What is benchmarking?

Running standard tests to evaluate relative performance.
Allows you to measure and compare performance of different hardware/software

TSDB:

Data generated:

Influx DB queries generated in
https://github.com/timescale/tsbs/tree/master/cmd/tsbs_generate_queries/databases/influx

Devops:

- Can change group by time interval (multiple queries)
- Can change limit number (multiple queries)
- Can change CPU usage cutoff (`HighCPUForHosts` query)

IOT:

- Can change LastLocByTruck: Limit, orderby tag
- Can change TrucksWithLowFuel: fuel state constraint, groupby time ascending or descending
- Can change TrucksWithHighLoad: currentload constraint,
- Can change StationaryTrucks: time interval
- Can change

Possible additional queries for IOT:

- Finding total distance traveled over a certain amount of time for all trucks
- Finding average truck load but with given time frame.

Tasks:
Run to compare
How to compare and rank queries, quantifying query differences

- Basing on query operations
- Look into more papers (not articles) that talks about TSBS, comparing databases
- Finding similar and different operations between influx and tsdb

Maintain technical report on how to tell another student how to get to the point where he can use it and extend it.

Query comparisons (following papers includes queries that are in both InfluxDB and TimescaleDB):

https://link.springer.com/content/pdf/10.1007%2F978-3-030-50426-7_28.pdf

- All queries executed 5000 times and timed, average time was recorded
- Tested reading performance
    - Aggregate query over some set time
        - Select AVG temperature over time x to y
        - Min and Max of various attributes over time x to y
        - Count number of rows that given Where clause over time x to y

https://arxiv.org/pdf/1901.08304.pdf

Testing using different types of queries:

- Getting a single point given some time index
- Getting all data within a time range
- Query with limit
- Query with some filter within a time range
- Aggregate over time
- Aggregate with filter over time
- Latest point query
- Group by time range queries

All papers so far only measure read speed, but maybe it is possible to also measure write speeds.

http://www.iariajournals.org/internet_technology/inttech_v12_n12_2019_paged.pdf#page=45

For IOT