

Prerequisites:

Rides.csv was generated using generate_data.ipynb

This repository was used as a reference for mongo cluster:

<https://github.com/minhhungit/mongodb-cluster-docker-compose>

Step 1:

Starting the cluster using docker-compose up -d

```
D:\All_my_Code\University\Master\HL-2022\Lab-3>docker-compose up -d
[+] Running 14/14
 - Network lab_3_default      Created                                0.7s
 - Container shard-01-node-c   Started                             4.3s
 - Container shard-02-node-a   Started                            10.1s
 - Container mongo-config-01   Started                             5.2s
 - Container router-01         Started                             3.5s
 - Container shard-03-node-b   Started                             9.7s
 - Container mongo-config-02   Started                             8.0s
 - Container shard-02-node-b   Started                             5.9s
 - Container shard-03-node-a   Started                             6.2s
 - Container shard-02-node-c   Started                             4.1s
 - Container shard-03-node-c   Started                             9.0s
 - Container shard-01-node-b   Started                             9.7s
 - Container mongo-config-03   Started                             6.7s
 - Container shard-01-node-a   Started                             4.5s
```

Step 2:

Initializing shards one by one.

docker-compose exec configsvr01 sh -c "mongosh < /scripts/init-configserver.js"

```
D:\All_my_Code\University\Master\HL-2022\Lab-3>docker-compose exec configsvr01 sh -c "mongosh < /scripts/init-configserver.js"
Current Mongosh Log ID: 63c9922cccd348d4618e1ce6
Connecting to:      mongodb://127.0.0.1:27017/?directConnection=true&serverSelectionTimeoutMS=2000&appName=mongosh+1.5.4
Using MongoDB:      6.0.1
Using Mongosh:      1.5.4

For mongosh info see: https://docs.mongodb.com/mongodb-shell/

To help improve our products, anonymous usage data is collected and sent to MongoDB periodically (https://www.mongodb.com/legal/privacy-policy).
You can opt-out by running the disableTelemetry() command.

-----
The server generated these startup warnings when booting
2023-01-19T18:53:34.248+00:00: Using the XFS filesystem is strongly recommended with the WiredTiger storage engine. See http://dochub.mongodb.org/core/prodnotes-filesystem
2023-01-19T18:53:36.316+00:00: Access control is not enabled for the database. Read and write access to data and configuration is unrestricted
2023-01-19T18:53:36.316+00:00: /sys/kernel/mm/transparent_hugepage/enabled is 'always'. We suggest setting it to 'never'
2023-01-19T18:53:36.316+00:00: vm.max_map_count is too low
-----

Enable MongoDB's free cloud-based monitoring service, which will then receive and display
metrics about your deployment (disk utilization, CPU, operation statistics, etc).

The monitoring data will be available on a MongoDB website with a unique URL accessible to you
and anyone you share the URL with. MongoDB may use this information to make product
improvements and to suggest MongoDB products and deployment options to you.

To enable free monitoring, run the following command: db.enableFreeMonitoring()
To permanently disable this reminder, run the following command: db.disableFreeMonitoring()
-----

test> rs.initiate(
...   {
...     _id: "rs-config-server",
...     configsvr: true,
...     version: 1,
...     members: [
...       { _id: 0, host: "configsvr01:27017" },
...       { _id: 1, host: "configsvr02:27017" },
...       { _id: 2, host: "configsvr03:27017" }
...     ]
...   }
... )( { ok: 1, lastCommittedOpTime: Timestamp({ t: 1674154541, i: 1 }) } )
rs-config-server [direct: other] test>
D:\All_my_Code\University\Master\HL-2022\Lab-3>
```

docker-compose exec shard01-a sh -c "mongosh < /scripts/init-shard01.js"

```

D:\All_my_Code\University\Master\VL-2022\Lab-3>docker-compose exec shard01-a sh -c "mongosh < /scripts/init-shard01.js"
Current Mongosh Log ID: 63c9925b8dd252f8cd4759f6
Connecting to:      mongodb://127.0.0.1:27017/?directConnection=true&serverSelectionTimeoutMS=2000&appName=mongosh+1.5.4
Using MongoDB:      6.0.1
Using Mongosh:       1.5.4

For mongosh info see: https://docs.mongodb.com/mongod-shell/

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-----
The server generated these startup warnings when booting
2023-01-19T18:53:33.665+00:00: Using the XFS filesystem is strongly recommended with the WiredTiger storage engine. See http://dochub.mongodb.org/core/prodnotes-filesystem
2023-01-19T18:53:35.659+00:00: Access control is not enabled for the database. Read and write access to data and configuration is unrestricted
2023-01-19T18:53:35.660+00:00: /sys/kernel/mm/transparent_hugepage/enabled is 'always'. We suggest setting it to 'never'
2023-01-19T18:53:35.660+00:00: vm.max_map_count is too low
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To permanently disable this reminder, run the following command: db.disableFreeMonitoring()
-----

test> rs.initiate(
... {
...   _id: "rs-shard-01",
...   version: 1,
...   members: [
...     { _id: 0, host: "shard01-a:27017" },
...     { _id: 1, host: "shard01-b:27017" },
...     { _id: 2, host: "shard01-c:27017" },
...   ]
... }
... ){ ok: 1 }
rs-shard-01 [direct: other] test> )

```

docker-compose exec shard02-a sh -c "mongosh < /scripts/init-shard02.js"

```

D:\All_my_Code\University\Master\VL-2022\Lab-3>docker-compose exec shard02-a sh -c "mongosh < /scripts/init-shard02.js"
Current Mongosh Log ID: 63c9928c84f5ad3849fe3a18
Connecting to:      mongodb://127.0.0.1:27017/?directConnection=true&serverSelectionTimeoutMS=2000&appName=mongosh+1.5.4
Using MongoDB:      6.0.1
Using Mongosh:       1.5.4

For mongosh info see: https://docs.mongodb.com/mongod-shell/

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-----
The server generated these startup warnings when booting
2023-01-19T18:53:39.186+00:00: Using the XFS filesystem is strongly recommended with the WiredTiger storage engine. See http://dochub.mongodb.org/core/prodnotes-filesystem
2023-01-19T18:53:40.381+00:00: Access control is not enabled for the database. Read and write access to data and configuration is unrestricted
2023-01-19T18:53:40.381+00:00: /sys/kernel/mm/transparent_hugepage/enabled is 'always'. We suggest setting it to 'never'
2023-01-19T18:53:40.381+00:00: vm.max_map_count is too low
-----

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To enable free monitoring, run the following command: db.enableFreeMonitoring()
To permanently disable this reminder, run the following command: db.disableFreeMonitoring()
-----

test> rs.initiate(
... {
...   _id: "rs-shard-02",
...   version: 1,
...   members: [
...     { _id: 0, host: "shard02-a:27017" },
...     { _id: 1, host: "shard02-b:27017" },
...     { _id: 2, host: "shard02-c:27017" },
...   ]
... }
... ){ ok: 1 }
rs-shard-02 [direct: other] test> )

```

docker-compose exec shard03-a sh -c "mongosh < /scripts/init-shard03.js"

```
D:\All_my_Code\University\Master\HL-2022\Lab-3>docker-compose exec shard03-a sh -c "mongosh < /scripts/init-shard03.js"
Current Mongosh Log ID: 63c992a8300936b2cab514e9
Connecting to:      mongodb://127.0.0.1:27017/?directConnection=true&serverSelectionTimeoutMS=2000&appName=mongosh+1.5.4
Using MongoDB:      6.0.1
Using Mongosh:       1.5.4

For mongosh info see: https://docs.mongodb.com/mongodb-shell/

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-----
The server generated these startup warnings when booting
2023-01-19T18:53:35.460+00:00: Using the XFS filesystem is strongly recommended with the WiredTiger storage engine. See http://dochub.mongodb.org/core/prodnotes-filesystem
2023-01-19T18:53:37.282+00:00: Access control is not enabled for the database. Read and write access to data and configuration is unrestricted
2023-01-19T18:53:37.282+00:00: /sys/kernel/mm/transparent_hugepage/enabled is 'always'. We suggest setting it to 'never'
2023-01-19T18:53:37.282+00:00: vm.max_map_count is too low
-----

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To permanently disable this reminder, run the following command: db.disableFreeMonitoring()
-----

test> rs.initiate(
...  {
.....  _id: "rs-shard-03",
.....  version: 1,
.....  members: [
.....    { _id: 0, host: "shard03-a:27017" },
.....    { _id: 1, host: "shard03-b:27017" },
.....    { _id: 2, host: "shard03-c:27017" },
.....  ]
..... }
...){ ok: 1 }
rs-shard-03 [direct: other] test> )
```

Step 3:

Initializing router.

docker-compose exec router sh -c "mongosh < /scripts/init-router.js"

```
D:\All_my_Code\University\Master\HL-2022\Lab-3>docker-compose exec router sh -c "mongosh < /scripts/init-router.js"
Current Mongosh Log ID: 63c994a48c754f5119ca1fcc
Connecting to:      mongodb://127.0.0.1:27017/?directConnection=true&serverSelectionTimeoutMS=2000&appName=mongosh+1.5.4
Using MongoDB:      6.0.1
Using Mongosh:       1.5.4

For mongosh info see: https://docs.mongodb.com/mongodb-shell/

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You can opt-out by running the disableTelemetry() command.

-----
The server generated these startup warnings when booting
2023-01-19T19:04:53.977+00:00: Access control is not enabled for the database. Read and write access to data and configuration is unrestricted
-----

[direct: mongos] test> sh.addShard("rs-shard-01/shard01-a:27017")

[direct: mongos] test> sh.addShard("rs-shard-01/shard01-b:27017")
{
  shardAdded: 'rs-shard-01',
  ok: 1,
  '$clusterTime': {
    clusterTime: Timestamp({ t: 1674155172, i: 8 }),
    signature: {
      hash: Binary(Buffer.from("00000000000000000000000000000000", "hex"), 0),
      keyId: Long("0")
    }
  },
  operationTime: Timestamp({ t: 1674155172, i: 8 })
}
[direct: mongos] test> sh.addShard("rs-shard-01/shard01-c:27017")
{
  shardAdded: 'rs-shard-01',
  ok: 1,
  '$clusterTime': {
    clusterTime: Timestamp({ t: 1674155172, i: 8 }),
    signature: {
      hash: Binary(Buffer.from("00000000000000000000000000000000", "hex"), 0),
      keyId: Long("0")
    }
  },
  operationTime: Timestamp({ t: 1674155172, i: 8 })
}
[direct: mongos] test>
```

```

[direct: mongos] test> sh.addShard("rs-shard-02/shard02-a:27017")
{
  shardAdded: 'rs-shard-01',
  ok: 1,
  '$clusterTime': {
    clusterTime: Timestamp({ t: 1674155172, i: 8 }),
    signature: {
      hash: Binary(Buffer.from("0000000000000000000000000000000000000000", "hex"), 0),
      keyId: Long("0")
    }
  },
  operationTime: Timestamp({ t: 1674155172, i: 8 })
}
[direct: mongos] test> sh.addShard("rs-shard-02/shard02-b:27017")
{
  shardAdded: 'rs-shard-02',
  ok: 1,
  '$clusterTime': {
    clusterTime: Timestamp({ t: 1674155173, i: 8 }),
    signature: {
      hash: Binary(Buffer.from("0000000000000000000000000000000000000000", "hex"), 0),
      keyId: Long("0")
    }
  },
  operationTime: Timestamp({ t: 1674155173, i: 8 })
}
[direct: mongos] test> sh.addShard("rs-shard-02/shard02-c:27017")
{
  shardAdded: 'rs-shard-02',
  ok: 1,
  '$clusterTime': {
    clusterTime: Timestamp({ t: 1674155173, i: 8 }),
    signature: {
      hash: Binary(Buffer.from("0000000000000000000000000000000000000000", "hex"), 0),
      keyId: Long("0")
    }
  },
  operationTime: Timestamp({ t: 1674155173, i: 8 })
}
[direct: mongos] test>

[direct: mongos] test> sh.addShard("rs-shard-03/shard03-a:27017")
{
  shardAdded: 'rs-shard-02',
  ok: 1,
  '$clusterTime': {
    clusterTime: Timestamp({ t: 1674155173, i: 8 }),
    signature: {
      hash: Binary(Buffer.from("0000000000000000000000000000000000000000", "hex"), 0),
      keyId: Long("0")
    }
  },
  operationTime: Timestamp({ t: 1674155173, i: 8 })
}
[direct: mongos] test> sh.addShard("rs-shard-03/shard03-b:27017")
{
  shardAdded: 'rs-shard-03',
  ok: 1,
  '$clusterTime': {
    clusterTime: Timestamp({ t: 1674155173, i: 15 }),

```

Step 5:

Importing data

docker-compose exec router sh -c "mongosh < /scripts/enable-sharding.js"

```

D:\All_my_Code\University\Master\HL-2022\Lab-3>docker-compose exec router sh -c "mongosh < /scripts/enable-sharding.js"
Current Mongosh Log ID: 63c9952f199489fd3734a1f8
Connecting to:      mongodb://127.0.0.1:27017/?directConnection=true&serverSelectionTimeoutMS=2000&appName=mongosh+1.5.4
Using MongoDB:      6.0.1
Using Mongosh:       1.5.4

For mongosh info see: https://docs.mongodb.com/mongosh-shell/

-----
The server generated these startup warnings when booting
2023-01-19T19:04:53.977+00:00: Access control is not enabled for the database. Read and write access to data and configuration is unrestricted
-----

[direct: mongos] test> sh.enableSharding('taxi')

[direct: mongos] test> sh.shardCollection('taxi.rides', {start_latitude: "hashed"}){
  ok: 1,
  '$clusterTime': {
    clusterTime: Timestamp({ t: 1674155312, i: 5 }),
    signature: {
      hash: Binary(Buffer.from("00000000000000000000000000000000", "hex"), 0),
      keyId: Long("0")
    }
  },
  operationTime: Timestamp({ t: 1674155312, i: 3 })
}
[direct: mongos] test> {h.shardCollection('taxi.rides', {start_latitude: "hashed"})
collectionsharded: 'taxi.rides',
ok: 1,
'$clusterTime': {
  clusterTime: Timestamp({ t: 1674155314, i: 43 }),
  signature: {
    hash: Binary(Buffer.from("00000000000000000000000000000000", "hex"), 0),
    keyId: Long("0")
  }
},
operationTime: Timestamp({ t: 1674155314, i: 39 })
}
[direct: mongos] test> sh.shardCollection('taxi.rides', {start_latitude: "hashed"})

```

docker-compose exec router sh -c "mongoimport --port 27017 -d taxi -c rides --type csv --file rides.csv --headerline"

```

D:\All_my_Code\University\Master\HL-2022\Lab-3>docker-compose exec router sh -c "mongoimport --port 27017 -d taxi -c rides --type csv --file scripts/rides.csv --headerline"
2023-01-19T19:12:15.238+0000 connected to: mongodb://localhost:27017/
2023-01-19T19:12:18.239+0000 [.....] taxi.rides 5.06MB/745MB (0.7%)
2023-01-19T19:12:21.239+0000 [.....] taxi.rides 11.2MB/745MB (1.5%)
2023-01-19T19:12:24.238+0000 [.....] taxi.rides 17.4MB/745MB (2.3%)
2023-01-19T19:12:27.238+0000 [.....] taxi.rides 24.0MB/745MB (3.2%)
2023-01-19T19:12:30.239+0000 [.....] taxi.rides 30.3MB/745MB (4.1%)
2023-01-19T19:12:33.238+0000 [.....] taxi.rides 37.0MB/745MB (5.0%)
2023-01-19T19:12:36.238+0000 [.....] taxi.rides 43.9MB/745MB (5.9%)
2023-01-19T19:12:39.238+0000 [.....] taxi.rides 47.6MB/745MB (6.4%)
2023-01-19T19:12:42.238+0000 [.....] taxi.rides 51.9MB/745MB (7.0%)
2023-01-19T19:12:45.239+0000 [.....] taxi.rides 58.0MB/745MB (7.8%)
2023-01-19T19:12:48.239+0000 [##.....] taxi.rides 64.8MB/745MB (8.7%)
2023-01-19T19:12:51.239+0000 [###.....] taxi.rides 71.3MB/745MB (9.6%)
2023-01-19T19:12:54.239+0000 [####.....] taxi.rides 77.8MB/745MB (10.4%)
2023-01-19T19:12:57.239+0000 [#####.....] taxi.rides 84.3MB/745MB (11.3%)
2023-01-19T19:13:00.239+0000 [#####.....] taxi.rides 90.8MB/745MB (12.2%)
2023-01-19T19:13:03.239+0000 [#####.....] taxi.rides 97.3MB/745MB (13.1%)
2023-01-19T19:13:06.239+0000 [#####.....] taxi.rides 103.8MB/745MB (13.9%)
2023-01-19T19:13:09.239+0000 [#####.....] taxi.rides 110.3MB/745MB (14.8%)
2023-01-19T19:13:12.239+0000 [#####.....] taxi.rides 116.8MB/745MB (15.7%)
2023-01-19T19:13:15.239+0000 [#####.....] taxi.rides 123.3MB/745MB (16.6%)
2023-01-19T19:13:18.239+0000 [#####.....] taxi.rides 129.8MB/745MB (17.4%)
2023-01-19T19:13:21.239+0000 [#####.....] taxi.rides 136.3MB/745MB (18.3%)
2023-01-19T19:13:24.239+0000 [#####.....] taxi.rides 142.8MB/745MB (19.2%)
2023-01-19T19:13:27.239+0000 [#####.....] taxi.rides 149.3MB/745MB (20.0%)
2023-01-19T19:13:30.239+0000 [#####.....] taxi.rides 155.8MB/745MB (20.9%)
2023-01-19T19:13:33.239+0000 [#####.....] taxi.rides 162.3MB/745MB (21.8%)
2023-01-19T19:13:36.239+0000 [#####.....] taxi.rides 168.8MB/745MB (22.7%)
2023-01-19T19:13:39.239+0000 [#####.....] taxi.rides 175.3MB/745MB (23.5%)
2023-01-19T19:13:42.239+0000 [#####.....] taxi.rides 181.8MB/745MB (24.4%)
2023-01-19T19:13:45.239+0000 [#####.....] taxi.rides 188.3MB/745MB (25.3%)
2023-01-19T19:13:48.239+0000 [#####.....] taxi.rides 194.8MB/745MB (26.1%)
2023-01-19T19:13:51.239+0000 [#####.....] taxi.rides 201.3MB/745MB (27.0%)
2023-01-19T19:13:54.239+0000 [#####.....] taxi.rides 207.8MB/745MB (27.9%)
2023-01-19T19:13:57.239+0000 [#####.....] taxi.rides 214.3MB/745MB (28.7%)
2023-01-19T19:14:00.239+0000 [#####.....] taxi.rides 220.8MB/745MB (29.6%)
2023-01-19T19:14:03.239+0000 [#####.....] taxi.rides 227.3MB/745MB (30.5%)
2023-01-19T19:14:06.239+0000 [#####.....] taxi.rides 233.8MB/745MB (31.4%)
2023-01-19T19:14:09.239+0000 [#####.....] taxi.rides 240.3MB/745MB (32.3%)
2023-01-19T19:14:12.239+0000 [#####.....] taxi.rides 246.8MB/745MB (33.2%)
2023-01-19T19:14:15.239+0000 [#####.....] taxi.rides 253.3MB/745MB (34.0%)
2023-01-19T19:14:18.239+0000 [#####.....] taxi.rides 259.8MB/745MB (34.9%)
2023-01-19T19:14:21.239+0000 [#####.....] taxi.rides 266.3MB/745MB (35.8%)
2023-01-19T19:14:24.239+0000 [#####.....] taxi.rides 272.8MB/745MB (36.7%)
2023-01-19T19:14:27.239+0000 [#####.....] taxi.rides 279.3MB/745MB (37.6%)
2023-01-19T19:14:30.239+0000 [#####.....] taxi.rides 285.8MB/745MB (38.5%)
2023-01-19T19:14:33.239+0000 [#####.....] taxi.rides 292.3MB/745MB (39.4%)
2023-01-19T19:14:36.239+0000 [#####.....] taxi.rides 298.8MB/745MB (40.3%)
2023-01-19T19:14:39.239+0000 [#####.....] taxi.rides 305.3MB/745MB (41.1%)
2023-01-19T19:14:42.239+0000 [#####.....] taxi.rides 311.8MB/745MB (42.0%)
2023-01-19T19:14:45.239+0000 [#####.....] taxi.rides 318.3MB/745MB (42.9%)
2023-01-19T19:14:48.239+0000 [#####.....] taxi.rides 324.8MB/745MB (43.7%)
2023-01-19T19:14:51.239+0000 [#####.....] taxi.rides 331.3MB/745MB (44.6%)
2023-01-19T19:14:54.239+0000 [#####.....] taxi.rides 337.8MB/745MB (45.5%)
2023-01-19T19:14:57.239+0000 [#####.....] taxi.rides 344.3MB/745MB (46.4%)
2023-01-19T19:15:00.239+0000 [#####.....] taxi.rides 350.8MB/745MB (47.3%)
2023-01-19T19:15:03.239+0000 [#####.....] taxi.rides 357.3MB/745MB (48.1%)
2023-01-19T19:15:06.239+0000 [#####.....] taxi.rides 363.8MB/745MB (49.0%)
2023-01-19T19:15:09.239+0000 [#####.....] taxi.rides 370.3MB/745MB (49.9%)
2023-01-19T19:15:12.239+0000 [#####.....] taxi.rides 376.8MB/745MB (50.7%)
2023-01-19T19:15:15.239+0000 [#####.....] taxi.rides 383.3MB/745MB (51.6%)
2023-01-19T19:15:18.239+0000 [#####.....] taxi.rides 389.8MB/745MB (52.5%)
2023-01-19T19:15:21.239+0000 [#####.....] taxi.rides 396.3MB/745MB (53.4%)
2023-01-19T19:15:24.239+0000 [#####.....] taxi.rides 402.8MB/745MB (54.3%)
2023-01-19T19:15:27.239+0000 [#####.....] taxi.rides 409.3MB/745MB (55.1%)
2023-01-19T19:15:30.239+0000 [#####.....] taxi.rides 415.8MB/745MB (56.0%)
2023-01-19T19:15:33.239+0000 [#####.....] taxi.rides 422.3MB/745MB (56.9%)
2023-01-19T19:15:36.239+0000 [#####.....] taxi.rides 428.8MB/745MB (57.8%)
2023-01-19T19:15:39.239+0000 [#####.....] taxi.rides 435.3MB/745MB (58.7%)
2023-01-19T19:15:42.239+0000 [#####.....] taxi.rides 441.8MB/745MB (59.6%)
2023-01-19T19:15:45.239+0000 [#####.....] taxi.rides 448.3MB/745MB (60.4%)
2023-01-19T19:15:48.239+0000 [#####.....] taxi.rides 454.8MB/745MB (61.3%)
2023-01-19T19:15:51.239+0000 [#####.....] taxi.rides 461.3MB/745MB (62.2%)
2023-01-19T19:15:54.239+0000 [#####.....] taxi.rides 467.8MB/745MB (63.1%)
2023-01-19T19:15:57.239+0000 [#####.....] taxi.rides 474.3MB/745MB (63.9%)
2023-01-19T19:16:00.239+0000 [#####.....] taxi.rides 480.8MB/745MB (64.8%)
2023-01-19T19:16:03.239+0000 [#####.....] taxi.rides 487.3MB/745MB (65.7%)
2023-01-19T19:16:06.239+0000 [#####.....] taxi.rides 493.8MB/745MB (66.6%)
2023-01-19T19:16:09.239+0000 [#####.....] taxi.rides 500.3MB/745MB (67.5%)
2023-01-19T19:16:12.239+0000 [#####.....] taxi.rides 506.8MB/745MB (68.4%)
2023-01-19T19:16:15.239+0000 [#####.....] taxi.rides 513.3MB/745MB (69.3%)
2023-01-19T19:16:18.239+0000 [#####.....] taxi.rides 519.8MB/745MB (70.1%)
2023-01-19T19:16:21.239+0000 [#####.....] taxi.rides 526.3MB/745MB (71.0%)
2023-01-19T19:16:24.239+0000 [#####.....] taxi.rides 532.8MB/745MB (71.9%)
2023-01-19T19:16:27.239+0000 [#####.....] taxi.rides 539.3MB/745MB (72.8%)
2023-01-19T19:16:30.239+0000 [#####.....] taxi.rides 545.8MB/745MB (73.6%)
2023-01-19T19:16:33.239+0000 [#####.....] taxi.rides 552.3MB/745MB (74.5%)
2023-01-19T19:16:36.239+0000 [#####.....] taxi.rides 558.8MB/745MB (75.4%)
2023-01-19T19:16:39.239+0000 [#####.....] taxi.rides 565.3MB/745MB (76.3%)
2023-01-19T19:16:42.239+0000 [#####.....] taxi.rides 571.8MB/745MB (77.1%)
2023-01-19T19:16:45.239+0000 [#####.....] taxi.rides 578.3MB/745MB (78.0%)
2023-01-19T19:16:48.239+0000 [#####.....] taxi.rides 584.8MB/745MB (78.9%)
2023-01-19T19:16:51.239+0000 [#####.....] taxi.rides 591.3MB/745MB (79.8%)
2023-01-19T19:16:54.239+0000 [#####.....] taxi.rides 597.8MB/745MB (80.6%)
2023-01-19T19:16:57.239+0000 [#####.....] taxi.rides 604.3MB/745MB (81.5%)
2023-01-19T19:17:00.239+0000 [#####.....] taxi.rides 610.8MB/745MB (82.4%)
2023-01-19T19:17:03.239+0000 [#####.....] taxi.rides 617.3MB/745MB (83.3%)
2023-01-19T19:17:06.239+0000 [#####.....] taxi.rides 623.8MB/745MB (84.1%)
2023-01-19T19:17:09.239+0000 [#####.....] taxi.rides 630.3MB/745MB (85.0%)
2023-01-19T19:17:12.239+0000 [#####.....] taxi.rides 636.8MB/745MB (85.9%)
2023-01-19T19:17:15.239+0000 [#####.....] taxi.rides 643.3MB/745MB (86.8%)
2023-01-19T19:17:18.239+0000 [#####.....] taxi.rides 649.8MB/745MB (87.6%)
2023-01-19T19:17:21.239+0000 [#####.....] taxi.rides 656.3MB/745MB (88.5%)
2023-01-19T19:17:24.239+0000 [#####.....] taxi.rides 662.8MB/745MB (89.4%)
2023-01-19T19:17:27.239+0000 [#####.....] taxi.rides 669.3MB/745MB (90.3%)
2023-01-19T19:17:30.239+0000 [#####.....] taxi.rides 675.8MB/745MB (91.1%)
2023-01-19T19:17:33.239+0000 [#####.....] taxi.rides 682.3MB/745MB (92.0%)
2023-01-19T19:17:36.239+0000 [#####.....] taxi.rides 688.8MB/745MB (92.9%)
2023-01-19T19:17:39.239+0000 [#####.....] taxi.rides 695.3MB/745MB (93.8%)
2023-01-19T19:17:42.239+0000 [#####.....] taxi.rides 701.8MB/745MB (94.6%)
2023-01-19T19:17:45.239+0000 [#####.....] taxi.rides 708.3MB/745MB (95.5%)
2023-01-19T19:17:48.239+0000 [#####.....] taxi.rides 714.8MB/745MB (96.4%)
2023-01-19T19:17:51.239+0000 [#####.....] taxi.rides 721.3MB/745MB (97.3%)
2023-01-19T19:17:54.239+0000 [#####.....] taxi.rides 727.8MB/745MB (98.1%)
2023-01-19T19:17:57.239+0000 [#####.....] taxi.rides 734.3MB/745MB (99.0%)
2023-01-19T19:18:00.239+0000 [#####.....] taxi.rides 740.8MB/745MB (99.9%)
2023-01-19T19:18:03.239+0000 [#####.....] taxi.rides 747.3MB/745MB (100.0%)
2023-01-19T19:18:06.239+0000 [#####.....] taxi.rides 753.8MB/745MB (100.0%)
2023-01-19T19:18:09.239+0000 [#####.....] taxi.rides 760.3MB/745MB (100.0%)
2023-01-19T19:18:12.239+0000 [#####.....] taxi.rides 766.8MB/745MB (100.0%)
2023-01-19T19:18:15.239+0000 [#####.....] taxi.rides 773.3MB/745MB (100.0%)
2023-01-19T19:18:18.239+0000 [#####.....] taxi.rides 779.8MB/745MB (100.0%)
2023-01-19T19:18:21.239+0000 [#####.....] taxi.rides 786.3MB/745MB (100.0%)
2023-01-19T19:18:24.239+0000 [#####.....] taxi.rides 792.8MB/745MB (100.0%)
2023-01-19T19:18:27.239+0000 [#####.....] taxi.rides 799.3MB/745MB (100.0%)
2023-01-19T19:18:30.239+0000 [#####.....] taxi.rides 805.8MB/745MB (100.0%)
2023-01-19T19:18:33.239+0000 [#####.....] taxi.rides 812.3MB/745MB (100.0%)
2023-01-19T19:18:36.239+0000 [#####.....] taxi.rides 818.8MB/745MB (100.0%)
2023-01-19T19:18:39.239+0000 [#####.....] taxi.rides 825.3MB/745MB (100.0%)
2023-01-19T19:18:42.239+0000 [#####.....] taxi.rides 831.8MB/745MB (100.0%)
2023-01-19T19:18:45.239+0000 [#####.....] taxi.rides 838.3MB/745MB (100.0%)
2023-01-19T19:18:48.239+0000 [#####.....] taxi.rides 844.8MB/745MB (100.0%)
2023-01-19T19:18:51.239+0000 [#####.....] taxi.rides 851.3MB/745MB (100.0%)
2023-01-19T19:18:54.239+0000 [#####.....] taxi.rides 857.8MB/745MB (100.0%)
2023-01-19T19:18:57.239+0000 [#####.....] taxi.rides 864.3MB/745MB (100.0%)
2023-01-19T19:19:00.239+0000 [#####.....] taxi.rides 870.8MB/745MB (100.0%)
2023-01-19T19:19:03.239+0000 [#####.....] taxi.rides 877.3MB/745MB (100.0%)
2023-01-19T19:19:06.239+0000 [#####.....] taxi.rides 883.8MB/745MB (100.0%)
2023-01-19T19:19:09.239+0000 [#####.....] taxi.rides 890.3MB/745MB (100.0%)
2023-01-19T19:19:12.239+0000 [#####.....] taxi.rides 896.8MB/745MB (100.0%)
2023-01-19T19:19:15.239+0000 [#####.....] taxi.rides 903.3MB/745MB (100.0%)
2023-01-19T19:19:18.239+0000 [#####.....] taxi.rides 909.8MB/745MB (100.0%)
2023-01-19T19:19:21.239+0000 [#####.....] taxi.rides 916.3MB/745MB (100.0%)
2023-01-19T19:19:24.239+0000 [#####.....] taxi.rides 922.8MB/745MB (100.0%)
2023-01-19T19:19:27.239+0000 [#####.....] taxi.rides 929.3MB/745MB (100.0%)
2023-01-19T19:19:30.239+0000 [#####.....] taxi.rides 935.8MB/745MB (100.0%)
2023-01-19T19:19:33.239+0000 [#####.....] taxi.rides 942.3MB/745MB (100.0%)
2023-01-19T19:19:36.239+0000 [#####.....] taxi.rides 948.8MB/745MB (100.0%)
2023-01-19T19:19:39.239+0000 [#####.....] taxi.rides 955.3MB/745MB (100.0%)
2023-01-19T19:19:42.239+0000 [#####.....] taxi.rides 961.8MB/745MB (100.0%)
2023-01-19T19:19:45.239+0000 [#####.....] taxi.rides 968.3MB/745MB (100.0%)
2023-01-19T19:19:48.239+0000 [#####.....] taxi.rides 974.8MB/745MB (100.0%)
2023-01-19T19:19:51.239+0000 [#####.....] taxi.rides 981.3MB/745MB (100.0%)
2023-01-19T19:19:54.239+0000 [#####.....] taxi.rides 987.8MB/745MB (100.0%)
2023-01-19T19:19:57.239+0000 [#####.....] taxi.rides 994.3MB/745MB (100.0%)
2023-01-19T19:20:00.239+0000 [#####.....] taxi.rides 1000.8MB/745MB (100.0%)
2023-01-19T19:20:03.239+0000 [#####.....] taxi.rides 1007.3MB/745MB (100.0%)
2023-01-19T19:20:06.239+0000 [#####.....] taxi.rides 1013.8MB/745MB (100.0%)
2023-01-19T19:20:09.239+0000 [#####.....] taxi.rides 1020.3MB/745MB (100.0%)
2023-01-19T19:20:12.239+0000 [#####.....] taxi.rides 1026.8MB/745MB (100.0%)
2023-01-19T19:20:15.239+0000 [#####.....] taxi.rides 1033.3MB/745MB (100.0%)
2023-01-19T19:20:18.239+0000 [#####.....] taxi.rides 1039.8MB/745MB (100.0%)
2023-01-19T19:20:21.239+0000 [#####.....] taxi.rides 1046.3MB/745MB (100.0%)
2023-01-19T19:20:24.239+0000 [#####.....] taxi.rides 1052.8MB/745MB (100.0%)
2023-01-19T19:20:27.239+0000 [#####.....] taxi.rides 1059.3MB/745MB (100.0%)
2023-01-19T19:20:30.239+0000 [#####.....] taxi.rides 1065.8MB/745MB (100.0%)
2023-01-19T19:20:33.239+0000 [#####.....] taxi.rides 1072.3MB/745MB (100.0%)
2023-01-19T19:20:36.239+0000 [#####.....] taxi.rides 1078.8MB/745MB (100.0%)
2023-01-19T19:20:39.239+0000 [#####.....] taxi.rides 1085.3MB/745MB (100.0%)
2023-01-19T19:20:42.239+0000 [#####.....] taxi.rides 1091.8MB/745MB (100.0%)
2023-01-19T19:20:45.239+0000 [#####.....] taxi.rides 1098.3MB/745MB (100.0%)
2023-01-19T19:20:48.239+0000 [#####.....] taxi.rides 1104.8MB/745MB (100.0%)
2023-01-19T19:20:51.239+0000 [#####.....] taxi.rides 1111.3MB/745MB (100.0%)
2023-01-19T19:20:54.239+0000 [#####.....] taxi.rides 1117.8MB/745MB (100.0%)
2023-01-19T19:20:57.239+0000 [#####.....] taxi.rides 1124.3MB/745MB (100.0%)
2023-01-19T19:21:00.239+0000 [#####.....] taxi.rides 1130.8MB/745MB (100.0%)
2023-01-19T19:21:03.239+0000 [#####.....] taxi.rides 1137.3MB/745MB (100.0%)
2023-01-19T19:21:06.239+0000 [#####.....] taxi.rides 1143.8MB/745MB (100.0%)
2023-01-19T19:21:09.239+0000 [#####.....] taxi.rides 1150.3MB/745MB (100.0%)
2023-01-19T19:21:12.239+0000 [#####.....] taxi.rides 1156.8MB/745MB (100.0%)
2023-01-19T19:21:15.239+0000 [#####.....] taxi.rides 1163.3MB/745MB (100.0%)
2023-01-19T19:21:18.239+0000 [#####.....] taxi.rides 1169.8MB/745MB (100.0%)
2023-01-19T19:21:21.239+0000 [#####.....] taxi.rides 1176.3MB/745MB (100.0%)
2023-01-19T19:21:24.239+0000 [#####.....] taxi.rides 1182.8MB/745MB (100.0%)
2023-01-19T19:21:27.239+0000 [#####.....] taxi.rides 1189.3MB/745MB (100.0%)
2023-01-19T19:21:30.239+0000 [#####.....] taxi.rides 1195.8MB/745MB (100.0%)
2023-01-19T19:21:33.239+0000 [#####.....] taxi.rides 1202.3MB/745MB (100.0%)
2023-01-19T19:21:36.239+0000 [#####.....] taxi.rides 1208.8MB/745MB (100.0%)
2023-01-19T19:21:39.239+0000 [#####.....] taxi.rides 1215.3MB/745MB (100.0%)
2023-01-19T19:21:42.239+0000 [#####.....] taxi.rides 1221.8MB/745MB (100.0%)
2023-01-19T19:21:45.239+0000 [#####.....] taxi.rides 1228.3MB/745MB (100.0%)
2023-01-19T19:21:48.239+0000 [#####.....] taxi.rides 1234.8MB/745MB (100.0%)
2023-01-19T19:21:51.239+0000 [#####.....] taxi.rides 1241.3MB/745MB (100.0%)
2023-01-19T19:21:54.239+0000 [#####.....] taxi.rides 1247.8MB/745MB (100.0%)
2023-01-19T19:21:57.239+0000 [#####.....] taxi.rides 1254.3MB/745MB (100.0%)
2023-01-19T19:22:00.239+0000 [#####.....] taxi.rides 1260.8MB/745MB (100.0%)
2023-01-19T19:22:03.239+0000 [#####.....] taxi.rides 1267.3MB/745MB (100.0%)
2023-01-19T19:22:06.239+0000 [#####.....] taxi.rides 1273.8MB/745MB (100.0%)
2023-01-19T19:22:09.239+0000 [#####.....] taxi.rides 1280.3MB/745MB (100.0%)
2023-01-19T19:22:12.239+0000 [#####.....] taxi.rides 1286.8MB/745MB (100.0%)
2023-01-19T19:22:15.239+0000 [#####.....] taxi.rides 1293.3MB/745MB (100.0%)
2023-01-19T19:22:18.239+0000 [#####.....] taxi.rides 1300.8MB/745MB (100.0%)
2023-01-19T19:22:21.239+0000 [#####.....] taxi.rides 1307.3MB/745MB (100.0%)
2023-01-19T19:22:24.239+0000 [#####.....] taxi.rides 1313.8MB/745MB (100.0%)
2023-01-19T19:22:27.239+0000 [#####.....] taxi.rides 1320.3MB/745MB (100.0%)
2023-01-19T19:22:30.239+0000 [#####.....] taxi.rides 1326.8MB/745MB (100.0%)
2023-01-19T19:22:33.239+0000 [#####.....] taxi.rides 1333.3MB/745MB (100.0%)
2023-01-19T19:22:36.239+0000 [#####.....] taxi.rides 1339.8MB/745MB (100.0%)
2023-01-19T19:22:39.239+0000 [#####.....] taxi.rides 1346.3MB/745MB (100.0%)
2023-01-19T19:22:42.239+0000 [#####.....] taxi.rides 1352.8MB/745MB (100.0%)
2023-01-19T19:22:45.239+0000 [#####.....] taxi.rides 1359.3MB/745MB (100.0%)
2023-01-19T19:22:48.239+0000 [#####.....] taxi.rides 1365.8MB/745MB (100.0%)
2023-01-19T19:22:51.239+000
```

```
[direct: mongos] taxi> DBQuery.shellBatchSize 100
[direct: mongos] taxi>
DeprecationWarning: DBQuery.shellBatchSize is deprecated
[direct: mongos] taxi> agg_base = db.rides.aggregate(
[direct: mongos] taxi> {
...   { '$group': { '_id':
...     { '$sort': { 'driver_avg_rate': -1 },
...     { '$limit': 50 },
...     { '$match': {'start_avg_time': null } }
...   })
...
... [
...   {
...     _id: 2162,
...     driver_avg_rate: 3.851272015655577,
...     start_avg_time: null
...   },
...   {
...     _id: 2365,
...     driver_avg_rate: 3.8245283018867924,
...     start_avg_time: null
...   },
...   {
...     _id: 1065,
...     driver_avg_rate: 3.812962962962963,
...     start_avg_time: null
...   },
...   {
...     _id: 2085,
...     driver_avg_rate: 3.801556420233463,
...     start_avg_time: null
...   },
...   {
...     _id: 932,
...     driver_avg_rate: 3.795066413662239,
...     start_avg_time: null
...   },
...   {
...     _id: 388,
...     driver_avg_rate: 3.7941787941787943,
...     start_avg_time: null
...   },
...   {
...     _id: 1903,
...     driver_avg_rate: 3.7864271457085827,
...     start_avg_time: null
...   },
...   {
...     _id: 1559,
...     driver_avg_rate: 3.7855750487329436,
...     start_avg_time: null
...   },
...   {
...     _id: 2455,
...     driver_avg_rate: 3.784499054820416,
...     start_avg_time: null
...   },
...   {
...     _id: 2108, driver_avg_rate: 3.78125, start_avg_time: null },
...   {
...     _id: 2083,
...     driver_avg_rate: 3.78019801980198,
...     start_avg_time: null
...   },
...   {
...     _id: 904,
...     driver_avg_rate: 3.774074074074074,
...     start_avg_time: null
...   },
...   {
...     _id: 1107,
...     driver_avg_rate: 3.774011299435028,
...     start_avg_time: null
...   },
...   {
...     _id: 344,
...     driver_avg_rate: 3.773062730627306,
...     start_avg_time: null
...   },
...   {
...     _id: 187,
...     driver_avg_rate: 3.769662921348315,
...     start_avg_time: null
...   },
...   {
...     _id: 1199,
...     driver_avg_rate: 3.7685185185185186,
...     start_avg_time: null
...   },
...   {
...     _id: 486,
...     driver_avg_rate: 3.7681728880157173,
...     start_avg_time: null
...   },
...   {
...     _id: 900,
...     driver_avg_rate: 3.766990291262136,
...     start_avg_time: null
...   },
... ]
[direct: mongos] taxi>
```