

**ФЕДЕРАЛЬНОЕ ГОСУДАРСТВЕННОЕ АВТОНОМНОЕ ОБРАЗОВАТЕЛЬНОЕ  
УЧРЕЖДЕНИЕ ВЫСШЕГО ОБРАЗОВАНИЯ**

**САНКТ-ПЕТЕРБУРГСКИЙ НАЦИОНАЛЬНЫЙ ИССЛЕДОВАТЕЛЬСКИЙ  
УНИВЕРСИТЕТ**

**ИНФОРМАЦИОННЫХ ТЕХНОЛОГИЙ, МЕХАНИКИ И ОПТИКИ**

Факультет «Инфокоммуникационных технологий»  
Кафедра «Интеллектуальных технологий в гуманитарной сфере»  
Направление подготовки «09.03.03 Прикладная информатика»

## **ОТЧЕТ**

### **По лабораторной работе №6**

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Тема задания Знакомство с MongoDB

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**Выполнил:**

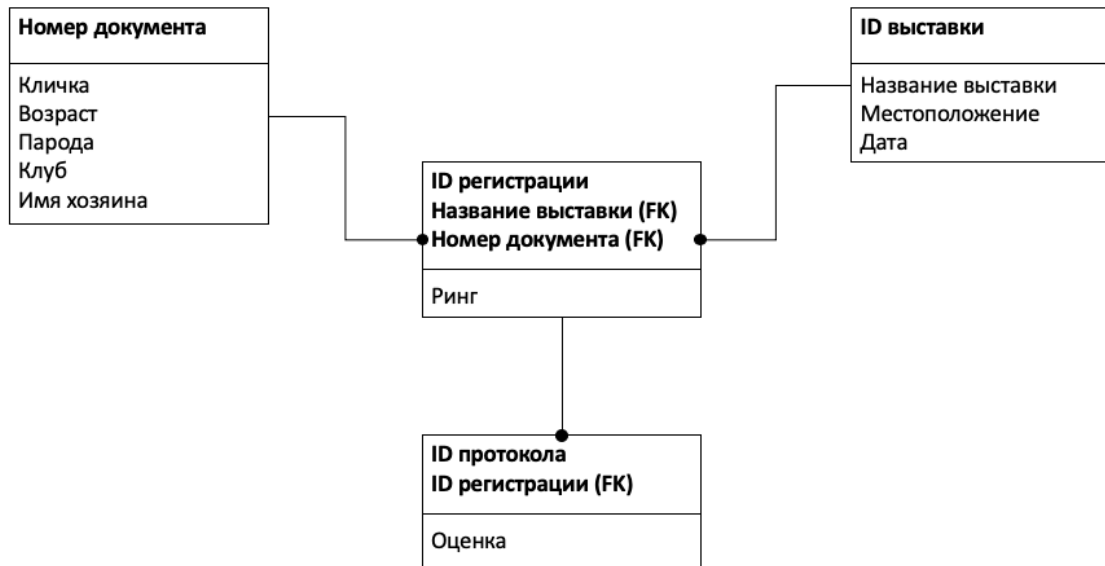
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**Санкт-Петербург  
2020**

## Цель работы

Овладеть практическими навыками и умениями реализации баз данных в MongoDB.

## Модель базы данных



## Создание базы в MongoDB

База данных создается командой: `use dog_show.`

Заполнение таблицы необходимыми данными.

```
db.dog_show.insertMany([
... {
...   "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": 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": 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": 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"
...     }
...   }
... }
... }
... ])

```

Результат заполнения таблицы.

```

{
  [
    "acknowledged" : true,
    "insertedIds" : [
      ObjectId("5ede190c46920bb001a5ba72"),
      ObjectId("5ede190c46920bb001a5ba73"),
      ObjectId("5ede190c46920bb001a5ba74"),
      ObjectId("5ede190c46920bb001a5ba75"),
      ObjectId("5ede190c46920bb001a5ba76")
    ]
  ]
}

```

## Запросы к базе данных

Получение записей, связанных с конкретной собакой.

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" } } }
```

Получение записей, связанных с определенной выставкой.

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" } } }
```

Получение записей о выставках, которые проходят в Санкт-Петербурге.

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" } } }
```

Получение записей, в которых собака набрала больше 20 баллов.

db.dog\_show.find({"score": {\$gt: 20}})

```
> db.dog_show.find({"score": {$gt: 20}})
{ "_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" } } }
```

Получение записей собаках, которые старше 7 лет.

db.dog\_show.find({"registration.dog.Dog\_age": {\$gt: 7}})

```
> db.dog_show.find({"registration.dog.Dog_age": {$gt: 7}})
{ "_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" } } }
```

## Вывод

В ходе работы были освоены основы создания базы данных с помощью MongoDB. Получены навыки написания запросов к базе данных средствами MongoDB.

