Question 2 )

The query given :

WITH events AS (

SELECT

device\_id ,

time\_stamp ,

LEAD(time\_stamp) OVER (PARTITION BY device\_id ORDER BY time\_stamp) as next\_time\_stamp

FROM events\_table

WHERE month='201908'

AND app\_id = 1

AND event\_id = 4

),

per\_event AS (

SELECT

device\_id ,

DATE\_DIFF('second' , time\_stamp , next\_time\_stamp ) as time\_diff

FROM events

),

SELECT

device\_id ,

AVG(time\_diff) as avg\_per\_user

FROM per\_event

GROUP BY 1

The events table statement first create a new column which is the next timestamp for some action “4” , so we can substract then the next timestamp from the current one (this query is made by device\_id and order by time\_stamp so as to be sure that is just the next near value ). Once made the substraction between timestamp we calculate the average time difference between when user made action 4 against his next time he performs action.

This metrics is relevant for the business side because provides you information about the performance of the app. In the case that the action is “purchase” , the metrics gives you a sense of how fast the user place money in your app again ( in some way you are monitoring the engagement , the stickiness).

The query without a WITH function would be :

SELECT

device\_id ,

AVG(time\_diff)

FROM (

SELECT

device\_id ,

DATE\_DIFF('second' , time\_stamp , next\_time\_stamp) as time\_diff

FROM (

SELECT

device\_id ,

time\_stamp ,

LEAD(time\_stamp) OVER (PARTITION BY device\_id ORDER BY time\_stamp) as next\_time\_stamp

FROM events\_table

WHERE month='2019080

AND app\_id = 1

AND event\_id = 4

)

)

GROUP BY 1

Question 3 )

The amount of pirates to send for look for the treasure can be represented by the following function : f(# monedas encontradas) = round((# monedas encontradas / 2 ) + 1). In words means that the ideal scenario for the captain of pirates is always to send the amount of pirates which represent the half of coins founded plus one. In this scenario, all the pirates send to find the treasure will receive only one coin and all the other coins left will be for the captain of the pirates, so he will received the half of coins find minus one.

Aclaration: In the case that the amount of coins are odd the numbers of pirates it would be round up