HW7

Name: 서천함 ID: 2017120486

1. Use grouping sets to count the number of films for each rental_rate and rating, respectively

```
[dvdrental=# select rental_rate, rating, count(film_id)
[dvdrental-# from film
[dvdrental-# group by
[dvdrental-# grouping sets((rental_rate), (rating));
  rental_rate | rating | count
-------------+--------+-------
        2.99 |        |   323
        4.99 |        |   336
        0.99 |        |   341
             | R      |   195
             | PG-13  |   223
             | G      |   178
             | PG     |   194
             | NC-17  |   210
(8 rows)
```

2. Print the information about all combinations of actor_id and category name on the number of films each actor with actor_id 1 and 2 starred in (doesn't mean that they starred at the same time)

```
dvdrental=# select actor_id, name, count(film_id)
dvdrental-# from (film_actor natural join film_category) natural join category
dvdrental-# where (actor_id = 1 or actor_id = 2)
dvdrental-# group by actor_id, name
dvdrental-# order by actor_id, name;
 actor_id |    name     | count
----------+-------------+-------
        1 | Animation   |     1
        1 | Children    |     1
        1 | Classics    |     2
        1 | Comedy      |     1
        1 | Documentary |     1
        1 | Family      |     2
        1 | Foreign     |     1
        1 | Games       |     2
        1 | Horror      |     3
        1 | Music       |     1
        1 | New         |     2
        1 | Sci-Fi      |     1
        1 | Sports      |     1
        2 | Action      |     1
        2 | Animation   |     1
        2 | Children    |     1
        2 | Classics    |     2
        2 | Comedy      |     2
        2 | Documentary |     1
        2 | Drama       |     1
        2 | Family      |     4
        2 | Foreign     |     2
        2 | Games       |     1
        2 | Music       |     1
        2 | New         |     4
        2 | Sci-Fi      |     2
        2 | Travel      |     2
(27 rows)
```

3. Use rollup to show total amount on rental_date by year, month, and day

```
dvdrental=# select
dvdrental-# extract (year from rental_date) Y,
dvdrental-# extract (month from rental_date) M,
dvdrental-# extract (day from rental_date) D,
dvdrental-# count(distinct rental_id) as rent_amount
dvdrental-# from rental
dvdrental-# group by rollup(Y, M, D);
  y    | m |  d  | rent_amount
------+---+----+-------------
 2005 | 5 | 24 |           8
 2005 | 5 | 25 |         137
 2005 | 5 | 26 |         174
 2005 | 5 | 27 |         166
 2005 | 5 | 28 |         196
 2005 | 5 | 29 |         154
 2005 | 5 | 30 |         158
 2005 | 5 | 31 |         163
 2005 | 5 |    |        1156
 2005 | 6 | 14 |          16
 2005 | 6 | 15 |         348
 2005 | 6 | 16 |         324
 2005 | 6 | 17 |         325
 2005 | 6 | 18 |         344
 2005 | 6 | 19 |         348
 2005 | 6 | 20 |         331
 2005 | 6 | 21 |         275
 2005 | 6 |    |        2311
 2005 | 7 |  5 |          27
 2005 | 7 |  6 |         504
 2005 | 7 |  7 |         461
 2005 | 7 |  8 |         512
 2005 | 7 |  9 |         513
 2005 | 7 | 10 |         480
 2005 | 7 | 11 |         461
 2005 | 7 | 12 |         495
 2005 | 7 | 26 |          33
 2005 | 7 | 27 |         649
 2005 | 7 | 28 |         620
 2005 | 7 | 29 |         641
 2005 | 7 | 30 |         634
 2005 | 7 | 31 |         679
 2005 | 7 |    |        6709
 2005 | 8 |  1 |         671
 2005 | 8 |  2 |         643
 2005 | 8 | 16 |          23
 2005 | 8 | 17 |         593
 2005 | 8 | 18 |         621
 2005 | 8 | 19 |         628
 2005 | 8 | 20 |         624
 2005 | 8 | 21 |         659
 2005 | 8 | 22 |         626
 2005 | 8 | 23 |         598
 2005 | 8 |    |        5686
 2005 |   |    |       15862
 2006 | 2 | 14 |         182
 2006 | 2 |    |         182
 2006 |   |    |         182
      |   |    |       16044
(49 rows)
```

4. For each film category, find customer_ids who is TOP-2 in order of the number of DVDs rented (if there are many ties, more than 2 customers can be printed)

```
dvdrental=# select *
dvdrental-# from
dvdrental-# (select name, customer_id, count(film_id) as amount,
dvdrental(# dense_rank() over (partition by name order by count(rental_id) desc) as ranking
dvdrental(# from (rental natural join inventory) natural join (film_category natural join category)
dvdrental(# group by name, customer_id
dvdrental(# order by name) as foo
dvdrental-# where ranking <=2;
```

name	customer_id	amount	ranking
Action	506	7	1
Action	323	7	1
Action	487	6	2
Action	151	6	2
Action	209	6	2
Action	126	6	2
Action	410	6	2
Action	51	6	2
Action	363	6	2
Action	147	6	2
Action	560	6	2
Action	111	6	2
Animation	526	8	1
Animation	196	8	1
Animation	406	7	2
Animation	145	7	2
Animation	411	7	2
Animation	468	7	2
Children	38	7	1
Children	574	6	2
Children	408	6	2
Classics	5	7	1
Classics	1	6	2
Comedy	197	7	1
Comedy	244	6	2
Comedy	584	6	2
Documentary	243	8	1
Documentary	257	7	2
Drama	133	7	1
Drama	76	6	2
Drama	12	6	2
Drama	424	6	2
Drama	354	6	2
Family	181	7	1
Family	526	7	1
Family	116	7	1
Family	550	6	2
Family	75	6	2
Family	343	6	2
Family	148	6	2
Family	179	6	2
Family	439	6	2
Family	410	6	2
Family	213	6	2
Foreign	562	6	1
Foreign	356	6	1
Foreign	168	6	1
Foreign	446	6	1
Foreign	215	6	1
Foreign	380	6	1
Foreign	469	6	1
Foreign	257	5	2
Foreign	581	5	2
Foreign	403	5	2
Foreign	334	5	2
Foreign	186	5	2
Foreign	224	5	2
Foreign	50	5	2
Foreign	236	5	2
Foreign	404	5	2
Foreign	17	5	2
Foreign	114	5	2
Foreign	482	5	2
Foreign	437	5	2
Foreign	305	5	2
Foreign	185	5	2
Foreign	384	5	2
Foreign	21	5	2
Foreign	473	5	2
Foreign	204	5	2
Foreign	361	5	2
Foreign	418	5	2

```
 Games       |      469 |      9 |           1
 Games       |      522 |      7 |           2
 Horror      |      563 |      5 |           1
 Horror      |      134 |      5 |           1
 Horror      |      526 |      5 |           1
 Horror      |       12 |      5 |           1
 Horror      |      513 |      5 |           1
 Horror      |      204 |      5 |           1
 Horror      |      181 |      5 |           1
 Horror      |      122 |      5 |           1
 Horror      |      373 |      4 |           2
 Horror      |      326 |      4 |           2
 Horror      |       72 |      4 |           2
 Horror      |      345 |      4 |           2
 Horror      |       81 |      4 |           2
 Horror      |      197 |      4 |           2
 Horror      |       92 |      4 |           2
 Horror      |      459 |      4 |           2
 Horror      |      334 |      4 |           2
 Horror      |      284 |      4 |           2
 Horror      |      573 |      4 |           2
 Horror      |      479 |      4 |           2
 Horror      |      462 |      4 |           2
 Horror      |      528 |      4 |           2
 Horror      |      290 |      4 |           2
 Horror      |      268 |      4 |           2
 Horror      |      507 |      4 |           2
 Horror      |      168 |      4 |           2
 Horror      |      532 |      4 |           2
 Horror      |      106 |      4 |           2
 Horror      |      305 |      4 |           2
 Horror      |      332 |      4 |           2
 Horror      |       79 |      4 |           2
 Horror      |      449 |      4 |           2
 Horror      |      148 |      4 |           2
 Horror      |      156 |      4 |           2
```

```
 Music       |       71 |      6 |           1
 Music       |      472 |      6 |           1
 Music       |      260 |      5 |           2
 Music       |      329 |      5 |           2
 Music       |       90 |      5 |           2
 Music       |      536 |      5 |           2
 Music       |      167 |      5 |           2
 Music       |      211 |      5 |           2
 Music       |      390 |      5 |           2
 Music       |       36 |      5 |           2
 Music       |      157 |      5 |           2
 Music       |      471 |      5 |           2
 New         |      441 |      7 |           1
 New         |      206 |      7 |           1
 New         |       20 |      7 |           1
 New         |      267 |      6 |           2
 New         |      274 |      6 |           2
 New         |      576 |      6 |           2
 Sci-Fi      |      148 |      7 |           1
 Sci-Fi      |      279 |      7 |           1
 Sci-Fi      |       42 |      6 |           2
 Sci-Fi      |      230 |      6 |           2
 Sci-Fi      |      461 |      6 |           2
 Sci-Fi      |      246 |      6 |           2
 Sci-Fi      |       23 |      6 |           2
 Sci-Fi      |      130 |      6 |           2
 Sci-Fi      |       21 |      6 |           2
 Sports      |      454 |      7 |           1
 Sports      |      591 |      6 |           2
 Sports      |      494 |      6 |           2
 Sports      |      314 |      6 |           2
 Sports      |      594 |      6 |           2
 Sports      |      277 |      6 |           2
 Sports      |       16 |      6 |           2
 Sports      |      138 |      6 |           2
 Sports      |      579 |      6 |           2
 Sports      |      539 |      6 |           2
 Sports      |      569 |      6 |           2
```

```
 Travel      |      375 |      7 |           1
 Travel      |      323 |      5 |           2
 Travel      |      414 |      5 |           2
 Travel      |      381 |      5 |           2
 Travel      |      216 |      5 |           2
 Travel      |      567 |      5 |           2
 Travel      |      148 |      5 |           2
 Travel      |      473 |      5 |           2
(154 rows)
```

5. Print the total amount for each customer, the total amount for each country, and dense ranking by country for total amount (Hint: First calculate the customer's total amount using the with clause, and then apply a window query)

```
dvdrental=# select customer_id, country, p_amount, sum,
dvdrental-# dense_rank() over(order by sum desc)
dvdrental-# from
dvdrental-# (with total_amount(customer_id, country, p_amount) as
dvdrental(# (select customer_id, country, sum(amount)
dvdrental(# from ((payment natural join customer) natural join address) natural join (city
untry)
dvdrental(# group by customer_id, country
dvdrental(# order by country, customer_id)
dvdrental(#
dvdrental(# select customer_id, country, p_amount,
dvdrental(# sum(p_amount) over (partition by country) as sum
dvdrental(# from total_amount
dvdrental(# group by customer_id, country, p_amount
dvdrental(# order by country, customer_id) as foo
dvdrental-# order by country, customer_id;
 customer_id |                 country                 | p_amount |   sum    | dense_rank
-------------+-----------------------------------------+----------+----------+------------
         218 | Afghanistan                             |   67.82  |   67.82  |        104
          69 | Algeria                                 |   89.77  |  349.18  |         37
         176 | Algeria                                 |  151.68  |  349.18  |         37
         441 | Algeria                                 |  107.73  |  349.18  |         37
         320 | American Samoa                          |   47.85  |   47.85  |        108
         383 | Angola                                  |   93.75  |  187.55  |         62
         528 | Angola                                  |   93.80  |  187.55  |         62
         381 | Anguilla                                |   99.68  |   99.68  |         92
          24 | Argentina                               |   85.77  | 1298.80  |         12
          89 | Argentina                               |  124.71  | 1298.80  |         12
         107 | Argentina                               |  114.72  | 1298.80  |         12
         219 | Argentina                               |  100.75  | 1298.80  |         12
         243 | Argentina                               |   77.77  | 1298.80  |         12
         322 | Argentina                               |   81.81  | 1298.80  |         12
         331 | Argentina                               |  105.78  | 1298.80  |         12
         359 | Argentina                               |   85.78  | 1298.80  |         12
         405 | Argentina                               |  101.70  | 1298.80  |         12
         445 | Argentina                               |   96.76  | 1298.80  |         12
         530 | Argentina                               |   75.78  | 1298.80  |         12
         560 | Argentina                               |  129.71  | 1298.80  |         12
         585 | Argentina                               |  117.76  | 1298.80  |         12
          41 | Armenia                                 |  118.75  |  118.75  |         80
```

```
159 | Austria              |      58.83 |   284.30 |          45
173 | Austria              |     111.73 |   284.30 |          45
266 | Austria              |     113.74 |   284.30 |          45
333 | Azerbaijan           |      89.78 |   198.53 |          59
334 | Azerbaijan           |     108.75 |   198.53 |          59
590 | Bahrain              |     108.76 |   108.76 |          84
 21 | Bangladesh           |     146.68 |   353.19 |          36
329 | Bangladesh           |      98.77 |   353.19 |          36
332 | Bangladesh           |     107.74 |   353.19 |          36
144 | Belarus              |     189.60 |   271.36 |          48
527 | Belarus              |      81.76 |   271.36 |          48
431 | Bolivia              |      92.78 |   178.56 |          66
455 | Bolivia              |      85.78 |   178.56 |          66
 39 | Brazil               |     141.71 |  2919.19 |           6
 47 | Brazil               |      92.81 |  2919.19 |           6
 74 | Brazil               |      96.74 |  2919.19 |           6
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(Omitted)