

**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

Тема задания: знакомство с MongoDB

**Выполнил:
Студент Матюшина Е.И. К3241**

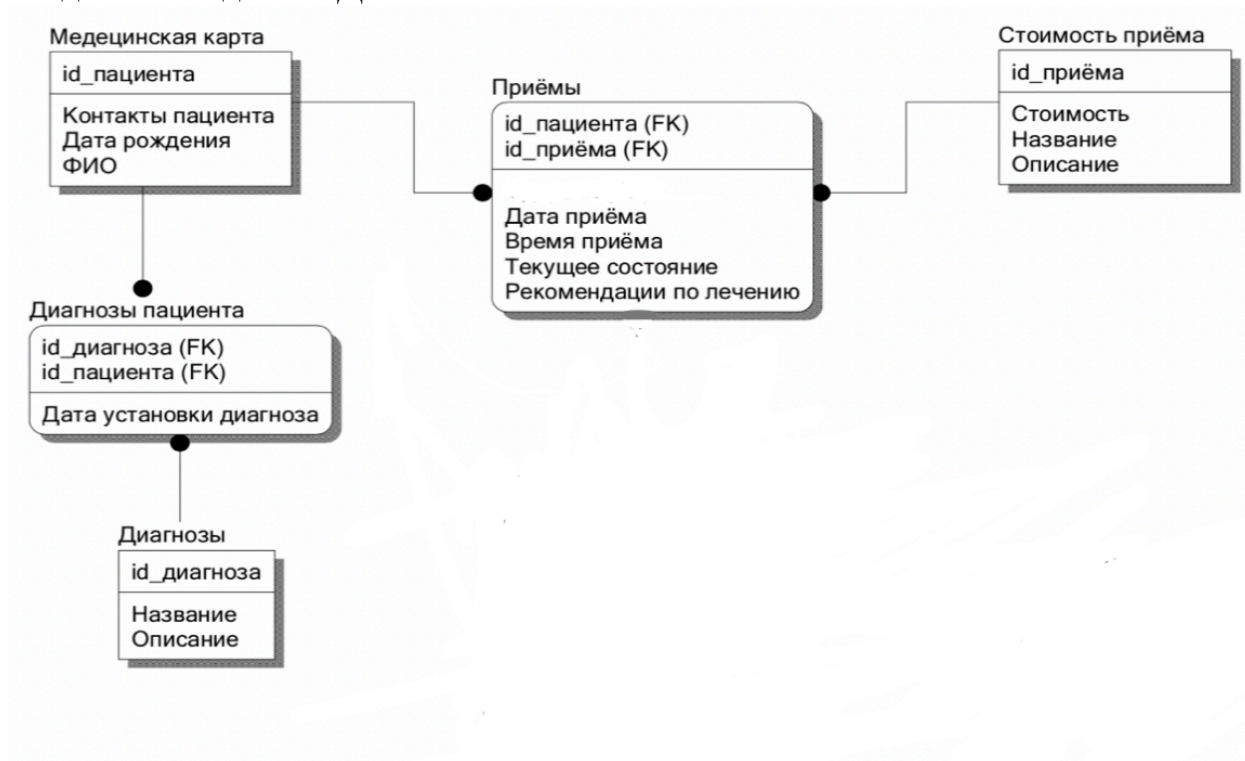
(Фамилия И.О.) номер группы

Санкт-Петербург 2020

Цель работы.

Овладеть практическими навыками и умениями реализации баз данных в MongoDB.

Модель исходной БД.



Заполнение базы данных.

```
db.clinics.insertMany([ {
... "date_priem": "03/04/2009",
... "time_priem": "10:00",
... "state": "normal",
... "recommendations": "stay home",
... "priem_cost": {
... "priem_cost": 2000,
... "title": "spravka prava",
... "description": "no description given"
... },
... "medical_records": {
... "contacts": "+79893456077",
... "birthday": "04/05/2003",
... "name": "Sofia Morgunova",
... "patient_diagnosis": {
... "date": "06/04/2020",
... "diagnosis": {
... "title": "flu",
... "description": "runny or stuffy nose"
... }
... }
... }
... },
... {
... "date_priem": "01/01/2010",
... "time_priem": "9:00",
... "state": "normal",
... "recommendations": "no recommendations given"
```

```
... "priem_cost": {
... "priem_cost": 300,
... "title": "osmotr",
... "description": "no description given"
... },
... "medical_records": {
... "contacts": "+79893456123",
... "birthday": "01/05/2010",
... "name": "Michail Petrov",
... "patient_diagnosis": {
... "date": "05/04/2020",
... "diagnosis": {
... "title": "corona",
... "description": "no contacts"
... }
... }
... }
... },
... {
... "date_priem": "01/02/2020",
... "time_priem": "13:00",
... "state": "bad",
... "recommendations": "stay home",
... "priem_cost": {
... "priem_cost": 4000,
... "title": "analiz krovi",
... "description": "without any extra surcharges"
... },
... "medical_records": {
... "contacts": "+79893456033",
... "birthday": "04/06/2020",
... "name": "Sasha Ivanov",
... "patient_diagnosis": {
... "date": "01/07/2020",
... "diagnosis": {
... "title": "corona",
... "description": "isolation"
... }
... }
... }
... },
... {
... "date_priem": "02/01/2019",
... "time_priem": "15:00",
... "state": "good",
... "recommendations": "no recommendations given",
... "priem_cost": {
... "priem_cost": 900,
... "title": "analiz",
... "description": "no description given"
... },
... "medical_records": {
... "contacts": "+79893455566",
... "birthday": "04/05/2003",
... "name": "Sofia Alexina",
... "patient_diagnosis": {
... "date": "06/04/2020",
... "diagnosis": {
```


Получение информации о записях, где есть диагнозы с названием корона.

```
> db.clinics.find({"medical_records.patient_diagnosis.diagnosis.title":"corona"})
{ "_id" : ObjectId("5ee1e96c2952aa9d843c1737"), "date_priem" : "01/01/2010", "time_priem" : "9:00",
  "state" : "normal", "recommendations" : "no recommendations given", "priem_cost" : { "priem_cost" :
  : 300, "title" : "osmotr", "description" : "no description given" }, "medical_records" : { "contacts" : {
  s" : "+79893456123", "birthday" : "01/05/2010", "name" : "Michail Petrov", "patient_diagnosis" : {
  "date" : "05/04/2020", "diagnosis" : { "title" : "corona", "description" : "no contacts" } } } }
{ "_id" : ObjectId("5ee1e96c2952aa9d843c1738"), "date_priem" : "01/02/2020", "time_priem" : "13:00",
  "state" : "bad", "recommendations" : "stay home", "priem_cost" : { "priem_cost" : 4000, "title" :
  "analiz krovi", "description" : "without any extra surcharges" }, "medical_records" : { "contacts" : {
  s" : "+79893456033", "birthday" : "04/06/2020", "name" : "Sasha Ivanov", "patient_diagnosis" : { "date" :
  "01/07/2020", "diagnosis" : { "title" : "corona", "description" : "isolation" } } } }
>
```

Получение записей, где есть приемы, стоимостью больше 1000.

```
> db.clinics.find({"priem_cost.priem_cost":{"$gt : 1000}})
{ "_id" : ObjectId("5ee1e96c2952aa9d843c1736"), "date_priem" : "03/04/2009", "time_priem" : "10:00",
  "state" : "normal", "recommendations" : "stay home", "priem_cost" : { "priem_cost" : 2000, "title" :
  " : "spravka prava", "description" : "no description given" }, "medical_records" : { "contacts" : "
  +79893456077", "birthday" : "04/05/2003", "name" : "Sofia Morgunova", "patient_diagnosis" : { "date" :
  "06/04/2020", "diagnosis" : { "title" : "flu", "description" : "runny or stuffy nose" } } } }
{ "_id" : ObjectId("5ee1e96c2952aa9d843c1738"), "date_priem" : "01/02/2020", "time_priem" : "13:00",
  "state" : "bad", "recommendations" : "stay home", "priem_cost" : { "priem_cost" : 4000, "title" :
  "analiz krovi", "description" : "without any extra surcharges" }, "medical_records" : { "contacts" : {
  s" : "+79893456033", "birthday" : "04/06/2020", "name" : "Sasha Ivanov", "patient_diagnosis" : { "date" :
  "01/07/2020", "diagnosis" : { "title" : "corona", "description" : "isolation" } } } }
>
```

Получение записей с определенной датой или временем приема.

```
> db.clinics.find({"$or":[{"time_priem":"10:00"}, {"date_priem":"01/01/2010"}]})
{ "_id" : ObjectId("5ee1e96c2952aa9d843c1736"), "date_priem" : "03/04/2009", "time_priem" : "10:00",
  "state" : "normal", "recommendations" : "stay home", "priem_cost" : { "priem_cost" : 2000, "title" :
  " : "spravka prava", "description" : "no description given" }, "medical_records" : { "contacts" : "
  +79893456077", "birthday" : "04/05/2003", "name" : "Sofia Morgunova", "patient_diagnosis" : { "date" :
  "06/04/2020", "diagnosis" : { "title" : "flu", "description" : "runny or stuffy nose" } } } }
{ "_id" : ObjectId("5ee1e96c2952aa9d843c1737"), "date_priem" : "01/01/2010", "time_priem" : "9:00",
  "state" : "normal", "recommendations" : "no recommendations given", "priem_cost" : { "priem_cost" :
  : 300, "title" : "osmotr", "description" : "no description given" }, "medical_records" : { "contact
  s" : "+79893456123", "birthday" : "01/05/2010", "name" : "Michail Petrov", "patient_diagnosis" : {
  "date" : "05/04/2020", "diagnosis" : { "title" : "corona", "description" : "no contacts" } } } }
>
```

Получение записей, где нет информации об описании и стоимость приема больше 400.

```
> db.clinics.find({"$and":[{"priem_cost.description":"no description given"}, {"priem_cost.priem_cost"
  : {"$gt : 400}}]})
{ "_id" : ObjectId("5ee1e96c2952aa9d843c1736"), "date_priem" : "03/04/2009", "time_priem" : "10:00",
  "state" : "normal", "recommendations" : "stay home", "priem_cost" : { "priem_cost" : 2000, "title" :
  " : "spravka prava", "description" : "no description given" }, "medical_records" : { "contacts" : "
  +79893456077", "birthday" : "04/05/2003", "name" : "Sofia Morgunova", "patient_diagnosis" : { "date" :
  "06/04/2020", "diagnosis" : { "title" : "flu", "description" : "runny or stuffy nose" } } } }
{ "_id" : ObjectId("5ee1e96c2952aa9d843c1739"), "date_priem" : "02/01/2019", "time_priem" : "15:00",
  "state" : "good", "recommendations" : "no recommendations given", "priem_cost" : { "priem_cost" :
  : 900, "title" : "analiz", "description" : "no description given" }, "medical_records" : { "contacts" : {
  s" : "+79893455566", "birthday" : "04/05/2003", "name" : "Sofia Alexina", "patient_diagnosis" : { "date" :
  "06/04/2020", "diagnosis" : { "title" : "flu", "description" : "runny or stuffy nose" } } } }
{ "_id" : ObjectId("5ee1e96c2952aa9d843c173a"), "date_priem" : "03/03/2020", "time_priem" : "16:00",
  "state" : "good", "recommendations" : "stay home", "priem_cost" : { "priem_cost" : 800, "title" :
  " : "spravka v school", "description" : "no description given" }, "medical_records" : { "contacts" : "
  +79893456044", "birthday" : "04/10/1999", "name" : "Viktoria Erochina", "patient_diagnosis" : { "date" :
  "04/04/2020", "diagnosis" : { "title" : "cold", "description" : "strong cough" } } } }
>
```

Вывод.

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