Below are 2 tasks to test your knowledge of SQL.

To solve tasks, you should use the syntax - PostgreSQL.

Answers must be submitted in the form of a file with requests.

Data Schema = Database Structure

● This is the name of the table

○ This is the name of the column/column

1. Write 2 SQL queries to find the mean and median values ​​for the sales amount. The amount of the transaction is rounded up to an integer part. You cannot use the standard mean and median functions in SQL. You can only use the ag functions SUM and COUNT.

Data Schema:

● orders

○ id

○ sale\_amount - in cents

○ user\_id

○ datetime

2. Write an SQL query to search for transactions duplicated as a result of an error.

Data Schema:

● purchases

○ transaction\_id

○ datetime

○amount

○ user\_id

3. Write an SQL query to build a transition funnel from installation to registration of a trial period and purchase of a paid version of the application by country. Only one trial period registration and one purchase of a paid version are possible per user. The purchase is possible only after the expiration of the trial period. The output should be a table with columns “country”, “installs”, “trials”, “purchases”, “conversion\_rate\_to\_trial”, “conversion\_rate\_to\_purchase”

Data Schema:

● events

○ transaction\_id

○ datetime

○ event\_type (value can be either "instal" or "trial" or "purchase")

○ user\_id

○ country

Task 3

The product manager formed a hypothesis that the new version of the sales screen would perform better than the old one, due to the fact that the new sales screen more clearly describes the benefits of the paid version of the application.

The product manager expects an increase in the conversion rate from installation to purchase of the paid version of the application. The application, meanwhile, is already very actively promoted on the market, attracting an average of 30,000 new users every day, the current conversion rate from installation to purchase is 5%.

How would you propose to test this hypothesis, what tools and tests would