

Data Engineer - Technical Test

Welcome to the Data Engineer Technical Test. Being hands on is one of the key requirements for this role. We ask you to complete the following four tasks. To submit the results, or if you have any questions, you can send an email to the person you have been in contact during the selection process.

- 1) You are given the following SQL tables:
 - a) **streamers**: it contains time series data, at a 1-min granularity, of all the channels that broadcast on Twitch. The columns of the table are:
 - **username**: Channel username
 - **timestamp**: Epoch timestamp, in seconds, corresponding to the moment the data was captured
 - **game**: Name of the game that the user was playing at that time
 - **viewers**: Number of concurrent viewers that the user had at that time
 - **followers**: Number of total followers that the channel had at that time
 - b) **games_metadata**: it contains information of all the games that have ever been broadcasted on Twitch. The columns of the table are:
 - **game**: Name of the game
 - **release_date**: Timestamp, in seconds, corresponding to the date when the game was released
 - **publisher**: Publisher of the game
 - **genre**: Genre of the game

Write an SQL query to:

- Obtain, for each month of 2018, how many streamers broadcasted on Twitch and how many hours of content were broadcasted. The output should contain **month**, **unique_streamers** and **hours_broadcast**.
 - Obtain the Top 10 streamers that have percentually gained more followers during January 2019, and that primarily stream FPS games. The output should contain the **username** and **follower_growth**.
 - Obtain the Top 10 publishers that have been watched the most during the first quarter of 2019. The output should contain **publisher** and **hours_watched**.
- Note: Hours watched can be defined as the total amount of hours watched by all the viewers combined. I.e: 10 viewers watching for 2 hours will generate 20 Hours Watched.*

- 2) A 4-year-old is trying to build a tub for his goldfish out of Lego. Every Lego piece is stuck to the piece to its left and its right (except for the first and last one). All the pieces have a width of 1 unit. Write a program, using the programming language of your choice, that given the heights (in units) of the lego pieces from left to right, outputs the total amount of water held over the pieces that the kid built.

Example input 1: [9 8 7 8 9 5 6]

Example output 1: 5

Example input 2: [3 4 3 2]

Example output 2: 0

Example input 3: [7 1 6]

Example output 3: 5

