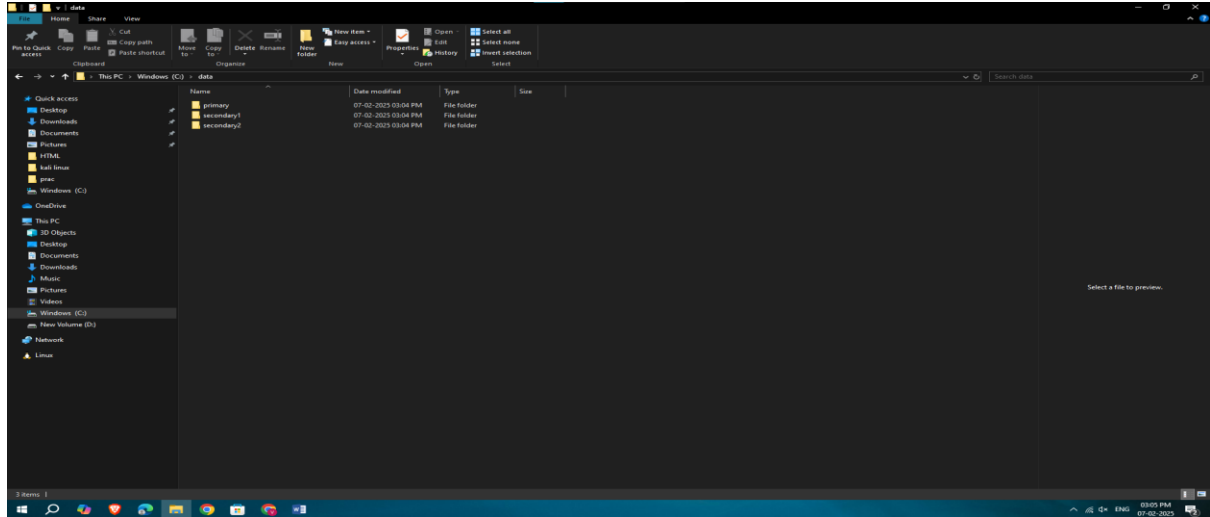


PRACTICAL NO – 6

Aim: Replication using Mongodb

Step 1: Go to file manager > local C >file data>create three folder
>primary, secondary1, secondary2



Step 2: Go to Window power shell and Create 3 port on new window
powershell:2717, 2727, 2737

Code:

```
mongod --port=2717 --dbpath="C:\data\primary" --replSet="test-  
replica-set"
```

Output:

```
Windows PowerShell
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Try the new cross-platform PowerShell https://aka.ms/powershell

PS C:\Users\Admin> mongod --port=2717 --dbpath="C:\data\primary" --replSet="test-replica-set"
{"t":{"$date":"2025-02-07T15:41:25.040+05:30"},"s":"I","c":"","CONTROL","id":23285,"ctx":"-","msg":"Automatically discovered node","nodeId":1,"name":"/dev/null","ip":":::","port":2717,"isInternalClient":true},"l":{"t":{"$date":"2025-02-07T15:41:26.268+05:30"},"s":"I","c":"","NETWORK","id":4915701,"ctx":"thread1","msg":"Initialized local topology information":{"minWireVersion":17,"outgoing":{"minWireVersion":6,"maxWireVersion":17},"isInternalClient":true}}},"l":{"t":{"$date":"2025-02-07T15:41:26.268+05:30"},"s":"I","c":"","NETWORK","id":4648602,"ctx":"thread1","msg":"Implicit TO"},"l":{"t":{"$date":"2025-02-07T15:41:26.270+05:30"},"s":"I","c":"","REPL","id":5123008,"ctx":"thread1","msg":"Successfully replicated from node 1 to node 0"},"l":{"t":{"$date":"2025-02-07T15:41:26.270+05:30"},"s":"I","c":"","REPL","id":5123008,"ctx":"thread1","msg":"Successfully replicated from node 1 to node 0"},"l":{"t":{"$date":"2025-02-07T15:41:26.270+05:30"},"s":"I","c":"","CONTROL","id":5945603,"ctx":"thread1","msg":"Multi thread replication started"},"l":{"t":{"$date":"2025-02-07T15:41:26.272+05:30"},"s":"I","c":"","CONTROL","id":4615611,"ctx":"initandlisten","msg":"MongoDB starting"},"l":{"t":{"$date":"2025-02-07T15:41:26.272+05:30"},"s":"I","c":"","CONTROL","id":23398,"ctx":"initandlisten","msg":"Targeting self as the primary"},"l":{"t":{"$date":"2025-02-07T15:41:26.272+05:30"},"s":"I","c":"","CONTROL","id":23403,"ctx":"initandlisten","msg":"Building index"},"l":{"distmod":"windows","distarch":"x86_64","target_arch":"x86_64"}}},"l":{"t":{"$date":"2025-02-07T15:41:26.272+05:30"},"s":"I","c":"","CONTROL","id":51765,"ctx":"initandlisten","msg":"Opening database files"}},
```

Code:

```
mongod --port=2727 --dbpath="C:\data\secondary1" --replSet="test-replica-set"
```

Output:

```
Windows PowerShell
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Try the new cross-platform PowerShell https://aka.ms/pscore6

PS C:\Users\Admin> mongod --port=2727 --dbpath="C:\data\secondary1" --replSet="test-replica-set"
{"t":{"$date":"2025-02-07T15:44:09.925+05:30"},"s":"I", "c":"CONTROL", "id":23285, "ctx":"-", "msg":"Automatically disabling TLS 1.0, t
{"t":{"$date":"2025-02-07T15:44:11.150+05:30"},"s":"I", "c":"NETWORK", "id":4915701, "ctx":"thread1", "msg":"Initialized wire specificati
axWireVersion":17}, "outgoing":{"minWireVersion":6, "maxWireVersion":17}, "isInternalClient":true}}}
{"t":{"$date":"2025-02-07T15:44:11.151+05:30"},"s":"I", "c":"NETWORK", "id":4648602, "ctx":"thread1", "msg":"Implicit TCP FastOpen in use
{"t":{"$date":"2025-02-07T15:44:11.153+05:30"},"s":"I", "c":"REPL", "id":5123008, "ctx":"thread1", "msg":"Successfully registered Prim
{"t":{"$date":"2025-02-07T15:44:11.153+05:30"},"s":"I", "c":"REPL", "id":5123008, "ctx":"thread1", "msg":"Successfully registered Prim
{"t":{"$date":"2025-02-07T15:44:11.153+05:30"},"s":"I", "c":"REPL", "id":5123008, "ctx":"thread1", "msg":"Successfully registered Prim
{"t":{"$date":"2025-02-07T15:44:11.155+05:30"},"s":"I", "c":"CONTROL", "id":5945603, "ctx":"thread1", "msg":"Multi threading initialized"
{"t":{"$date":"2025-02-07T15:44:11.155+05:30"},"s":"I", "c":"CONTROL", "id":4615611, "ctx":"initandlisten", "msg":"MongoDB starting", "att
{"t":{"$date":"2025-02-07T15:44:11.155+05:30"},"s":"I", "c":"CONTROL", "id":23398, "ctx":"initandlisten", "msg":"Target operating syste
{"t":{"$date":"2025-02-07T15:44:11.155+05:30"},"s":"I", "c":"CONTROL", "id":23403, "ctx":"initandlisten", "msg":"Build Info", "attr":{"b
t":{"distmod":"windows", "distarch":"x86_64", "target_arch":"x86_64"}}}
{"t":{"$date":"2025-02-07T15:44:11.155+05:30"},"s":"I", "c":"CONTROL", "id":51765, "ctx":"initandlisten", "msg":"Operating System", "att
{"t":{"$date":"2025-02-07T15:44:11.155+05:30"},"s":"I", "c":"CONTROL", "id":21951, "ctx":"initandlisten", "msg":"Options set by command
```

Code:

```
mongod --port=2737 --dbpath="C:\data\secondary2" --replSet="test-replica-set"
```

Output:

```
Windows PowerShell
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Try the new cross-platform PowerShell https://aka.ms/pscore6

PS C:\Users\Admin> mongod --port=2737 --dbpath="C:\data\secondary2" --replSet="test-replica-set"
{"t":{"$date":"2025-02-07T15:45:26.195+05:30"},"s":"I", "c":"CONTROL", "id":23285, "ctx":"-", "msg":"Automatica
{"t":{"$date":"2025-02-07T15:45:26.200+05:30"},"s":"I", "c":"NETWORK", "id":4915701, "ctx":"thread1", "msg":"Initi
axWireVersion":17}, "outgoing":{"minWireVersion":6, "maxWireVersion":17}, "isInternalClient":true}}}
{"t":{"$date":"2025-02-07T15:45:27.436+05:30"},"s":"I", "c":"NETWORK", "id":4648602, "ctx":"thread1", "msg":"Impli
{"t":{"$date":"2025-02-07T15:45:27.438+05:30"},"s":"I", "c":"REPL", "id":5123008, "ctx":"thread1", "msg":"Succe
{"t":{"$date":"2025-02-07T15:45:27.438+05:30"},"s":"I", "c":"REPL", "id":5123008, "ctx":"thread1", "msg":"Succe
{"t":{"$date":"2025-02-07T15:45:27.438+05:30"},"s":"I", "c":"REPL", "id":5123008, "ctx":"thread1", "msg":"Succe
{"t":{"$date":"2025-02-07T15:45:27.438+05:30"},"s":"I", "c":"CONTROL", "id":5945603, "ctx":"thread1", "msg":"Multi
{"t":{"$date":"2025-02-07T15:45:27.439+05:30"},"s":"I", "c":"CONTROL", "id":4615611, "ctx":"initandlisten", "msg":
{"t":{"$date":"2025-02-07T15:45:27.439+05:30"},"s":"I", "c":"CONTROL", "id":23398, "ctx":"initandlisten", "msg":
{"t":{"$date":"2025-02-07T15:45:27.439+05:30"},"s":"I", "c":"CONTROL", "id":23403, "ctx":"initandlisten", "msg":
t":{"distmod":"windows", "distarch":"x86_64", "target_arch":"x86_64"}}}
{"t":{"$date":"2025-02-07T15:45:27.439+05:30"},"s":"I", "c":"CONTROL", "id":51765, "ctx":"initandlisten", "msg":
{"t":{"$date":"2025-02-07T15:45:27.440+05:30"},"s":"I", "c":"CONTROL", "id":21951, "ctx":"initandlisten", "msg":
}}}}
{"t":{"$date":"2025-02-07T15:45:27.442+05:30"},"s":"I", "c":"STORAGE", "id":22315, "ctx":"initandlisten", "msg":
log=(enabled=true,remove=true,path=journal,compressor=snappy),builtin_extension_config=(zstd=(compression_level=6))
process=1, checkpoint=process=1, compact=process=1, backup=0, checkpoint=0, compact=0, quiet=0, history_store=0, recover
```

Step 3: Open new window powershell

Code:

```
mongosh --host="localhost:2717"
```

Output:

```
PS C:\Users\Admin> mongosh --host="localhost:2717"
Current Mongosh Log ID: 67a5dd929c4a73340650d095
Connecting to:      mongodb://localhost:2717/?directConnection=true&serverSelectionTimeout
1.4
MongoServerError: Server selection timed out after 2000 ms
PS C:\Users\Admin> mongosh --host="localhost:2717"
Current Mongosh Log ID: 67a5ddad557f7b73e5f010b7
Connecting to:      mongodb://localhost:2717/?directConnection=true&serverSelectionTimeout
1.4
Using MongoDB:      6.0.13
Using Mongosh:      2.1.4
mongosh 2.3.9 is available for download: https://www.mongodb.com/try/download/shell
For mongosh info see: https://docs.mongodb.com/mongodb-shell/

-----
The server generated these startup warnings when booting
  2025-02-07T15:41:26.705+05:30: Access control is not enabled for the database. Read and wr
figuration is unrestricted
  2025-02-07T15:41:26.706+05:30: This server is bound to localhost. Remote systems will be u
rver. Start the server with --bind_ip <address> to specify which IP addresses it should serve
bind_ip_all to bind to all interfaces. If this behavior is desired, start the server with --b
this warning
-----
```

Code:

```
rs.initiate()
```

Output:

```
test> rs.inititate()
TypeError: rs.inititate is not a function
test> rs.initiate()
{
  info2: 'no configuration specified. Using a default configuration for the set',
  me: 'localhost:2717',
  ok: 1
}
test-replica-set [direct: other] test>
```

Code:

```
rs.add({host:"localhost:2727"});
```

Output:

```
test-replica-set [direct: other] test> rs.add({host:"localhost:2727"});  
{  
  ok: 1,  
  '$clusterTime': {  
    clusterTime: Timestamp({ t: 1738922990, i: 1 }),  
    signature: {  
      hash: Binary.createFromBase64('AAAAAAAAAAAAAAAAAAAAAAAAAAAA=', 0),  
      keyId: Long('0')  
    }  
  },  
  operationTime: Timestamp({ t: 1738922990, i: 1 })  
}  
test-replica-set [direct: primary] test> _
```

Code:

```
rs.add({host:"localhost:2737"});
```

Output:

```
test-replica-set [direct: primary] test> rs.add({host:"localhost:2737"});  
{  
  ok: 1,  
  '$clusterTime': {  
    clusterTime: Timestamp({ t: 1738923119, i: 1 }),  
    signature: {  
      hash: Binary.createFromBase64('AAAAAAAAAAAAAAAAAAAAAAAAAAAA=', 0),  
      keyId: Long('0')  
    }  
  },  
  operationTime: Timestamp({ t: 1738923119, i: 1 })  
}  
test-replica-set [direct: primary] test> AAA_
```

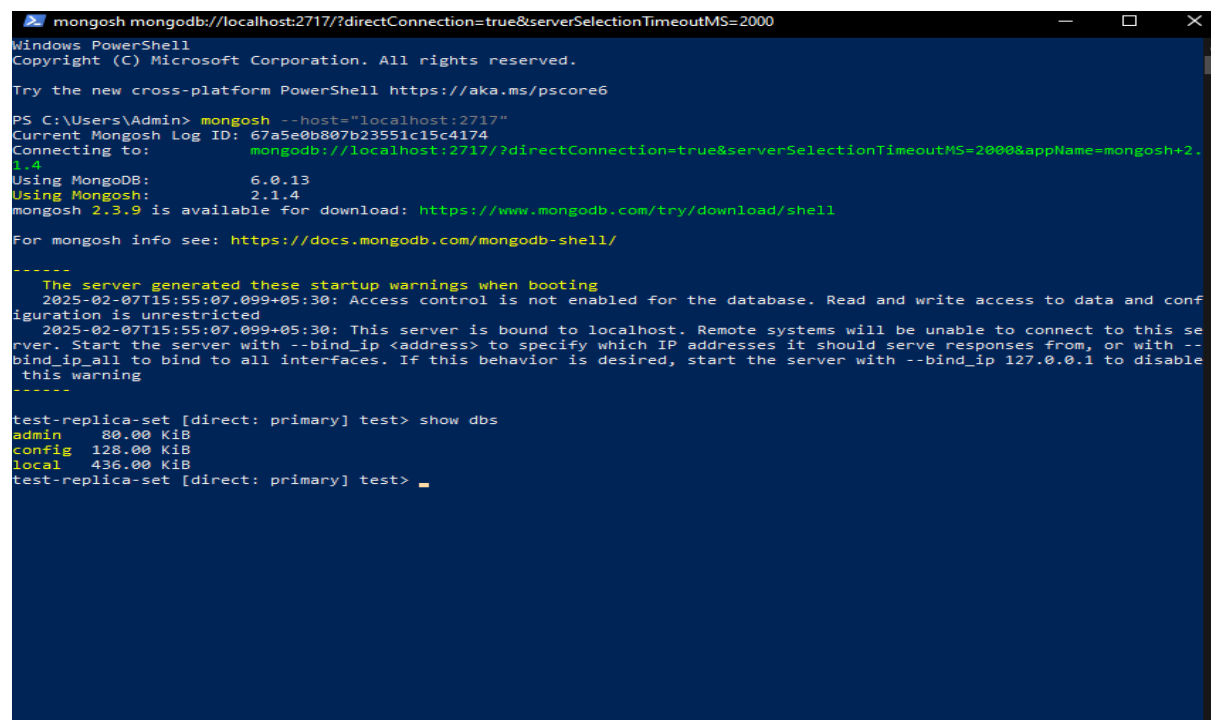
Step 4: Open new 3 window shell and perform the following code

Code:

```
mongosh --host="localhost:2717"
```

```
show dbs
```

Output:



```
mongosh mongodb://localhost:2717/?directConnection=true&serverSelectionTimeoutMS=2000
Windows PowerShell
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Try the new cross-platform PowerShell https://aka.ms/pscore6

PS C:\Users\Admin> mongosh --host="localhost:2717"
Current Mongosh Log ID: 67a5e0b807b23551c15c4174
Connecting to:  mongodb://localhost:2717/?directConnection=true&serverSelectionTimeoutMS=2000&appName=mongosh+2.1.4
Using MongoDB: 6.0.13
Using Mongosh: 2.1.4
mongosh 2.3.9 is available for download: https://www.mongodb.com/try/download/shell
For mongosh info see: https://docs.mongodb.com/mongodb-shell/

-----
The server generated these startup warnings when booting
2025-02-07T15:55:07.099+05:30: Access control is not enabled for the database. Read and write access to data and configuration is unrestricted
2025-02-07T15:55:07.099+05:30: This server is bound to localhost. Remote systems will be unable to connect to this server. Start the server with --bind_ip <address> to specify which IP addresses it should serve responses from, or with --bind_ip_all to bind to all interfaces. If this behavior is desired, start the server with --bind_ip 127.0.0.1 to disable this warning
-----

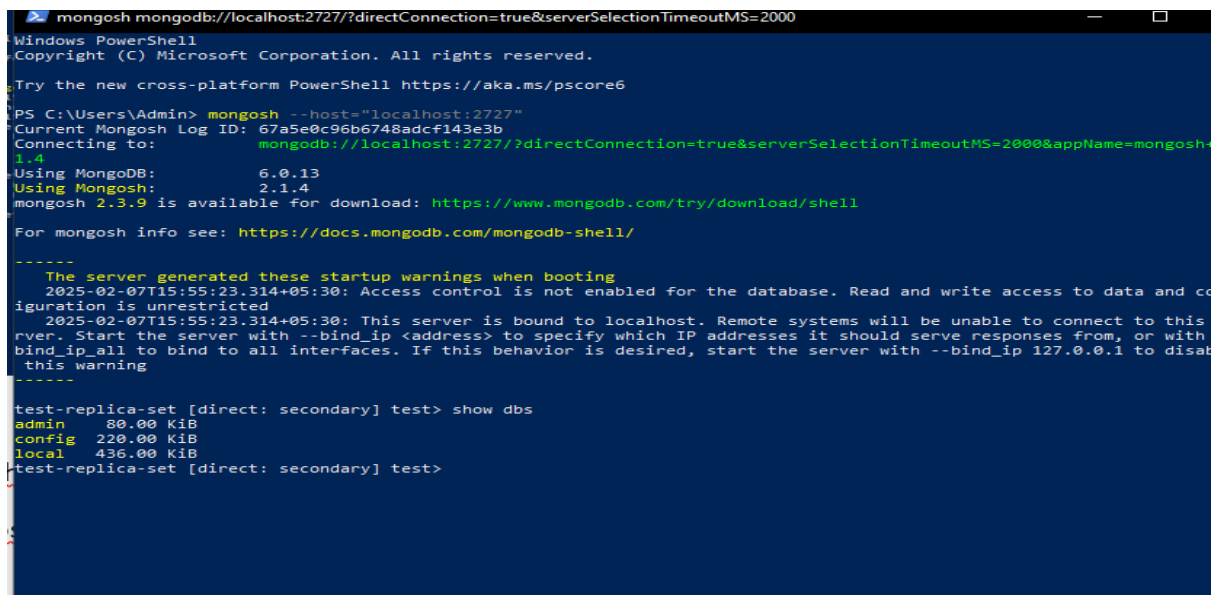
test-replica-set [direct: primary] test> show dbs
admin      80.00 KiB
config    128.00 KiB
local     436.00 KiB
test-replica-set [direct: primary] test> _
```

Code:

```
mongosh --host="localhost:2727"
```

```
show dbs
```

Output:



```
mongosh mongodb://localhost:2727/?directConnection=true&serverSelectionTimeoutMS=2000
Windows PowerShell
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Try the new cross-platform PowerShell https://aka.ms/pscore6

PS C:\Users\Admin> mongosh --host="localhost:2727"
Current Mongosh Log ID: 67a5e0c96b6748adc143e3b
Connecting to:  mongodb://localhost:2727/?directConnection=true&serverSelectionTimeoutMS=2000&appName=mongosh+
1.4
Using MongoDB:      6.0.13
Using Mongosh:      2.1.4
mongosh 2.3.9 is available for download: https://www.mongodb.com/try/download/shell

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

-----
The server generated these startup warnings when booting
2025-02-07T15:55:23.314+05:30: Access control is not enabled for the database. Read and write access to data and co
figuration is unrestricted
2025-02-07T15:55:23.314+05:30: This server is bound to localhost. Remote systems will be unable to connect to this
server. Start the server with --bind_ip <address> to specify which IP addresses it should serve responses from, or with
bind_ip_all to bind to all interfaces. If this behavior is desired, start the server with --bind_ip 127.0.0.1 to disab
this warning
-----

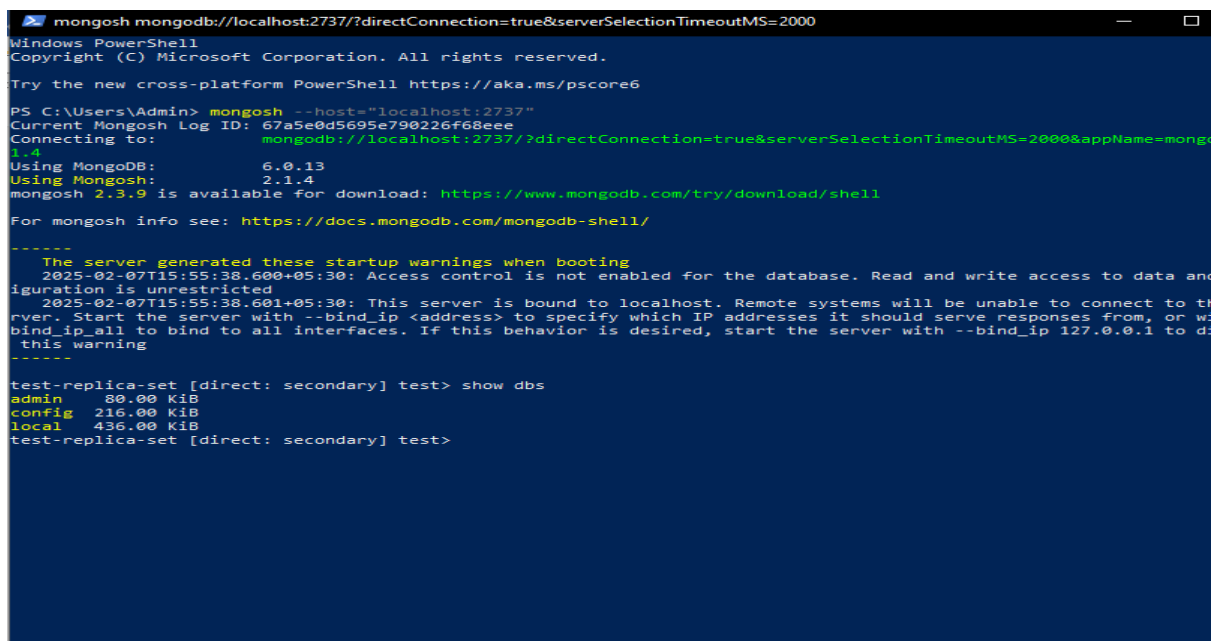
test-replica-set [direct: secondary] test> show dbs
admin      80.00 KiB
config    220.00 KiB
local     436.00 KiB
test-replica-set [direct: secondary] test>
```

Code:

```
mongosh --host="localhost:2737"
```

```
show dbs
```

Output:



```
mongosh mongodb://localhost:2737/?directConnection=true&serverSelectionTimeoutMS=2000
Windows PowerShell
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Try the new cross-platform PowerShell https://aka.ms/pscore6

PS C:\Users\Admin> mongosh --host="localhost:2737"
Current Mongosh Log ID: 67a5e0d5695e790226f68eee
Connecting to:  mongodb://localhost:2737/?directConnection=true&serverSelectionTimeoutMS=2000&appName=mongosh+
1.4
Using MongoDB:      6.0.13
Using Mongosh:      2.1.4
mongosh 2.3.9 is available for download: https://www.mongodb.com/try/download/shell

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

-----
The server generated these startup warnings when booting
2025-02-07T15:55:38.600+05:30: Access control is not enabled for the database. Read and write access to data and
configuration is unrestricted
2025-02-07T15:55:38.601+05:30: This server is bound to localhost. Remote systems will be unable to connect to th
server. Start the server with --bind_ip <address> to specify which IP addresses it should serve responses from, or w
bind_ip_all to bind to all interfaces. If this behavior is desired, start the server with --bind_ip 127.0.0.1 to d
this warning
-----

test-replica-set [direct: secondary] test> show dbs
admin      80.00 KiB
config    216.00 KiB
local     436.00 KiB
test-replica-set [direct: secondary] test>
```

Step 5: Go to primary window shell and perform the following code

Code:

use practise

db.users.insert({name:"abc"});

db.users.find()

Output:

```
test-replica-set [direct: primary] test> show dbs
admin      80.00 KiB
config    128.00 KiB
local     436.00 KiB
test-replica-set [direct: primary] test> use practise
switched to db practise
test-replica-set [direct: primary] practise> db.users.insert({name:"abc"});
DeprecationWarning: Collection.insert() is deprecated. Use insertOne, insertMany, or bulkWrite.
{
  acknowledged: true,
  insertedIds: { '0': ObjectId('67a5e3c807b23551c15c4175') }
}
test-replica-set [direct: primary] practise> db.users.find()
[ { _id: ObjectId('67a5e3c807b23551c15c4175'), name: 'abc' } ]
test-replica-set [direct: primary] practise> _
```

Step 6: Create new window power shell and perform following code

Code:

mongosh --host="localhost:2727"

show dbs

use practise

db.getMongo().setReadPref("secondaryPreferred")

db.users.find()

Output:

```

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

-----
The server generated these startup warnings when booting
2025-02-07T15:55:23.314+05:30: Access control is not enabled for the database. Read and write access to data and configuration is unrestricted
2025-02-07T15:55:23.314+05:30: This server is bound to localhost. Remote systems will be unable to connect to this server. Start the server with --bind_ip <address> to specify which IP addresses it should serve responses from, or with --bind_ip_all to bind to all interfaces. If this behavior is desired, start the server with --bind_ip 127.0.0.1 to disable this warning
-----

test-replica-set [direct: secondary] test> show dbs
admin      80.00 KiB
config     248.00 KiB
local      436.00 KiB
practise    40.00 KiB
test-replica-set [direct: secondary] test> use practise
switched to db practise
test-replica-set [direct: secondary] practise> db.users.find()
MongoServerError[NotPrimaryNoSecondaryOk]: not primary - consider using db.getMongo().setReadPref() or readPreference on the connection string
test-replica-set [direct: secondary] practise> db.getMongo().setReadPref("secondaryPreferred")
test-replica-set [direct: secondary] practise> db.users.find()
[ { _id: ObjectId('67a5e3c807b23551c15c4175'), name: 'abc' } ]
test-replica-set [direct: secondary] practise>

```

Step 7: Create new window power shell and perform following code

Code:

```
mongosh --host="localhost:2737"
```

```
show dbs
```

```
use practise
```

```
db.getMongo().setReadPref("secondaryPreferred")
```

```
db.users.find()
```

Output:

```

mongosh mongodb://localhost:2737/?directConnection=true&serverSelectionTimeoutMS=2000
Windows PowerShell
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Try the new cross-platform PowerShell https://aka.ms/pscore6

PS C:\Users\Admin> mongosh --host="localhost:2737"
Current Mongosh Log ID: 67a5e33a6443c1c6eee6a1e0
Connecting to:  mongodb://localhost:2737/?directConnection=true&serverSelectionTimeoutMS=2000&appName=mongosh+2.1.4
Using MongoDB:  6.0.13
Using Mongosh:  2.1.4
Mongosh 2.1.9 is available for download: https://www.mongodb.com/try/download/shell

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

-----
The server generated these startup warnings when booting
2025-02-07T15:55:38.600+05:30: Access control is not enabled for the database. Read and write access to data and configuration is unrestricted
2025-02-07T15:55:38.601+05:30: This server is bound to localhost. Remote systems will be unable to connect to this server. Start the server with --bind_ip <address> to specify which IP addresses it should serve responses from, or with --bind_ip_all to bind to all interfaces. If this behavior is desired, start the server with --bind_ip 127.0.0.1 to disable this warning
-----

test-replica-set [direct: secondary] test> show dbs
admin      80.00 KiB
config     248.00 KiB
local      436.00 KiB
practise    40.00 KiB
test-replica-set [direct: secondary] test> use practise
switched to db practise
test-replica-set [direct: secondary] practise> db.getMongo().setReadPref("secondaryPreferred")
test-replica-set [direct: secondary] practise> db.users.find()
[ { _id: ObjectId('67a5e3c807b23551c15c4175'), name: 'abc' } ]
test-replica-set [direct: secondary] practise>

```