

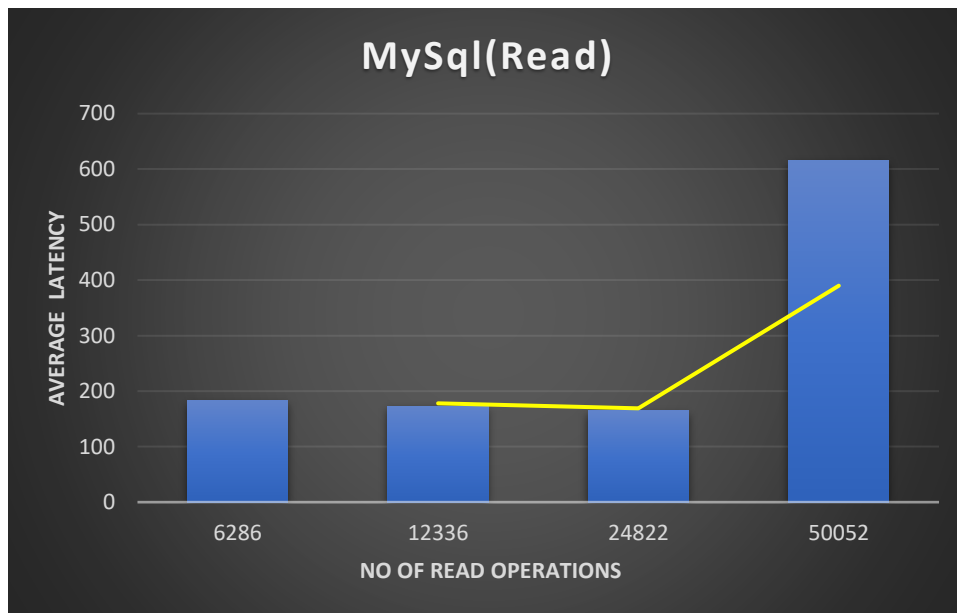
Data Storage and Management – CA 3

Submitted by,

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- 1) Recorded Average Latency of record read operations for MySQL and Mongo across all number of read operations for all the workloads.



Graph 1

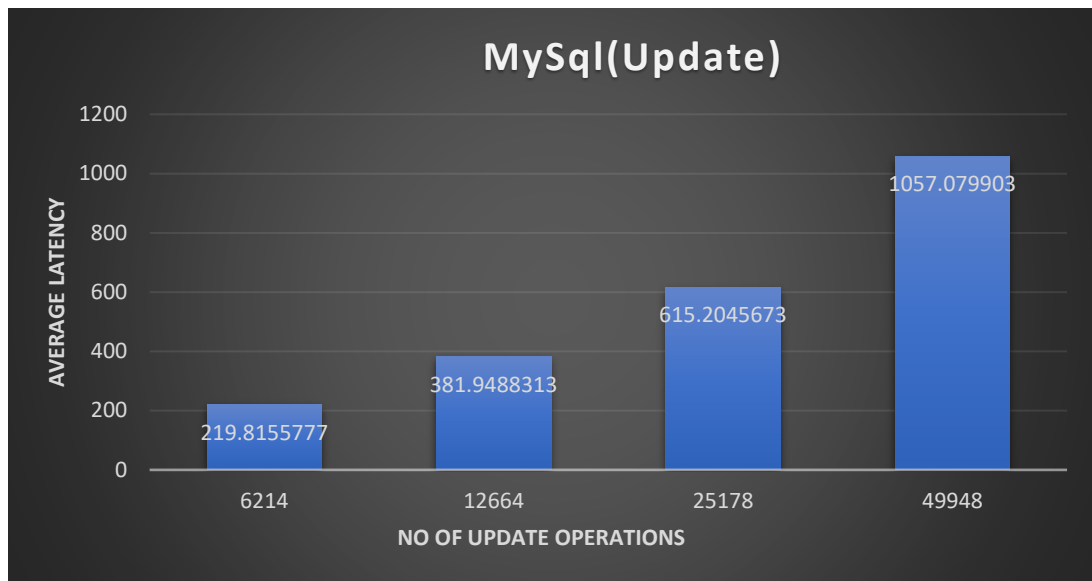
- Graph 1 shows the Average Latency for the read operations across all the workloads for MySQL. The Latency shows an exponential rise for the workload with 50052 read operations and shows a slight variation for the rest of the workloads.



Graph 2

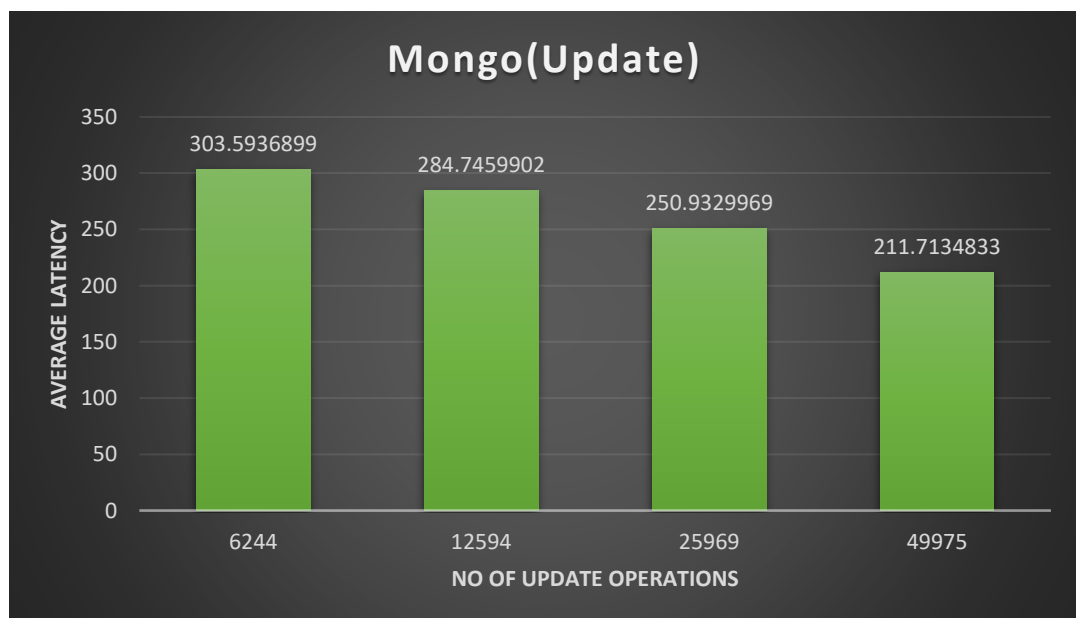
- Graph 2 shows the Average Latency for the read operations across all the workloads for Mongo DB. It can be seen that Latency decreases with the increase in the number of read operations.

- 2) Recorded Average Latency of record update operations for MySQL and Mongo across all number of read operations for all the workloads.



Graph 3

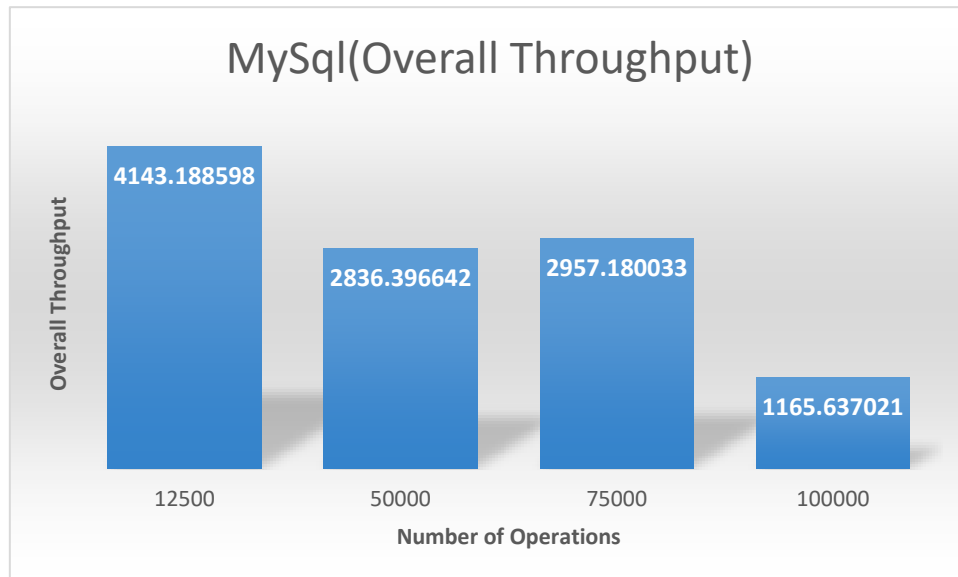
- Graph 3 shows the Average Latency for the update operations across all the workloads for MySQL. Unlike for the read operations, the average latency for the update operations show a gradual increase with the increase in the number of operations.



Graph 4

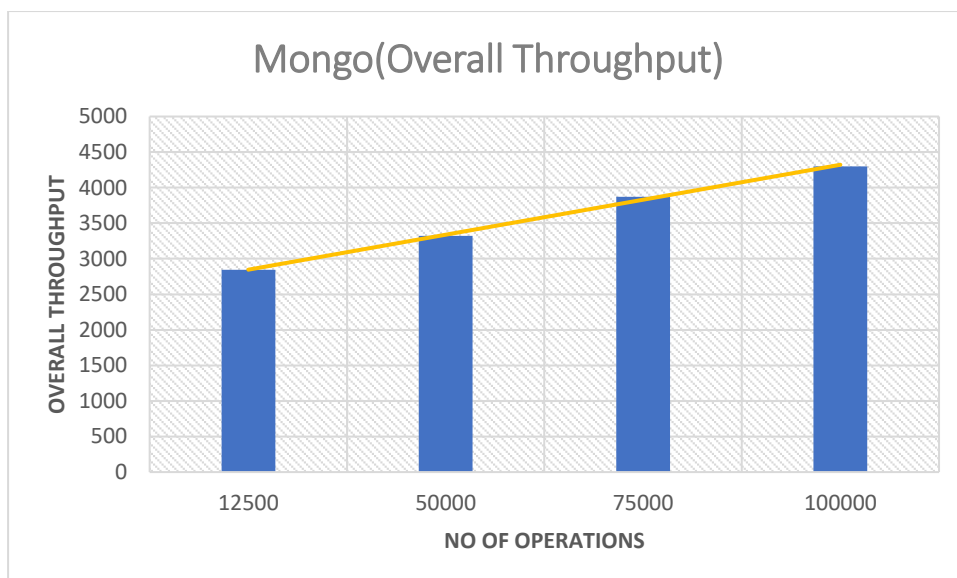
- Graph 4 shows the Average Latency for the update operations across all the workloads for Mongo DB. The average latency for the update operations show a gradual decrease with the increase in the number of operations.

- 3) Overall throughput against the total number of record operations for MySQL and MongoDB over all four workloads.



Graph 5

- Graph 5 shows the overall throughput for MySQL for total operations across all the workloads. Overall throughput shows no change for the operations 50,000 and 75000 and drops significantly for the workload with 100000 operations.



Graph 6

- Graph 6 shows the overall throughput for MongoDB for total operations across all the workloads. Unlike the throughput of MySQL, the Overall throughput shows a gradual increase with the increase in the total number of operations.

1)

- From the given output readings, it can be understood that there are no failed operations for across all the workloads for MySQL and Mongo DB.
- The product of overall throughput and runtime in seconds is equal to the total number of operations that are recorded for each workload.
- $\text{Total number of operations} = \text{Throughput}(\text{operations/second}) \times \text{Runtime}(\text{Seconds})$

2) Environment prerequisites for YCSB

- Databases to be used for benchmarking, MySQL and MongoDB in this case.
- Ubuntu operating system.
- Hadoop distributed file system.
- Latest version of JDK and Java SE Runtime environment.
- Databases and the required tables are required to be created to insert the workloads for YCSB benchmarking.