

1) docker-compose up -d

```
university@vsysdorskyi-System-Product-Name:~/mongo/lab3$ docker-compose up -d
Creating network "lab3_default" with the default driver
Pulling shard02-a (mongo:4.0)...
4.0: Pulling from library/mongo
be8ec4e48d7f: Pull complete
33b8b485aff0: Pull complete
d887158cc58c: Pull complete
05895bb28c18: Pull complete
554956c5520b: Pull complete
1129bf37b6f0: Pull complete
0a961c831444: Pull complete
002e342bfc39: Pull complete
280988dec1a3: Pull complete
61d8211e21fa: Pull complete
64495f90b8bc: Pull complete
8062028ffe44: Pull complete
210a8bc6d1f9: Pull complete
Digest: sha256:3f9486460ebe5814efb763e0986861f3bf1346ae186f2a246ee35e7e9bf964d6
Status: Downloaded newer image for mongo:4.0
Creating shard-02-node-a ...
Creating shard-01-node-c ...
Creating shard-02-node-c ...
Creating shard-01-node-a ...
Creating shard-03-node-c ...
Creating shard-02-node-a ...
Creating shard-02-node-b ...
Creating mongo-config-02 ...
Creating shard-01-node-c ...
Creating router-02 ...
Creating shard-02-node-c ...
Creating shard-01-node-b ...
Creating router-01 ...
Creating shard-01-node-a ...
Creating shard-03-node-c ...
Creating shard-03-node-b ...
Creating mongo-config-03 ...
Creating mongo-config-01 ...
Creating shard-02-node-b ...
Creating mongo-config-02 ...
Creating router-02 ...
Creating shard-03-node-a ...
Creating router-01 ...
Creating shard-01-node-b ...
Creating mongo-config-01 ...
Creating shard-03-node-b ...
Creating mongo-config-03 ...
Creating shard-03-node-c ... done
```

2) sudo sh init\_rs.sh

```

university@vsysdorskyi-System-Product-Name:~/mongo/lab3$ sudo sh init_rs.sh
MongoDB shell version v4.0.21
connecting to: mongodb://127.0.0.1:27017/?gssapiServiceName=mongodb
Implicit session: session { "id" : UUID("3c08a22c-a076-4fc0-a914-b70d9c0b4622") }
MongoDB server version: 4.0.21
{
  "ok" : 1,
  "operationTime" : Timestamp(1608395994, 1),
  "$gleStats" : {
    "lastOpTime" : Timestamp(1608395994, 1),
    "electionId" : ObjectId("000000000000000000000000")
  },
  "lastCommittedOpTime" : Timestamp(0, 0),
  "$clusterTime" : {
    "clusterTime" : Timestamp(1608395994, 1),
    "signature" : {
      "hash" : BinData(0,"AAAAAAAAAAAAAAAAAAAAAAAAAAAA="),
      "keyId" : NumberLong(0)
    }
  }
}
bye
MongoDB shell version v4.0.21
connecting to: mongodb://127.0.0.1:27017/?gssapiServiceName=mongodb
Implicit session: session { "id" : UUID("5155b8a7-7c9f-4261-8d43-11e371b4193e") }
MongoDB server version: 4.0.21
{
  "ok" : 1,
  "operationTime" : Timestamp(1608395995, 1),
  "$clusterTime" : {
    "clusterTime" : Timestamp(1608395995, 1),
    "signature" : {
      "hash" : BinData(0,"AAAAAAAAAAAAAAAAAAAAAAAAAAAA="),
      "keyId" : NumberLong(0)
    }
  }
}
bye
MongoDB shell version v4.0.21
connecting to: mongodb://127.0.0.1:27017/?gssapiServiceName=mongodb
Implicit session: session { "id" : UUID("e4ce97ac-72ae-4f3e-858a-985af395208b") }
MongoDB server version: 4.0.21
{
  "ok" : 1,
  "operationTime" : Timestamp(1608395996, 1),
  "$clusterTime" : {
    "clusterTime" : Timestamp(1608395996, 1),
    "signature" : {
      "hash" : BinData(0,"AAAAAAAAAAAAAAAAAAAAAAAAAAAA="),
      "keyId" : NumberLong(0)
    }
  }
}

```

```

MongoDB shell version v4.0.21
connecting to: mongodb://127.0.0.1:27017/?gssapiServiceName=mongodb
Implicit session: session { "id" : UUID("5155b8a7-7c9f-4261-8d43-11e371b4193e") }
MongoDB server version: 4.0.21
{
  "ok" : 1,
  "operationTime" : Timestamp(1608395995, 1),
  "$clusterTime" : {
    "clusterTime" : Timestamp(1608395995, 1),
    "signature" : {
      "hash" : BinData(0,"AAAAAAAAAAAAAAAAAAAAAAAAAAAA="),
      "keyId" : NumberLong(0)
    }
  }
}
bye
MongoDB shell version v4.0.21
connecting to: mongodb://127.0.0.1:27017/?gssapiServiceName=mongodb
Implicit session: session { "id" : UUID("e4ce97ac-72ae-4f3e-858a-985af395208b") }
MongoDB server version: 4.0.21
{
  "ok" : 1,
  "operationTime" : Timestamp(1608395996, 1),
  "$clusterTime" : {
    "clusterTime" : Timestamp(1608395996, 1),
    "signature" : {
      "hash" : BinData(0,"AAAAAAAAAAAAAAAAAAAAAAAAAAAA="),
      "keyId" : NumberLong(0)
    }
  }
}
bye
MongoDB shell version v4.0.21
connecting to: mongodb://127.0.0.1:27017/?gssapiServiceName=mongodb
Implicit session: session { "id" : UUID("e5d7c99e-ed41-4676-8d14-763da5199303") }
MongoDB server version: 4.0.21
{
  "ok" : 1,
  "operationTime" : Timestamp(1608395997, 1),
  "$clusterTime" : {
    "clusterTime" : Timestamp(1608395997, 1),
    "signature" : {
      "hash" : BinData(0,"AAAAAAAAAAAAAAAAAAAAAAAAAAAA="),
      "keyId" : NumberLong(0)
    }
  }
}
bye

```

3) docker-compose exec router01 sh -c "mongo < .scripts/init-router.js"

```

university@vvsydorskyi-System-Product-Name:~/mongo/lab3$ docker-compose exec router01 sh -c "mongo < /scripts/init-router.js"
MongoDB shell version v4.0.21
connecting to: mongod://127.0.0.1:27017/?gssapiServiceName=mongod
Implicit session: session { "id" : UUID("b4860391-8025-4f71-a82a-3e0eb2b7582c") }
MongoDB server version: 4.0.21
{
  "shardAdded" : "rs-shard-01",
  "ok" : 1,
  "operationTime" : Timestamp(1608396092, 8),
  "$clusterTime" : {
    "clusterTime" : Timestamp(1608396092, 8),
    "signature" : {
      "hash" : BinData(0,"AAAAAAAAAAAAAAAAAAAAAAAAAAAA="),
      "keyId" : NumberLong(0)
    }
  }
}
{
  "shardAdded" : "rs-shard-01",
  "ok" : 1,
  "operationTime" : Timestamp(1608396092, 8),
  "$clusterTime" : {
    "clusterTime" : Timestamp(1608396092, 8),
    "signature" : {
      "hash" : BinData(0,"AAAAAAAAAAAAAAAAAAAAAAAAAAAA="),
      "keyId" : NumberLong(0)
    }
  }
}
{
  "shardAdded" : "rs-shard-01",
  "ok" : 1,
  "operationTime" : Timestamp(1608396092, 8),
  "$clusterTime" : {
    "clusterTime" : Timestamp(1608396092, 8),
    "signature" : {
      "hash" : BinData(0,"AAAAAAAAAAAAAAAAAAAAAAAAAAAA="),
      "keyId" : NumberLong(0)
    }
  }
}
{
  "shardAdded" : "rs-shard-02",
  "ok" : 1,
  "operationTime" : Timestamp(1608396092, 14),
  "$clusterTime" : {
    "clusterTime" : Timestamp(1608396092, 14),
    "signature" : {
      "hash" : BinData(0,"AAAAAAAAAAAAAAAAAAAAAAAAAAAA="),
      "keyId" : NumberLong(0)
    }
  }
}

```



```

    }
  }
  {
    "shardAdded" : "rs-shard-02",
    "ok" : 1,
    "operationTime" : Timestamp(1608396092, 14),
    "$clusterTime" : {
      "clusterTime" : Timestamp(1608396092, 14),
      "signature" : {
        "hash" : BinData(0,"AAAAAAAAAAAAAAAAAAAAAAAAAAAA="),
        "keyId" : NumberLong(0)
      }
    }
  }
  {
    "shardAdded" : "rs-shard-03",
    "ok" : 1,
    "operationTime" : Timestamp(1608396092, 20),
    "$clusterTime" : {
      "clusterTime" : Timestamp(1608396092, 20),
      "signature" : {
        "hash" : BinData(0,"AAAAAAAAAAAAAAAAAAAAAAAAAAAA="),
        "keyId" : NumberLong(0)
      }
    }
  }
  {
    "shardAdded" : "rs-shard-03",
    "ok" : 1,
    "operationTime" : Timestamp(1608396092, 20),
    "$clusterTime" : {
      "clusterTime" : Timestamp(1608396092, 20),
      "signature" : {
        "hash" : BinData(0,"AAAAAAAAAAAAAAAAAAAAAAAAAAAA="),
        "keyId" : NumberLong(0)
      }
    }
  }
  {
    "shardAdded" : "rs-shard-03",
    "ok" : 1,
    "operationTime" : Timestamp(1608396092, 20),
    "$clusterTime" : {
      "clusterTime" : Timestamp(1608396092, 20),
      "signature" : {
        "hash" : BinData(0,"AAAAAAAAAAAAAAAAAAAAAAAAAAAA="),
        "keyId" : NumberLong(0)
      }
    }
  }
}
bye

```

4) generate rides data using London\_postcodes.csv

```

university@vsysdorskyi-System-Product-Name:~/mongo/lab3$ ls -lh data
total 786M
drwxr-xr-x 2 root root 4,0K rpy 19 18:38 configdb
drwxr-xr-x 2 root root 4,0K rpy 19 18:38 db
-rw-r--r-- 1 root root 786M rpy 19 19:18 rides.csv

```

5) sudo sh import\_and\_query\_data.sh

```

MongoDB shell version v4.0.21
connecting to: mongod://127.0.0.1:27017/?gssapiServiceName=mongod
Implicit session: session { "id" : UUID("972f6bd6-efca-4336-a578-e086ae3c9f17") }
MongoDB server version: 4.0.21
{
  "ok" : 1,
  "operationTime" : Timestamp(1608398413, 5),
  "$clusterTime" : {
    "clusterTime" : Timestamp(1608398413, 5),
    "signature" : {
      "hash" : BinData(0,"AAAAAAAAAAAAAAAAAAAAAAAAAAAA="),
      "keyId" : NumberLong(0)
    }
  }
}
{
  "collectionsSharded" : "taxi.rides",
  "collectionUUID" : UUID("28d2475d-3de4-4b75-a379-ab183e8be668"),
  "ok" : 1,
  "operationTime" : Timestamp(1608398413, 49),
  "$clusterTime" : {
    "clusterTime" : Timestamp(1608398413, 49),
    "signature" : {
      "hash" : BinData(0,"AAAAAAAAAAAAAAAAAAAAAAAAAAAA="),
      "keyId" : NumberLong(0)
    }
  }
}
bye
2020-12-19T17:20:14.583+0000    connected to: localhost:27017
2020-12-19T17:20:17.582+0000    [.....] taxi.rides    13.1MB/785MB (1.7%)
2020-12-19T17:20:20.582+0000    [.....] taxi.rides    26.2MB/785MB (3.3%)
2020-12-19T17:23:50.582+0000    [#####] taxi.rides    676MB/785MB (86.1%)
2020-12-19T17:23:53.582+0000    [#####] taxi.rides    684MB/785MB (87.1%)
2020-12-19T17:23:56.582+0000    [#####] taxi.rides    695MB/785MB (88.5%)
2020-12-19T17:23:59.582+0000    [#####] taxi.rides    707MB/785MB (90.0%)
2020-12-19T17:24:02.582+0000    [#####] taxi.rides    718MB/785MB (91.4%)
2020-12-19T17:24:05.582+0000    [#####] taxi.rides    730MB/785MB (92.9%)
2020-12-19T17:24:08.582+0000    [#####] taxi.rides    742MB/785MB (94.5%)
2020-12-19T17:24:11.582+0000    [#####] taxi.rides    755MB/785MB (96.1%)
2020-12-19T17:24:14.582+0000    [#####] taxi.rides    768MB/785MB (97.8%)
2020-12-19T17:24:17.582+0000    [#####] taxi.rides    781MB/785MB (99.4%)
2020-12-19T17:24:18.645+0000    [#####] taxi.rides    785MB/785MB (100.0%)
2020-12-19T17:24:18.645+0000    imported 5000000 documents
MongoDB shell version v4.0.21
connecting to: mongod://127.0.0.1:27017/?gssapiServiceName=mongod
Implicit session: session { "id" : UUID("3cb82189-fe25-43e6-be74-16381b522b34") }
MongoDB server version: 4.0.21
switched to db taxi
100
bye

```

6) docker-compose down -v --rmi all --remove-orphans

```
university@vsydorskyi-System-Product-Name:~/mongo/lab3$ docker-compose down -v --rmi all --remove-orphans
Stopping shard-03-node-a ... done
Stopping shard-03-node-b ... done
Stopping mongo-config-03 ... done
Stopping mongo-config-01 ... done
Stopping shard-01-node-b ... done
Stopping router-01 ... done
Stopping router-02 ... done
Stopping mongo-config-02 ... done
Stopping shard-02-node-b ... done
Stopping shard-03-node-c ... done
Stopping shard-02-node-c ... done
Stopping shard-01-node-a ... done
Stopping shard-01-node-c ... done
Stopping shard-02-node-a ... done
Removing shard-03-node-a ... done
Removing shard-03-node-b ... done
Removing mongo-config-03 ... done
Removing mongo-config-01 ... done
Removing shard-01-node-b ... done
Removing router-01 ... done
Removing router-02 ... done
Removing mongo-config-02 ... done
Removing shard-02-node-b ... done
Removing shard-03-node-c ... done
Removing shard-02-node-c ... done
Removing shard-01-node-a ... done
Removing shard-01-node-c ... done
Removing shard-02-node-a ... done
```