

rollup_operation

-- Count the total number of customers, the number of customers for each country, and the number of female and male customers for each country

```
SELECT country,  
       gender,  
       COUNT(*)  
FROM customers  
GROUP BY ROLLUP (country, gender)  
ORDER BY country, gender; -- Order the result by country and gender
```

Explanation:

- This SQL query uses the ROLLUP function to generate aggregate counts of customers. It counts the total number of customers overall, then breaks it down by country, and finally by country and gender. The ORDER BY clause sorts the results for easy readability.

```
SELECT  
  c.country, -- Select country  
  m.genre, -- Select genre  
  AVG(r.rating) AS average_rating, -- Average ratings  
  COUNT(*) AS rental_count -- Count number of movie rentals  
FROM renting AS r  
LEFT JOIN movies AS m  
ON m.movie_id = r.movie_id  
LEFT JOIN customers AS c  
ON r.customer_id = c.customer_id  
GROUP BY c.country, m.genre -- Aggregate for each country and each genre  
ORDER BY c.country, m.genre;
```

Explanation:

- This SQL query calculates the average movie rating and the total number of rentals for each genre within each country. It uses LEFT JOIN to combine data from three tables (renting, movies, and customers), groups the results by country and genre, and then orders the output by country and genre. The AVG() and COUNT() functions are aggregate functions used for calculating the average and count respectively. The aliases average_rating and rental_count improve readability.

-- Group by each county and genre with OLAP extension

```
SELECT  
  c.country,  
  m.genre,
```

```
AVG(r.rating) AS avg_rating,  
COUNT(*) AS num_rating  
FROM renting AS r  
LEFT JOIN movies AS m  
ON m.movie_id = r.movie_id  
LEFT JOIN customers AS c  
ON r.customer_id = c.customer_id  
GROUP BY ROLLUP (c.country, m.genre)  
ORDER BY c.country, m.genre;
```

Explanation:

- This SQL query calculates the average rating and the number of ratings for each genre of movie within each country. It uses LEFT JOIN to combine data from three tables: renting, movies, and customers. The GROUP BY ROLLUP clause groups the results by country and genre, and also provides subtotal rows for each country and a grand total row. Finally, the results are ordered by country and then genre.