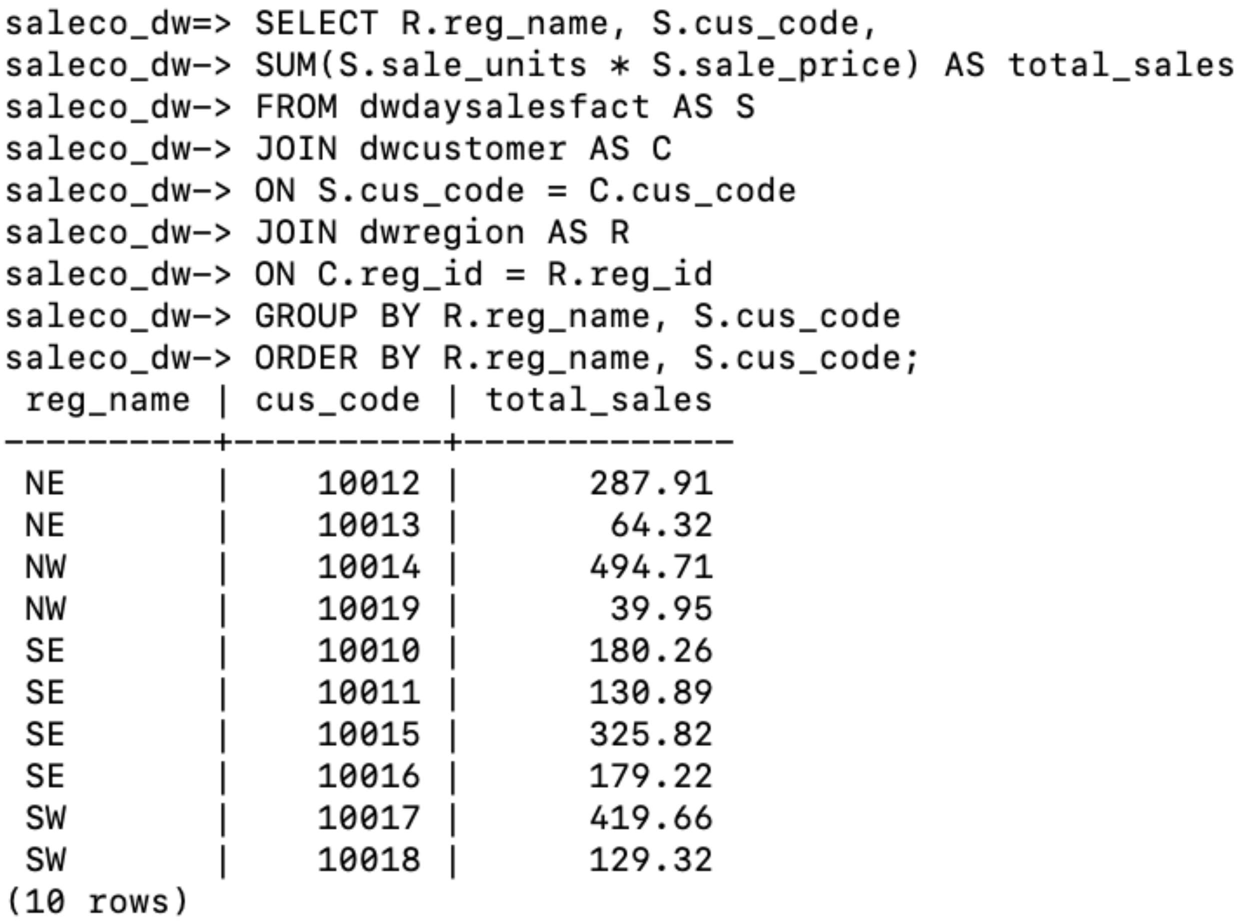
Kagen Quiballo | MSDS 420 | Assignment 4 | 10/29/2021

Note: Total sales = sale_units * sale_price

1. List the total sales by region and customer. Your output should be sorted by region name and customer code. (**6 pts**)

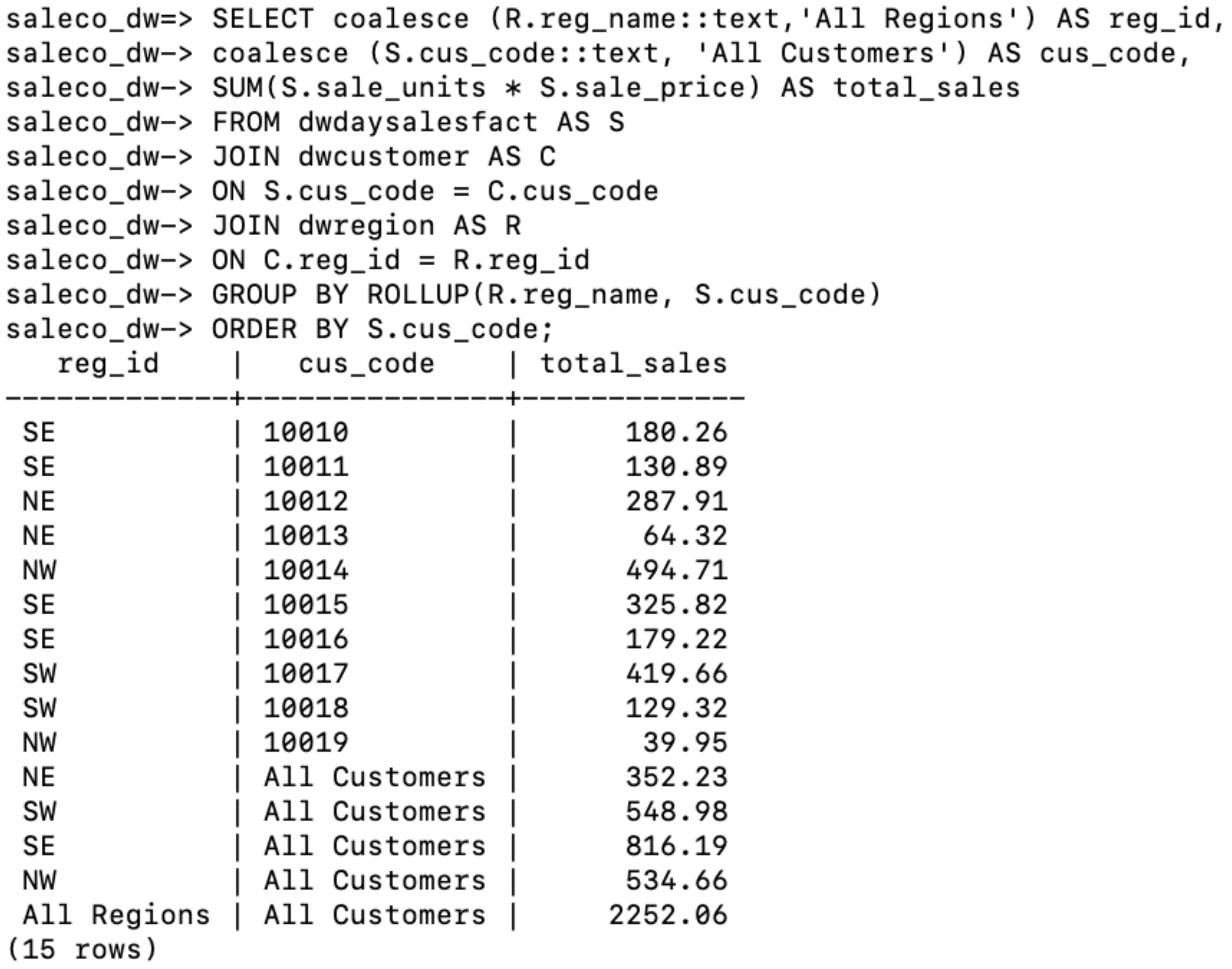
```
SELECT R.reg_name, S.cus_code,
SUM(S.sale_units * S.sale_price) AS total_sales
FROM dwdaysalesfact AS S
JOIN dwcustomer AS C
ON S.cus_code = C.cus_code
JOIN dwregion AS R
ON C.reg_id = R.reg_id
GROUP BY R.reg_name, S.cus_code
ORDER BY R.reg_name, S.cus_code;
```



```
saleco_dw=> SELECT R.reg_name, S.cus_code,
saleco_dw-> SUM(S.sale_units * S.sale_price) AS total_sales
saleco_dw-> FROM dwdaysalesfact AS S
saleco_dw-> JOIN dwcustomer AS C
saleco_dw-> ON S.cus_code = C.cus_code
saleco_dw-> JOIN dwregion AS R
saleco_dw-> ON C.reg_id = R.reg_id
saleco_dw-> GROUP BY R.reg_name, S.cus_code
saleco_dw-> ORDER BY R.reg_name, S.cus_code;
 reg_name | cus_code | total_sales
----------+----------+-------------
 NE       |    10012 |      287.91
 NE       |    10013 |       64.32
 NW       |    10014 |      494.71
 NW       |    10019 |       39.95
 SE       |    10010 |      180.26
 SE       |    10011 |      130.89
 SE       |    10015 |      325.82
 SE       |    10016 |      179.22
 SW       |    10017 |      419.66
 SW       |    10018 |      129.32
(10 rows)
```

2. Repeat #1 but produce the output using ROLLUP with region name and customer code. (**2 pts**)

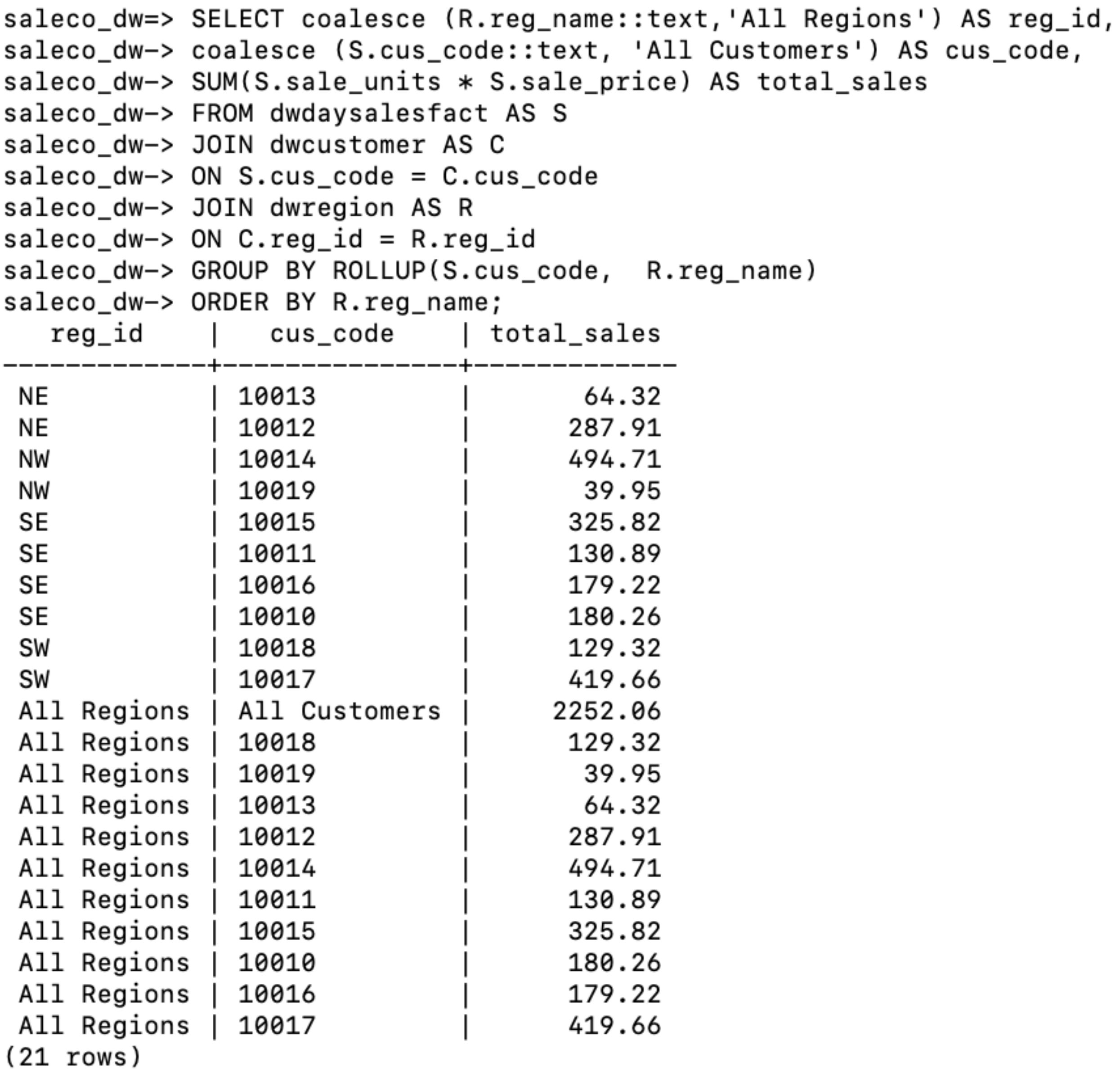
```
SELECT coalesce (R.reg_name::text,'All Regions') AS reg_id,
coalesce (S.cus_code::text, 'All Customers') AS cus_code,
SUM(S.sale_units * S.sale_price) AS total_sales
FROM dwdaysalesfact AS S
JOIN dwcustomer AS C
ON S.cus_code = C.cus_code
JOIN dwregion AS R
ON C.reg_id = R.reg_id
GROUP BY ROLLUP(R.reg_name, S.cus_code)
ORDER BY S.cus_code;
```



```
saleco_dw=> SELECT coalesce (R.reg_name::text,'All Regions') AS reg_id,
saleco_dw-> coalesce (S.cus_code::text, 'All Customers') AS cus_code,
saleco_dw-> SUM(S.sale_units * S.sale_price) AS total_sales
saleco_dw-> FROM dwdaysalesfact AS S
saleco_dw-> JOIN dwcustomer AS C
saleco_dw-> ON S.cus_code = C.cus_code
saleco_dw-> JOIN dwregion AS R
saleco_dw-> ON C.reg_id = R.reg_id
saleco_dw-> GROUP BY ROLLUP(R.reg_name, S.cus_code)
saleco_dw-> ORDER BY S.cus_code;
   reg_id    |   cus_code    | total_sales
-------------+---------------+-------------
 SE          | 10010         |      180.26
 SE          | 10011         |      130.89
 NE          | 10012         |      287.91
 NE          | 10013         |       64.32
 NW          | 10014         |      494.71
 SE          | 10015         |      325.82
 SE          | 10016         |      179.22
 SW          | 10017         |      419.66
 SW          | 10018         |      129.32
 NW          | 10019         |       39.95
 NE          | All Customers |      352.23
 SW          | All Customers |      548.98
 SE          | All Customers |      816.19
 NW          | All Customers |      534.66
 All Regions | All Customers |     2252.06
(15 rows)
```

#2 continued

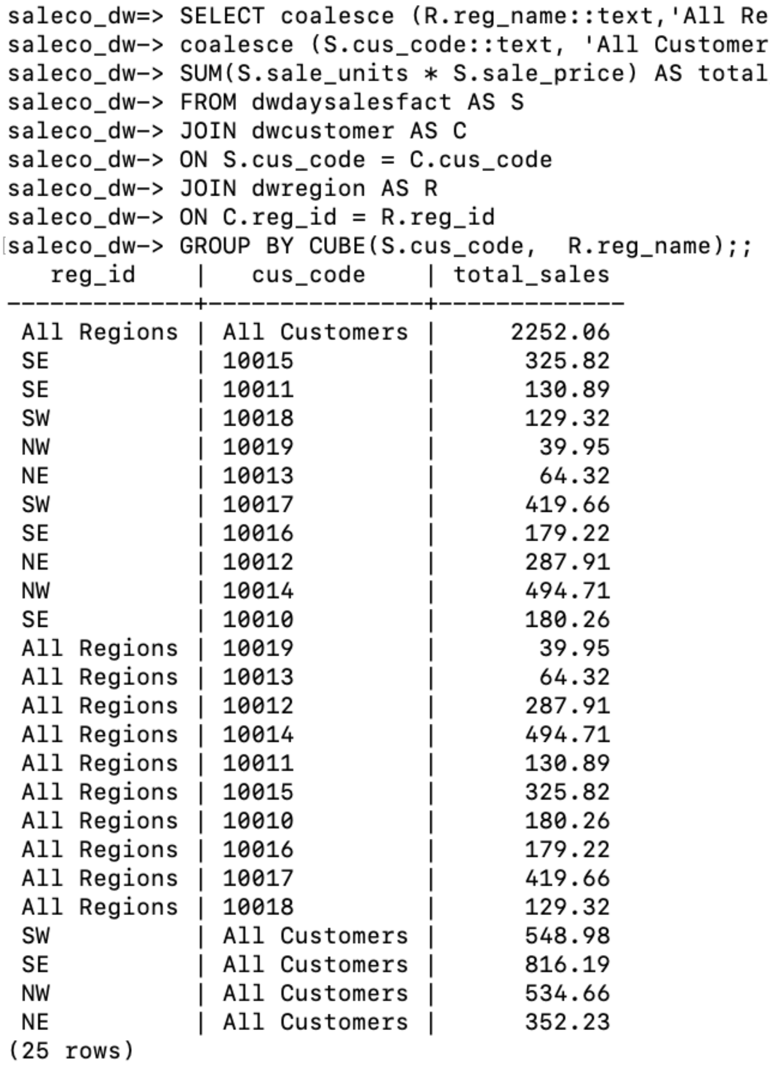
```
SELECT coalesce (R.reg_name::text,'All Regions') AS reg_id,
coalesce (S.cus_code::text, 'All Customers') AS cus_code,
SUM(S.sale_units * S.sale_price) AS total_sales
FROM dwdaysalesfact AS S
JOIN dwcustomer AS C
ON S.cus_code = C.cus_code
JOIN dwregion AS R
ON C.reg_id = R.reg_id
GROUP BY ROLLUP(S.cus_code,  R.reg_name)
ORDER BY R.reg_name;
```



```
saleco_dw=> SELECT coalesce (R.reg_name::text,'All Regions') AS reg_id,
saleco_dw-> coalesce (S.cus_code::text, 'All Customers') AS cus_code,
saleco_dw-> SUM(S.sale_units * S.sale_price) AS total_sales
saleco_dw-> FROM dwdaysalesfact AS S
saleco_dw-> JOIN dwcustomer AS C
saleco_dw-> ON S.cus_code = C.cus_code
saleco_dw-> JOIN dwregion AS R
saleco_dw-> ON C.reg_id = R.reg_id
saleco_dw-> GROUP BY ROLLUP(S.cus_code,  R.reg_name)
saleco_dw-> ORDER BY R.reg_name;
   reg_id    |   cus_code    | total_sales
-------------+---------------+-------------
 NE          | 10013         |       64.32
 NE          | 10012         |      287.91
 NW          | 10014         |      494.71
 NW          | 10019         |       39.95
 SE          | 10015         |      325.82
 SE          | 10011         |      130.89
 SE          | 10016         |      179.22
 SE          | 10010         |      180.26
 SW          | 10018         |      129.32
 SW          | 10017         |      419.66
 All Regions | All Customers |     2252.06
 All Regions | 10018         |      129.32
 All Regions | 10019         |       39.95
 All Regions | 10013         |       64.32
 All Regions | 10012         |      287.91
 All Regions | 10014         |      494.71
 All Regions | 10011         |      130.89
 All Regions | 10015         |      325.82
 All Regions | 10010         |      180.26
 All Regions | 10016         |      179.22
 All Regions | 10017         |      419.66
(21 rows)
```

3. Repeat #1 but produce the output using CUBE with region name and customer code. (**2 pts**)

```
SELECT coalesce (R.reg_name::text,'All Regions') AS reg_id,
coalesce (S.cus_code::text, 'All Customers') AS cus_code,
SUM(S.sale_units * S.sale_price) AS total_sales
FROM dwdaysalesfact AS S
JOIN dwcustomer AS C
ON S.cus_code = C.cus_code
JOIN dwregion AS R
ON C.reg_id = R.reg_id
GROUP BY CUBE(S.cus_code,  R.reg_name);
```



```
saleco_dw=> SELECT coalesce (R.reg_name::text,'All Regions') AS reg_id,
saleco_dw-> coalesce (S.cus_code::text, 'All Customers') AS cus_code,
saleco_dw-> SUM(S.sale_units * S.sale_price) AS total_sales
saleco_dw-> FROM dwdaysalesfact AS S
saleco_dw-> JOIN dwcustomer AS C
saleco_dw-> ON S.cus_code = C.cus_code
saleco_dw-> JOIN dwregion AS R
saleco_dw-> ON C.reg_id = R.reg_id
saleco_dw-> GROUP BY CUBE(S.cus_code,  R.reg_name);;
   reg_id    |   cus_code    | total_sales
-------------+---------------+-------------
 All Regions | All Customers |     2252.06
 SE          | 10015         |      325.82
 SE          | 10011         |      130.89
 SW          | 10018         |      129.32
 NW          | 10019         |       39.95
 NE          | 10013         |       64.32
 SW          | 10017         |      419.66
 SE          | 10016         |      179.22
 NE          | 10012         |      287.91
 NW          | 10014         |      494.71
 SE          | 10010         |      180.26
 All Regions | 10019         |       39.95
 All Regions | 10013         |       64.32
 All Regions | 10012         |      287.91
 All Regions | 10014         |      494.71
 All Regions | 10011         |      130.89
 All Regions | 10015         |      325.82
 All Regions | 10010         |      180.26
 All Regions | 10016         |      179.22
 All Regions | 10017         |      419.66
 All Regions | 10018         |      129.32
 SW          | All Customers |      548.98
 SE          | All Customers |      816.19
 NW          | All Customers |      534.66
 NE          | All Customers |      352.23
(25 rows)
```

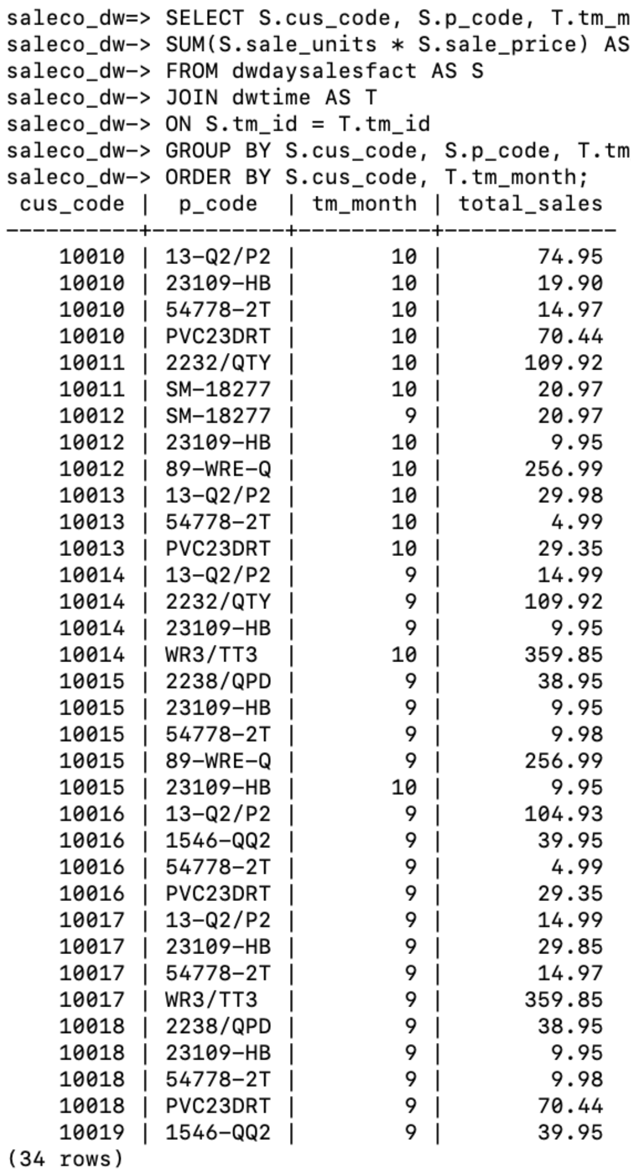
4. Explain the additional information/intelligence gained when using ROLLUP or CUBE. Discuss the output from the first three queries in your answer. (**10 pts**)

ROLLUP can either add the subtotals for ***either*** *the regional variable or customer variable whereas CUBE gives you the subtotals for* ***both*** *regional and customer data.*

Q1 has a simple output of total sales by customer and region but no subtotals because we used a group by statement. Q2 can either add the additional regional or customer subtotals for total sales. We can see both individually, but using the ROLLUP function only allows us to see subtotals for one of these dimensions (as well as grand total). Q3 shows us the subtotals for both regional and customer data. We see these subtotals across both these dimensions because we used cube (as well as grand total).

5. List the total sales by customer code, month, and product code; sort by customer code and month. (**5 pts**)

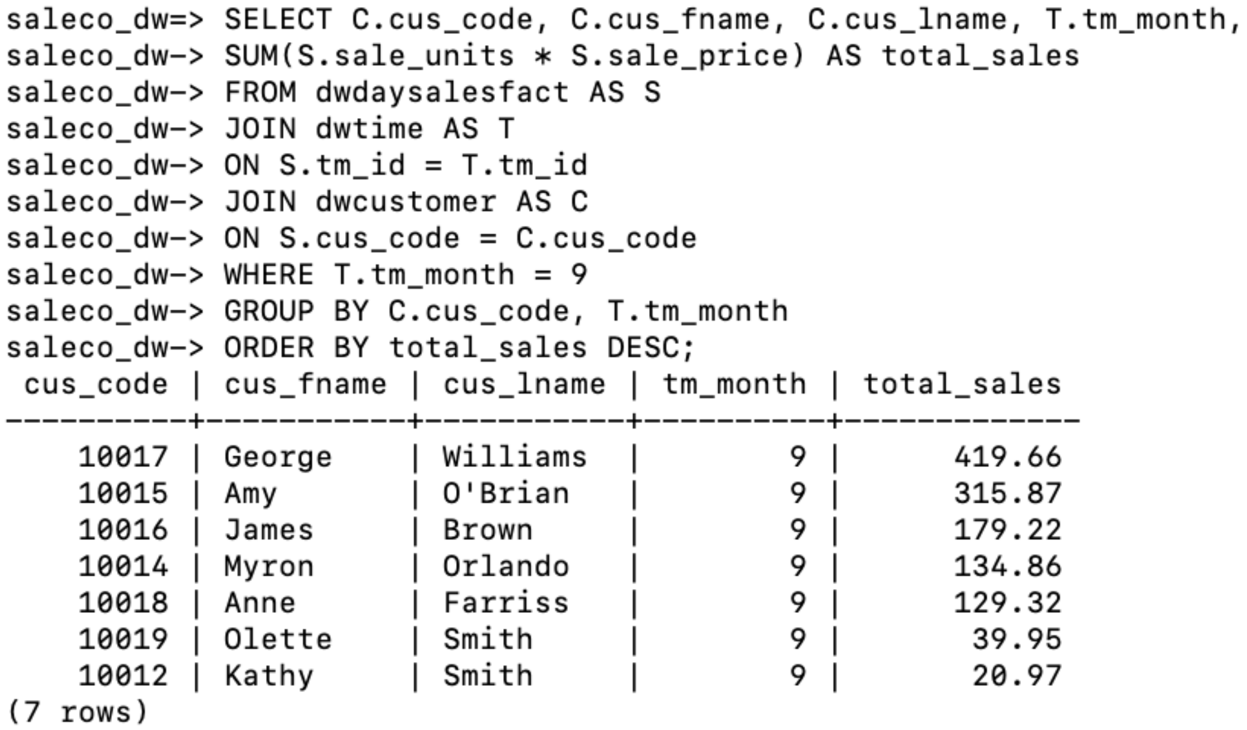
```
SELECT S.cus_code, S.p_code, T.tm_month,
SUM(S.sale_units * S.sale_price) AS total_sales
FROM dwdaysalesfact AS S
JOIN dwtime AS T
ON S.tm_id = T.tm_id
GROUP BY S.cus_code, S.p_code, T.tm_month
ORDER BY S.cus_code, T.tm_month;
```



```
saleco_dw=> SELECT S.cus_code, S.p_code, T.tm_month,
saleco_dw-> SUM(S.sale_units * S.sale_price) AS total_sales
saleco_dw-> FROM dwdaysalesfact AS S
saleco_dw-> JOIN dwtime AS T
saleco_dw-> ON S.tm_id = T.tm_id
saleco_dw-> GROUP BY S.cus_code, S.p_code, T.tm_month
saleco_dw-> ORDER BY S.cus_code, T.tm_month;
 cus_code |  p_code  | tm_month | total_sales
----------+----------+----------+-------------
    10010 | 13-Q2/P2 |       10 |       74.95
    10010 | 23109-HB |       10 |       19.90
    10010 | 54778-2T |       10 |       14.97
    10010 | PVC23DRT |       10 |       70.44
    10011 | 2232/QTY |       10 |      109.92
    10011 | SM-18277 |       10 |       20.97
    10012 | SM-18277 |        9 |       20.97
    10012 | 23109-HB |       10 |        9.95
    10012 | 89-WRE-Q |       10 |      256.99
    10013 | 13-Q2/P2 |       10 |       29.98
    10013 | 54778-2T |       10 |        4.99
    10013 | PVC23DRT |       10 |       29.35
    10014 | 13-Q2/P2 |        9 |       14.99
    10014 | 2232/QTY |        9 |      109.92
    10014 | 23109-HB |        9 |        9.95
    10014 | WR3/TT3  |       10 |      359.85
    10015 | 2238/QPD |        9 |       38.95
    10015 | 23109-HB |        9 |        9.95
    10015 | 54778-2T |        9 |        9.98
    10015 | 89-WRE-Q |        9 |      256.99
    10015 | 23109-HB |       10 |        9.95
    10016 | 13-Q2/P2 |        9 |      104.93
    10016 | 1546-QQ2 |        9 |       39.95
    10016 | 54778-2T |        9 |        4.99
    10016 | PVC23DRT |        9 |       29.35
    10017 | 13-Q2/P2 |        9 |       14.99
    10017 | 23109-HB |        9 |       29.85
    10017 | 54778-2T |        9 |       14.97
    10017 | WR3/TT3  |        9 |      359.85
    10018 | 2238/QPD |        9 |       38.95
    10018 | 23109-HB |        9 |        9.95
    10018 | 54778-2T |        9 |        9.98
    10018 | PVC23DRT |        9 |       70.44
    10019 | 1546-QQ2 |        9 |       39.95
(34 rows)
```

6. Show all purchases (total sales) in September to show which customer bought the most product in September. Show customer code, customer name and total sales; sort all output by total sales with the highest sales on top. (**5 pts**).

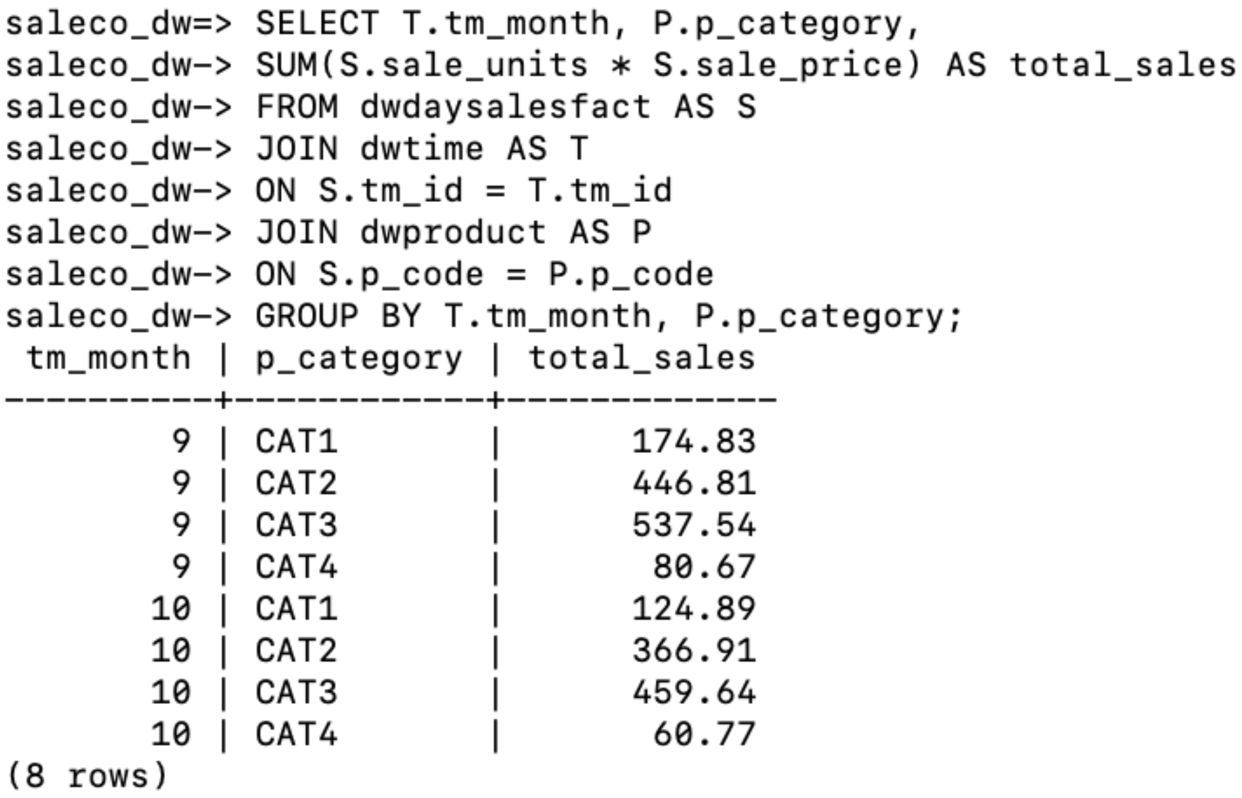
```
SELECT C.cus_code, C.cus_fname, C.cus_lname, T.tm_month,
SUM(S.sale_units * S.sale_price) AS total_sales
FROM dwdaysalesfact AS S
JOIN dwtime AS T
ON S.tm_id = T.tm_id
JOIN dwcustomer AS C
ON S.cus_code = C.cus_code
WHERE T.tm_month = 9
GROUP BY C.cus_code, T.tm_month
ORDER BY total_sales DESC;
```



```
saleco_dw=> SELECT C.cus_code, C.cus_fname, C.cus_lname, T.tm_month,
saleco_dw-> SUM(S.sale_units * S.sale_price) AS total_sales
saleco_dw-> FROM dwdaysalesfact AS S
saleco_dw-> JOIN dwtime AS T
saleco_dw-> ON S.tm_id = T.tm_id
saleco_dw-> JOIN dwcustomer AS C
saleco_dw-> ON S.cus_code = C.cus_code
saleco_dw-> WHERE T.tm_month = 9
saleco_dw-> GROUP BY C.cus_code, T.tm_month
saleco_dw-> ORDER BY total_sales DESC;
 cus_code | cus_fname | cus_lname | tm_month | total_sales
----------+-----------+-----------+----------+-------------
    10017 | George    | Williams  |        9 |      419.66
    10015 | Amy       | O'Brian   |        9 |      315.87
    10016 | James     | Brown     |        9 |      179.22
    10014 | Myron     | Orlando   |        9 |      134.86
    10018 | Anne      | Farriss   |        9 |      129.32
    10019 | Olette    | Smith     |        9 |       39.95
    10012 | Kathy     | Smith     |        9 |       20.97
(7 rows)
```

7. List the total sales by month and product category. Your output should be sorted by month and product category. (**8 pts**)

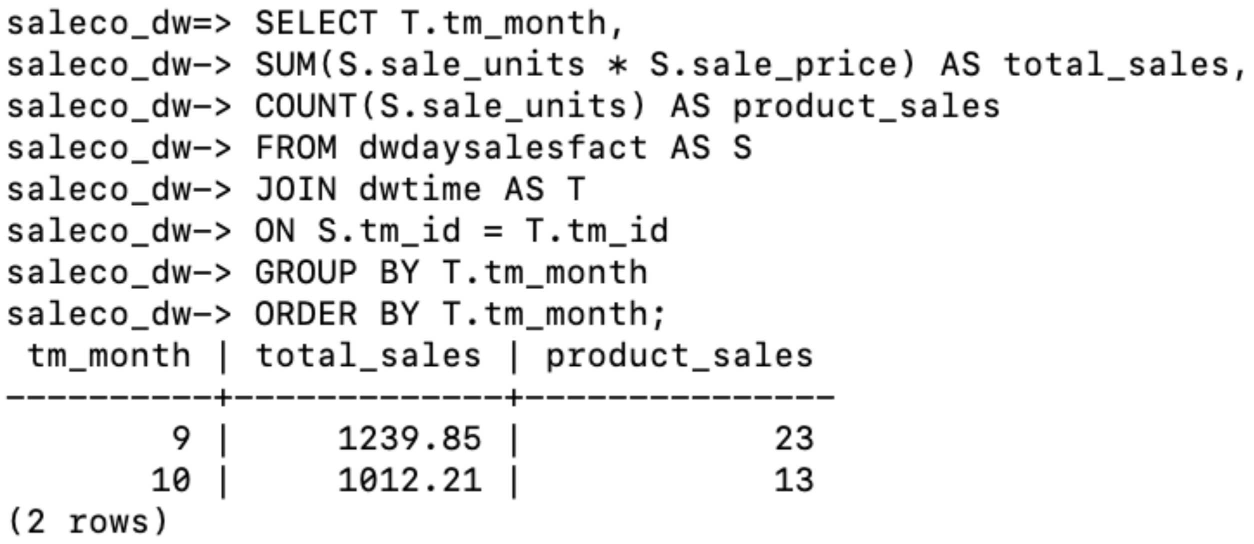
```
SELECT T.tm_month, P.p_category,
SUM(S.sale_units * S.sale_price) AS total_sales
FROM dwdaysalesfact AS S
JOIN dwtime AS T
ON S.tm_id = T.tm_id
JOIN dwproduct AS P
ON S.p_code = P.p_code
GROUP BY T.tm_month, P.p_category;
```



```
saleco_dw=> SELECT T.tm_month, P.p_category,
saleco_dw-> SUM(S.sale_units * S.sale_price) AS total_sales
saleco_dw-> FROM dwdaysalesfact AS S
saleco_dw-> JOIN dwtime AS T
saleco_dw-> ON S.tm_id = T.tm_id
saleco_dw-> JOIN dwproduct AS P
saleco_dw-> ON S.p_code = P.p_code
saleco_dw-> GROUP 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)
```

8. List the number of product sales (number of rows) and total sales by month. Your output should be sorted by month and should show one row per month. (**8 pts**)

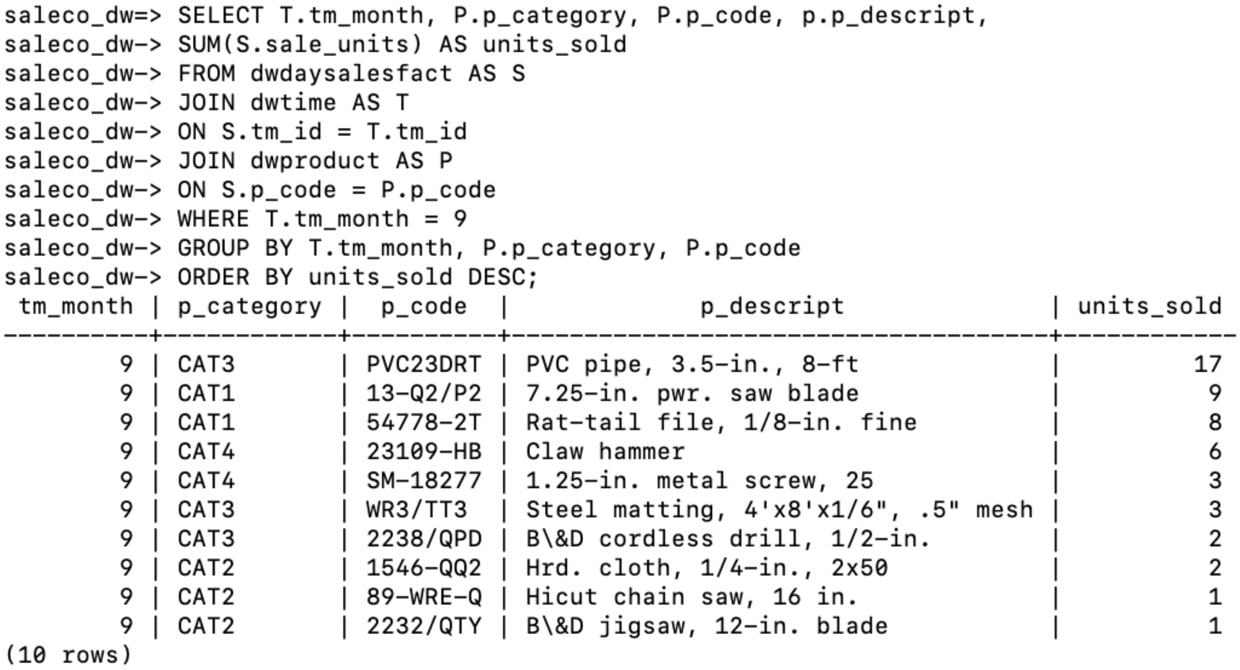
```
SELECT T.tm_month,
SUM(S.sale_units * S.sale_price) AS total_sales,
COUNT(S.sale_units) AS product_sales
FROM dwdaysalesfact AS S
JOIN dwtime AS T
ON S.tm_id = T.tm_id
GROUP BY T.tm_month
ORDER BY T.tm_month;
```



```
saleco_dw=> SELECT T.tm_month,
saleco_dw-> SUM(S.sale_units * S.sale_price) AS total_sales,
saleco_dw-> COUNT(S.sale_units) AS product_sales
saleco_dw-> FROM dwdaysalesfact AS S
saleco_dw-> JOIN dwtime AS T
saleco_dw-> ON S.tm_id = T.tm_id
saleco_dw-> GROUP BY T.tm_month
saleco_dw-> ORDER BY T.tm_month;
 tm_month | total_sales | product_sales
----------+-------------+---------------
        9 |     1239.85 |            23
       10 |     1012.21 |            13
(2 rows)
```

9. Show product category, product code, product description and units sold (sum). Which product is the best seller based on units sold? a) Show units sold for September (**3 pts**), b) Show units sold for October (**3 pts**) .

```
SELECT T.tm_month, P.p_category, P.p_code, p.p_descript,
SUM(S.sale_units) AS units_sold
FROM dwdaysalesfact AS S
JOIN dwtime AS T
ON S.tm_id = T.tm_id
JOIN dwproduct AS P
ON S.p_code = P.p_code
WHERE T.tm_month = 9
GROUP BY T.tm_month, P.p_category, P.p_code
ORDER BY units_sold DESC;
```

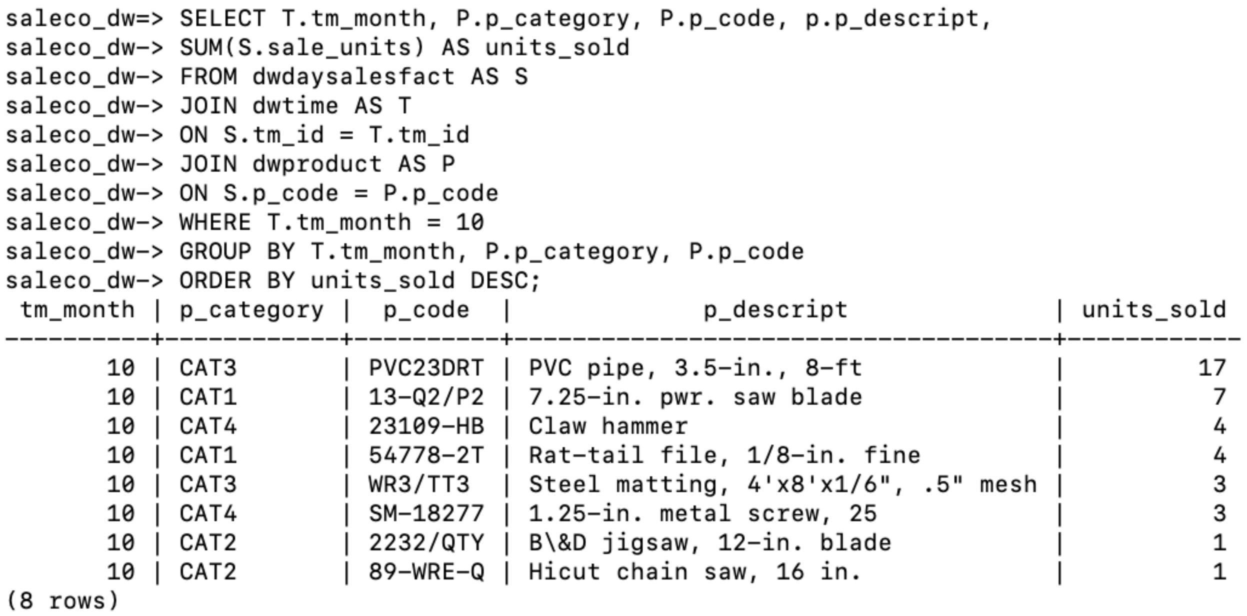


```
saleco_dw=> SELECT T.tm_month, P.p_category, P.p_code, p.p_descript,
saleco_dw-> SUM(S.sale_units) AS units_sold
saleco_dw-> FROM dwdaysalesfact AS S
saleco_dw-> JOIN dwtime AS T
saleco_dw-> ON S.tm_id = T.tm_id
saleco_dw-> JOIN dwproduct AS P
saleco_dw-> ON S.p_code = P.p_code
saleco_dw-> WHERE T.tm_month = 9
saleco_dw-> GROUP BY T.tm_month, P.p_category, P.p_code
saleco_dw-> ORDER BY units_sold DESC;
 tm_month | p_category |  p_code  |               p_descript                | units_sold
----------+------------+----------+-----------------------------------------+------------
        9 | CAT3       | PVC23DRT | PVC pipe, 3.5-in., 8-ft                 |         17
        9 | CAT1       | 13-Q2/P2 | 7.25-in. pwr. saw blade                 |          9
        9 | CAT1       | 54778-2T | Rat-tail file, 1/8-in. fine             |          8
        9 | CAT4       | 23109-HB | Claw hammer                             |          6
        9 | CAT4       | SM-18277 | 1.25-in. metal screw, 25                |          3
        9 | CAT3       | WR3/TT3  | Steel matting, 4'x8'x1/6", .5" mesh     |          3
        9 | CAT3       | 2238/QPD | B\&D cordless drill, 1/2-in.            |          2
        9 | CAT2       | 1546-QQ2 | Hrd. cloth, 1/4-in., 2x50               |          2
        9 | CAT2       | 89-WRE-Q | Hicut chain saw, 16 in.                 |          1
        9 | CAT2       | 2232/QTY | B\&D jigsaw, 12-in. blade               |          1
(10 rows)
```

The “PVC pipe, 3.5-in., 8-ft” was the best seller of September (17 units)

#9 continued

```
SELECT T.tm_month, P.p_category, P.p_code, p.p_descript,
SUM(S.sale_units) AS units_sold
FROM dwdaysalesfact AS S
JOIN dwtime AS T
ON S.tm_id = T.tm_id
JOIN dwproduct AS P
ON S.p_code = P.p_code
WHERE T.tm_month = 10
GROUP BY T.tm_month, P.p_category, P.p_code
ORDER BY units_sold DESC;
```

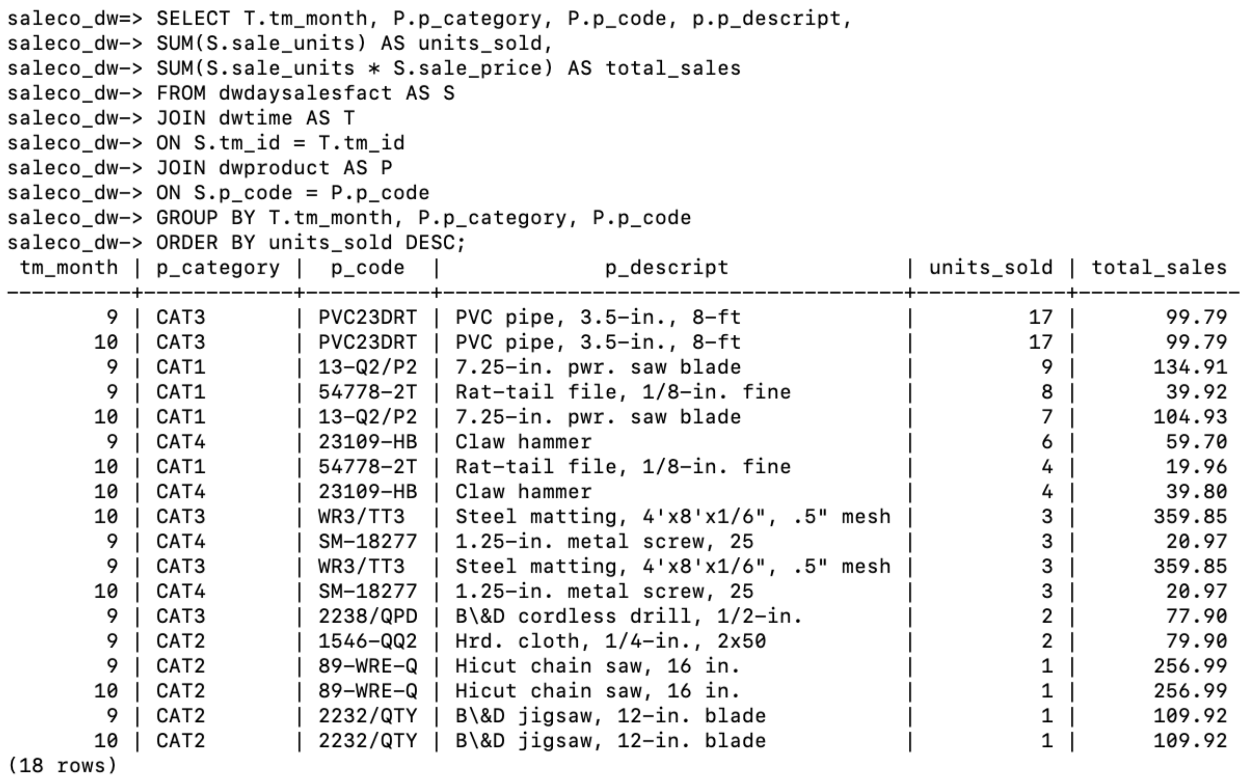


```
saleco_dw=> SELECT T.tm_month, P.p_category, P.p_code, p.p_descript,
saleco_dw-> SUM(S.sale_units) AS units_sold
saleco_dw-> FROM dwdaysalesfact AS S
saleco_dw-> JOIN dwtime AS T
saleco_dw-> ON S.tm_id = T.tm_id
saleco_dw-> JOIN dwproduct AS P
saleco_dw-> ON S.p_code = P.p_code
saleco_dw-> WHERE T.tm_month = 10
saleco_dw-> GROUP BY T.tm_month, P.p_category, P.p_code
saleco_dw-> ORDER BY units_sold DESC;
 tm_month | p_category |  p_code  |              p_descript              | units_sold
----------+------------+----------+--------------------------------------+------------
       10 | CAT3       | PVC23DRT | PVC pipe, 3.5-in., 8-ft              |         17
       10 | CAT1       | 13-Q2/P2 | 7.25-in. pwr. saw blade              |          7
       10 | CAT4       | 23109-HB | Claw hammer                          |          4
       10 | CAT1       | 54778-2T | Rat-tail file, 1/8-in. fine          |          4
       10 | CAT3       | WR3/TT3  | Steel matting, 4'x8'x1/6", .5" mesh |          3
       10 | CAT4       | SM-18277 | 1.25-in. metal screw, 25             |          3
       10 | CAT2       | 2232/QTY | B\&D jigsaw, 12-in. blade            |          1
       10 | CAT2       | 89-WRE-Q | Hicut chain saw, 16 in.              |          1
(8 rows)
```

The “PVC pipe, 3.5-in., 8-ft” was the best seller of October as well. (17 units)

10. 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. (**8 pts**)

```
SELECT T.tm_month, P.p_category, P.p_code, p.p_descript,
SUM(S.sale_units) AS units_sold,
SUM(S.sale_units * S.sale_price) AS total_sales
FROM dwdaysalesfact AS S
JOIN dwtime AS T
ON S.tm_id = T.tm_id
JOIN dwproduct AS P
ON S.p_code = P.p_code
GROUP BY T.tm_month, P.p_category, P.p_code
ORDER BY units_sold DESC;
```



```
saleco_dw=> SELECT T.tm_month, P.p_category, P.p_code, p.p_descript,
saleco_dw-> SUM(S.sale_units) AS units_sold,
saleco_dw-> SUM(S.sale_units * S.sale_price) AS total_sales
saleco_dw-> FROM dwdaysalesfact AS S
saleco_dw-> JOIN dwtime AS T
saleco_dw-> ON S.tm_id = T.tm_id
saleco_dw-> JOIN dwproduct AS P
saleco_dw-> ON S.p_code = P.p_code
saleco_dw-> GROUP BY T.tm_month, P.p_category, P.p_code
saleco_dw-> ORDER BY units_sold DESC;
 tm_month | p_category |  p_code  |              p_descript              | units_sold | total_sales
----------+------------+----------+--------------------------------------+------------+-------------
        9 | CAT3       | PVC23DRT | PVC pipe, 3.5-in., 8-ft              |         17 |       99.79
       10 | CAT3       | PVC23DRT | PVC pipe, 3.5-in., 8-ft              |         17 |       99.79
        9 | CAT1       | 13-Q2/P2 | 7.25-in. pwr. saw blade              |          9 |      134.91
        9 | CAT1       | 54778-2T | Rat-tail file, 1/8-in. fine          |          8 |       39.92
       10 | CAT1       | 13-Q2/P2 | 7.25-in. pwr. saw blade              |          7 |      104.93
        9 | CAT4       | 23109-HB | Claw hammer                          |          6 |       59.70
       10 | CAT1       | 54778-2T | Rat-tail file, 1/8-in. fine          |          4 |       19.96
       10 | CAT4       | 23109-HB | Claw hammer                          |          4 |       39.80
       10 | CAT3       | WR3/TT3  | Steel matting, 4'x8'x1/6", .5" mesh |          3 |      359.85
        9 | CAT4       | SM-18277 | 1.25-in. metal screw, 25             |          3 |       20.97
        9 | CAT3       | WR3/TT3  | Steel matting, 4'x8'x1/6", .5" mesh |          3 |      359.85
       10 | CAT4       | SM-18277 | 1.25-in. metal screw, 25             |          3 |       20.97
        9 | CAT3       | 2238/QPD | B\&D cordless drill, 1/2-in.         |          2 |       77.90
        9 | CAT2       | 1546-QQ2 | Hrd. cloth, 1/4-in., 2x50            |          2 |       79.90
        9 | CAT2       | 89-WRE-Q | Hicut chain saw, 16 in.              |          1 |      256.99
       10 | CAT2       | 89-WRE-Q | Hicut chain saw, 16 in.              |          1 |      256.99
        9 | CAT2       | 2232/QTY | B\&D jigsaw, 12-in. blade            |          1 |      109.92
       10 | CAT2       | 2232/QTY | B\&D jigsaw, 12-in. blade            |          1 |      109.92
(18 rows)
```

```
          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

                                       Table "public.dwcustomer"
   Column    |         Type          | Collation | Nullable | Default | Storage  | Stats target | Description
-------------+-----------------------+-----------+----------+---------+----------+--------------+-------------
 cus_code    | integer               |           | not null |         | plain    |              |
 cus_lname   | character varying(15) |           |          |         | extended |              |
 cus_fname   | character varying(15) |           |          |         | extended |              |
 cus_initial | character(1)          |           |          |         | extended |              |
 cus_state   | character(2)          |           |          |         | extended |              |
 reg_id      | integer               |           |          |         | plain    |              |

                                     Table "public.dwdaysalesfact"
   Column   |         Type          | Collation | Nullable | Default | Storage  | Stats target | Description
------------+-----------------------+-----------+----------+---------+----------+--------------+-------------
 tm_id      | integer               |           | not null |         | plain    |              |
 cus_code   | integer               |           | not null |         | plain    |              |
 p_code     | character varying(10) |           | not null |         | extended |              |
 sale_units | integer               |           |          |         | plain    |              |
 sale_price | numeric(10,2)         |           |          |         | main     |              |

                                       Table "public.dwproduct"
   Column   |         Type          | Collation | Nullable | Default | Storage  | Stats target | Description
------------+-----------------------+-----------+----------+---------+----------+--------------+-------------
 p_code     | character varying(10) |           | not null |         | extended |              |
 p_descript | character varying(35) |           |          |         | extended |              |
 p_category | character varying(5)  |           |          |         | extended |              |
 v_code     | integer               |           |          |         | plain    |              |

                                       Table "public.dwregion"
  Column  |         Type          | Collation | Nullable | Default | Storage  | Stats target | Description
----------+-----------------------+-----------+----------+---------+----------+--------------+-------------
 reg_id   | integer               |           | not null |         | plain    |              |
 reg_name | character varying(10) |           |          |         | extended |              |

                                Table "public.dwtime"
  Column  |  Type   | Collation | Nullable | Default | Storage | Stats target | Description
----------+---------+-----------+----------+---------+---------+--------------+-------------
 tm_id    | integer |           | not null |         | plain   |              |
 tm_year  | integer |           |          |         | plain   |              |
 tm_month | integer |           |          |         | plain   |              |
 tm_day   | integer |           |          |         | plain   |              |
 tm_qtr   | integer |           |          |         | plain   |              |

                                        Table "public.dwvendor"
   Column   |         Type          | Collation | Nullable | Default | Storage  | Stats target | Description
------------+-----------------------+-----------+----------+---------+----------+--------------+-------------
 v_code     | integer               |           | not null |         | plain    |              |
 v_name     | character varying(35) |           |          |         | extended |              |
 v_areacode | character(3)          |           |          |         | extended |              |
 v_state    | character(2)          |           |          |         | extended |              |
```