MSDS 420: Assignment 4

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```
Using username "aso4098".
aso4098@elasticsearch.sps.northwestern.edu's password:
[aso4098@spselastic1 ~]$ psql -h 129.105.208.229 -U aso4098 -d postgres
       psql (8.4.20, server 10.5)
postgres=> \c saleco_dw
       psql (8.4.20, server 10.5)
       WARNING: psql version 8.4, server version 10.5.
                Some psql features might not work.
       You are now connected to database "saleco_dw".
saleco_dw=> \dt
                   List of relations
        Schema |      Name      | Type  | Owner
       --------+----------------+-------+--------
        public | dwcustomer     | table | ajb254
        public | dwdaysalesfact | table | ajb254
        public | dwproduct      | table | ajb254
        public | dwregion       | table | ajb254
        public | dwtime         | table | ajb254
        public | dwvendor       | table | ajb254
       (6 rows)


saleco_dw-> \d dwcustomer
                   Table "public.dwcustomer"
          Column    |         Type          | Modifiers
       -------------+-----------------------+-----------
        cus_code    | integer               | not null
        cus_lname   | character varying(15) |
        cus_fname   | character varying(15) |
        cus_initial | character(1)          |
        cus_state   | character(2)          |
        reg_id      | integer               |
       Indexes:
           "dwcustomer_pkey" PRIMARY KEY, btree (cus_code)
       Foreign-key constraints:
           "dwcustomer_reg_id_fkey" FOREIGN KEY (reg_id) REFERENCES dwregion(reg_id)
```

```
saleco_dw-> \d dwdaysalesfact
                Table "public.dwdaysalesfact"
    Column    |         Type          | Modifiers
--------------+-----------------------+-----------
 tm_id        | integer               | not null
 cus_code     | integer               | not null
 p_code       | character varying(10) | not null
 sale_units   | integer               |
 sale_price   | numeric(10,2)         |
Indexes:
    "dwdaysalesfact_pkey" PRIMARY KEY, btree (tm_id, cus_code, p_code)

saleco_dw-> \d dwdaysalesfact
                Table "public.dwdaysalesfact"
    Column    |         Type          | Modifiers
--------------+-----------------------+-----------
 tm_id        | integer               | not null
 cus_code     | integer               | not null
 p_code       | character varying(10) | not null
 sale_units   | integer               |
 sale_price   | numeric(10,2)         |
Indexes:
    "dwdaysalesfact_pkey" PRIMARY KEY, btree (tm_id, cus_code, p_code)

saleco_dw-> \d dwregion
                 Table "public.dwregion"
   Column   |         Type          | Modifiers
------------+-----------------------+-----------
 reg_id     | integer               | not null
 reg_name   | character varying(10) |
Indexes:
    "dwregion_pkey" PRIMARY KEY, btree (reg_id)
Referenced by:
    TABLE "dwcustomer" CONSTRAINT "dwcustomer_reg_id_fkey" FOREIGN KEY (reg_id) REFERENCES
dwregion(reg_id)
```

```
saleco_dw-> \d dwtime
            Table "public.dwtime"
   Column   |  Type   | Modifiers
----------+---------+-----------
 tm_id     | integer | not null
 tm_year   | integer |
 tm_month  | integer |
 tm_day    | integer |
 tm_qtr    | integer |
Indexes:
    "dwtime_pkey" PRIMARY KEY, btree (tm_id)

saleco_dw-> \d dwvendor
                  Table "public.dwvendor"
    Column    |         Type          | Modifiers
------------+-----------------------+-----------
 v_code     | integer               | not null
 v_name     | character varying(35) |
 v_areacode | character(3)          |
 v_state    | character(2)          |
Indexes:
    "dwvendor_pkey" PRIMARY KEY, btree (v_code)
Referenced by:
    TABLE "dwproduct" CONSTRAINT "dwproduct_v_code_fkey" FOREIGN KEY (v_code) REFERENCES
dwvendor(v_code)
```

Question 1: Write and execute the SQL command to list the total sales by region and customer. Your output should be sorted by region name and customer code.

```
SELECT
c.cus_code, concat(c.cus_fname,' ',c.cus_lname) AS cus_name,
sum(s.sale_units * s.sale_price) AS total_sales,
r.reg_name
FROM dwcustomer c, dwdaysalesfact s, dwregion r
WHERE c.cus_code = s.cus_code
AND c.reg_id = r.reg_id
GROUP BY r.reg_name, c.cus_code
ORDER BY r.reg_name, c.cus_code;
```

cus_code	cus_name	total_sales	reg_name
10012	Kathy Smith	287.91	NE
10013	Paul Olowski	64.32	NE
10014	Myron Orlando	494.71	NW
10019	Olette Smith	39.95	NW
10010	Alfred Ramas	180.26	SE
10011	Leona Dunne	130.89	SE
10015	Amy O'Brian	325.82	SE
10016	James Brown	179.22	SE
10017	George Williams	419.66	SW
10018	Anne Farriss	129.32	SW

Question 2: Write and execute the SQL command to list the total sales by customer code, month, and product code; sort by customer code and month.

```
SELECT
c.cus_code,
t.tm_month,
p.p_code, p.p_descript,
sum(s.sale_units * s.sale_price) AS total_sales
FROM dwcustomer c, dwtime t, dwproduct p, dwdaysalesfact s
WHERE c.cus_code = s.cus_code
AND s.tm_id = t.tm_id
AND s.p_code = p.p_code
GROUP BY c.cus_code, t.tm_month, p.p_code, p.p_descript
ORDER BY c.cus_code, t.tm_month;
```

cus_code	tm_month	p_code	p_descript	total_sales
10010	10	13-Q2/P2	7.25-in. pwr. saw blade	74.95
10010	10	23109-HB	Claw hammer	19.90
10010	10	54778-2T	Rat-tail file, 1/8-in. fine	14.97
10010	10	PVC23DRT	PVC pipe, 3.5-in., 8-ft	70.44
10011	10	2232/QTY	B\&D jigsaw, 12-in. blade	109.92
10011	10	SM-18277	1.25-in. metal screw, 25	20.97

```
10012 |        9 | SM-18277 | 1.25-in. metal screw, 25           |       20.97
10012 |       10 | 23109-HB | Claw hammer                       |        9.95
10012 |       10 | 89-WRE-Q | Hicut chain saw, 16 in.           |      256.99
10013 |       10 | 13-Q2/P2 | 7.25-in. pwr. saw blade           |       29.98
10013 |       10 | 54778-2T | Rat-tail file, 1/8-in. fine       |        4.99
10013 |       10 | PVC23DRT | PVC pipe, 3.5-in., 8-ft           |       29.35
10014 |        9 | 13-Q2/P2 | 7.25-in. pwr. saw blade           |       14.99
10014 |        9 | 2232/QTY | B\&D jigsaw, 12-in. blade         |      109.92
10014 |        9 | 23109-HB | Claw hammer                       |        9.95
10014 |       10 | WR3/TT3  | Steel matting, 4'x8'x1/6", .5" mesh |      359.85
10015 |        9 | 2238/QPD | B\&D cordless drill, 1/2-in.      |       38.95
10015 |        9 | 23109-HB | Claw hammer                       |        9.95
10015 |        9 | 54778-2T | Rat-tail file, 1/8-in. fine       |        9.98
10015 |        9 | 89-WRE-Q | Hicut chain saw, 16 in.           |      256.99
10015 |       10 | 23109-HB | Claw hammer                       |        9.95
10016 |        9 | 13-Q2/P2 | 7.25-in. pwr. saw blade           |      104.93
10016 |        9 | 1546-QQ2 | Hrd. cloth, 1/4-in., 2x50         |       39.95
10016 |        9 | 54778-2T | Rat-tail file, 1/8-in. fine       |        4.99
10016 |        9 | PVC23DRT | PVC pipe, 3.5-in., 8-ft           |       29.35
10017 |        9 | 13-Q2/P2 | 7.25-in. pwr. saw blade           |       14.99
10017 |        9 | 23109-HB | Claw hammer                       |       29.85
10017 |        9 | 54778-2T | Rat-tail file, 1/8-in. fine       |       14.97
10017 |        9 | WR3/TT3  | Steel matting, 4'x8'x1/6", .5" mesh |      359.85
10018 |        9 | 2238/QPD | B\&D cordless drill, 1/2-in.      |       38.95
10018 |        9 | 23109-HB | Claw hammer                       |        9.95
10018 |        9 | 54778-2T | Rat-tail file, 1/8-in. fine       |        9.98
10018 |        9 | PVC23DRT | PVC pipe, 3.5-in., 8-ft           |       70.44
10019 |        9 | 1546-QQ2 | Hrd. cloth, 1/4-in., 2x50         |       39.95
(34 rows)
```

Question 3: Write and execute the SQL command to list the total sales by customer code and by product code.

```
SELECT
c.cus_code,
p.p_code,
sum(s.sale_units * s.sale_price) AS total_sales
FROM dwcustomer c, dwproduct p, dwdaysalesfact s
WHERE c.cus_code = s.cus_code
AND s.p_code = p.p_code
GROUP BY c.cus_code, p.p_code, p.p_descript
ORDER BY c.cus_code;
```

cus_code	p_code	total_sales
10010	13-Q2/P2	74.95
10010	23109-HB	19.90
10010	54778-2T	14.97
10010	PVC23DRT	70.44
10011	2232/QTY	109.92
10011	SM-18277	20.97
10012	23109-HB	9.95
10012	89-WRE-Q	256.99
10012	SM-18277	20.97
10013	13-Q2/P2	29.98
10013	54778-2T	4.99
10013	PVC23DRT	29.35
10014	13-Q2/P2	14.99
10014	2232/QTY	109.92
10014	23109-HB	9.95
10014	WR3/TT3	359.85
10015	2238/QPD	38.95
10015	23109-HB	19.90
10015	54778-2T	9.98
10015	89-WRE-Q	256.99
10016	13-Q2/P2	104.93
10016	1546-QQ2	39.95
10016	54778-2T	4.99
10016	PVC23DRT	29.35
10017	13-Q2/P2	14.99
10017	23109-HB	29.85

```
    10017 | 54778-2T |       14.97
    10017 | WR3/TT3  |      359.85
    10018 | 2238/QPD |       38.95
    10018 | 23109-HB |        9.95
    10018 | 54778-2T |        9.98
    10018 | PVC23DRT |       70.44
    10019 | 1546-QQ2 |       39.95
(33 rows)
```

Question 4: Write and execute the SQL command to list the total sales by month and product category. Your output should be sorted by month and product category. Total sales should consider units and price.

```
SELECT
t.tm_month,
p.p_category,
sum(s.sale_units * s.sale_price) AS total_sales
FROM dwtime t, dwproduct p, dwdaysalesfact s
WHERE s.tm_id = t.tm_id
AND s.p_code = p.p_code
GROUP BY t.tm_month, p.p_category
ORDER BY t.tm_month, p.p_category;
```

```
 tm_month | p_category | total_sales
----------+------------+-------------
        9 | CAT1       |      174.83
        9 | CAT2       |      446.81
        9 | CAT3       |      537.54
        9 | CAT4       |       80.67
       10 | CAT1       |      124.89
       10 | CAT2       |      366.91
       10 | CAT3       |      459.64
       10 | CAT4       |       60.77
(8 rows)
```

Question 5: Write and execute the SQL command to list the number of product sales (number of rows) and total sales by month. Your output should be sorted by month.

```
SELECT
t.tm_month,
count(p.p_code) AS num_prd_sales,
sum(s.sale_units * s.sale_price) AS total_sales
FROM dwtime t, dwproduct p, dwdaysalesfact s
WHERE s.tm_id = t.tm_id
AND s.p_code = p.p_code
GROUP BY t.tm_month
ORDER BY t.tm_month;
```

```
tm_month | num_prd_sales | total_sales
----------+---------------+-------------
         9 |            23 |     1239.85
        10 |            13 |     1012.21
```

Question 6: Write and execute the SQL command to list the number of product sales and total sales by month and product category. Your output should be sorted by month and product category.

```
SELECT
t.tm_month,
p.p_category, count(s.sale_units) AS num_prd_sales,
sum(s.sale_units * s.sale_price) AS total_sales
FROM dwtime t, dwproduct p, dwdaysalesfact s
WHERE s.tm_id = t.tm_id
AND s.p_code = p.p_code
GROUP BY t.tm_month, p.p_category
ORDER BY t.tm_month, p.p_category;
```

```
tm_month | p_category | num_prd_sales | total_sales
----------+------------+---------------+-------------
         9 | CAT1       |             8 |      174.83
         9 | CAT2       |             4 |      446.81
         9 | CAT3       |             5 |      537.54
         9 | CAT4       |             6 |       80.67
        10 | CAT1       |             4 |      124.89
        10 | CAT2       |             2 |      366.91
        10 | CAT3       |             3 |      459.64
        10 | CAT4       |             4 |       60.77
(8 rows)
```

Question 7: Write and execute the SQL command to list the number of product sales (number of rows) and total sales by month, product category, and product. Your output should be sorted by month, product category and product.

```
SELECT
t.tm_month,
p.p_category, p.p_descript, count(p.p_code) AS num_prd_sales,
sum(s.sale_units * s.sale_price) AS total_sales
FROM dwtime t, dwproduct p, dwdaysalesfact s
WHERE s.tm_id = t.tm_id
AND s.p_code = p.p_code
GROUP BY t.tm_month, p.p_category, p.p_descript
ORDER BY t.tm_month, p.p_category, p.p_descript;
```

tm_month	p_category	p_descript	num_prd_sales	total_sales
9	CAT1	7.25-in. pwr. saw blade	4	134.91
9	CAT1	Rat-tail file, 1/8-in. fine	4	39.92
9	CAT2	B\&D jigsaw, 12-in. blade	1	109.92
9	CAT2	Hicut chain saw, 16 in.	1	256.99
9	CAT2	Hrd. cloth, 1/4-in., 2x50	2	79.90
9	CAT3	B\&D cordless drill, 1/2-in.	2	77.90
9	CAT3	PVC pipe, 3.5-in., 8-ft	2	99.79
9	CAT3	Steel matting, 4'x8'x1/6", .5" mesh	1	359.85
9	CAT4	1.25-in. metal screw, 25	1	20.97
9	CAT4	Claw hammer	5	59.70
10	CAT1	7.25-in. pwr. saw blade	2	104.93
10	CAT1	Rat-tail file, 1/8-in. fine	2	19.96
10	CAT2	B\&D jigsaw, 12-in. blade	1	109.92
10	CAT2	Hicut chain saw, 16 in.	1	256.99
10	CAT3	PVC pipe, 3.5-in., 8-ft	2	99.79
10	CAT3	Steel matting, 4'x8'x1/6", .5" mesh	1	359.85
10	CAT4	1.25-in. metal screw, 25	1	20.97
10	CAT4	Claw hammer	3	39.80

(18 rows)