In this puzzle, you’ll be asked to analyze some cryptocurrency financial data, preferably using TimescaleDB and SQL.

First, some background. Last summer, we asked then-intern Sarah Pan ’19 to analyze some data about bitcoin, ethereum, and other cryptocurrencies using TimescaleDB. The following was her blog post:

https://blog.timescale.com/analyzing-ethereum-bitcoin-and-1200-cryptocurrencies-using-postgresql-3958b3662e51 (It ended up spending much of the next 24 hours after its posting at the top of Hacker News!)

The post also provides instructions how to download the same dataset (as well as installing TimescaleDB), which will be important for this puzzle.


In the first part of this puzzle, we’d like you to study volatility of Bitcoin. From the blog post, you can see that Bitcoin can be fairly volatile:
But this just shows the volatility between a day and its previous day (the data only shows the daily price at the closing time of the market).

For the first part of your puzzle, we’d like to determine the top-ten 5-day periods by volatility, where we define volatility as the absolute value between the lowest and highest prices over that period.

For your answer, please submit both your working code as well as the code’s output. (For code, we prefer you to perform these computations in SQL, but other languages would do as well.) For each of the ten periods, your output should specify the last day of that 5-day period and the period’s volatility.

For the second part of your puzzle, ask some other interesting question about this data set. Please submit an explanation of what you thought was interesting, how you answered this question with the data, your code to do so, and the answer. If the
answer can be illustrated well with a graph, please include it as well.