Assignment 1

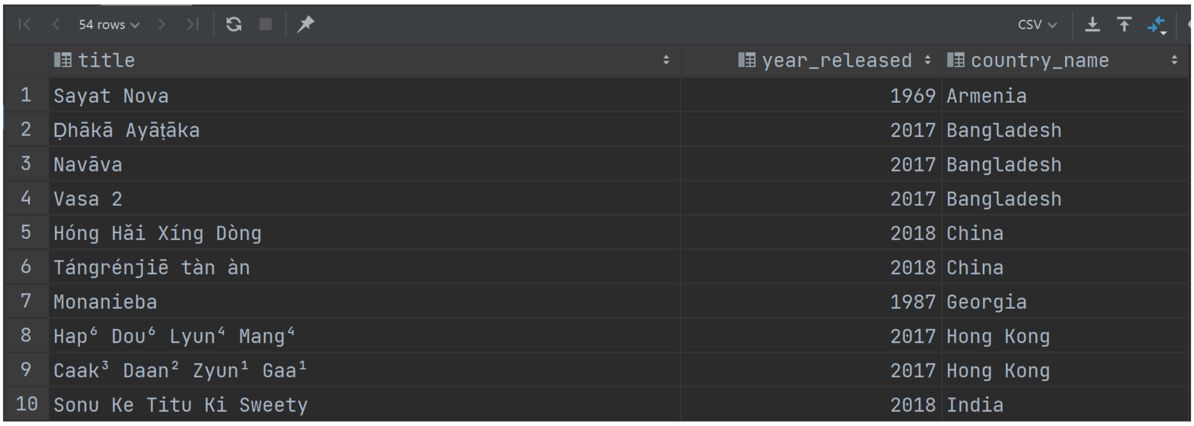
name: 刘乐奇

SID: 12011327

1. Regular Aggregate functions used as Window functions

1.1

```sql
select mc.title,
       mc.year_released,
       mc.country_name
from (select m.title,
             m.year_released,
             c.country_name
      from (select country_code,
                   country_name
            from countries
            where upper(continent) = 'ASIA') as c
               inner join
           (select title,
                   year_released,
                   country,
                   rank() over (partition by country
                       order by year_released desc) ranking
            from movies) as m
           on m.country = c.country_code
      where ranking = 1) mc
order by country_name;
```

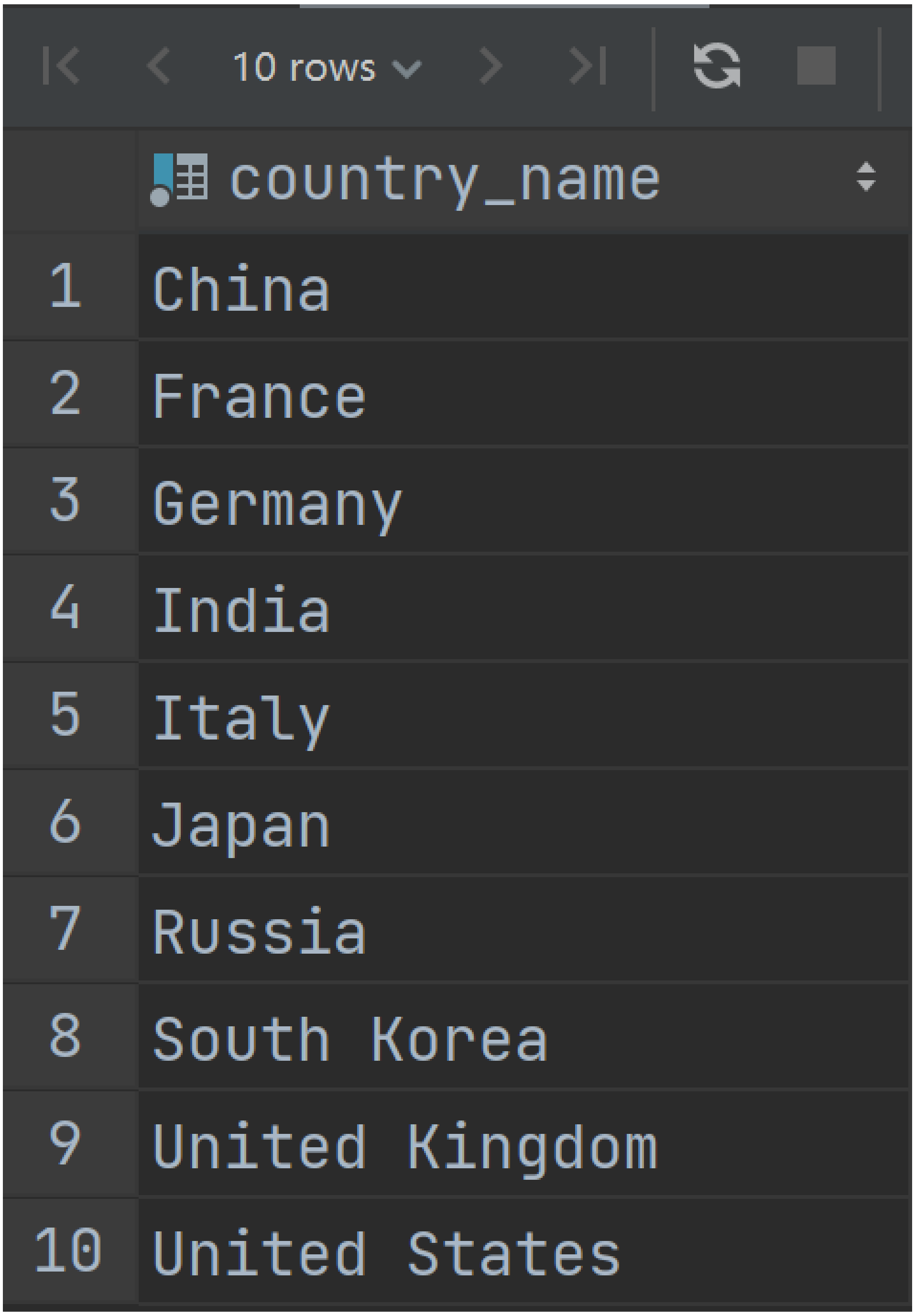


	title	year_released	country_name
1	Sayat Nova	1969	Armenia
2	Ḍhākā Ayāṭāka	2017	Bangladesh
3	Navāva	2017	Bangladesh
4	Vasa 2	2017	Bangladesh
5	Hóng Hǎi Xíng Dòng	2018	China
6	Tángrénjiē tàn àn	2018	China
7	Monanieba	1987	Georgia
8	Hap⁶ Dou⁶ Lyun⁴ Mang⁴	2017	Hong Kong
9	Caak³ Daan² Zyun¹ Gaa¹	2017	Hong Kong
10	Sonu Ke Titu Ki Sweety	2018	India

1.2

window

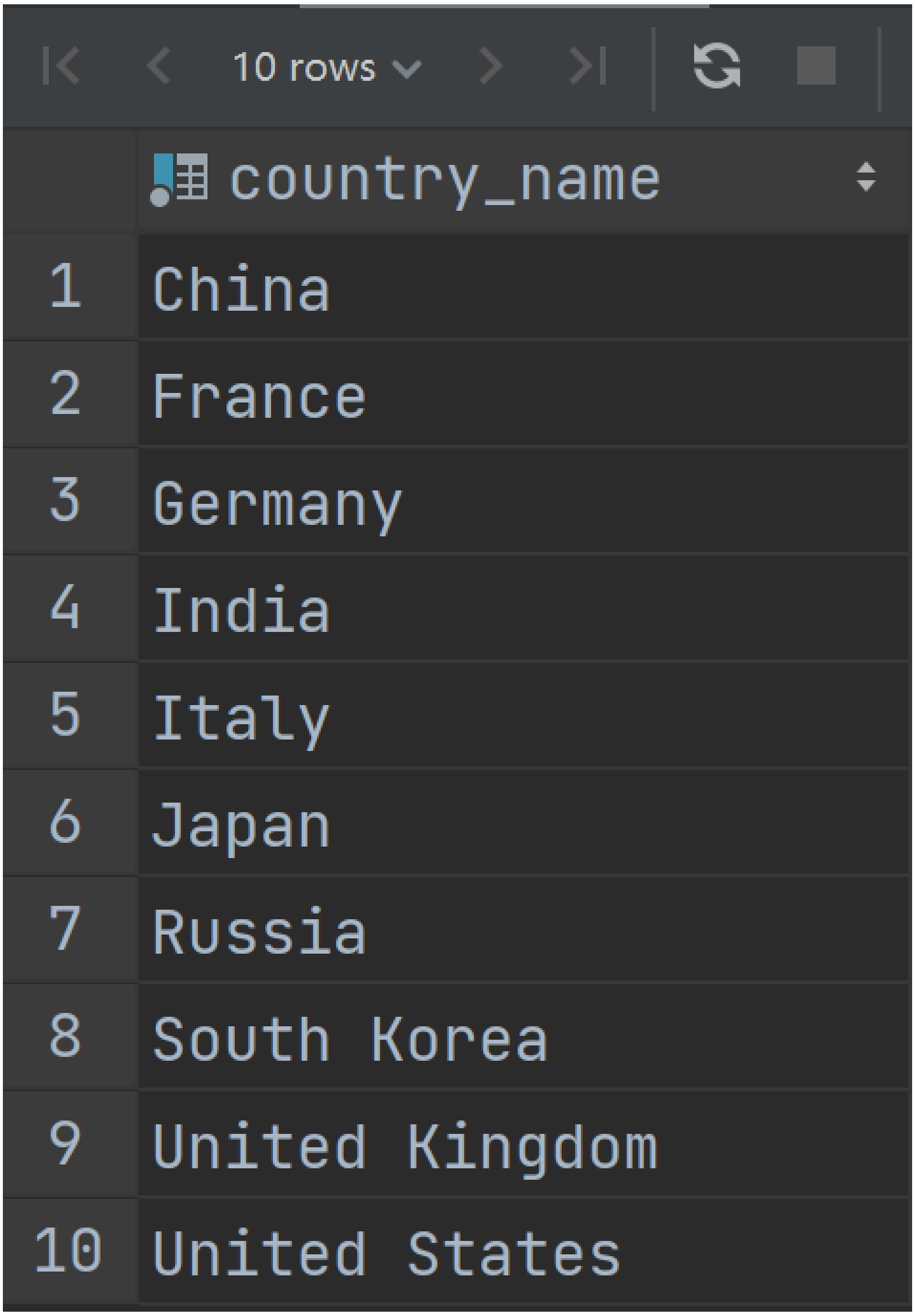
```sql
select country_name
from (select distinct mc.country_name,
                      coalesce(mc.cnt, 0) cnt,
                      country_cnt,
                      movie_cnt
      from (select country_name,
                   m.cnt,
                   count(*) country_cnt
            from (select country_name,
                         country_code
                  from countries) c
                     left outer join
                 (select country,
                         count(*) over (partition by country) cnt
                  from movies) m
                 on c.country_code = m.country
            where m.cnt is not NULL
            group by country_name, m.cnt
           ) mc
               cross join (select count(*) movie_cnt
                           from movies) mt) t
where cnt > round(t.movie_cnt / country_cnt, 0)
order by country_name;
```



	country_name
1	China
2	France
3	Germany
4	India
5	Italy
6	Japan
7	Russia
8	South Korea
9	United Kingdom
10	United States

common

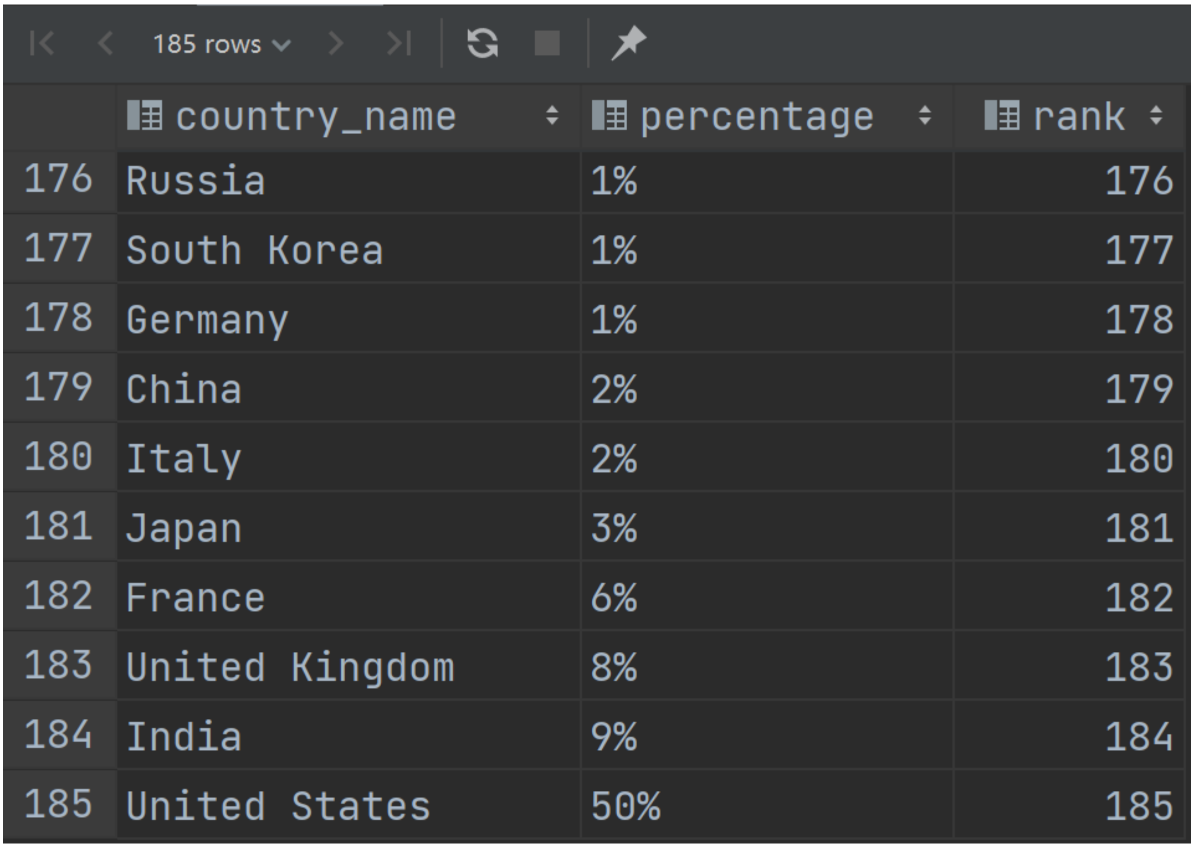
```
with t as (
    select country_name,
           country_movie,
           movie_cnt
    from (select distinct country_name,
                          movie_cnt,
                          country_movie
          from (movies m
              join countries c
              on c.country_code = m.country) mc
                   join (select country,
                                count(*) country_movie
                         from movies
                         group by country) cmov
                        on mc.country = cmov.country
                   cross join (select count(*) movie_cnt
                               from movies) mcnt
         ) ta
)
select country_name
from t
         cross join (select count(*) count_cnt from t) country_count
where country_movie > round(movie_cnt / count_cnt, 0)
order by country_name;
```



	country_name
1	China
2	France
3	Germany
4	India
5	Italy
6	Japan
7	Russia
8	South Korea
9	United Kingdom
10	United States

1.3

```
select mc.country_name,
       round(100 * mc.cnt / t.movie_cnt, 0) || '%' percentage,
       rank() over (order by cnt)
from (select distinct c.country_name,
                      coalesce(m.cnt, 0) cnt
      from countries c
               left outer join
           (select country,
                   count(*) over (partition by country) cnt
            from movies) m
           on c.country_code = m.country) mc
         cross join (select count(*) movie_cnt
                     from movies) t;
```

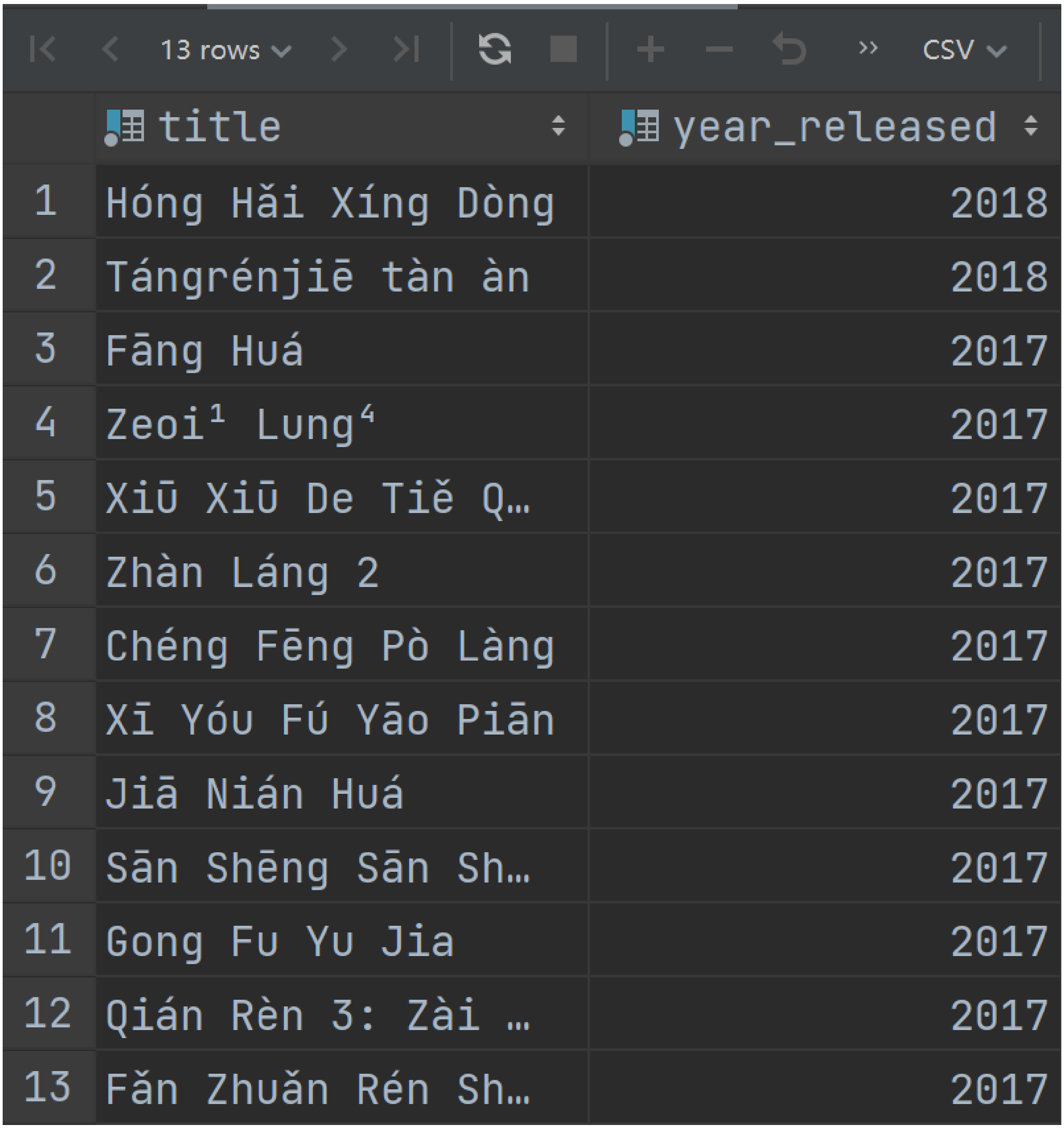


	country_name	percentage	rank
176	Russia	1%	176
177	South Korea	1%	177
178	Germany	1%	178
179	China	2%	179
180	Italy	2%	180
181	Japan	3%	181
182	France	6%	182
183	United Kingdom	8%	183
184	India	9%	184
185	United States	50%	185

2. Ranking

2.1

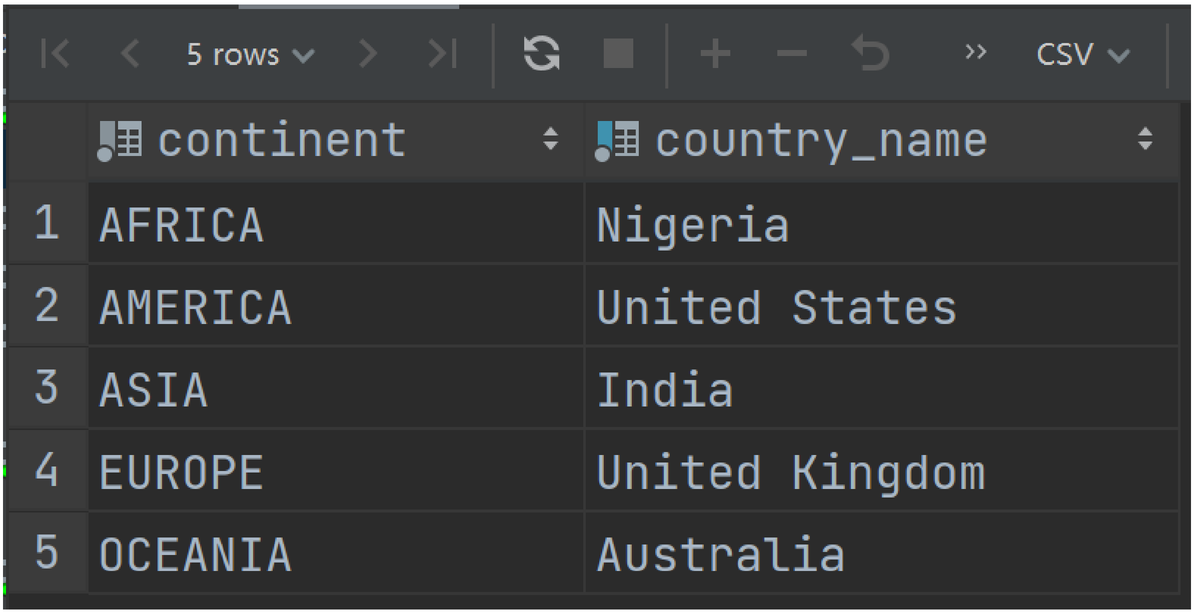
```
select x.title,
       x.year_released
from (select title,
             year_released,
             rank() over (order by year_released desc) nm
      from movies
      where country = 'cn') x
where x.nm <= 10;
```



	title	year_released
1	Hóng Hǎi Xíng Dòng	2018
2	Tángrénjiē tàn àn	2018
3	Fāng Huá	2017
4	Zeoi¹ Lung⁴	2017
5	Xiū Xiū De Tiě Q…	2017
6	Zhàn Láng 2	2017
7	Chéng Fēng Pò Làng	2017
8	Xī Yóu Fú Yāo Piān	2017
9	Jiā Nián Huá	2017
10	Sān Shēng Sān Sh…	2017
11	Gong Fu Yu Jia	2017
12	Qián Rèn 3: Zài …	2017
13	Fǎn Zhuǎn Rén Sh…	2017

2.2

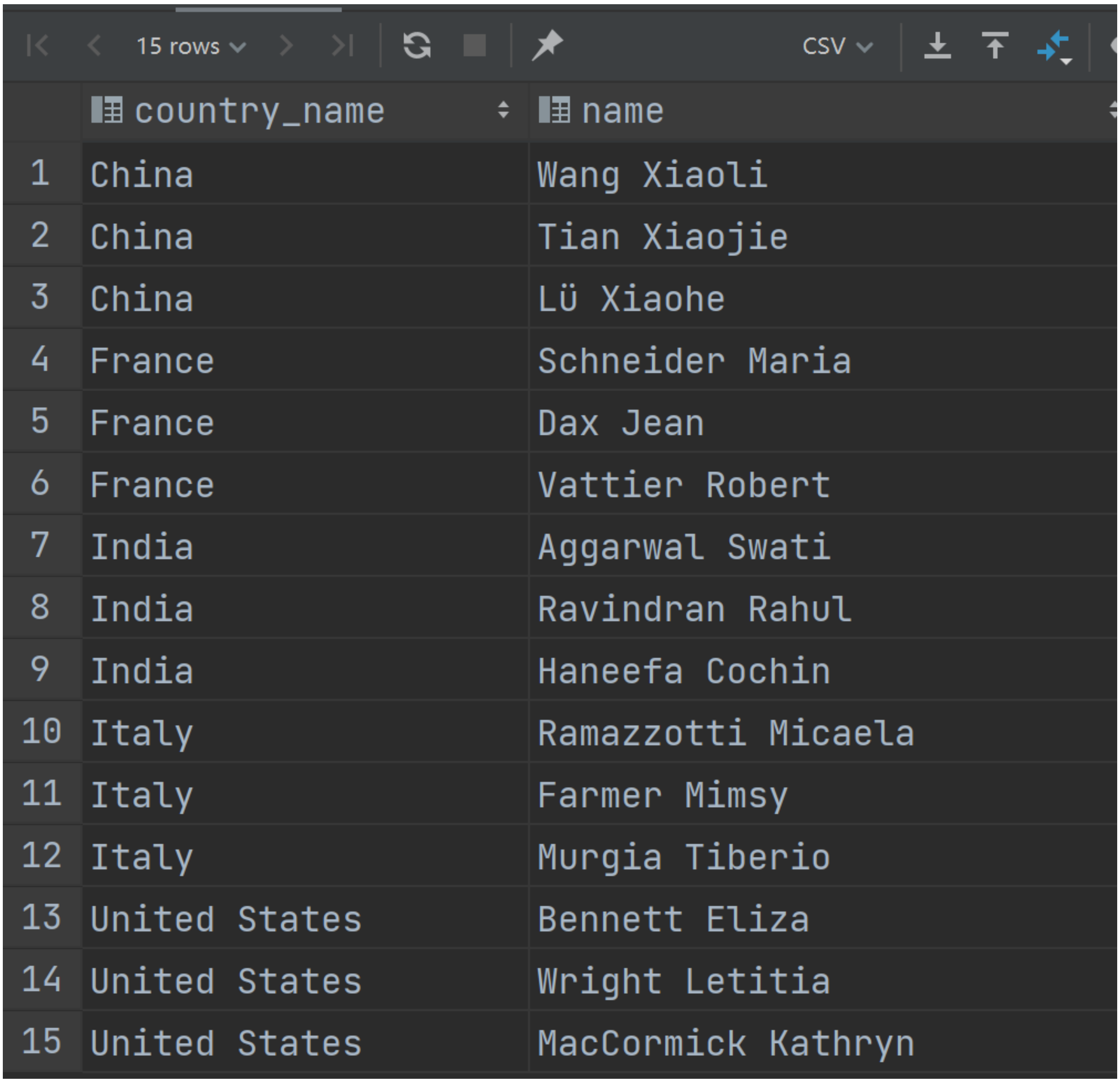
```
select cmt.continent,
       cmt.country_name
from (select cm.continent,
             cm.country_name,
             rank() over (partition by continent
                 order by number_of_movies desc) as nm
      from (select c.continent,
                   c.country_name,
                   count(c.continent) number_of_movies
            from countries c
                     join movies m
                          on c.country_code = m.country
            group by (c.continent, c.country_name)) cm) cmt
where nm = 1;
```



	continent	country_name
1	AFRICA	Nigeria
2	AMERICA	United States
3	ASIA	India
4	EUROPE	United Kingdom
5	OCEANIA	Australia

2.3

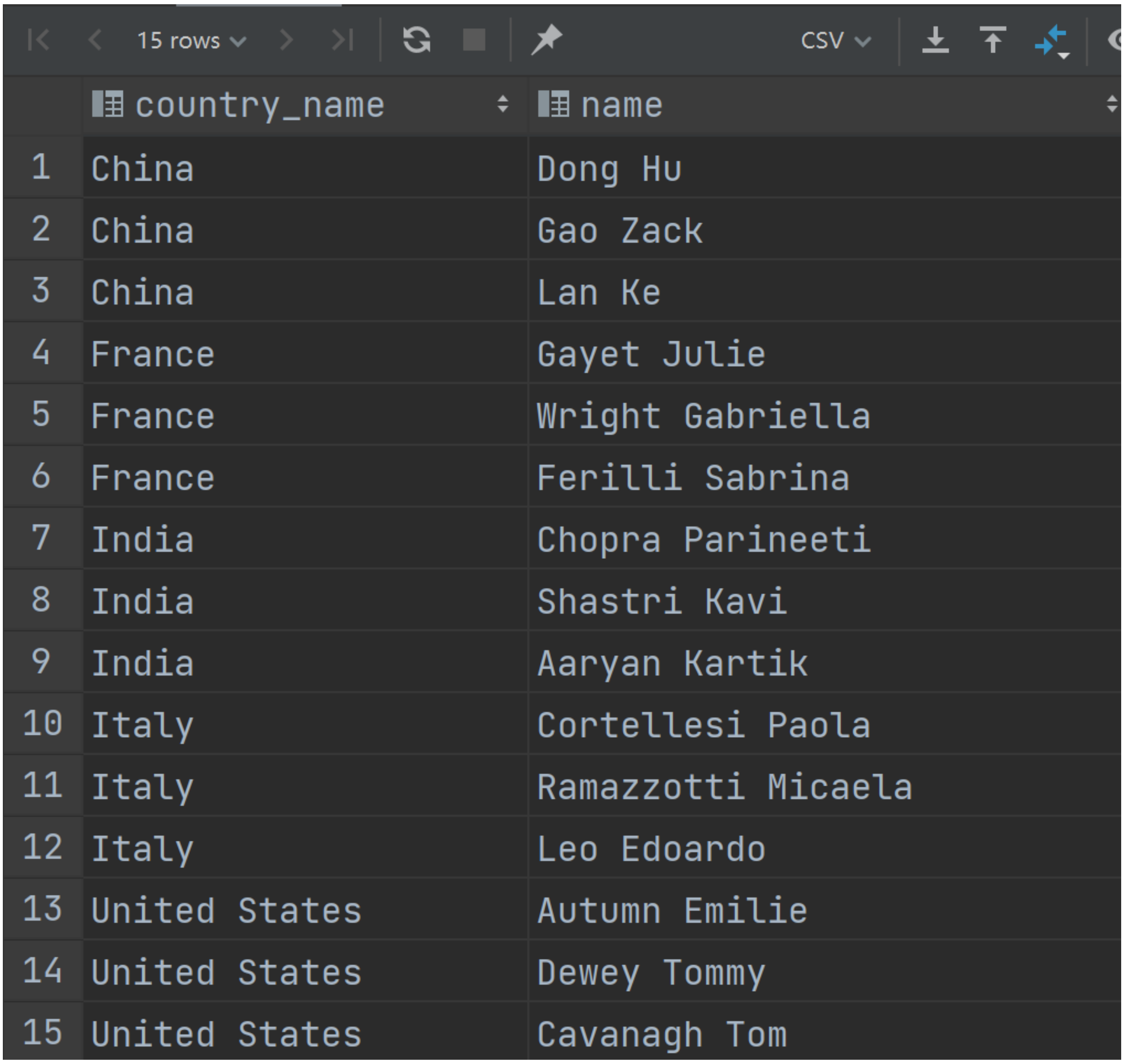
```
select country_name,
       n.name
from (select mc.country_name,
             case
                 when country_name = 'China' then cp.surname || ' ' ||
cp.first_name
                 else cp.surname || ' ' || cp.first_name
                 end as           name,
             row_number() over (partition by country_name
                 order by cp.cnt) ranking
      from (select movieid,
                   country_name
            from movies m
                     join countries cou
                          on m.country = cou.country_code
            where country_name in ('China', 'United States', 'France', 'Italy',
'India')
           ) mc
               join
           (select cre.movieid,
                   p.first_name, --名
                   p.surname,    --姓
                   count(*) over (partition by p.first_name || ' ' || p.surname)
cnt
            from (select movieid,
                         peopleid
                  from credits
                  where credited_as = 'A') cre
                     join people p
                          on p.peopleid = cre.peopleid) cp
           on mc.movieid = cp.movieid) n
where n.ranking <= 3;
```



	country_name	name
1	China	Wang Xiaoli
2	China	Tian Xiaojie
3	China	Lü Xiaohe
4	France	Schneider Maria
5	France	Dax Jean
6	France	Vattier Robert
7	India	Aggarwal Swati
8	India	Ravindran Rahul
9	India	Haneefa Cochin
10	Italy	Ramazzotti Micaela
11	Italy	Farmer Mimsy
12	Italy	Murgia Tiberio
13	United States	Bennett Eliza
14	United States	Wright Letitia
15	United States	MacCormick Kathryn

2.4

```
select country_name,
       n.name
from (select mc.country_name,
             case
                 when country_name = 'China' then cp.surname || ' ' ||
cp.first_name
                 else cp.surname || ' ' || cp.first_name
                 end as           name,
             row_number() over (partition by country_name
                 order by cp.cnt) ranking
      from (select movieid,
                   country_name
            from movies m
                     join countries cou
                          on m.country = cou.country_code
            where country_name in ('China', 'United States', 'France', 'Italy',
'India')
              and year_released >= 2010
           ) mc
               join
           (select cre.movieid,
                   p.first_name, --名
                   p.surname,    --姓
                   count(*) over (partition by p.first_name || ' ' || p.surname)
cnt
            from (select movieid,
                         peopleid
                  from credits
                  where credited_as = 'A') cre
                     join people p
                          on p.peopleid = cre.peopleid) cp
           on mc.movieid = cp.movieid) n
where n.ranking <= 3;
```

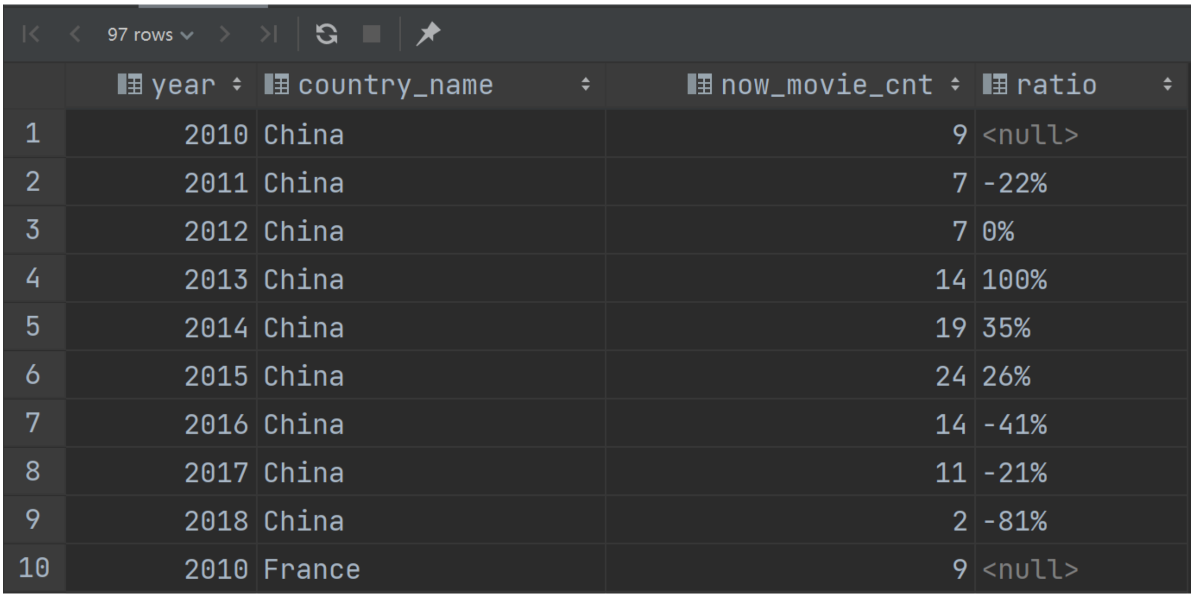


	country_name	name
1	China	Dong Hu
2	China	Gao Zack
3	China	Lan Ke
4	France	Gayet Julie
5	France	Wright Gabriella
6	France	Ferilli Sabrina
7	India	Chopra Parineeti
8	India	Shastri Kavi
9	India	Aaryan Kartik
10	Italy	Cortellesi Paola
11	Italy	Ramazzotti Micaela
12	Italy	Leo Edoardo
13	United States	Autumn Emilie
14	United States	Dewey Tommy
15	United States	Cavanagh Tom

3. Other Window functions

3.1

```
select year,
       country_name,
       now_movie_cnt,
       round(100 * (now_movie_cnt - pre_movie_cnt) / pre_movie_cnt, 0) || '%'
ratio
from (select year_released as            year,
             country_name,
             coalesce(movie_cnt, 0) now_movie_cnt,
             sum(movie_cnt) over (partition by country_name) movie_sum,
             lag(movie_cnt, 1) over (partition by country_name
                 order by year_released) pre_movie_cnt
      from (select distinct year_released,
                            country_name,
                            count(*) over (partition by year_released,
country_name
                                order by year_released) movie_cnt
            from movies m
                     join countries cou
                          on m.country = cou.country_code
            where year_released >= 2010
            order by country_name, year_released
           ) mc
      ) ta
where movie_sum>= 20;
```



	year	country_name	now_movie_cnt	ratio
1	2010	China	9	<null>
2	2011	China	7	-22%
3	2012	China	7	0%
4	2013	China	14	100%
5	2014	China	19	35%
6	2015	China	24	26%
7	2016	China	14	-41%
8	2017	China	11	-21%
9	2018	China	2	-81%
10	2010	France	9	<null>