

## Лабораторная работа №6

### «MongoDB»

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Выполнил:

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Проверил:

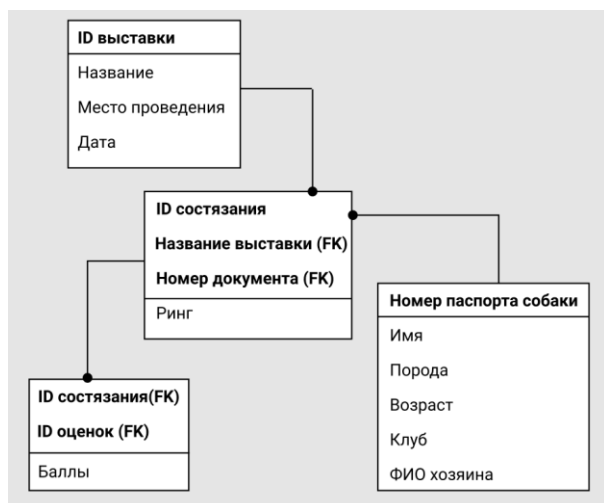
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(Фамилия И.О)

## Цель работы

Овладеть практическими навыками реализации баз данных в MongoDB

## Индивидуальное задание

### Модель



## Создание БД

```
... {
...   "score": 15,
...   "registration": {
...     "reg_number": 4,
...     "ring": 3,
...     "show": {
...       "Name": "Fantom",
...       "Place": "Saint Petersburg",
...       "Date": "12/28/2020"
...     },
...   },
...   "dog": {
...     "Document_num": 839420,
...     "Name": "Lucky",
...     "Dog_age": 7,
...     "Breed": "Spaniel",
...     "Club": "Friend",
...     "Owner_name": "Sofia"
...   }
... }
... },
... {
...   "score": 18,
...   "registration": {
...     "reg_number": 2,
...     "ring": 1,
...     "show": {
...       "Name": "Champion",
...       "Place": "Saint Petersburg",
...       "Date": "04/28/2020"
...     },
...   },
...   "dog": {
...     "Document_num": 938726,
...     "Name": "Scooby",
...     "Dog_age": 8,
...     "Breed": "Pudel",
...     "Club": "Cornuel",
...     "Owner_name": "Elena"
...   }
... }
... },
... {
...   "score": 24,
...   "registration": {
...     "reg_number": 3,
...     "ring": 2,
...     "show": {
...       "Name": "Champion",
...       "Place": "Saint Petersburg",
...       "Date": "04/28/2020"
...     },
...   },
...   "dog": {
...     "Document_num": 209483,
...     "Name": "Molly",
...     "Dog_age": 7,
...     "Breed": "Dalmatian",
...     "Club": "Friend",
...     "Owner_name": "Sergei"
...   }
... },
... {
...   "score": 25,
...   "registration": {
...     "reg_number": 1,
...     "ring": 3,
...     "show": {
...       "Name": "Champion",
...       "Place": "Saint Petersburg",
...       "Date": "04/28/2020"
...     },
...   },
...   "dog": {
...     "Document_num": 129588,
...     "Name": "Bella",
...     "Dog_age": 7,
...     "Breed": "Spaniel",
...     "Club": "Friend",
...     "Owner_name": "Igor"
...   }
... },
... {
...   "score": 15,
...   "registration": {
...     "reg_number": 5,
...     "ring": 2,
...     "show": {
...       "Name": "Fantom",
...       "Place": "Saint Petersburg",
...       "Date": "12/28/2020"
...     },
...   },
...   "dog": {
...     "Document_num": 938726,
...     "Name": "Scooby",
...     "Dog_age": 8,
...     "Breed": "Pudel",
...     "Club": "Cornuel",
...     "Owner_name": "Elena"
...   }
... }
... }
... )
```

## Запросы

№1

```
db.dog_show.find({"registration.show.Place": "Saint Petersburg" })
```

```
> db.dog_show.find({"registration.show.Place": "Saint Petersburg" })
{ "_id" : ObjectId("5ede190c46920bb001a5ba72"), "score" : 25, "registration" : { "reg_number" : 1, "ring" : 3, "show" :
  { "Name" : "Champion", "Place" : "Saint Petersburg", "Date" : "04/28/2020" }, "dog" : { "Document_num" : 129588, "Name" : "Bella", "Dog_age" : 7, "Breed" : "Spaniel", "Club" : "Friend", "Owner_name" : "Igor" } } }
{ "_id" : ObjectId("5ede190c46920bb001a5ba73"), "score" : 18, "registration" : { "reg_number" : 2, "ring" : 1, "show" :
  { "Name" : "Champion", "Place" : "Saint Petersburg", "Date" : "04/28/2020" }, "dog" : { "Document_num" : 938726, "Name" : "Scooby", "Dog_age" : 8, "Breed" : "Pudel", "Club" : "Cornuel", "Owner_name" : "Elena" } } }
{ "_id" : ObjectId("5ede190c46920bb001a5ba74"), "score" : 24, "registration" : { "reg_number" : 3, "ring" : 2, "show" :
  { "Name" : "Champion", "Place" : "Saint Petersburg", "Date" : "04/28/2020" }, "dog" : { "Document_num" : 209483, "Name" : "Molly", "Dog_age" : 7, "Breed" : "Dalmatian", "Club" : "Friend", "Owner_name" : "Sergei" } } }
{ "_id" : ObjectId("5ede190c46920bb001a5ba75"), "score" : 15, "registration" : { "reg_number" : 4, "ring" : 3, "show" :
  { "Name" : "Fantom", "Place" : "Saint Petersburg", "Date" : "12/28/2020" }, "dog" : { "Document_num" : 839420, "Name" : "Lucky", "Dog_age" : 7, "Breed" : "Spaniel", "Club" : "Friend", "Owner_name" : "Sofia" } } }
{ "_id" : ObjectId("5ede190c46920bb001a5ba76"), "score" : 15, "registration" : { "reg_number" : 5, "ring" : 2, "show" :
  { "Name" : "Fantom", "Place" : "Saint Petersburg", "Date" : "12/28/2020" }, "dog" : { "Document_num" : 938726, "Name" : "Scooby", "Dog_age" : 8, "Breed" : "Pudel", "Club" : "Cornuel", "Owner_name" : "Elena" } } }
```

№2

```
db.dog_show.find({"registration.dog.Document_num": 938726})
```

```
> db.dog_show.find({"registration.dog.Document_num": 938726 })
{ "_id" : ObjectId("5ede190c46920bb001a5ba73"), "score" : 18, "registration" : { "reg_number" : 2, "ring" : 1, "show" :
  { "Name" : "Champion", "Place" : "Saint Petersburg", "Date" : "04/28/2020" }, "dog" : { "Document_num" : 938726, "Name" : "Scooby", "Dog_age" : 8, "Breed" : "Pudel", "Club" : "Cornuel", "Owner_name" : "Elena" } } }
{ "_id" : ObjectId("5ede190c46920bb001a5ba76"), "score" : 15, "registration" : { "reg_number" : 5, "ring" : 2, "show" :
  { "Name" : "Fantom", "Place" : "Saint Petersburg", "Date" : "12/28/2020" }, "dog" : { "Document_num" : 938726, "Name" : "Scooby", "Dog_age" : 8, "Breed" : "Pudel", "Club" : "Cornuel", "Owner_name" : "Elena" } } }
```

№3

```
db.dog_show.find({"registration.show.Name": "Fantom"})
```

```
> db.dog_show.find({"registration.show.Name": "Fantom" })
{ "_id" : ObjectId("5ede190c46920bb001a5ba75"), "score" : 15, "registration" : { "reg_number" : 4, "ring" : 3, "show" :
  { "Name" : "Fantom", "Place" : "Saint Petersburg", "Date" : "12/28/2020" }, "dog" : { "Document_num" : 839420, "Name" : "Lucky", "Dog_age" : 7, "Breed" : "Spaniel", "Club" : "Friend", "Owner_name" : "Sofia" } } }
{ "_id" : ObjectId("5ede190c46920bb001a5ba76"), "score" : 15, "registration" : { "reg_number" : 5, "ring" : 2, "show" :
  { "Name" : "Fantom", "Place" : "Saint Petersburg", "Date" : "12/28/2020" }, "dog" : { "Document_num" : 938726, "Name" : "Scooby", "Dog_age" : 8, "Breed" : "Pudel", "Club" : "Cornuel", "Owner_name" : "Elena" } } }
```

№4

```
db.dog_show.find({"registration.dog.Dog_age": {$gt : 6}})
```

```
> db.dog_show.find({"registration.dog.Dog_age": {$gt : 6}})
{ "_id" : ObjectId("5ede190c46920bb001a5ba73"), "score" : 18, "registration" : { "reg_number" : 2, "ring" : 1, "show" :
  { "Name" : "Champion", "Place" : "Saint Petersburg", "Date" : "04/28/2020" }, "dog" : { "Document_num" : 938726, "Name" : "Scooby", "Dog_age" : 8, "Breed" : "Pudel", "Club" : "Cornuel", "Owner_name" : "Elena" } } }
{ "_id" : ObjectId("5ede190c46920bb001a5ba76"), "score" : 15, "registration" : { "reg_number" : 5, "ring" : 2, "show" :
  { "Name" : "Fantom", "Place" : "Saint Petersburg", "Date" : "12/28/2020" }, "dog" : { "Document_num" : 938726, "Name" : "Scooby", "Dog_age" : 8, "Breed" : "Pudel", "Club" : "Cornuel", "Owner_name" : "Elena" } } }
```

№5

```
db.dog_show.find({"score": {$gt : 19}})
```

```
> db.dog_show.find({"score": {$gt : 19}})
{ "_id" : ObjectId("5ede190c46920bb001a5ba72"), "score" : 25, "registration" : { "reg_number" : 1, "ring" : 3, "show" :
  { "Name" : "Champion", "Place" : "Saint Petersburg", "Date" : "04/28/2020" }, "dog" : { "Document_num" : 129588, "Name" : "Bella", "Dog_age" : 7, "Breed" : "Spaniel", "Club" : "Friend", "Owner_name" : "Igor" } } }
{ "_id" : ObjectId("5ede190c46920bb001a5ba74"), "score" : 24, "registration" : { "reg_number" : 3, "ring" : 2, "show" :
  { "Name" : "Champion", "Place" : "Saint Petersburg", "Date" : "04/28/2020" }, "dog" : { "Document_num" : 209483, "Name" : "Molly", "Dog_age" : 7, "Breed" : "Dalmatian", "Club" : "Friend", "Owner_name" : "Sergei" } } }
```

## MapReduce

```
var F1 = function() {  
...   emit(this.registration.dog.Name, this.score);  
... };  
>  
> var F2 = function(names, score) {  
...   return Array.sum(score);  
... };  
>  
> db.dog_show.mapReduce(  
...   F1,  
...   F2,  
...   { out: "whole_result" }  
... )
```

Сумма баллов по собакам в выставках

```
{  
  "result" : "whole_result",  
  "timeMillis" : 174,  
  "counts" : {  
    "input" : 5,  
    "emit" : 5,  
    "reduce" : 1,  
    "output" : 4  
  },  
  "ok" : 1  
}  
[> db.whole_result.find()  
{ "_id" : "Bella", "value" : 25 }  
{ "_id" : "Lucky", "value" : 15 }  
{ "_id" : "Molly", "value" : 24 }  
{ "_id" : "Scooby", "value" : 33 }
```

## Вывод

В результате выполнения лабораторной работы были приобретены навыки создания баз данных и выполнения запросов к ним с использованием MongoDB.