  | NULL |   NULL |
+------------+-------+--------------------------+------+--------+
22 rows in set (0.001 sec)
```

USING

```
MariaDB [dbpenjualan]> SELECT tgl,tbrg.kdbrg,nmbrg,jml,hrg
    -> FROM ttrans RIGHT JOIN tbrg USING(kdbrg);
+------------+-------+---------------------------+------+--------+
| tgl        | kdbrg | nmbrg                     | jml  | hrg    |
+------------+-------+---------------------------+------+--------+
| 2008-09-01 | B001  | Komputer Pentium 4        |    5 | 750000 |
| 2008-09-02 | B001  | Komputer Pentium 4        |   20 | 750000 |
| 2008-10-01 | B001  | Komputer Pentium 4        |   10 | 750000 |
| 2008-10-10 | B001  | Komputer Pentium 4        |    5 | 175000 |
| 2007-01-10 | B001  | Komputer Pentium 4        |    5 | 750000 |
| 2006-02-06 | B001  | Komputer Pentium 4        |   12 | 750000 |
| 2005-03-01 | B001  | Komputer Pentium 4        |   10 | 750000 |
| 2006-05-31 | B001  | Komputer Pentium 4        |   40 | 750000 |
| 2008-09-01 | B002  | Notebook ASUS 12 Inch     |    5 | 175000 |
| 2008-09-01 | B002  | Notebook ASUS 12 Inch     |    5 | 175000 |
| 2008-09-01 | B002  | Notebook ASUS 12 Inch     |   15 | 175000 |
| 2008-09-02 | B002  | Notebook ASUS 12 Inch     |   20 | 175000 |
| 2008-09-03 | B002  | Notebook ASUS 12 Inch     |   30 | 225000 |
| 2007-01-10 | B002  | Notebook ASUS 12 Inch     |    1 | 175000 |
| 2008-09-01 | B003  | Disket                    |   20 |  25000 |
| 2007-01-10 | B003  | Disket                    |    3 |  25000 |
| 2008-09-02 | B004  | Hardisk Ext WD 500GB      |   10 | 220000 |
| 2005-03-01 | B004  | Hardisk Ext WD 500GB      |   15 | 220000 |
| 2008-09-01 | B005  | Flasdisk Kingston 8GB     |   10 |  50000 |
| 2008-09-03 | B005  | Flasdisk Kingston 8GB     |   30 |  50000 |
| NULL       | B006  | Monitor Samsung 15 Inch   | NULL |   NULL |
| NULL       | B007  | Mouse Wireless Logitech   | NULL |   NULL |
+------------+-------+---------------------------+------+--------+
22 rows in set (0.001 sec)
```

OUTER JOIN (LEFT, RIGHT) – DBPENJUALAN

4. Tampilkan seluruh namapelanggan beserta alamat dan tanggal transaksi untuk pelanggan yang pernah maupun belum bertransaksi

⊞ LEFT JOIN

```
MariaDB [dbpenjualan]> SELECT nmlgn,ttrans.kdlgn,almlgn,tgl
    -> FROM tpelanggan LEFT JOIN ttrans
    -> ON tpelanggan.kdlgn = ttrans.kdlgn;
+--------------+-------+-----------------+------------+
| nmlgn        | kdlgn | almlgn          | tgl        |
+--------------+-------+-----------------+------------+
| Galaxy Media | P001  | Birugo          | 2008-09-01 |
| Galaxy Media | P001  | Birugo          | 2008-09-01 |
| Galaxy Media | P001  | Birugo          | 2008-09-01 |
| Galaxy Media | P001  | Birugo          | 2008-09-01 |
| Galaxy Media | P001  | Birugo          | 2006-05-31 |
| Gamatechno   | P002  | Anduring        | 2008-09-01 |
| Gamatechno   | P002  | Anduring        | 2008-09-01 |
| Gamatechno   | P002  | Anduring        | 2008-09-02 |
| Gamatechno   | P002  | Anduring        | 2008-09-02 |
| Gamatechno   | P002  | Anduring        | 2008-10-10 |
| Gamatechno   | P002  | Anduring        | 2005-03-01 |
| Gamatechno   | P002  | Anduring        | 2005-03-01 |
| Citra Mozaic | P003  | Jl. Veteran     | 2008-09-02 |
| Citra Mozaic | P003  | Jl. Veteran     | 2008-09-03 |
| Citra Mozaic | P003  | Jl. Veteran     | 2008-09-03 |
| Citra Mozaic | P003  | Jl. Veteran     | 2008-10-01 |
| Citra Mozaic | P003  | Jl. Veteran     | 2007-01-10 |
| Citra Mozaic | P003  | Jl. Veteran     | 2007-01-10 |
| Citra Mozaic | P003  | Jl. Veteran     | 2007-01-10 |
| JJ ENT       | P004  | Khatib Sulaiman | 2006-02-06 |
| Green Media  | NULL  | Jambu Air       | NULL       |
| Tk. Intan    | NULL  | Jl.S.Hatta      | NULL       |
| Onexindo     | NULL  | Pauh            | NULL       |
| Rudi         | NULL  | NULL            | NULL       |
| Citra        | NULL  | NULL            | NULL       |
| Anwar        | NULL  | NULL            | NULL       |
| Raffi        | NULL  | NULL            | NULL       |
| Citra        | NULL  | NULL            | NULL       |
| NULL         | NULL  | Padang          | NULL       |
+--------------+-------+-----------------+------------+
29 rows in set (0.008 sec)
```

🔶 RIGHT JOIN

```
MariaDB [dbpenjualan]> SELECT nmlgn,ttrans.kdlgn,almlgn,tgl
    -> FROM ttrans RIGHT JOIN tpelanggan
    -> ON tpelanggan.kdlgn = ttrans.kdlgn;
+--------------+-------+----------------+------------+
| nmlgn        | kdlgn | almlgn         | tgl        |
+--------------+-------+----------------+------------+
| Galaxy Media | P001  | Birugo         | 2008-09-01 |
| Galaxy Media | P001  | Birugo         | 2008-09-01 |
| Galaxy Media | P001  | Birugo         | 2008-09-01 |
| Galaxy Media | P001  | Birugo         | 2008-09-01 |
| Galaxy Media | P001  | Birugo         | 2006-05-31 |
| Gamatechno   | P002  | Anduring       | 2008-09-01 |
| Gamatechno   | P002  | Anduring       | 2008-09-01 |
| Gamatechno   | P002  | Anduring       | 2008-09-02 |
| Gamatechno   | P002  | Anduring       | 2008-09-02 |
| Gamatechno   | P002  | Anduring       | 2008-10-10 |
| Gamatechno   | P002  | Anduring       | 2005-03-01 |
| Gamatechno   | P002  | Anduring       | 2005-03-01 |
| Citra Mozaic | P003  | Jl. Veteran    | 2008-09-02 |
| Citra Mozaic | P003  | Jl. Veteran    | 2008-09-03 |
| Citra Mozaic | P003  | Jl. Veteran    | 2008-09-03 |
| Citra Mozaic | P003  | Jl. Veteran    | 2008-10-01 |
| Citra Mozaic | P003  | Jl. Veteran    | 2007-01-10 |
| Citra Mozaic | P003  | Jl. Veteran    | 2007-01-10 |
| Citra Mozaic | P003  | Jl. Veteran    | 2007-01-10 |
| JJ ENT       | P004  | Khatib Sulaiman| 2006-02-06 |
| Green Media  | NULL  | Jambu Air      | NULL       |
| Tk. Intan    | NULL  | Jl.S.Hatta     | NULL       |
| Onexindo     | NULL  | Pauh           | NULL       |
| Rudi         | NULL  | NULL           | NULL       |
| Citra        | NULL  | NULL           | NULL       |
| Anwar        | NULL  | NULL           | NULL       |
| Raffi        | NULL  | NULL           | NULL       |
| Citra        | NULL  | NULL           | NULL       |
| NULL         | NULL  | Padang         | NULL       |
+--------------+-------+----------------+------------+
29 rows in set (0.001 sec)
```

OUTER JOIN (LEFT, RIGHT) – CLASSICMODELS

5. Tampilkan customerNumber,namalengkap customer(gabungan contactfirstname, contactlastname), ordernumber dan status untuk semua customer baik yang pernah order ataupun tidak. uutkan dari ordernumber desc.

🔲 LEFT JOIN ON

```
MariaDB [classicmodels]> SELECT customers.customerNumber, CONCAT(contactFirstName,' ',contactLastName) AS 'FullName', orderNumber, status
    -> FROM customers LEFT JOIN orders
    -> ON customers.customerNumber = orders.customerNumber
    -> WHERE customers.customerNumber > 400
    -> ORDER BY orderNumber DESC;
+----------------+----------------------+-------------+----------+
| customerNumber | FullName             | orderNumber | status   |
+----------------+----------------------+-------------+----------+
|            412 | Sarah McRoy          |       10418 | Shipped  |
|            471 | Sean Clenahan        |       10415 | Disputed |
|            450 | Sue Frick            |       10407 | On Hold  |
|            406 | Dominique Perrier    |       10402 | Shipped  |
|            450 | Sue Frick            |       10400 | Shipped  |
|            496 | Tony Snowden         |       10399 | Shipped  |
|            452 | Roland  Mendel       |       10392 | Shipped  |
|            448 | Martha Larsson       |       10389 | Shipped  |
|            462 | Violeta Benitez      |       10388 | Shipped  |
|            496 | Tony Snowden         |       10360 | Shipped  |
|            447 | Dan Lewis            |       10353 | Shipped  |
|            458 | Mart├¡n  Sommer      |       10348 | Shipped  |
|            424 | Maria Hernandez      |       10337 | Shipped  |
|            486 | Rosa Salazar         |       10331 | Shipped  |
|            462 | Violeta Benitez      |       10321 | Shipped  |
|            456 | Yu Choi              |       10319 | Shipped  |
|            484 | Jos├ Pedro  Roel     |       10303 | Shipped  |
|            415 | Michael Donnermeyer  |       10296 | Shipped  |
|            448 | Martha Larsson       |       10291 | Shipped  |
|            412 | Sarah McRoy          |       10268 | Shipped  |
|            471 | Sean Clenahan        |       10265 | Shipped  |
|            450 | Sue Frick            |       10257 | Shipped  |
|            406 | Dominique Perrier    |       10252 | Shipped  |
|            450 | Sue Frick            |       10250 | Shipped  |
```

🔲 LEFT JOIN USING

```
MariaDB [classicmodels]> SELECT customers.customerNumber, CONCAT(contactFirstName,' ',contactLastName) AS 'FullName', orderNumber, status
    -> FROM customers LEFT JOIN orders USING(customerNumber)
    -> WHERE customers.customerNumber > 400
    -> ORDER BY orderNumber DESC;
+----------------+----------------------+-------------+----------+
| customerNumber | FullName             | orderNumber | status   |
+----------------+----------------------+-------------+----------+
|            412 | Sarah McRoy          |       10418 | Shipped  |
|            471 | Sean Clenahan        |       10415 | Disputed |
|            450 | Sue Frick            |       10407 | On Hold  |
|            406 | Dominique Perrier    |       10402 | Shipped  |
|            450 | Sue Frick            |       10400 | Shipped  |
|            496 | Tony Snowden         |       10399 | Shipped  |
|            452 | Roland  Mendel       |       10392 | Shipped  |
|            448 | Martha Larsson       |       10389 | Shipped  |
|            462 | Violeta Benitez      |       10388 | Shipped  |
|            496 | Tony Snowden         |       10360 | Shipped  |
|            447 | Dan Lewis            |       10353 | Shipped  |
|            458 | Mart├¡n  Sommer      |       10348 | Shipped  |
|            424 | Maria Hernandez      |       10337 | Shipped  |
|            486 | Rosa Salazar         |       10331 | Shipped  |
|            462 | Violeta Benitez      |       10321 | Shipped  |
|            456 | Yu Choi              |       10319 | Shipped  |
|            484 | Jos├ Pedro  Roel     |       10303 | Shipped  |
|            415 | Michael Donnermeyer  |       10296 | Shipped  |
|            448 | Martha Larsson       |       10291 | Shipped  |
|            412 | Sarah McRoy          |       10268 | Shipped  |
|            471 | Sean Clenahan        |       10265 | Shipped  |
|            450 | Sue Frick            |       10257 | Shipped  |
|            406 | Dominique Perrier    |       10252 | Shipped  |
|            450 | Sue Frick            |       10250 | Shipped  |
```

✚ RIGHT JOIN ON

```
MariaDB [classicmodels]> SELECT customers.customerNumber, CONCAT(contactFirstName,' ',contactLastName) AS 'FullName', orderNumber, status
    -> FROM  orders RIGHT JOIN customers
    -> ON customers.customerNumber = orders.customerNumber
    -> WHERE customers.customerNumber > 400
    -> ORDER BY orderNumber DESC;
+----------------+--------------------+-------------+-----------+
| customerNumber | FullName           | orderNumber | status    |
+----------------+--------------------+-------------+-----------+
|            412 | Sarah McRoy        |       10418 | Shipped   |
|            471 | Sean Clenahan      |       10415 | Disputed  |
|            450 | Sue Frick          |       10407 | On Hold   |
|            406 | Dominique Perrier  |       10402 | Shipped   |
|            450 | Sue Frick          |       10400 | Shipped   |
|            496 | Tony Snowden       |       10399 | Shipped   |
|            452 | Roland  Mendel     |       10392 | Shipped   |
|            448 | Martha Larsson     |       10389 | Shipped   |
|            462 | Violeta Benitez    |       10388 | Shipped   |
|            496 | Tony Snowden       |       10360 | Shipped   |
|            447 | Dan Lewis          |       10353 | Shipped   |
|            458 | Mart├¡n  Sommer    |       10348 | Shipped   |
|            424 | Maria Hernandez    |       10337 | Shipped   |
|            486 | Rosa Salazar       |       10331 | Shipped   |
|            462 | Violeta Benitez    |       10321 | Shipped   |
|            456 | Yu Choi            |       10319 | Shipped   |
|            484 | Jos├ Pedro  Roel   |       10303 | Shipped   |
|            415 | Michael Donnermeyer|       10296 | Shipped   |
|            448 | Martha Larsson     |       10291 | Shipped   |
|            412 | Sarah McRoy        |       10268 | Shipped   |
|            471 | Sean Clenahan      |       10265 | Shipped   |
|            450 | Sue Frick          |       10257 | Shipped   |
|            406 | Dominique Perrier  |       10252 | Shipped   |
|            450 | Sue Frick          |       10250 | Shipped   |
```

✚ RIGHT JOIN USING

```
MariaDB [classicmodels]> SELECT customers.customerNumber, CONCAT(contactFirstName,' ',contactLastName) AS 'FullName', orderNumber, status
    -> FROM orders RIGHT JOIN customers USING(customerNumber)
    -> WHERE customers.customerNumber > 400
    -> ORDER BY orderNumber DESC;
+----------------+--------------------+-------------+-----------+
| customerNumber | FullName           | orderNumber | status    |
+----------------+--------------------+-------------+-----------+
|            412 | Sarah McRoy        |       10418 | Shipped   |
|            471 | Sean Clenahan      |       10415 | Disputed  |
|            450 | Sue Frick          |       10407 | On Hold   |
|            406 | Dominique Perrier  |       10402 | Shipped   |
|            450 | Sue Frick          |       10400 | Shipped   |
|            496 | Tony Snowden       |       10399 | Shipped   |
|            452 | Roland  Mendel     |       10392 | Shipped   |
|            448 | Martha Larsson     |       10389 | Shipped   |
|            462 | Violeta Benitez    |       10388 | Shipped   |
|            496 | Tony Snowden       |       10360 | Shipped   |
|            447 | Dan Lewis          |       10353 | Shipped   |
|            458 | Mart├¡n  Sommer    |       10348 | Shipped   |
|            424 | Maria Hernandez    |       10337 | Shipped   |
|            486 | Rosa Salazar       |       10331 | Shipped   |
|            462 | Violeta Benitez    |       10321 | Shipped   |
|            456 | Yu Choi            |       10319 | Shipped   |
|            484 | Jos├ Pedro  Roel   |       10303 | Shipped   |
|            415 | Michael Donnermeyer|       10296 | Shipped   |
|            448 | Martha Larsson     |       10291 | Shipped   |
|            412 | Sarah McRoy        |       10268 | Shipped   |
|            471 | Sean Clenahan      |       10265 | Shipped   |
|            450 | Sue Frick          |       10257 | Shipped   |
|            406 | Dominique Perrier  |       10252 | Shipped   |
|            450 | Sue Frick          |       10250 | Shipped   |
```

OUTER JOIN – LEFT/RIGHT JOIN WITHOUT INTERSECTION

6. Tampilkan data barang (kode barang , nama barang, nonota) yang tidak laku

LEFT JOIN ON

```
MariaDB [dbpenjualan]> SELECT tbrg.kdbrg,nmbrg
    -> FROM tbrg LEFT JOIN ttrans
    -> ON tbrg.kdbrg = ttrans.kdbrg
    -> WHERE ttrans.kdbrg IS NULL;
+-------+------------------------+
| kdbrg | nmbrg                  |
+-------+------------------------+
| B006  | Monitor Samsung 15 Inch |
| B007  | Mouse Wireless Logitech |
+-------+------------------------+
2 rows in set (0.001 sec)
```

LEFT USING

```
MariaDB [dbpenjualan]> SELECT tbrg.kdbrg,nmbrg
    -> FROM tbrg LEFT JOIN ttrans USING(kdbrg)
    -> WHERE ttrans.kdbrg IS NULL;
+-------+------------------------+
| kdbrg | nmbrg                  |
+-------+------------------------+
| B006  | Monitor Samsung 15 Inch |
| B007  | Mouse Wireless Logitech |
+-------+------------------------+
2 rows in set (0.001 sec)
```

RIGHT JOIN ON

```
MariaDB [dbpenjualan]> SELECT tbrg.kdbrg,nmbrg
    -> FROM ttrans RIGHT JOIN tbrg
    -> ON tbrg.kdbrg = ttrans.kdbrg
    -> WHERE ttrans.kdbrg IS NULL;
+-------+------------------------+
| kdbrg | nmbrg                  |
+-------+------------------------+
| B006  | Monitor Samsung 15 Inch |
| B007  | Mouse Wireless Logitech |
+-------+------------------------+
2 rows in set (0.001 sec)
```

RIGHT USING

```
MariaDB [dbpenjualan]> SELECT tbrg.kdbrg,nmbrg
    -> FROM ttrans RIGHT JOIN tbrg USING(kdbrg)
    -> WHERE ttrans.kdbrg IS NULL;
+-------+------------------------+
| kdbrg | nmbrg                  |
+-------+------------------------+
| B006  | Monitor Samsung 15 Inch |
| B007  | Mouse Wireless Logitech |
+-------+------------------------+
2 rows in set (0.001 sec)
```

7. Tampilkan data pelanggan yang tidak pernah melakukan pembelian (nama, alamat, dan no tlp)

LEFT JOIN ON

```
MariaDB [dbpenjualan]> SELECT tpelanggan.kdlgn,nmlgn, almlgn, telp
    -> FROM tpelanggan LEFT JOIN ttrans
    -> ON tpelanggan.kdlgn = ttrans.kdlgn
    -> WHERE ttrans.kdlgn IS NULL;
+--------+-------------+------------+--------------+
| kdlgn  | nmlgn       | almlgn     | telp         |
+--------+-------------+------------+--------------+
| P005   | Green Media | Jambu Air  | 081291313052 |
| P006   | Tk. Intan   | Jl.S.Hatta | 081291313052 |
| P007   | Onexindo    | Pauh       | 081291313052 |
| P010   | Rudi        | NULL       | NULL         |
| P015   | Citra       | NULL       | NULL         |
| P020   | Anwar       | NULL       | NULL         |
| P021   | Raffi       | NULL       | NULL         |
| P022   | Citra       | NULL       | NULL         |
| P030   | NULL        | Padang     | NULL         |
+--------+-------------+------------+--------------+
9 rows in set (0.001 sec)
```

LEFT USING

```
MariaDB [dbpenjualan]> SELECT tpelanggan.kdlgn,nmlgn, almlgn, telp
    -> FROM tpelanggan LEFT JOIN ttrans USING(kdlgn)
    -> WHERE ttrans.kdlgn IS NULL;
+--------+-------------+------------+--------------+
| kdlgn  | nmlgn       | almlgn     | telp         |
+--------+-------------+------------+--------------+
| P005   | Green Media | Jambu Air  | 081291313052 |
| P006   | Tk. Intan   | Jl.S.Hatta | 081291313052 |
| P007   | Onexindo    | Pauh       | 081291313052 |
| P010   | Rudi        | NULL       | NULL         |
| P015   | Citra       | NULL       | NULL         |
| P020   | Anwar       | NULL       | NULL         |
| P021   | Raffi       | NULL       | NULL         |
| P022   | Citra       | NULL       | NULL         |
| P030   | NULL        | Padang     | NULL         |
+--------+-------------+------------+--------------+
9 rows in set (0.001 sec)
```

⊥ RIGHT JOIN ON

```
MariaDB [dbpenjualan]> SELECT tpelanggan.kdlgn,nmlgn, almlgn, telp
    ->      FROM ttrans RIGHT JOIN tpelanggan
    ->      ON tpelanggan.kdlgn = ttrans.kdlgn
    ->       WHERE ttrans.kdlgn IS NULL;
+--------+-------------+------------+--------------+
| kdlgn  | nmlgn       | almlgn     | telp         |
+--------+-------------+------------+--------------+
| P005   | Green Media | Jambu Air  | 081291313052 |
| P006   | Tk. Intan   | Jl.S.Hatta | 081291313052 |
| P007   | Onexindo    | Pauh       | 081291313052 |
| P010   | Rudi        | NULL       | NULL         |
| P015   | Citra       | NULL       | NULL         |
| P020   | Anwar       | NULL       | NULL         |
| P021   | Raffi       | NULL       | NULL         |
| P022   | Citra       | NULL       | NULL         |
| P030   | NULL        | Padang     | NULL         |
+--------+-------------+------------+--------------+
9 rows in set (0.001 sec)
```

⊥ RIGHT USING

```
MariaDB [dbpenjualan]> SELECT tpelanggan.kdlgn,nmlgn, almlgn, telp
    -> FROM ttrans RIGHT JOIN tpelanggan USING(kdlgn)
    -> WHERE ttrans.kdlgn IS NULL;
+--------+-------------+------------+--------------+
| kdlgn  | nmlgn       | almlgn     | telp         |
+--------+-------------+------------+--------------+
| P005   | Green Media | Jambu Air  | 081291313052 |
| P006   | Tk. Intan   | Jl.S.Hatta | 081291313052 |
| P007   | Onexindo    | Pauh       | 081291313052 |
| P010   | Rudi        | NULL       | NULL         |
| P015   | Citra       | NULL       | NULL         |
| P020   | Anwar       | NULL       | NULL         |
| P021   | Raffi       | NULL       | NULL         |
| P022   | Citra       | NULL       | NULL         |
| P030   | NULL        | Padang     | NULL         |
+--------+-------------+------------+--------------+
9 rows in set (0.001 sec)
```

8. Tampilkan nama lengkap employee beserta employeenumber, jobtitle yang tidak pernah melayani transaksi penjualan customers

```
MariaDB [classicmodels]> SELECT CONCAT(firstName,' ',lastName) AS 'FullName', employees.employeeNumber, jobTitle
    -> FROM employees LEFT JOIN customers
    -> ON employees.employeeNumber = customers.salesRepEmployeeNumber
    -> WHERE customers.salesRepEmployeeNumber IS NULL;
+------------------+----------------+---------------------+
| FullName         | employeeNumber | jobTitle            |
+------------------+----------------+---------------------+
| Diane Murphy     |           1002 | President           |
| Mary Patterson   |           1056 | VP Sales            |
| Jeff Firrelli    |           1076 | VP Marketing        |
| William Patterson|           1088 | Sales Manager (APAC)|
| Gerard Bondur    |           1102 | Sale Manager (EMEA) |
| Anthony Bow      |           1143 | Sales Manager (NA)  |
| Tom King         |           1619 | Sales Rep           |
| Yoshimi Kato     |           1625 | Sales Rep           |
+------------------+----------------+---------------------+
8 rows in set (0.008 sec)
```

```
MariaDB [classicmodels]> SELECT CONCAT(firstName,' ',lastName) AS 'FullName', employees.employeeNumber, jobTitle
    -> FROM  customers RIGHT JOIN  employees
    -> ON employees.employeeNumber = customers.salesRepEmployeeNumber
    -> WHERE customers.salesRepEmployeeNumber IS NULL;
+------------------+----------------+---------------------+
| FullName         | employeeNumber | jobTitle            |
+------------------+----------------+---------------------+
| Diane Murphy     |           1002 | President           |
| Mary Patterson   |           1056 | VP Sales            |
| Jeff Firrelli    |           1076 | VP Marketing        |
| William Patterson|           1088 | Sales Manager (APAC)|
| Gerard Bondur    |           1102 | Sale Manager (EMEA) |
| Anthony Bow      |           1143 | Sales Manager (NA)  |
| Tom King         |           1619 | Sales Rep           |
| Yoshimi Kato     |           1625 | Sales Rep           |
+------------------+----------------+---------------------+
8 rows in set (0.001 sec)
```

SELF JOIN

9. Tampilkan nama karyawan dan jontitle yang tidak memiliki manager(tidak memberikan laporan kesiapa-siapa)

```
MariaDB [classicmodels]> SELECT CONCAT(k.firstName,' ',k.lastName) nama_karyawan, k.jobTitle
    -> FROM employees k LEFT JOIN employees m
    -> ON k.reportsTo = m.employeeNumber
    -> WHERE m.employeeNumber IS NULL;
+---------------+-----------+
| nama_karyawan | jobTitle  |
+---------------+-----------+
| Diane Murphy  | President |
+---------------+-----------+
1 row in set (0.001 sec)

MariaDB [classicmodels]> SELECT CONCAT(k.firstName,' ',k.lastName) nama_karyawan, k.jobTitle
    -> FROM employees k LEFT JOIN employees m
    -> ON k.reportsTo = m.employeeNumber
    -> WHERE m.employeeNumber IS NULL;
+---------------+-----------+
| nama_karyawan | jobTitle  |
+---------------+-----------+
| Diane Murphy  | President |
+---------------+-----------+
1 row in set (0.001 sec)
```

D. SOAL DAN PEMBAHASAN

1. Tampilkan customer number, customer name, order number, status untuk semua customer baik yang pernah melakukan transaksi maupun yang belum pernah.

```
MariaDB [classicmodels]> SELECT customerNumber, customerName, orderNumber, status
    -> FROM customers LEFT OUTER JOIN orders USING(customerNumber);
+----------------+-----------------------------+-------------+------------+
| customerNumber | customerName                | orderNumber | status     |
+----------------+-----------------------------+-------------+------------+
|            103 | Atelier graphique           |       10123 | Shipped    |
|            103 | Atelier graphique           |       10298 | Shipped    |
|            103 | Atelier graphique           |       10345 | Shipped    |
|            112 | Signal Gift Stores          |       10124 | Shipped    |
|            112 | Signal Gift Stores          |       10278 | Shipped    |
|            112 | Signal Gift Stores          |       10346 | Shipped    |
|            114 | Australian Collectors, Co.  |       10120 | Shipped    |
|            114 | Australian Collectors, Co.  |       10125 | Shipped    |
|            114 | Australian Collectors, Co.  |       10223 | Shipped    |
|            114 | Australian Collectors, Co.  |       10342 | Shipped    |
|            114 | Australian Collectors, Co.  |       10347 | Shipped    |
|            119 | La Rochelle Gifts           |       10275 | Shipped    |
|            119 | La Rochelle Gifts           |       10315 | Shipped    |
|            119 | La Rochelle Gifts           |       10375 | Shipped    |
|            119 | La Rochelle Gifts           |       10425 | In Process |
|            121 | Baane Mini Imports          |       10103 | Shipped    |
|            121 | Baane Mini Imports          |       10158 | Shipped    |
|            121 | Baane Mini Imports          |       10309 | Shipped    |
|            121 | Baane Mini Imports          |       10325 | Shipped    |
|            124 | Mini Gifts Distributors Ltd.|       10113 | Shipped    |
|            124 | Mini Gifts Distributors Ltd.|       10135 | Shipped    |
|            124 | Mini Gifts Distributors Ltd.|       10142 | Shipped    |
|            124 | Mini Gifts Distributors Ltd.|       10182 | Shipped    |
|            124 | Mini Gifts Distributors Ltd.|       10229 | Shipped    |
|            124 | Mini Gifts Distributors Ltd.|       10271 | Shipped    |
|            124 | Mini Gifts Distributors Ltd.|       10282 | Shipped    |
|            124 | Mini Gifts Distributors Ltd.|       10312 | Shipped    |
|            124 | Mini Gifts Distributors Ltd.|       10335 | Shipped    |
|            124 | Mini Gifts Distributors Ltd.|       10357 | Shipped    |
|            124 | Mini Gifts Distributors Ltd.|       10368 | Shipped    |
|            124 | Mini Gifts Distributors Ltd.|       10371 | Shipped    |
|            124 | Mini Gifts Distributors Ltd.|       10382 | Shipped    |
|            124 | Mini Gifts Distributors Ltd.|       10385 | Shipped    |
```

```
|            475 | West Coast Collectables Co. |       10215 | Shipped    |
|            477 | Mit Vergn┘gen & Co.         |        NULL | NULL       |
|            480 | Kremlin Collectables, Co.   |        NULL | NULL       |
|            481 | Raanan Stores, Inc          |        NULL | NULL       |
|            484 | Iberia Gift Imports, Corp.  |       10184 | Shipped    |
|            484 | Iberia Gift Imports, Corp.  |       10303 | Shipped    |
|            486 | Motor Mint Distributors Inc.|       10109 | Shipped    |
|            486 | Motor Mint Distributors Inc.|       10236 | Shipped    |
|            486 | Motor Mint Distributors Inc.|       10331 | Shipped    |
|            487 | Signal Collectibles Ltd.    |       10149 | Shipped    |
|            487 | Signal Collectibles Ltd.    |       10219 | Shipped    |
|            489 | Double Decker Gift Stores, Ltd |    10186 | Shipped    |
|            489 | Double Decker Gift Stores, Ltd |    10213 | Shipped    |
|            495 | Diecast Collectables        |       10207 | Shipped    |
|            495 | Diecast Collectables        |       10243 | Shipped    |
|            496 | Kelly's Gift Shop           |       10138 | Shipped    |
|            496 | Kelly's Gift Shop           |       10179 | Cancelled  |
|            496 | Kelly's Gift Shop           |       10360 | Shipped    |
|            496 | Kelly's Gift Shop           |       10399 | Shipped    |
+----------------+-----------------------------+-------------+------------+
350 rows in set (0.002 sec)
```

2. Tampilkan nama lengkap employee, employeesnumber, salesrepemployeenumber untuk employee yang tidak pernah melakukan proses sales terhadap customer.

```
MariaDB [classicmodels]> SELECT CONCAT(firstName,' ',lastName) AS 'employeeName', employeeNumber,
    -> salesRepEmployeeNumber FROM employees LEFT OUTER JOIN customers
    -> ON employees.employeeNumber = customers.salesRepEmployeeNumber
    -> WHERE customers.salesRepEmployeeNumber IS NULL;
+------------------+----------------+------------------------+
| employeeName     | employeeNumber | salesRepEmployeeNumber |
+------------------+----------------+------------------------+
| Diane Murphy     |           1002 |                   NULL |
| Mary Patterson   |           1056 |                   NULL |
| Jeff Firrelli    |           1076 |                   NULL |
| William Patterson|           1088 |                   NULL |
| Gerard Bondur    |           1102 |                   NULL |
| Anthony Bow      |           1143 |                   NULL |
| Tom King         |           1619 |                   NULL |
| Yoshimi Kato     |           1625 |                   NULL |
+------------------+----------------+------------------------+
8 rows in set (0.001 sec)
```

3. Adakah offices yang tidak memiliki employee? Ada atau tidaknya buktikan dengan query.

```
MariaDB [classicmodels]> SELECT employeeNumber, reportsTo, offices.officeCode
    -> FROM offices LEFT JOIN employees USING (officeCode)
    -> WHERE employees.reportsTo IS NULL;
+----------------+-----------+------------+
| employeeNumber | reportsTo | officeCode |
+----------------+-----------+------------+
|           1002 |      NULL | 1          |
+----------------+-----------+------------+
1 row in set (0.011 sec)
```

4. Adakah employee yang tidak bekerja di office manapun? Ada atau tidaknya buktikan dengan query.

```
MariaDB [classicmodels]> SELECT employeeNumber, offices.officeCode
    -> FROM offices RIGHT JOIN employees USING(officeCode)
    -> WHERE offices.officeCode IS NULL;
Empty set (0.001 sec)
```

5. Tampilkan nama lengkap karyawan, job title karyawan dan nama manajer serta kode dan kota offices untuk karyawan dengan job title : Sales Rep yang kantornya di Kota Paris, Sidney dan London

```
MariaDB [classicmodels]> SELECT CONCAT(k.firstName,' ',k.lastName) AS 'employeeName', k.jobTitle AS job_karyawan,
    -> CONCAT(m.firstName,' ',m.lastName) AS 'managerName', offices.officeCode, city
    -> FROM employees k JOIN employees m JOIN offices USING(officeCode)
    -> ON k.reportsTo = m.employeeNumber
    -> WHERE city IN('paris','sydney','london') AND k.jobTitle='sales rep';
+------------------+-------------+-------------------+------------+--------+
| employeeName     | job_karyawan | managerName      | officeCode | city   |
+------------------+-------------+-------------------+------------+--------+
| Loui Bondur      | Sales Rep   | Gerard Bondur     | 4          | Paris  |
| Gerard Hernandez | Sales Rep   | Gerard Bondur     | 4          | Paris  |
| Pamela Castillo  | Sales Rep   | Gerard Bondur     | 4          | Paris  |
| Larry Bott       | Sales Rep   | Gerard Bondur     | 4          | Paris  |
| Barry Jones      | Sales Rep   | Gerard Bondur     | 4          | Paris  |
| Martin Gerard    | Sales Rep   | Gerard Bondur     | 4          | Paris  |
| Andy Fixter      | Sales Rep   | William Patterson | 6          | Sydney |
| Peter Marsh      | Sales Rep   | William Patterson | 6          | Sydney |
| Tom King         | Sales Rep   | William Patterson | 6          | Sydney |
+------------------+-------------+-------------------+------------+--------+
9 rows in set (0.001 sec)
```

6. Tampilkan nama customer, customer number, paymentdate untuk customer yang belum melakukan payments.

```
MariaDB [classicmodels]> SELECT customerName, customerNumber, paymentDate
    -> FROM customers LEFT JOIN payments USING(customerNumber)
    -> WHERE payments.customerNumber IS NULL;
+-----------------------------+----------------+-------------+
| customerName                | customerNumber | paymentDate |
+-----------------------------+----------------+-------------+
| Havel & Zbyszek Co          |            125 | NULL        |
| American Souvenirs Inc      |            168 | NULL        |
| Porto Imports Co.           |            169 | NULL        |
| Asian Shopping Network, Co  |            206 | NULL        |
| Natürlich Autos             |            223 | NULL        |
| ANG Resellers               |            237 | NULL        |
| Messner Shopping Network    |            247 | NULL        |
| Franken Gifts, Co           |            273 | NULL        |
| BG&E Collectables           |            293 | NULL        |
| Schuyler Imports            |            303 | NULL        |
| Der Hund Imports            |            307 | NULL        |
| Cramer Spezialitäten, Ltd   |            335 | NULL        |
| Asian Treasures, Inc.       |            348 | NULL        |
| SAR Distributors, Co        |            356 | NULL        |
| Kommission Auto             |            361 | NULL        |
| Lisboa Souveniers, Inc      |            369 | NULL        |
| Precious Collectables       |            376 | NULL        |
| Stuttgart Collectable Exchange |         409 | NULL        |
| Feuer Online Stores, Inc    |            443 | NULL        |
| Warburg Exchange            |            459 | NULL        |
| Anton Designs, Ltd.         |            465 | NULL        |
| Mit Vergnügen & Co.         |            477 | NULL        |
| Kremlin Collectables, Co.   |            480 | NULL        |
| Raanan Stores, Inc          |            481 | NULL        |
+-----------------------------+----------------+-------------+
24 rows in set (0.003 sec)
```

7. Tampilkan nama customer, customernumber dan paymentdate untuk customer yang sudah pernah melakukan order pada bulan mei 2004.

```
MariaDB [classicmodels]> SELECT customerName, customerNumber, paymentDate
    -> FROM customers LEFT JOIN payments USING(customerNumber)
    -> WHERE MONTH(paymentDate)='5' AND YEAR(paymentDate)='2004';
+--------------------------+----------------+-------------+
| customerName             | customerNumber | paymentDate |
+--------------------------+----------------+-------------+
| Euro+ Shopping Channel   |            141 | 2004-05-17  |
| Cambridge Collectables Co. |          173 | 2004-05-13  |
| Mini Caravy              |            209 | 2004-05-04  |
| Tekni Collectables Inc.  |            328 | 2004-05-30  |
| Suominen Souveniers      |            334 | 2004-05-22  |
| GiftsForHim.com          |            357 | 2004-05-15  |
| Super Scale Inc.         |            455 | 2004-05-12  |
| Diecast Collectables     |            495 | 2004-05-14  |
+--------------------------+----------------+-------------+
8 rows in set (0.003 sec)
```

8. Tampilkan nama lengkap employee, customernumber,checknumber dan amount untuk semua employee yang telah/belum melakukan proses sales terhadap customer dan untuk semua customer baik yang sudah melakukan payments ataupun belum.

```
MariaDB [classicmodels]> SELECT CONCAT(firstName,' ',lastName) AS 'employeeName',customerNumber, checkNumber, amount
    -> FROM employees LEFT JOIN customers LEFT JOIN payments USING(customerNumber)
    -> ON employees.employeeNumber=customers.salesRepEmployeeNumber;
+------------------+----------------+-------------+------------+
| employeeName     | customerNumber | checkNumber | amount     |
+------------------+----------------+-------------+------------+
| Diane Murphy     |           NULL | NULL        |       NULL |
| Mary Patterson   |           NULL | NULL        |       NULL |
| Jeff Firrelli    |           NULL | NULL        |       NULL |
| William Patterson|           NULL | NULL        |       NULL |
| Gerard Bondur    |           NULL | NULL        |       NULL |
| Anthony Bow      |           NULL | NULL        |       NULL |
| Leslie Jennings  |            124 | AE215433    |  101244.59 |
| Leslie Jennings  |            124 | BG255406    |   85410.87 |
| Leslie Jennings  |            124 | CQ287967    |   11044.30 |
| Leslie Jennings  |            124 | ET64396     |   83598.04 |
| Leslie Jennings  |            124 | HI366474    |   47142.70 |
| Leslie Jennings  |            124 | HR86578     |   55639.66 |
| Leslie Jennings  |            124 | KI131716    |  111654.40 |
| Leslie Jennings  |            124 | LF217299    |   43369.30 |
| Leslie Jennings  |            124 | NT141748    |   45084.38 |
| Leslie Jennings  |            129 | DM826140    |   26248.78 |
| Leslie Jennings  |            129 | ID449593    |   23923.93 |
| Leslie Jennings  |            129 | PI42991     |   16537.85 |
| Leslie Jennings  |            161 | BR352384    |    2434.25 |
| Leslie Jennings  |            161 | BR478494    |   50743.65 |
| Leslie Jennings  |            161 | KG644125    |   12692.19 |
| Leslie Jennings  |            161 | NI908214    |   38675.13 |
| Leslie Jennings  |            321 | DJ15149     |   85559.12 |
| Leslie Jennings  |            321 | LA556321    |   46781.66 |
| Leslie Jennings  |            450 | EF485824    |   59551.38 |
| Leslie Jennings  |            487 | AH612904    |   29997.09 |
| Leslie Jennings  |            487 | PT550181    |   12573.28 |
| Leslie Thompson  |            112 | BO864823    |   14191.12 |
| Leslie Thompson  |            112 | HQ55022     |   32641.98 |
```

```
| Mami Nishi          |         398 | AJ478695    |   33967.73 |
| Mami Nishi          |         398 | DO787644    |   22037.91 |
| Mami Nishi          |         398 | JPMR4544    |     615.45 |
| Mami Nishi          |         398 | KB54275     |   48927.64 |
| Yoshimi Kato        |        NULL | NULL        |       NULL |
| Martin Gerard       |         216 | BG407567    |    3101.40 |
| Martin Gerard       |         216 | ML780814    |   24945.21 |
| Martin Gerard       |         216 | MM342086    |   40473.86 |
| Martin Gerard       |         298 | AJ574927    |   47375.92 |
| Martin Gerard       |         298 | LF501133    |   61402.00 |
| Martin Gerard       |         344 | AF246722    |   31428.21 |
| Martin Gerard       |         344 | NJ906924    |   15322.93 |
| Martin Gerard       |         376 | NULL        |       NULL |
| Martin Gerard       |         458 | DD995006    |   33145.56 |
| Martin Gerard       |         458 | NA377824    |   22162.61 |
| Martin Gerard       |         458 | OO606861    |   57131.92 |
| Martin Gerard       |         484 | GK294076    |    3474.66 |
| Martin Gerard       |         484 | JH546765    |   47513.19 |
+---------------------+-------------+-------------+------------+
283 rows in set (0.005 sec)
```

9. Tampilkan productname,quantityinstock, MSRP dan perkiraan kerugian(quantityinstock * MSRP) untuk product yang belum pernah dibeli. Lakukan pembulatan keatas untuk perkiraan kerugian.

```
MariaDB [classicmodels]> SELECT productName, quantityInStock, MSRP, CEIL(quantityInStock*MSRP) AS 'Kerugian'
    -> FROM products LEFT JOIN orderDetails USINg(productCode)
    -> WHERE orderDetails.productCode IS NULL;
+-------------------+-----------------+--------+----------+
| productName       | quantityInStock | MSRP   | Kerugian |
+-------------------+-----------------+--------+----------+
| 1985 Toyota Supra |            7733 | 107.57 |   831839 |
+-------------------+-----------------+--------+----------+
1 row in set (0.020 sec)
```

E. REFERENSI

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