TASK 2

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1) Examine the query and explain if it works or not.

The query is supposed to return the total amount spent (equivalent in EUR) per user and per merchant country, in a descended order. So, from this we can observe which user id spent the most in total by country. The query is not working.

First Error

```
WHERE t.source = ‘GAIA’
        AND pu.short_phone_country = t.merchant_country
```

The ‘short_phone_country’ is in different format compared to ‘merchant_country’ (GB versus GBR, FR versus FRA, etc)

Second error

There is a mistake made when joining the transaction table with the fx rate table, and so the transformation from the amount paid to EUR is wrong.

```
FROM transaction t
        JOIN fx_rates fx ON (fx.ccy = t.currency AND fx.base_ccy = ‘EUR’)
```

The correct join must be made as following:

```
FROM transaction t
        JOIN fx_rates fx ON (fx.base_ccy = t.currency AND fx.ccy = ‘EUR’
```

2) Write a query to find users whose first transaction was a successful card payment over 10 USD equivalent.

```
SELECT t.user_id,
       t.amount/fx.rate/Power(10, cd.exponent),
       MIN(t.created_date)

FROM TRANSACTIONS t
     JOIN FX_RATES fx
        ON (fx.base_ccy = t.currency AND fx.ccy = 'USD')
     JOIN CURRENCY_DETAILS cd
        ON cd.currency = t.currency
     JOIN USERS u
        ON u.id = t.user_id

WHERE t.state = 'COMPLETED'
      AND t.source = 'GAIA'
      AND t.amount/fx.rate/Power(10, cd.exponent) >10

GROUP BY t.user_id
```

First transaction -> MIN(t.created_date) GROUP BY t.user_id

Successful card payment -> WHERE t.state = ‘Completed’ AND t.source = ‘GAIA’

Over 10 USD equivalent -> WHERE t.amount/fx.rate/Power(10, cd.exponent) > 10

3) Find 5 likely fraudsters (not already found in fraudsters.csv).

Most likely, fraudsters have many unsuccessful transactions (declined, failed or reverted). To find customers most likely fraudsters, I calculated the total number of unsuccessful transactions per user id, in descending order.

```
SELECT t.user_id, COUNT(*) AS count

FROM TRANSACTIONS t

WHERE t.state = 'DECLINED'
      OR t.state = 'REVERTED'
      OR t.state = 'FAILED'

GROUP BY t.user_id

ORDER BY count DESC
```

The following user_ids were found:

- 46172727-471c-4627-b706-1f9881a8e4d2
- 06bb2d68-bf61-4030-8447-9de64d3ce490
- c9d85060-24a7-4783-a911-582e186bd4eb
- 65ac0928-e17d-4636-96f4-ebe6bdb9c98d
- 5fd70cca-1685-40ad-a312-7d387f6911a9