SEMINAR 5

- What is the article about?
  This article describes 2 examples of usages of vclocks, their workflow, and how they are acting through these examples. The author's thoughts about vclocks are that they are really hard to be implemented.
- What do vclocks guarantee?
  Starting from the point that vclocks are used to determine whether pairs of events are causally related. So analyzing the examples from this article can be concluded that the integrity of specific data could be guaranteed by vector clocks.
- How do vclocks solve conflicts?
- Explain the concept of "pruning" a vclock and why we would do that.
  The concept of "pruning" is used when the vclock grows continuously as more clients use a system over time. So this is done by adding a timestamp to each field, and updating it to the current local time whenever that field is incremented. This way, when a given vclock gets too big, you can remove fields, starting at the one that was updated longest ago, until you hit a size/age threshold that makes sense for your application.
- What other timekeeping tools are used besides vclocks? Describe at least 2 shortly.
  - ☐ **Lamport Timestamps** - are used to (partially) order events in a distributed system. The algorithm is based on the causal ordering of events and is the foundation of Vector Clock.
  - ☐ **Interval Tree Clocks** - the way interval tree clocks work is fairly equivalent to vector clocks in that you can track causality, figure out conflicts, and so on. It however differs in one major way, which is that it is intended to be used in very dynamic environments where cluster membership may change constantly.