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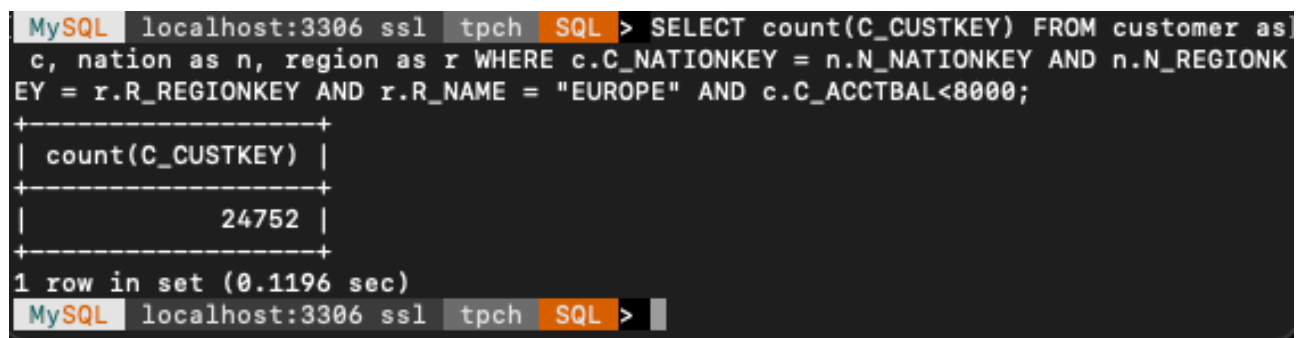**IIT2022035**
DBMS Assignment 3

DATABASE USED : TPCH

All Queries were executed on the imported TPCH database

Q1. Query:

    SELECT count(C_CUSTKEY) FROM customer as c, nation as n, region as r
WHERE c.C_NATIONKEY = n.N_NATIONKEY AND n.N_REGIONKEY = r.R_REGIONKEY
AND r.R_NAME = "EUROPE" AND c.C_ACCTBAL<8000;

Q2. Query:

```
SELECT
    r.R_NAME AS most_supplied_region,
    COUNT(DISTINCT p.P_PARTKEY) AS distinct_parts_count
FROM
    region as r
JOIN
    nation as n ON r.R_REGIONKEY = n.N_REGIONKEY
JOIN
    supplier as s ON n.N_NATIONKEY = s.S_NATIONKEY
JOIN
    partsupp as ps ON s.S_SUPPKEY = ps.PS_SUPPKEY
JOIN
    part as p ON ps.PS_PARTKEY = p.P_PARTKEY
GROUP BY
    r.R_NAME
ORDER BY
```

```
MySQL  localhost:33060+ ssl  tpch  SQL > SELECT l.L_ORDERKEY, l.L_QUANTITY FROM lineitem as l WHERE l.L_SHIPMODE=  "TRUCK" AND DATEDIFF(l.L_COMMITDATE, l.L_SHIPDATE) < (SELECT AVG(DATEDIFF(l.L_COMMITDATE
, l.L_SHIPDATE)) FROM lineitem as l WHERE l.L_SHIPMODE = "TRUCK");
+------------+------------+
| L_ORDERKEY | L_QUANTITY |
+------------+------------+
|          1 |      17.00 |
|         32 |      28.00 |
|         37 |      43.00 |
|         67 |       5.00 |
|         69 |      48.00 |
|         96 |      23.00 |
|         96 |      30.00 |
|        129 |      46.00 |
|        132 |      43.00 |
|        134 |      12.00 |
|        161 |      19.00 |
|        163 |      13.00 |
|        163 |       5.00 |
|        163 |      12.00 |
|        167 |      28.00 |
|        192 |      25.00 |
|        195 |      41.00 |
|        258 |      45.00 |
|        258 |      25.00 |
|        263 |       9.00 |
|        263 |      50.00 |
|        291 |      21.00 |
|        292 |      24.00 |
|        295 |       8.00 |
|        323 |       9.00 |
|        326 |      41.00 |
|        326 |      31.00 |
|        327 |      16.00 |
|        355 |      41.00 |
|        356 |      35.00 |
|        358 |      41.00 |
|        384 |      38.00 |
|        384 |      11.00 |
|        384 |      14.00 |
|        387 |      32.00 |
|        391 |      14.00 |
|        421 |       1.00 |
|        448 |       8.00 |
|        454 |      24.00 |
|        484 |      49.00 |
|        484 |      45.00 |
|        486 |      38.00 |
|        519 |      13.00 |
|        546 |      16.00 |
|        548 |       6.00 |
|        551 |      20.00 |
|        581 |      30.00 |
|        583 |       1.00 |
|        583 |      13.00 |
|        612 |      28.00 |
|        613 |       3.00 |
|        614 |      21.00 |
|        640 |      40.00 |
|        640 |      22.00 |
|        644 |      11.00 |
|        644 |      23.00 |
|        645 |      49.00 |
|        646 |      24.00 |

+----------------------+----------------------+
| most_supplied_region | distinct_parts_count |
+----------------------+----------------------+
| AMERICA              |               119448 |
+----------------------+----------------------+
1 row in set (1.7815 sec)
MySQL  localhost:33060+ ssl  tpch  SQL > 
```

    distinct_parts_count DESC
LIMIT 1;

Q3. Query:

SELECT l.L_ORDERKEY, l.L_QUANTITY FROM lineitem as l WHERE l.L_SHIPMODE= "TRUCK"
AND DATEDIFF(l.L_COMMITDATE, l.L_SHIPDATE) < (SELECT AVG(DATEDIFF(l.L_COMMITDATE,
l.L_SHIPDATE)) FROM lineitem as l WHERE l.L_SHIPMODE = "TRUCK");

Q4. Query:

```
    SELECT
  L_PARTKEY,
  P_NAME AS part_name
FROM
  lineitem AS  l
JOIN
  part p ON l.L_PARTKEY = p.P_PARTKEY
JOIN
  orders o ON l.L_ORDERKEY = o.O_ORDERKEY
JOIN
  customer c ON o.O_CUSTKEY = c.C_CUSTKEY
JOIN
  nation n ON c.C_NATIONKEY = n.N_NATIONKEY
JOIN
  region r ON r.R_REGIONKEY = n.N_REGIONKEY
WHERE
  l.L_DISCOUNT = 0
  AND r.R_NAME != 'EUROPE';
```

Q5. Query:

```
SELECT C_NAME
FROM customer
WHERE C_CUSTKEY NOT IN (SELECT O_CUSTKEY FROM orders);
```

```
MySQL  localhost:33060+ ssl  tpch  SQL > SELECT
                               ->    L_PARTKEY,
                               ->    P_NAME AS part_name
                               -> FROM
                               ->    lineitem AS  l
                               -> JOIN
                               ->    part p ON l.L_PARTKEY = p.P_PARTKEY
                               -> JOIN
                               ->    orders o ON l.L_ORDERKEY = o.O_ORDERKEY
                               -> JOIN
                               ->    customer c ON o.O_CUSTKEY = c.C_CUSTKEY
                               -> JOIN
                               ->    nation n ON c.C_NATIONKEY = n.N_NATIONKEY
                               -> JOIN
                               ->    region r ON r.R_REGIONKEY = n.N_REGIONKEY
                               -> WHERE
                               ->    l.L_DISCOUNT = 0
                               ->    AND r.R_NAME != 'EUROPE';
+-----------+------------------------------------------+
| L_PARTKEY | part_name                                |
+-----------+------------------------------------------+
|    106170 | steel chiffon pink puff chocolate        |
|     88362 | ivory dodger thistle royal olive         |
|     73815 | blanched seashell blue magenta metallic  |
|    115118 | cyan linen papaya blanched lavender       |
|     34432 | snow almond orchid peach burlywood       |
|     96645 | white red saddle lemon cornflower        |
|    119477 | forest papaya cyan azure olive           |
|    109743 | honeydew cream steel sky pale            |
|    163334 | gainsboro azure sandy thistle lavender   |
|    135137 | violet navajo green cornflower frosted   |
|    140449 | antique dodger orange burlywood pale     |
|    103432 | grey chocolate lace red sky              |
|    198344 | peru forest ivory medium pink            |
|     86382 | white coral linen moccasin rose          |
|    190825 | orchid lavender steel dark chartreuse    |
|     58520 | red chartreuse rosy honeydew linen       |
|     97017 | blanched chartreuse medium seashell puff |
|    141003 | green burnished forest metallic tan      |
|    145146 | chartreuse cornsilk cornflower pale sienna |
|    130565 | grey blanched medium forest rosy         |
|    146071 | sandy smoke azure brown rose             |
|    131835 | aquamarine plum dodger honeydew dark     |
|     96909 | dark plum puff lemon midnight            |
|    106194 | firebrick midnight purple cornsilk grey  |
|     50641 | papaya khaki tan azure antique           |
|     59620 | almond antique khaki frosted deep        |
|    119305 | antique azure midnight khaki smoke       |
|     77071 | rosy green spring maroon pale            |
|    165980 | pink ivory forest cornsilk navy          |
|     11158 | red beige misty deep salmon              |
|     92053 | sky drab thistle azure black             |
|     93563 | bisque smoke magenta tomato puff         |
|     69212 | rose olive moccasin linen royal          |
|     18552 | rosy chocolate ivory pale dodger         |
|     15978 | dim cyan cream thistle aquamarine        |
|     32694 | dodger antique midnight navajo sandy     |
|     76308 | lemon coral dim turquoise ivory          |
|    136884 | plum grey cyan orange powder             |
|     75437 | cream blanched khaki purple forest       |
```

Q6. Query:

SELECT DISTINCT
    p.P_NAME AS item_name
FROM
    part as p
JOIN

```
    partsupp as ps ON p.P_PARTKEY = ps.PS_PARTKEY
JOIN
    supplier as s ON ps.PS_SUPPKEY = s.S_SUPPKEY
JOIN
    nation as n ON s.S_NATIONKEY = n.N_NATIONKEY
JOIN
    lineitem as l ON ps.PS_PARTKEY = l.L_PARTKEY AND ps.PS_SUPPKEY =
l.L_SUPPKEY
JOIN
    orders as o ON l.L_ORDERKEY = o.O_ORDERKEY
JOIN
    customer as c ON o.O_CUSTKEY = c.C_CUSTKEY
and c.C_NATIONKEY = n.N_NATIONKEY
WHERE
    n.N_NATIONKEY = (
        SELECT s2.S_NATIONKEY
        FROM
            supplier as s2
        GROUP BY
            s2.S_NATIONKEY
        ORDER BY
            AVG(s2.S_ACCTBAL) DESC
LIMIT 1
    );
```

```
MySQL  localhost:33060+ ssl  tpch  SQL > SELECT DISTINCT
                               ->       p.P_NAME AS item_name
                               -> FROM
                               ->     part as p
                               -> JOIN
                               ->     partsupp as ps ON p.P_PARTKEY = ps.PS_PARTKEY
                               -> JOIN
                               ->     supplier as s ON ps.PS_SUPPKEY = s.S_SUPPKEY
                               -> JOIN
                               ->     nation as n ON s.S_NATIONKEY = n.N_NATIONKEY
                               -> JOIN
                               ->     lineitem as l ON ps.PS_PARTKEY = l.L_PARTKEY AND ps.PS_SUPPKEY = l.L_SUPPKEY
                               -> JOIN
                               ->     orders as o ON l.L_ORDERKEY = o.O_ORDERKEY
                               -> JOIN
                               ->     customer as c ON o.O_CUSTKEY = c.C_CUSTKEY
                               -> and c.C_NATIONKEY = n.N_NATIONKEY
                               -> WHERE
                               ->     n.N_NATIONKEY = (
                               ->         SELECT s2.S_NATIONKEY
                               ->         FROM
                               ->             supplier as s2
                               ->         GROUP BY
                               ->             s2.S_NATIONKEY
                               ->         ORDER BY
                               ->             AVG(s2.S_ACCTBAL) DESC
                               -> LIMIT 1
                               ->     );
+-------------------------------------------+
| item_name                                 |
+-------------------------------------------+
| antique black goldenrod linen salmon      |
| sienna aquamarine snow smoke coral        |
| sky black wheat misty burlywood           |
| chiffon mint coral aquamarine burnished   |
| dodger lace red blue light                |
| sandy olive cornsilk powder red           |
| sky cyan blue sienna antique              |
| linen sandy firebrick rosy cream          |
| chartreuse cyan chiffon firebrick seashell|
| cream navajo blue lawn bisque             |
| wheat blanched metallic cyan navy         |
| cornsilk midnight ghost azure cornflower  |
| olive deep floral peach chocolate         |
| sandy khaki azure coral brown             |
| mint tan maroon coral burlywood           |
| rose orchid drab navajo blue              |
| linen maroon chiffon cornflower misty     |
| slate navy red lavender purple            |
| chocolate cornsilk medium snow drab       |
| navajo seashell antique cyan navy         |
| dim olive aquamarine beige goldenrod      |
| steel midnight deep pink aquamarine       |
| puff burnished misty lime honeydew        |
| red lace navy chartreuse steel            |
| lavender sienna blush purple chiffon      |
| rose maroon red beige dodger              |
| chartreuse cornflower navy antique olive  |
| sandy blush linen sky burlywood           |
| orange saddle lavender puff sandy         |
| hot midnight blue salmon lime             |
| aquamarine blanched rosy midnight goldenrod|
| light tomato ivory white medium           |
```

Q7. Query:

```
    SELECT
    AVG(l.L_EXTENDEDPRICE) AS average_order_price
FROM
    lineitem l
JOIN
    part p ON l.L_PARTKEY = p.P_PARTKEY
WHERE
    p.P_SIZE <= 40;
```

```
MySQL  localhost:33060+ ssl  tpch  SQL > SELECT     AVG(l.L_EXTENDEDPRICE) AS a
verage_order_price FROM      lineitem l JOIN      part p ON l.L_PARTKEY = p.P_PART
KEY WHERE      p.P_SIZE <= 40;
+---------------------+
| average_order_price |
+---------------------+
|       38261.251431  |
+---------------------+
1 row in set (13.1757 sec)
```

Q8. Query:

```sql
SELECT s.S_NAME , COUNT(ps.PS_PARTKEY)
FROM supplier as s, partsupp as ps
WHERE
s.S_SUPPKEY= ps.PS_SUPPKEY
GROUP BY s.S_NAME
HAVING COUNT(ps.PS_PARTKEY) > 5;
```

Q9. Query:

```sql
SELECT DISTINCT
    p.P_NAME AS part_name
FROM
    part as p
JOIN
    partsupp as ps ON p.P_PARTKEY = ps.PS_PARTKEY
JOIN
    lineitem as l ON ps.PS_PARTKEY = l.L_PARTKEY
WHERE
    l.L_DISCOUNT = (
        SELECT
            MAX(l2.L_DISCOUNT)
        FROM
            lineitem as l2
    );
```