OPERATIONS METRICS ANALYTICS – CASE STUDY 1

Project Description: The Project entails analysis of the operations of the company. The Job Data table is provided for use to derive insights that will help understand the operational challenges which will help improve to design more efficient Workflows.

Approach:

- Create Database & table from the data provided in the dataset.
- Understand the data & the requirements for deriving the output for the given questions.
- Write queries to extract the insights & Copy to the project file.

Tech-Stack Used:

- MS Excel, Word were used for the dataset & Project file creation.
- MySQL Workbench was used for creating Database & as query tool.

Result: The project helped gain knowledge in operations metrics & learn SQL concepts like calculating rolling averages, finding duplicates in table & percentages.

Dataset Created:

```
Create database Microsoft

Use Microsoft

Create Table Job_Data (Ds Date , Job_id Int not null ,
Actor_id Int not null, Events Varchar (20), Language Varchar (20),
Time_spent Int, ORG Varchar (5))


Insert into Job_Data Values
('2020-11-30', 21, 1001, 'Skip', 'English', 15, 'A'),
('2020-11-30', 22, 1006, 'Transfer', 'Arabic', 25, 'B'),
('2020-11-29', 23, 1003, 'Decision', 'Persian', 20, 'C'),
('2020-11-28', 23, 1005, 'Transfer', 'Persian', 22, 'D'),
('2020-11-28', 25, 1002, 'Decision', 'Hindi', 11, 'B'),
('2020-11-27', 11, 1007, 'Decision', 'French', 104, 'D'),
('2020-11-26', 23, 1004, 'Skip', 'Persian', 56, 'A'),
('2020-11-25', 20, 1003, 'Transfer', 'Italian', 45, 'C'),
('2020-11-25', 18, 1008, 'Transfer', 'Hindi', 32, 'B'),
('2020-11-24', 11, 1006, 'Skip', 'French', 46, 'A')
```

INSIGHTS:

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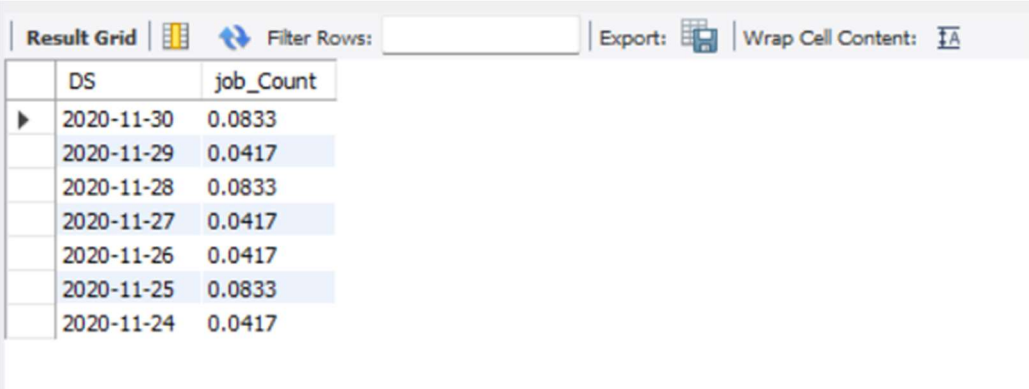
1. **Number of jobs reviewed:** Amount of jobs reviewed over time.
   Your task: Calculate the number of jobs reviewed per hour per day for November 2020?

QUERY:

```
Select DS, COUNT(1)/24 AS job_Count
From Job_Data
Where ds Between '2020-11-01' and '2020-11-30'
Group By DS ;
```



Result Grid | Filter Rows: | Export: | Wrap Cell Content:

DS	job_Count
2020-11-30	0.0833
2020-11-29	0.0417
2020-11-28	0.0833
2020-11-27	0.0417
2020-11-26	0.0417
2020-11-25	0.0833
2020-11-24	0.0417

2. **Throughput:** It is the no. of events happening per second.
   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?

   I Prefer 7 day rolling average as it helps calculate trends over short period of time rather than single day dip or rise is more useful.

   QUERY :

```
With Daily_Events as (Select DAY (DS) as Day_no,Count(Events) /
Sum(Time_spent) as Event_Count
from Job_data
Group By DAY (DS))

Select Day_No,
Avg(Event_Count) Over (Order By Day_no rows between 6 preceding and 0 preceding)
as 7_day_rolling
From Daily_Events ;
```

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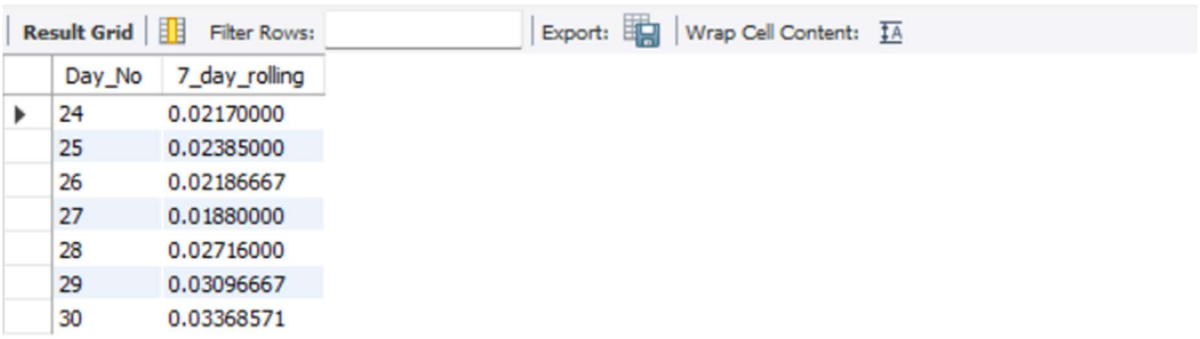


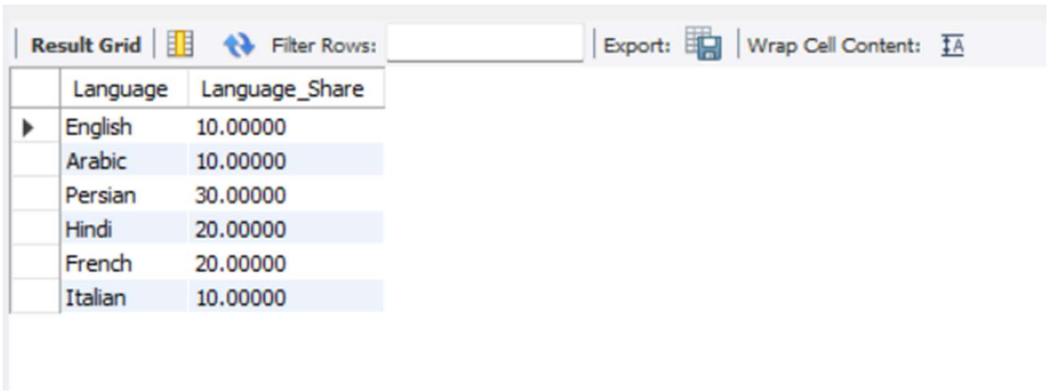
Result Grid | Filter Rows: | Export: | Wrap Cell Content:

Day_No	7_day_rolling
24	0.02170000
25	0.02385000
26	0.02186667
27	0.01880000
28	0.02716000
29	0.03096667
30	0.03368571

3. **Percentage share of each language:** Share of each language for different contents.
   Your task: Calculate the percentage share of each language in the last 30 days?

QUERY :

```
Select Language, count(Language) * 100.0 /
(select count(Language) from Job_Data) as Language_Share
from Job_Data
Where ds Between '2020-11-01' and '2020-11-30'
Group By Language ;
```



Result Grid | Filter Rows: | Export: | Wrap Cell Content:

Language	Language_Share
English	10.00000
Arabic	10.00000
Persian	30.00000
Hindi	20.00000
French	20.00000
Italian	10.00000

4. **Duplicate rows:** Rows that have the same value present in them.
   Your task: Let's say you see some duplicate rows in the data. How will you display duplicates from the table?

   QUERY :

```
Select DS, Job_Id, Actor_Id, Events, Language, Time_Spent, ORG, Count(1)
From Job_Data
```

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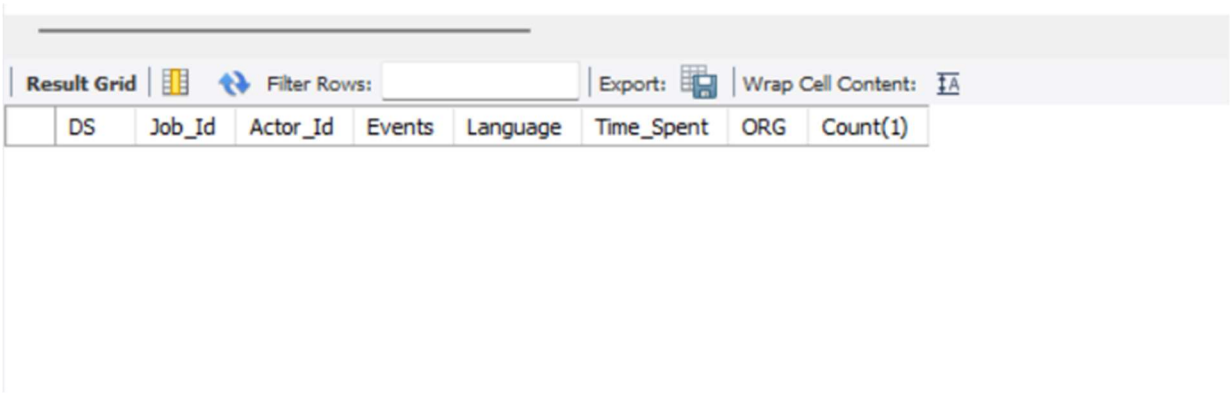
Group By DS, Job_Id, Actor_Id, Events, Language, Time_Spent, ORG
Having Count(1) > 1



	DS	Job_Id	Actor_Id	Events	Language	Time_Spent	ORG	Count(1)