Operation Analytics and Investigating Metric Spike

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Description

Operation Analytics is the analysis done for the complete end to end operations of a company. With the help of this, the company then finds the areas on which it must improve upon. You work closely with the ops team, support team, marketing team, etc and help them derive insights out of the data they collect.

- Being one of the most important parts of a company, this kind of analysis is further used to predict the overall growth or decline of a company's fortune. It means better automation, better understanding between cross-functional teams, and more effective workflows.
- Investigating metric spike is also an important part of operation analytics as being a Data Analyst you must be able to understand or make other teams understand questions like- Why is there a dip in daily engagement? Why have sales taken a dip? Etc. Questions like these must be answered daily and for that its very important to investigate metric spike.

Approach

The data set is observed and studied to understand the different categories and parameters of the data provided.

This data set is executed to draw useful insights on the business proceedings

Tech-Stack Used

- MySQL workbench is used to run all the queries in this project.
- This software is very handy to manage the dataset and draw useful insights.

Insights

- Learnt how to write window function
- How to join two query like with the assistance of window function.
- Finally, I got to know that there are various function that help to generate data according to group and order with window function.

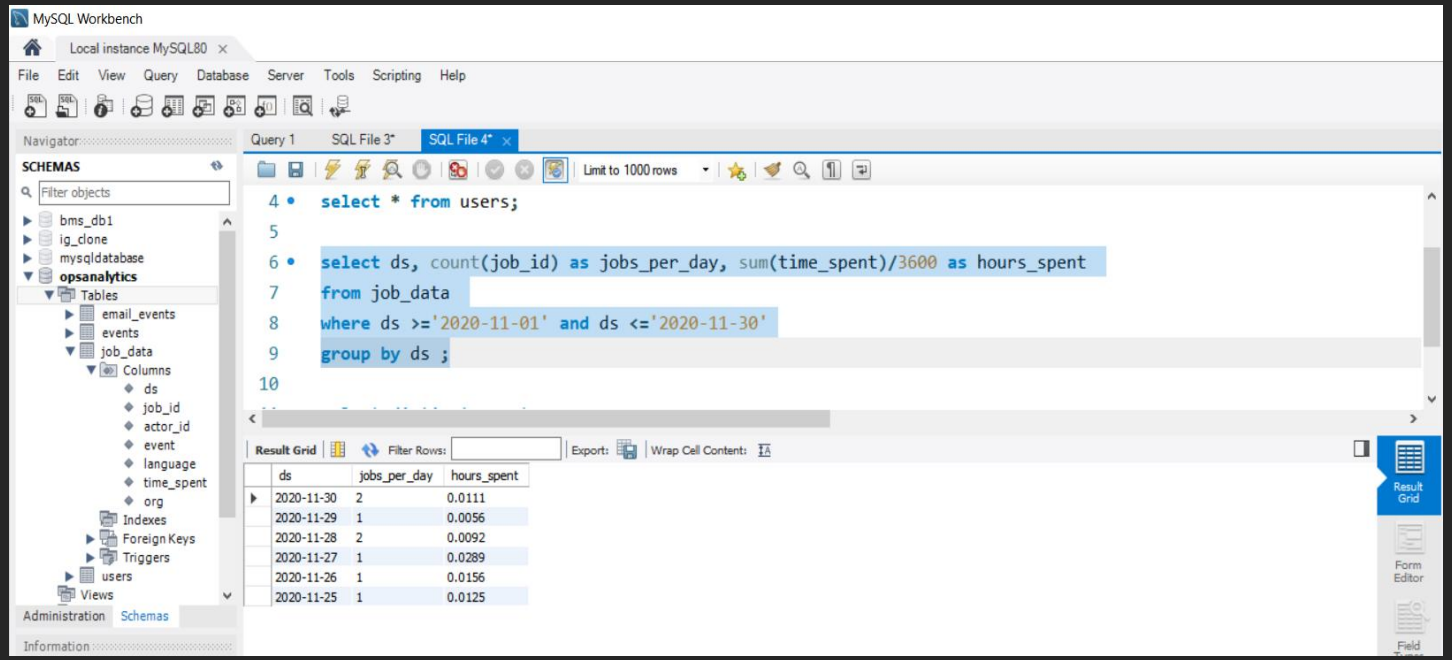
Case Study 1
Job Data

Number of jobs reviewed

Your Task: Calculate the number of jobs reviewed per hour per day for November 2020?

SQL :

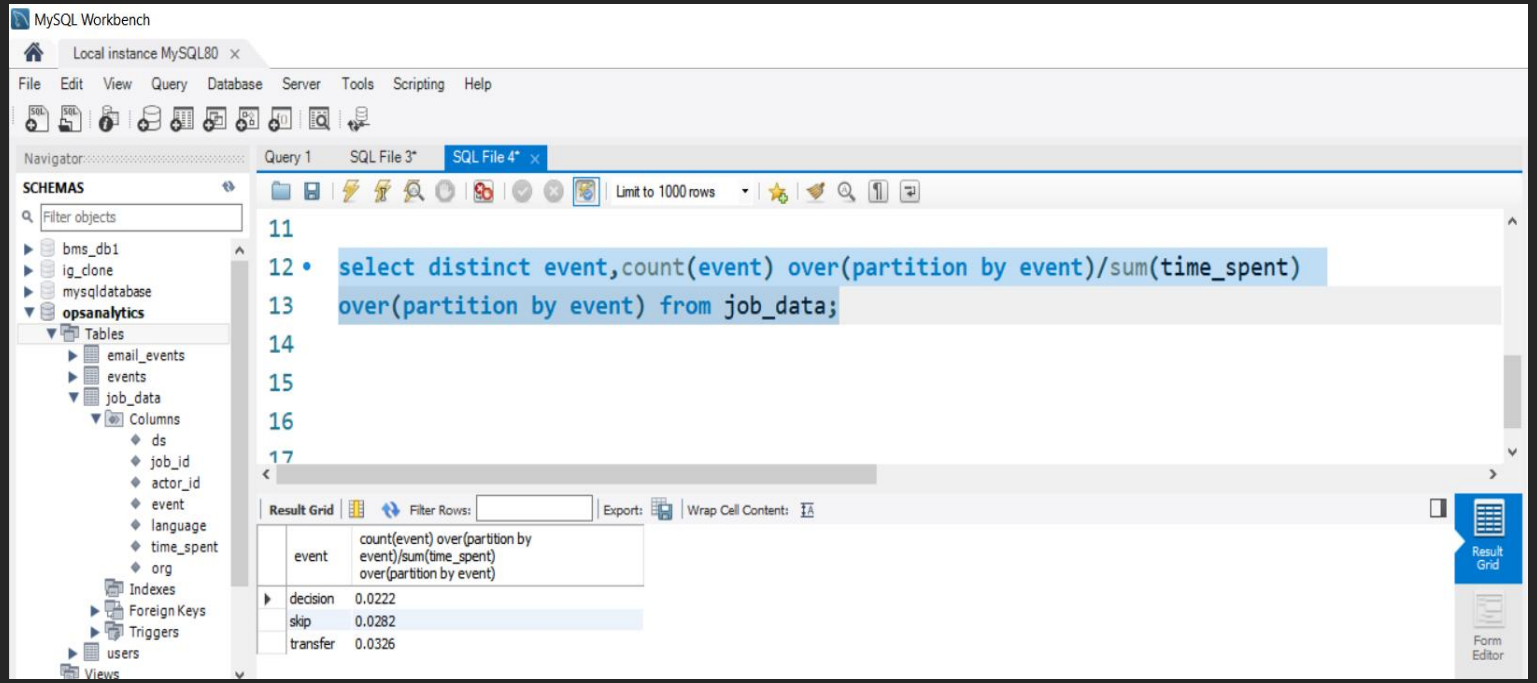
select ds, count(job_id) as jobs_per_day, sum(time_spent)/3600 as hours_spent
from job_data where ds >='2020-11-01' and ds <='2020-11-30' group by ds ;



Throughput

Your Task:Let’s say the above metric is called throughput. Calculate 7 day rolling average of throughput? For throughput, do you prefer daily metric or 7-day rolling and why?

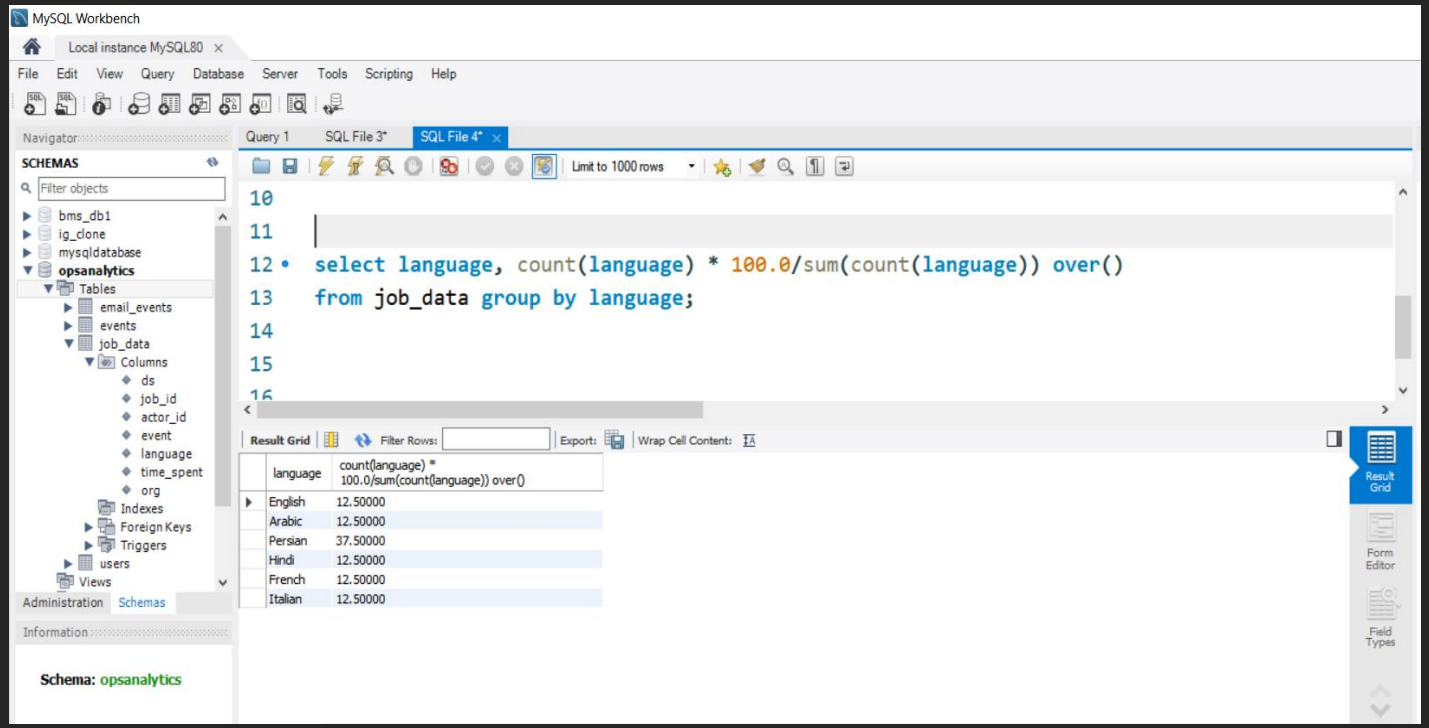
select distinct event,count(event) over(partition by event)/sum(time_spent) over(partition by event) from job_data;



Percentage share of each language

Your Task: Calculate the percentage share of each language in the last 30 days?

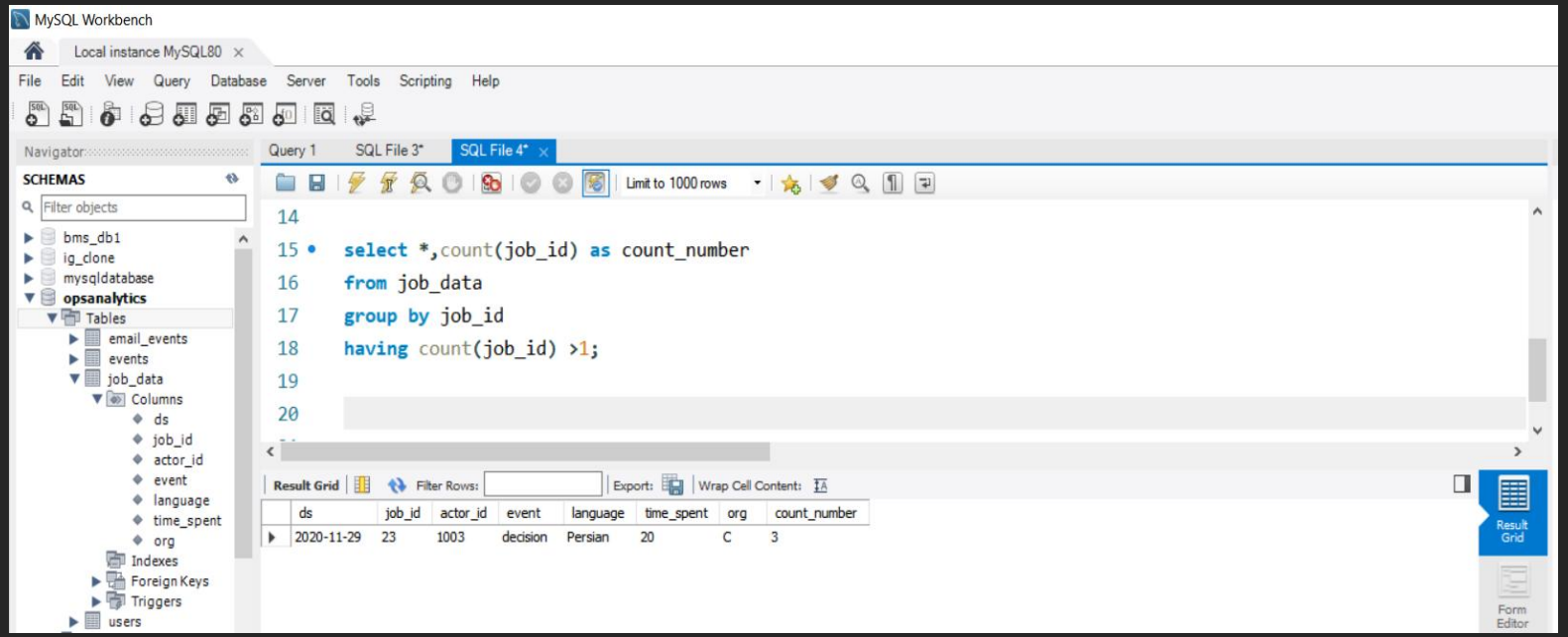
SQL : select language, count(language) * 100.0/sum(count(language)) over() • from job_data group by language;



Duplicate rows

Your Task:Let’s say you see some duplicate rows in the data. How will you display duplicates from the table?

SQL : select *,count(job_id) as count_number from job_data group by job_id having count(job_id) >1;

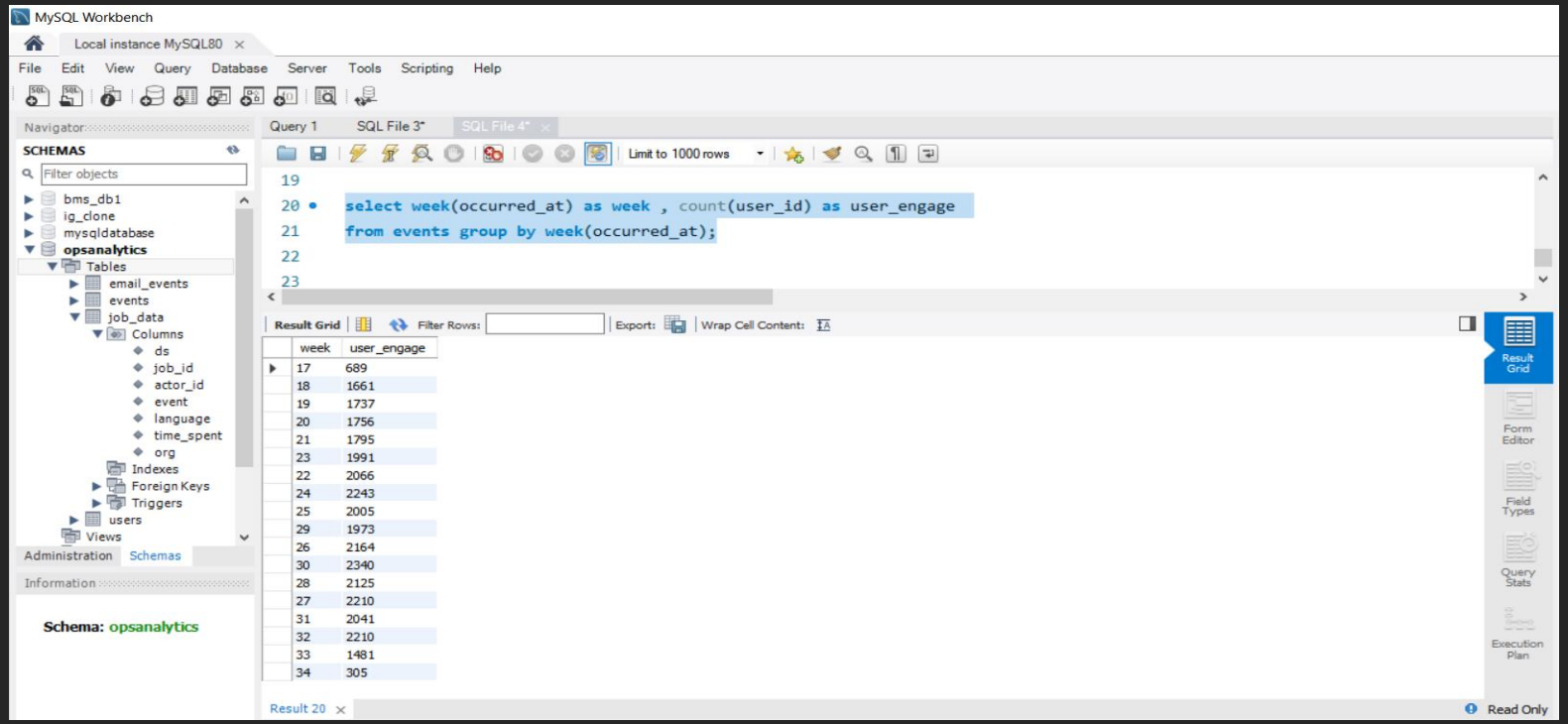


Case Study 2
Investigating metric spike

User Engagement

Your Task: Calculate the weekly user engagement?

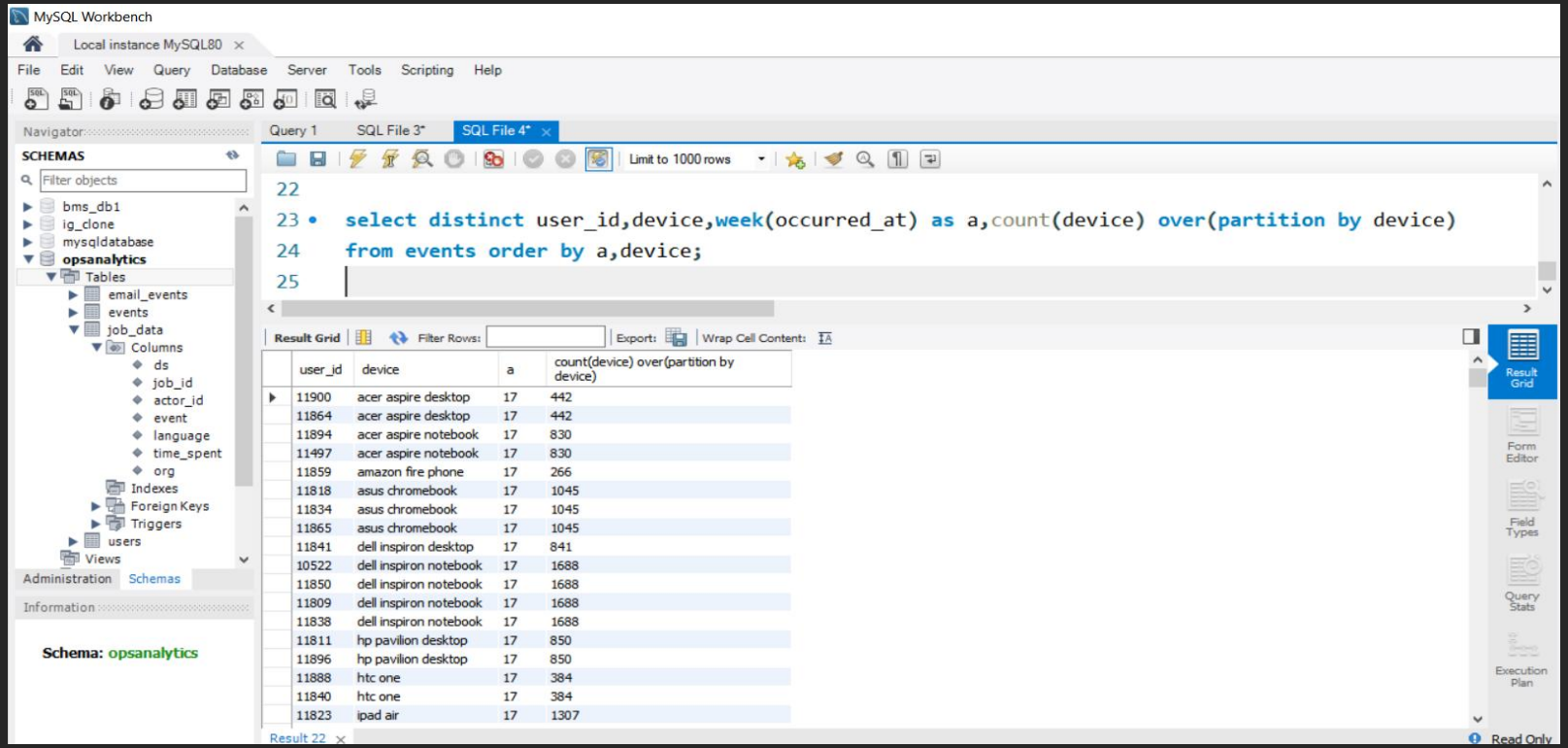
SQL : select week(occurred_at) as week , count(user_id) as user_engage from events group by week(occurred_at);



User Growth

Your Task:Calculate the user growth for product? (couldn't solved by myself)

SQL : select distinct user_id,device,week(occurred_at) as a,count(device)over(partition by device) from events order by a,device;

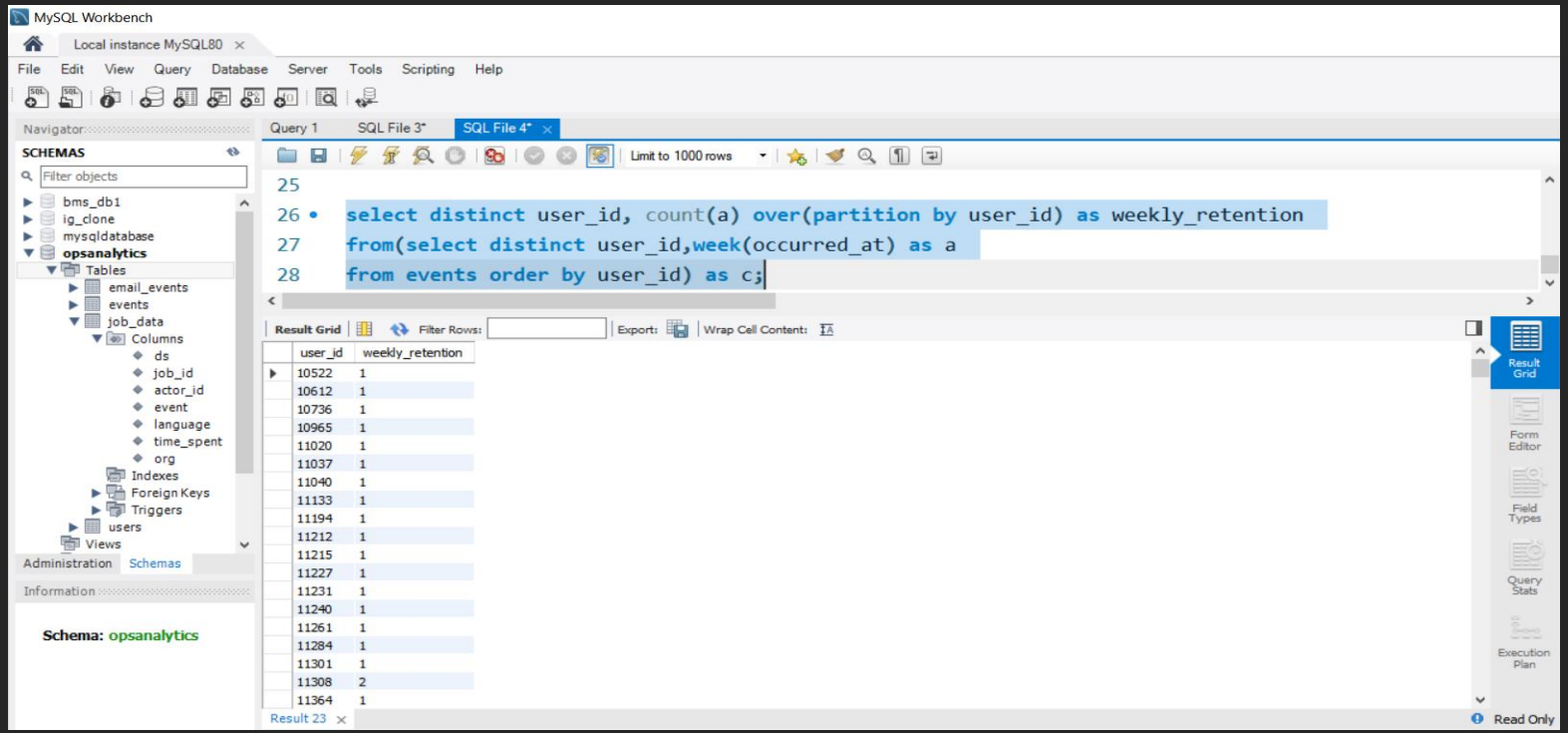


user_id	device	a	count(device) over(partition by device)
11900	acer aspire desktop	17	442
11864	acer aspire desktop	17	442
11894	acer aspire notebook	17	830
11497	acer aspire notebook	17	830
11859	amazon fire phone	17	266
11818	asus chromebook	17	1045
11834	asus chromebook	17	1045
11865	asus chromebook	17	1045
11841	dell inspiron desktop	17	841
10522	dell inspiron notebook	17	1688
11850	dell inspiron notebook	17	1688
11809	dell inspiron notebook	17	1688
11838	dell inspiron notebook	17	1688
11811	hp pavilion desktop	17	850
11896	hp pavilion desktop	17	850
11888	htc one	17	384
11840	htc one	17	384
11823	ipad air	17	1307

Weekly Retention

Your Task:Calculate the weekly retention of users-sign up cohort?

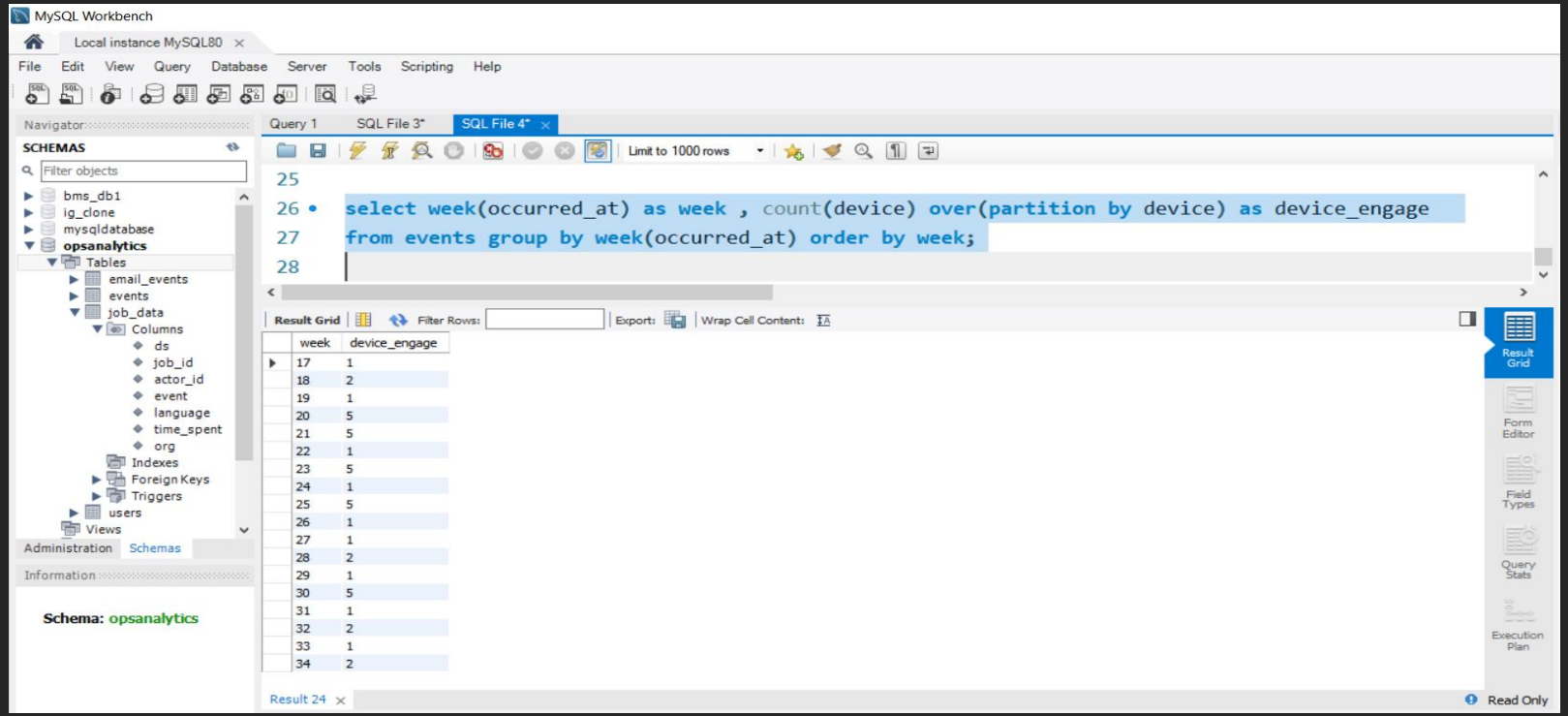
SQL : select distinct user_id, count(a) over(partition by user_id) as weekly_retention from(select distinct user_id,week(occurred_at) as a from events order by user_id) as c;



Weekly Engagement

Your Task:Calculate the weekly engagement per device?

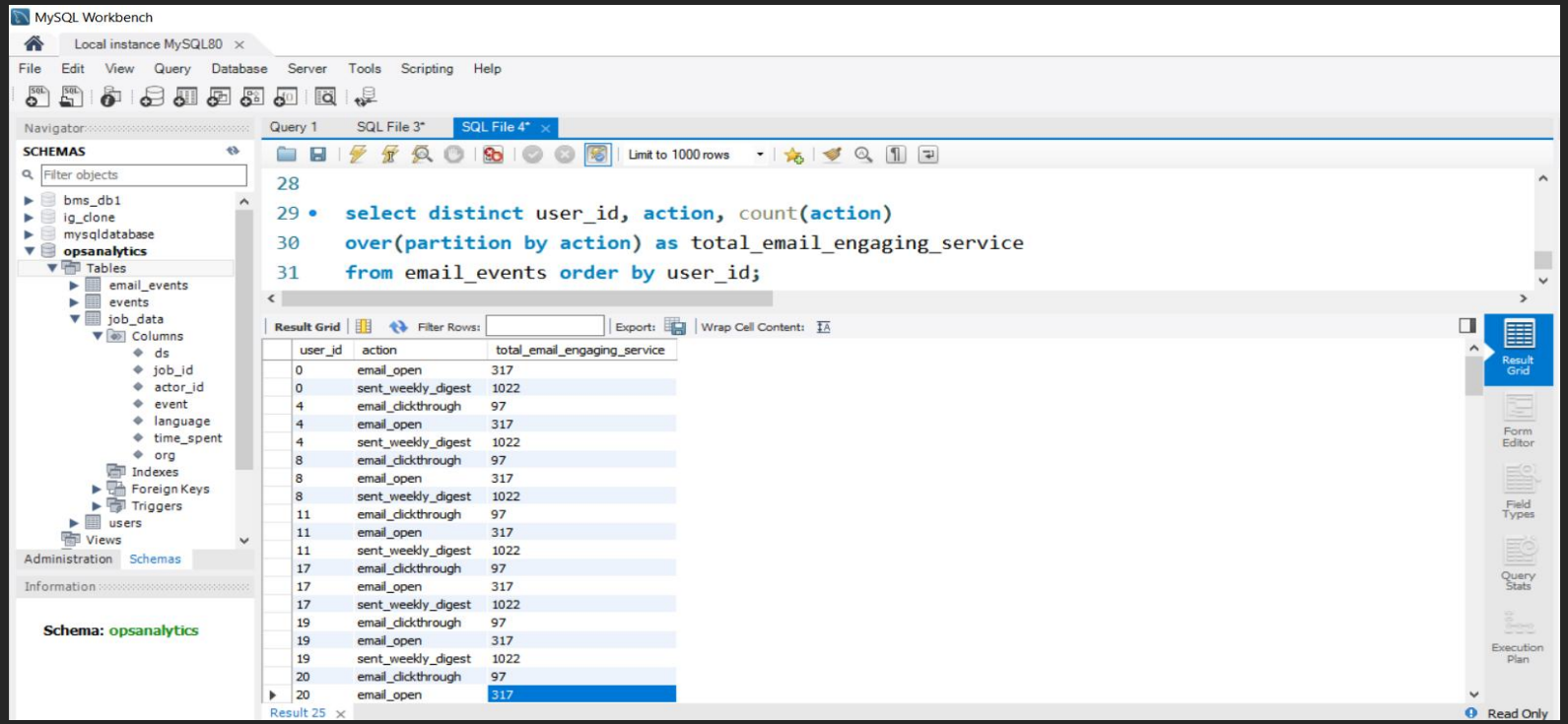
SQL : select week(occurred_at) as week , count(device) over(partition by device) as device_engage from events group by week(occurred_at) order by week;



Email Engagement

Your Task: Calculate the email engagement metrics?

SQL : select distinct user_id, action, count(action) over(partition by action) as total_email_engaging_service from email_events order by user_id;



THANK YOU