

САНКТ-ПЕТЕРБУРГСКИЙ НАЦИОНАЛЬНЫЙ  
ИССЛЕДОВАТЕЛЬСКИЙ УНИВЕРСИТЕТ ИНФОРМАЦИОННЫХ  
ТЕХНОЛОГИЙ, МЕХАНИКИ И ОПТИКИ

**ОТЧЕТ ПО ЛАБОРАТОРНОЙ РАБОТЕ № 6**  
**«Знакомство с MongoDB.»**

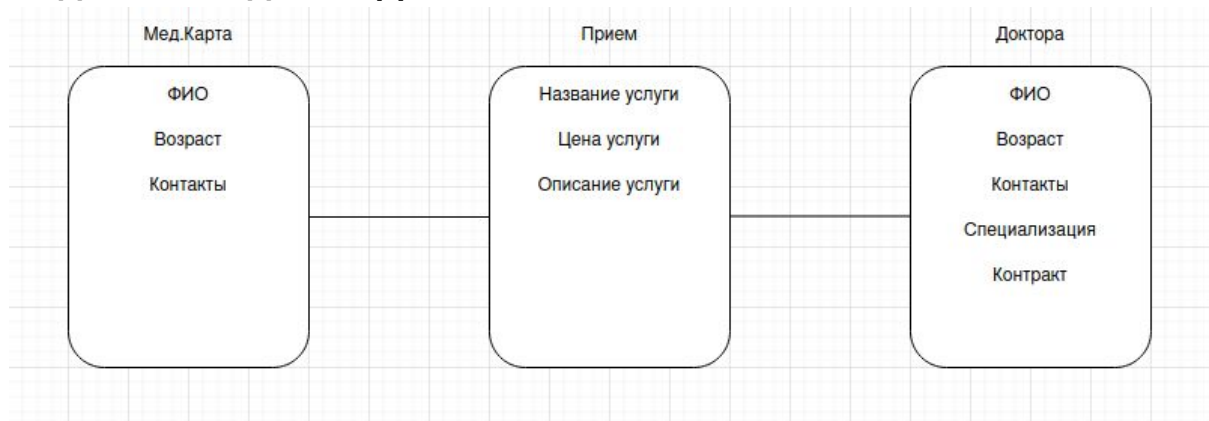
Выполнил:  
Урнежус Филипп  
Группа К3242  
Преподаватель:  
Говоров А.И.

2020  
г. Санкт-Петербург

## Цель работы

Овладеть практическими навыками и умениями реализации баз данных в Mongo DB.

## Модель исходной БД



## Заполнение БД

```
> use clinics
switched to db clinics
> db.clinics.find()
{ "_id" : ObjectId("5f0107eb5959294a797903d7"), "full_name" : "filips_urnezhus", "age" : 21, "contacts" : 89817623066, "reception" : { "reception_time" : "12:00", "reception_date" : "29.05.2020", "reception_name" : "checkup" } }
{ "_id" : ObjectId("5f0108345959294a797903d8"), "full_name" : "yana_evshina", "age" : 20, "contacts" : 89819655254, "reception" : { "reception_time" : "12:20", "reception_date" : "29.05.2020", "reception_name" : "consultation" } }
{ "_id" : ObjectId("5f0109bf0d339a52a038050c"), "full_name" : "ilya_chistyakov", "age" : 21, "contacts" : 89214219056, "reception" : { "reception_time" : "12:40", "reception_date" : "29.05.2020", "reception_name" : "flu" } }
{ "_id" : ObjectId("5f0109c80d339a52a038050d"), "full_name" : "kirill_kuzmin", "age" : 20, "contacts" : 89005557530, "reception" : { "reception_time" : "13:00", "reception_date" : "29.05.2020", "reception_name" : "corona" } }
{ "_id" : ObjectId("5f0109cd0d339a52a038050e"), "full_name" : "denis_ivanov", "age" : 23, "contacts" : 89998504735, "reception" : { "reception_time" : "13:20", "reception_date" : "29.05.2020", "reception_name" : "medical_inspection" } }
>
```

```
> db.doctors.find()
{ "_id" : ObjectId("5f021f4fece0116cd02ce2e0"), "doctor_full_name" : "Mudite Ozo lina", "doctor_age" : 54, "doctor_contacts" : 37163452430, "doctor_specialization" : "pediatrician", "doctor_contract_length" : "4 years" }
{ "_id" : ObjectId("5f021fe9528e5b48dc66a176"), "doctor_full_name" : "Andris Bri edis", "doctor_age" : 48, "doctor_contacts" : 37163422576, "doctor_specialization" : "nutritionist", "doctor_contract_length" : "2 years" }
{ "_id" : ObjectId("5f021fee528e5b48dc66a177"), "doctor_full_name" : "Ilze Lagzd ina", "doctor_age" : 65, "doctor_contacts" : 37163422509, "doctor_specialization" : "endocrinologist", "doctor_contract_length" : "3 years" }
{ "_id" : ObjectId("5f021ff3528e5b48dc66a178"), "doctor_full_name" : "Jelena Mel ere", "doctor_age" : 40, "doctor_contacts" : 37128908800, "doctor_specialization" : "cardiologist", "doctor_contract_length" : "1 years" }
{ "_id" : ObjectId("5f021ff7528e5b48dc66a179"), "doctor_full_name" : "Aivars Olm anis", "doctor_age" : 45, "doctor_contacts" : 37129436630, "doctor_specialization" : "psychologist", "doctor_contract_length" : "0.6 years" }
>
```

## Запросы к БД

1. Найти пациентов с датой приема 29 мая 2020 года.

```
> db.clinics.find({"reception.reception_date": "29.05.2020"})
{ "_id" : ObjectId("5f0107eb5959294a797903d7"), "full_name" : "filips_urnezhus",
  "age" : 21, "contacts" : 89817623066, "reception" : { "reception_time" : "12:00",
  "reception_date" : "29.05.2020", "reception_name" : "checkup" } }
{ "_id" : ObjectId("5f0108345959294a797903d8"), "full_name" : "yana_evshina", "age" : 20,
  "contacts" : 89819655254, "reception" : { "reception_time" : "12:20",
  "reception_date" : "29.05.2020", "reception_name" : "consultation" } }
{ "_id" : ObjectId("5f0109bf0d339a52a038050c"), "full_name" : "ilya_chistyakov",
  "age" : 21, "contacts" : 89214219056, "reception" : { "reception_time" : "12:40",
  "reception_date" : "29.05.2020", "reception_name" : "flu" } }
{ "_id" : ObjectId("5f0109c80d339a52a038050d"), "full_name" : "kirill_kuzmin", "age" : 20,
  "contacts" : 89005557530, "reception" : { "reception_time" : "13:00",
  "reception_date" : "29.05.2020", "reception_name" : "corona" } }
{ "_id" : ObjectId("5f0109cd0d339a52a038050e"), "full_name" : "denis_ivanov", "age" : 23,
  "contacts" : 89998504735, "reception" : { "reception_time" : "13:20",
  "reception_date" : "29.05.2020", "reception_name" : "medical_inspection" } }
>
```

2. Найти пациентов с возрастом больше 22.

```
> db.clinics.find({"age":{$gt : 22}})
{ "_id" : ObjectId("5f0109cd0d339a52a038050e"), "full_name" : "denis_ivanov", "age" : 23,
  "contacts" : 89998504735, "reception" : { "reception_time" : "13:20",
  "reception_date" : "29.05.2020", "reception_name" : "medical_inspection" } }
>
```

3. Найти пациента с приемом в 12:00 29 мая 2020 года.

```
> db.clinics.find({"age":{$gt : 22}})
{ "_id" : ObjectId("5f0109cd0d339a52a038050e"), "full_name" : "denis_ivanov", "age" : 23,
  "contacts" : 89998504735, "reception" : { "reception_time" : "13:20",
  "reception_date" : "29.05.2020", "reception_name" : "medical_inspection" } }
>
```

4. Найти количество врачей с возрастом больше чем 48 лет.

```
> db.doctors.find({"doctor_age":{$gt : 48}}).count()
2
>
```

5. Map Reduce

```
> use doctors
switched to db doctors
> db.doctors.mapReduce( function() { emit(this.doctor_full_name, this.doctor_specialization); },
  function(values) {return values;}, {out: "mapreduce_doctors"} )
;
{
  "result" : "mapreduce_doctors",
  "timeMillis" : 452,
  "counts" : {
    "input" : 5,
    "emit" : 5,
    "reduce" : 0,
    "output" : 5
  },
  "ok" : 1
}
> db.mapreduce_doctors.find()
{ "_id" : "Aivars Olmanis", "value" : "psychologist" }
{ "_id" : "Andris Briedis", "value" : "nutritionist" }
{ "_id" : "Ilze Lagzdina", "value" : "endocrinologist" }
{ "_id" : "Jelena Melere", "value" : "cardiologist" }
{ "_id" : "Mudite Ozolina", "value" : "pediatrician" }
>
```

**Вывод:**

В ходе работы мы познакомились с MongoDB и узнали о некоторых его особенностях.