Q1. What is stratum in terms of NTP?

Stratum - layer in a hierarchical network of layers that distribute accurate time across a network of devices.

Stratum levels define the distance from the reference clock.

A reference clock is a stratum-0 device that is assumed to be accurate and has little or no delay associated with it.

Stratum-1 time server is that it be directly linked (not over a network path) to a reliable source of UTC time

Stratum-2 server gets its time via NTP packet requests from a stratum-1 server.

A stratum-3 server gets its time via NTP packet requests from a stratum-2 server, and so on.

Q2: Output of ntpq -p

```
     remote           refid      st t when poll reach   delay   offset  jitter
==============================================================================
*ec2-3-15-219-46 206.55.191.142   2 u    4   64    3  214.137   -3.751  61.069
```

Values:
remote - the actual remote server address.
refid - address of the next stratum for the server (one layer above the remote).
st - stratum of this server (meaning that refid is stratum 0).
t - connection type; u means unicast in this case.
when - last connection time, in seconds.
poll - period in seconds between connections to the server.
reach - status, everything is ok when reach is not 0.
delay - RTT for connection to the server.
offset - difference in time between this and remote server.
jitter - variance of the offset.

Q3: What are the lacks of using the Lamport's algorithm?

Lamport timestamp can’t tell when two events are concurrent.
Can be solved by the vector clock.

Vector clock implementation

Link:
https://github.com/BananaAndBread/DS/tree/master/Lab8

name: b, counter: {'a': 4, 'b': 8, 'c': 3}
name: c, counter: {'a': 1, 'b': 5, 'c': 4}
name: a, counter: {'a': 7, 'b': 8, 'c': 3}