

Lab #9

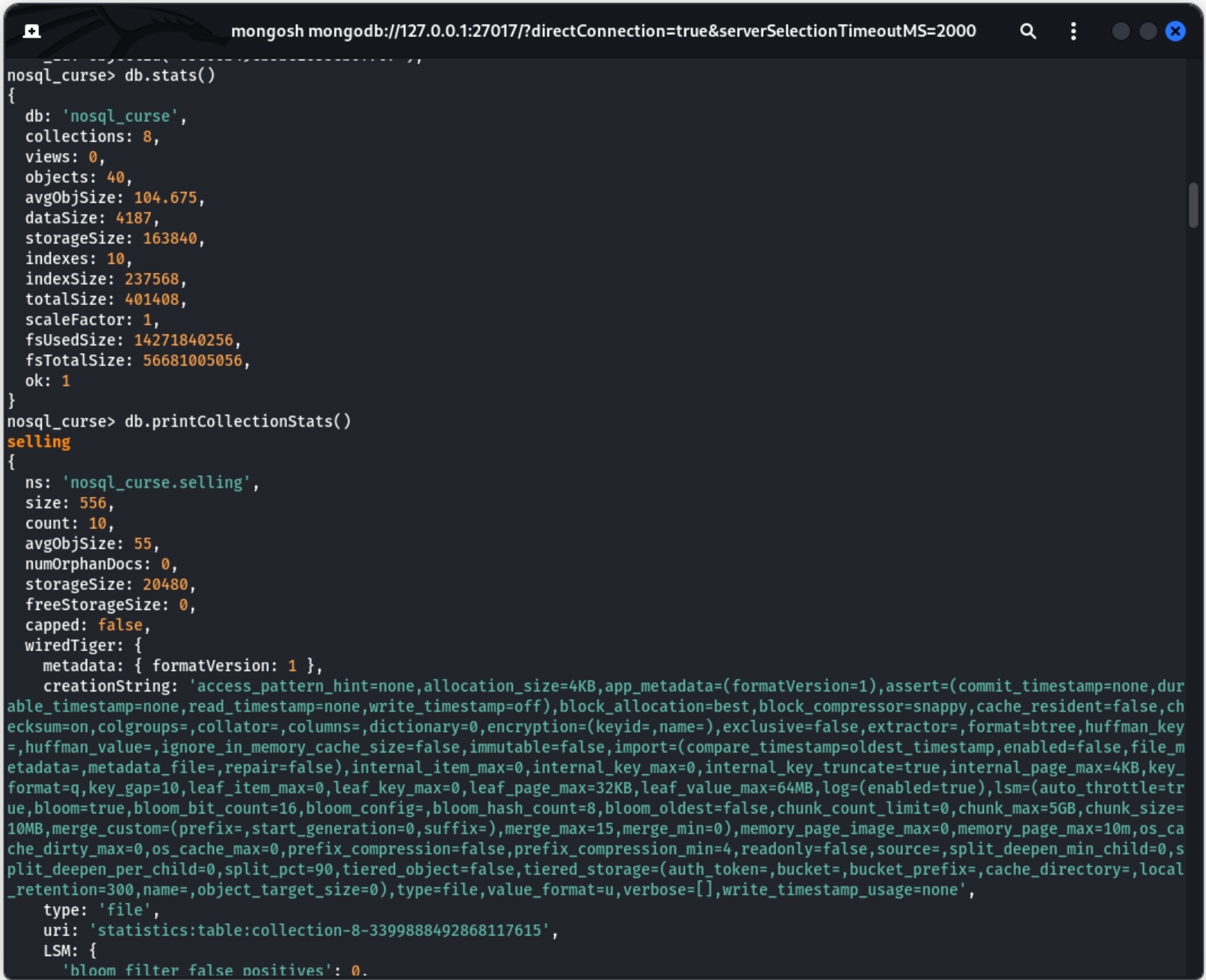
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Задачи лабораторной:

1. Получите диагностическую информацию о вашей базе данных и содержащихся в ней коллекциях.
2. Создайте резервную копию данных вашей БД.
3. Восстановите базу данных из резервной копии.
4. Создайте для базы данных несколько пользователей, имеющих различные роли.

Ход выполнения работы:

1. Получите диагностическую информацию о вашей базе данных и содержащихся в ней коллекциях.



```
mongosh mongodb://127.0.0.1:27017/?directConnection=true&serverSelectionTimeoutMS=2000
nosql_curse> db.stats()
{
  db: 'nosql_curse',
  collections: 8,
  views: 0,
  objects: 40,
  avgObjSize: 104.675,
  dataSize: 4187,
  storageSize: 163840,
  indexes: 10,
  indexSize: 237568,
  totalSize: 401408,
  scaleFactor: 1,
  fsUsedSize: 14271840256,
  fsTotalSize: 56681005056,
  ok: 1
}
nosql_curse> db.printCollectionStats()
selling
{
  ns: 'nosql_curse.selling',
  size: 556,
  count: 10,
  avgObjSize: 55,
  numOrphanDocs: 0,
  storageSize: 20480,
  freeStorageSize: 0,
  capped: false,
  wiredTiger: {
    metadata: { formatVersion: 1 },
    creationString: 'access_pattern_hint=none,allocation_size=4KB,app_metadata=(formatVersion=1),assert=(commit_timestamp=none,durable_timestamp=none,read_timestamp=none,write_timestamp=off),block_allocation=best,block_compressor=snappy,cache_resident=false,checksum=on,colgroups=,collator=,columns=,dictionary=0,encryption=(keyid=,name=),exclusive=false,extractor=,format=btree,huffman_key=,huffman_value=,ignore_in_memory_cache_size=false,immutable=false,import=(compare_timestamp=oldest_timestamp,enabled=false,file_metadata=,metadata_file=,repair=false),internal_item_max=0,internal_key_max=0,internal_key_truncate=true,internal_page_max=4KB,key_format=q,key_gap=10,leaf_item_max=0,leaf_key_max=0,leaf_page_max=32KB,leaf_value_max=64MB,log=(enabled=true),lsm=(auto_throttle=true,bloom=true,bloom_bit_count=16,bloom_config=,bloom_hash_count=8,bloom_oldest=false,chunk_count_limit=0,chunk_max=5GB,chunk_size=10MB,merge_custom=(prefix=,start_generation=0,suffix=),merge_max=15,merge_min=0),memory_page_image_max=0,memory_page_max=10m,os_cache_dirty_max=0,os_cache_max=0,prefix_compression=false,prefix_compression_min=4,readonly=false,source=,split_deepen_min_child=0,split_deepen_per_child=0,split_pct=90,tiered_object=false,tiered_storage=(auth_token=,bucket=,bucket_prefix=,cache_directory=,local_retention=300,name=,object_target_size=0),type=file,value_format=u,verbose=[],write_timestamp_usage=none',
    type: 'file',
    uri: 'statistics:table:collection-8-3399888492868117615',
    LSM: {
      'bloom filter false positives': 0.
    }
  }
}
```

2. Создайте резервную копию данных вашей БД.

```
kali@kali: ~  
  
(kali@kali)-[~]  
$ mongodump --db=test  
2023-01-12T13:51:28.033+0000   writing test.test to dump/test/test.bson  
2023-01-12T13:51:28.050+0000   done dumping test.test (5 documents)  
  
(kali@kali)-[~]  
$
```

3. Восстановите базу данных из резервной копии.

```
mongosh mongodb://127.0.0.1:27017/?directConnection=true&serverSelectionTim...  
  
test> db.runCommand( { dropDatabase: 1 } )  
{ ok: 1 }  
test> show dbs  
admin    40.00 KiB  
config  108.00 KiB  
local    72.00 KiB  
test>
```

```
mongosh mongodb://127.0.0.1:27017/?directConnection=true&serverSelectionTim...
(kali@kali)-[~]
$ mongorestore dump/test/test.bson
2023-01-12T13:56:35.742+0000 checking for collection data in dump/test/test.bson
2023-01-12T13:56:35.742+0000 reading metadata for test.test from dump/test/test.metadata.json
2023-01-12T13:56:35.814+0000 restoring test.test from dump/test/test.bson
2023-01-12T13:56:35.856+0000 finished restoring test.test (5 documents, 0 failures)
2023-01-12T13:56:35.856+0000 no indexes to restore for collection test.test
2023-01-12T13:56:35.856+0000 5 document(s) restored successfully. 0 document(s) failed to restore.

(kali@kali)-[~]
$ mongosh
Current Mongosh Log ID: 63c0119ae228dad6e2d777f7
Connecting to:      mongodb://127.0.0.1:27017/?directConnection=true&serverSelectionTimeoutMS=200
0&appName=mongosh+1.6.1
Using MongoDB:      6.0.3
Using Mongosh:      1.6.1

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

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```

```
mongosh mongodb://127.0.0.1:27017/?directConnection=true&serverSelectionTim...
2023-01-12T10:10:11.159+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> show dbs
admin    40.00 KiB
config  108.00 KiB
local   72.00 KiB
test    40.00 KiB
test> 
```

4. Создайте для базы данных несколько пользователей, имеющих различные роли.



```
mongosh mongodb://127.0.0.1:27017/?directConnection=true&serverSelectionTim...
test> db.createUser(
...   {
...     user: "myTester",
...     pwd: passwordPrompt(),
...     roles: [ { role: "readWrite", db: "test" } ]
...   }
... )
Enter password
****{ ok: 1 }
test> db.createUser( { user: "accountAdmin01",
...                     pwd: passwordPrompt(),
...                     roles: [ { role: "clusterAdmin", db: "admin" },
...                               { role: "readAnyDatabase", db: "admin" },
...                               "readWrite" ] })
Enter password
****{ ok: 1 }
test> 
```

Теоретические вопросы

1. Какие утилиты используются для резервирования и восстановления баз данных?

mongodump, mongorestore

2. Какие параметры запуска имеет утилита «mongodump.exe»?

```
mongodump <options> <connection-string>
--uri, --host, --port, --ssl и т.д.
```

3. Какие параметры запуска имеет утилита «mongorestore.exe»?

```
mongorestore <options> <connection-string> <directory or file to restore>
--uri, --host, --port, --ssl и т.д.
```

4. Приведите синтаксис команды для добавления пользователя в БД.

```
db.createUser(user, writeConcern)
{
  user: "<name>",
  pwd: passwordPrompt(), // Or "<cleartext password>"
  customData: { <any information> },
  roles: [
    { role: "<role>", db: "<database>" } | "<role>",
    ...
  ],
  authenticationRestrictions: [
    {
      clientSource: [ "<IP>" | "<CIDR range>", ... ],
      serverAddress: [ "<IP>" | "<CIDR range>", ... ]
    },
    ...
  ],
  mechanisms: [ "<SCRAM-SHA-1|SCRAM-SHA-256>", ... ],
  passwordDigestor: "<server|client>"
}
```

5. Каким образом производится смена пароля для пользователя?

```
db.changeUserPassword(username, password)
```

6. Перечислите роли, которые можно назначать пользователям в БД.

read, readWrite, dbAdmin, dbOwner, userAdmin и т.д.