# Task - A1

No of Servers = 6 and shards = 4 , each shard has 3 replicas. For 10,000 Write requests:

Total time taken is 1428.0282044410706 seconds. Speed is 7.002811 requests per second.

For 10,000 Read requests:

Total time taken is 837.5015664100647 seconds. Speed is 11.947431 requests per second.

Configuration used:

{

"N": 6,

"schema": { "columns": ["Stud\_id","Stud\_name", "Stud\_marks"],

"dtypes": ["Number","String", "String"] },

"shards": [{"Stud\_id\_low": 0, "Shard\_id": "sh1", "Shard\_size": 4096},

{"Stud\_id\_low": 4096, "Shard\_id": "sh2","Shard\_size": 4096},

{"Stud\_id\_low": 8192, "Shard\_id": "sh3","Shard\_size": 4096},

{"Stud\_id\_low": 12288, "Shard\_id": "sh4","Shard\_size": 4096}],

"servers": {"Server0": ["sh1", "sh2"],

"Server1": ["sh3", "sh4"],

"Server2": ["sh1", "sh3"],

"Server3": ["sh4", "sh2"],

"Server4": ["sh1", "sh4"],

"Server5": ["sh3", "sh2"] }

}

# Task - A2

For 10,000 write requests:

Total time taken is 1887.2157386729 seconds. Speed is 5.2991190812 requests per second.

Write Speed down w.r.t Task 1 = 0.7 For 10,000 read requests:

Total time taken is 756.0694181919098 seconds.

Speed is 13.228035382326433 requests per second.

Read Speed up w.r.t Task 1 = 1.08

Configuration used:

{

"N": 7,

"schema": { "columns": ["Stud\_id","Stud\_name", "Stud\_marks"],

"dtypes": ["Number","String", "String"] },

"shards": [{"Stud\_id\_low": 0, "Shard\_id": "sh1", "Shard\_size": 4096},

{"Stud\_id\_low": 4096, "Shard\_id": "sh2","Shard\_size": 4096},

{"Stud\_id\_low": 8192, "Shard\_id": "sh3","Shard\_size": 4096},

{"Stud\_id\_low": 12288, "Shard\_id": "sh4","Shard\_size": 4096}],

"servers": {"Server0": ["sh1", "sh2", "sh3", "sh4"],

"Server1": ["sh1", "sh2", "sh3", "sh4"],

"Server2": ["sh1", "sh2", "sh3", "sh4"],

"Server3": ["sh1", "sh2", "sh3", "sh4"],

"Server4": ["sh1", "sh2", "sh3", "sh4"],

"Server5": ["sh1", "sh2", "sh3", "sh4"],

"Server6": ["sh1", "sh2", "sh3", "sh4"]}

}

# Task - A3

For 10,000 write requests:

Total time taken is 1228.44410706 seconds.

Speed is 8.143322475 requests per second.

Write speed up = 1.09

For 10,000 read requests

Total time taken is 687.5015664100647 seconds. Speed is 14.46731088027 requests per second.

Read speed up = 1.15

Configuration used:

{

"N": 10,

"schema": { "columns": ["Stud\_id","Stud\_name", "Stud\_marks"],

"dtypes": ["Number","String", "String"] },

"shards": [{"Stud\_id\_low": 0, "Shard\_id": "sh1", "Shard\_size": 2730},

{"Stud\_id\_low": 2730, "Shard\_id": "sh2","Shard\_size": 2730},

{"Stud\_id\_low": 5460, "Shard\_id": "sh3","Shard\_size": 2730},

{"Stud\_id\_low": 8190, "Shard\_id": "sh4","Shard\_size": 2730},

{"Stud\_id\_low": 10920, "Shard\_id": "sh5","Shard\_size": 2730},

{"Stud\_id\_low": 13650, "Shard\_id": "sh6","Shard\_size": 2730}],

"servers": {"Server0": ["sh1", "sh4", "sh5", "sh2", "sh6"],

"Server1": ["sh1", "sh2", "sh4", "sh5", "sh6"],

"Server2": ["sh1", "sh3", "sh4", "sh5", "sh6"],

"Server3": ["sh1", "sh3", "sh4", "sh5", "sh6"],

"Server4": ["sh1", "sh2", "sh3", "sh4", "sh6"],

"Server5": ["sh1", "sh2", "sh3", "sh4", "sh6"],

"Server6": ["sh1", "sh2", "sh3", "sh5", "sh4"],

"Server7": ["sh1", "sh2", "sh3", "sh5", "sh4"],

"Server8": ["sh5", "sh6", "sh2", "sh3"],

"Server9": ["sh5", "sh6", "sh2", "sh3"]}

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| --- | --- |
| } |  |