

**САНКТ-ПЕТЕРБУРГСКИЙ НАЦИОНАЛЬНЫЙ  
ИССЛЕДОВАТЕЛЬСКИЙ УНИВЕРСИТЕТ ИТМО**

**Дисциплина:** Бек-энд разработка

Отчет

Домашняя работа

“Знакомство с микрофреймворками Express и ORM  
Sequelize”

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2024 г.

## Задание

- 1) Продумать свою собственную модель пользователя
- 2) Реализовать набор из CRUD-методов для работы с пользователями средствами Express + Sequelize
- 3) Написать запрос для получения пользователя по id/email

## Ход работы

### 1. Инициализация npm-пакета

```
MacBook-Pro-Arina-3:hw2 arinasokolovskaa$ npm init
This utility will walk you through creating a package.json file.
It only covers the most common items, and tries to guess sensible defaults.

See `npm help init` for definitive documentation on these fields
and exactly what they do.

Use `npm install <pkg>` afterwards to install a package and
save it as a dependency in the package.json file.

Press ^C at any time to quit.
package name: (hw2)
version: (1.0.0)
description:
entry point: (index.js)
test command:
git repository:
keywords:
author:
license: (ISC)
About to write to /Users/arinasokolovskaa/Desktop/ITMO-ICT-Backend-2024/homeworks/K33392/Соколовская Арина/hw2/package.json:

{
  "name": "hw2",
  "version": "1.0.0",
  "description": "",
  "main": "index.js",
  "scripts": {
    "test": "echo \"Error: no test specified\" && exit 1"
  },
  "author": "",
  "license": "ISC"
}

Is this OK? (yes) yes
```

### 2. Установка express, sequelize, sequelize-cli

```
MacBook-Pro-Arina-3:hw2 arinasokolovskaa$ npm install express
npm notice Beginning October 4, 2021, all connections to the npm registry - including for package installation - must use TLS 1.2 or higher. You are currently using http to connect. Please visit the GitHub blog for more information: https://github.blog/2021-08-23-npm-registry-deprecating-tls-1-0-tls-1-1/
npm notice Beginning October 4, 2021, all connections to the npm registry - including for package installation - must use TLS 1.2 or higher. You are currently using http to connect. Please visit the GitHub blog for more information: https://github.blog/2021-08-23-npm-registry-deprecating-tls-1-0-tls-1-1/

added 64 packages in 7s

12 packages are looking for funding
  run `npm fund` for details
MacBook-Pro-Arina-3:hw2 arinasokolovskaa$ npm i sequelize
npm notice Beginning October 4, 2021, all connections to the npm registry - including for package installation - must use TLS 1.2 or higher. You are currently using http to connect. Please visit the GitHub blog for more information: https://github.blog/2021-08-23-npm-registry-deprecating-tls-1-0-tls-1-1/
npm notice Beginning October 4, 2021, all connections to the npm registry - including for package installation - must use TLS 1.2 or higher. You are currently using http to connect. Please visit the GitHub blog for more information: https://github.blog/2021-08-23-npm-registry-deprecating-tls-1-0-tls-1-1/

added 23 packages in 8s

13 packages are looking for funding
  run `npm fund` for details
MacBook-Pro-Arina-3:hw2 arinasokolovskaa$ npm i sequelize-cli
npm notice Beginning October 4, 2021, all connections to the npm registry - including for package installation - must use TLS 1.2 or higher. You are currently using http to connect. Please visit the GitHub blog for more information: https://github.blog/2021-08-23-npm-registry-deprecating-tls-1-0-tls-1-1/
npm notice Beginning October 4, 2021, all connections to the npm registry - including for package installation - must use TLS 1.2 or higher. You are currently using http to connect. Please visit the GitHub blog for more information: https://github.blog/2021-08-23-npm-registry-deprecating-tls-1-0-tls-1-1/

added 94 packages in 13s

29 packages are looking for funding
  run `npm fund` for details
MacBook-Pro-Arina-3:hw2 arinasokolovskaa$
```

### 3. Создание проекта

```
MacBook-Pro-Arina-3:hw2 arinasokolovskaa$ npx sequelize init

Sequelize CLI [Node: 21.7.1, CLI: 6.6.2, ORM: 6.37.1]

Created "config/config.json"
Successfully created models folder at "/Users/arinasokolovskaa/Desktop/ITMO-ICT-Backend-2024/homeworks/K33392/Соколовская Арина/hw2/models".
Successfully created migrations folder at "/Users/arinasokolovskaa/Desktop/ITMO-ICT-Backend-2024/homeworks/K33392/Соколовская Арина/hw2/migrations".
Successfully created seeders folder at "/Users/arinasokolovskaa/Desktop/ITMO-ICT-Backend-2024/homeworks/K33392/Соколовская Арина/hw2/seeders".
```

### 4. Изменение дефолтной СУБД

```
{
  "development": {
    "username": "root",
    "password": null,
    "database": "database_development",
    "host": "127.0.0.1",
    "dialect": "sqlite",
    "storage": "db.sqlite"
  },
}
```

### 5. Создание модели пользователя

```
MacBook-Pro-Arina-3:hw2 arinasokolovskaa$ npx sequelize-cli model:generate --name User --attributes nickname:string,firstName:string,lastName:string,email:string,phone:string

Sequelize CLI [Node: 21.7.1, CLI: 6.6.2, ORM: 6.37.1]

New model was created at /Users/arinasokolovskaa/Desktop/ITMO-ICT-Backend-2024/homeworks/K33392/Соколовская Арина/hw2/models/user.js .
New migration was created at /Users/arinasokolovskaa/Desktop/ITMO-ICT-Backend-2024/homeworks/K33392/Соколовская Арина/hw2/migrations/20240317103528-create-user.js .
```

### 6. Накатывание миграций

```
MacBook-Pro-Arina-3:hw2 arinasokolovskaa$ npx sequelize db:migrate

Sequelize CLI [Node: 21.7.1, CLI: 6.6.2, ORM: 6.37.1]

Loaded configuration file "config/config.json".
Using environment "development".
== 20240317103528-create-user: migrating =====
== 20240317103528-create-user: migrated (0.011s)
```

## 7. Реализация набора из CRUD-методов для работы с пользователями

```
app.get('/users', async (req : Request<P, ResBody, ReqBody, ReqQuery, LocalsObj> , res : Response<ResBody, LocalsObj> ) : Promise<...> => {
  try {
    const user : Model[] = await db.User.findAll()
    return res.send(user)
  }
  catch(e) {
    return res.status( code: 500).json( body: { message: e.message });
  }
})

new *
app.get('/:id', async(req : Request<P, ResBody, ReqBody, ReqQuery, LocalsObj> , res : Response<ResBody, LocalsObj> ) : Promise<...> => {
  try {
    const user : Promise<...> | Promise<...> = await db.User.findById(req.params.id)
    if (user) {
      return res.send(user)
    }
    return res.status( code: 404).json( body: { error: 'Non-existent user'})
  }
  catch(e) {
    return res.status( code: 500).json( body: { message: e.message });
  }
})
}
```

```
app.post( path: '/users', handlers: async (req : Request<P, ResBody, ReqBody, ReqQuery, LocalsObj> , res : Response<ResBody, LocalsObj> ) : Promise<...> => {
  try {
    const user = await db.User.create(req.body)
    return res.send(user)
  }
  catch(e) {
    return res.status( code: 400).json( body: { message: e.message });
  }
})

new *
app.delete( path: '/users/:id', handlers: async (req : Request<P, ResBody, ReqBody, ReqQuery, LocalsObj> , res : Response<ResBody, LocalsObj> ) : Promise<...> => {
  try {
    const user : Promise<...> | Promise<...> = await db.User.findById(req.params.id)
    if (user) {
      await user.destroy()
      return res.status( code: 200).send()
    }
    return res.status( code: 404).json( body: { error: "Non-existent user"})
  }
  catch (e) {
    res.status( code: 500).json( body: { error: e.message })
  }
})
}
```

```
app.patch( path: '/users/:id', handlers: async(req : Request<P, ResBody, ReqBody, ReqQuery, LocalsObj> , res : Response<ResBody, LocalsObj> ) : Promise<...> => {
  try {
    const user : Promise<...> | Promise<...> = await db.User.findById(req.params.id)
    if (user) {
      const updated_user = await user.update(req.body)
      return res.send(updated_user)
    }
    return res.status( code: 404).json( body: { error: 'Non-existent user' })
  }
  catch(e){
    return res.status( code: 500).json( body: { message: e.message });
  }
})
}
```

## 8. Тестирование

Overview POST http://localhost:3000/users No environment

http://localhost:3000/users Save Send

POST http://localhost:3000/users

Params Authorization Headers (8) Body Pre-request Script Tests Settings Beautify

☐ none ☐ form-data ☐ x-www-form-urlencoded ☒ raw ☐ binary ☐ GraphQL JSON

```
1 {
2   ... "nickname": "arina",
3   ... "firstName": "Arina",
4   ... "lastName": "Sokolovskaya",
5   ... "email": "ssokolovskayaaa@gmail.com",
6   ... "phone": "+79819868181"
7 }
```

Body Cookies Headers (7) Test Results Status: 200 OK Time: 58 ms Size: 446 B Save as example

Pretty Raw Preview Visualize JSON

```
1 {
2   "id": 2,
3   "nickname": "arina",
4   "firstName": "Arina",
5   "lastName": "Sokolovskaya",
6   "email": "ssokolovskayaaa@gmail.com",
7   "phone": "+79819868181",
8   "updatedAt": "2024-03-17T11:13:37.872Z",
9   "createdAt": "2024-03-17T11:13:37.872Z"
10 }
```

Overview GET http://localhost:3000/users No environment

http://localhost:3000/users Save Send

GET http://localhost:3000/users

Params Authorization Headers (6) Body Pre-request Script Tests Settings Cookies

☒ none ☐ form-data ☐ x-www-form-urlencoded ☐ raw ☐ binary ☐ GraphQL

This request does not have a body

Body Cookies Headers (7) Test Results Status: 200 OK Time: 7 ms Size: 448 B Save as example

Pretty Raw Preview Visualize JSON

```
1 [
2   {
3     "id": 2,
4     "nickname": "arina",
5     "firstName": "Arina",
6     "lastName": "Sokolovskaya",
7     "email": "ssokolovskayaaa@gmail.com",
8     "phone": "+79819868181",
9     "updatedAt": "2024-03-17T11:13:37.872Z",
10    "createdAt": "2024-03-17T11:13:37.872Z"
11  }
12 ]
```

Overview GET http://localhost:3000/users/2 No environment

http://localhost:3000/users/2 Save Send

Params Authorization Headers (6) Body Pre-request Script Tests Settings Cookies

☒ none ☐ form-data ☐ x-www-form-urlencoded ☐ raw ☐ binary ☐ GraphQL

This request does not have a body

Body Cookies Headers (7) Test Results Status: 200 OK Time: 5 ms Size: 446 B Save as example

Pretty Raw Preview Visualize JSON

```
1 {
2   "id": 2,
3   "nickname": "arina",
4   "firstName": "Arina",
5   "lastName": "Sokolovskaya",
6   "email": "ssokolovskayaaa@gmail.com",
7   "phone": "+79819068181",
8   "createdAt": "2024-03-17T11:13:37.872Z",
9   "updatedAt": "2024-03-17T11:13:37.872Z"
10 }
```

Overview PATCH http://localhost:3000/ No environment

http://localhost:3000/users/2 Save Send

Params Authorization Headers (8) Body Pre-request Script Tests Settings Cookies Beautify

☐ none ☐ form-data ☐ x-www-form-urlencoded ☒ raw ☐ binary ☐ GraphQL JSON

```
1 {
2   "nickname": "arina228",
3   "firstName": "Arina",
4   "lastName": "Sokolovskaya",
5   "email": "ssokolovskayaaa@gmail.com",
6   "phone": "+79819068181"
7 }
```

Body Cookies Headers (7) Test Results Status: 200 OK Time: 35 ms Size: 449 B Save as example

Pretty Raw Preview Visualize JSON

```
1 {
2   "id": 2,
3   "nickname": "arina228",
4   "firstName": "Arina",
5   "lastName": "Sokolovskaya",
6   "email": "ssokolovskayaaa@gmail.com",
7   "phone": "+79819068181",
8   "createdAt": "2024-03-17T11:13:37.872Z",
9   "updatedAt": "2024-03-17T11:14:48.641Z"
10 }
```

OverviewGET http://localhost:3000/u...+No environment

http://localhost:3000/users/2SaveSend

GEThttp://localhost:3000/users/2

ParamsAuthorizationHeaders (6)BodyPre-request ScriptTestsSettingsCookies

☒ none☐ form-data☐ x-www-form-urlencoded☐ raw☐ binary☐ GraphQL

This request does not have a body

BodyCookiesHeaders (7)Test ResultsStatus: 200 OKTime: 5 msSize: 449 BSave as example

PrettyRawPreviewVisualizeJSON

```
1 {
2   "id": 2,
3   "nickname": "arina228",
4   "firstName": "Arina",
5   "lastName": "Sokolovskaya",
6   "email": "ssokolovskayaaa@gmail.com",
7   "phone": "+79819068181",
8   "createdAt": "2024-03-17T11:13:37.872Z",
9   "updatedAt": "2024-03-17T11:14:48.641Z"
10 }
```

OverviewDEL http://localhost:3000/u...+No environment

http://localhost:3000/users/2SaveSend

DELETEhttp://localhost:3000/users/2

ParamsAuthorizationHeaders (6)BodyPre-request ScriptTestsSettingsCookies

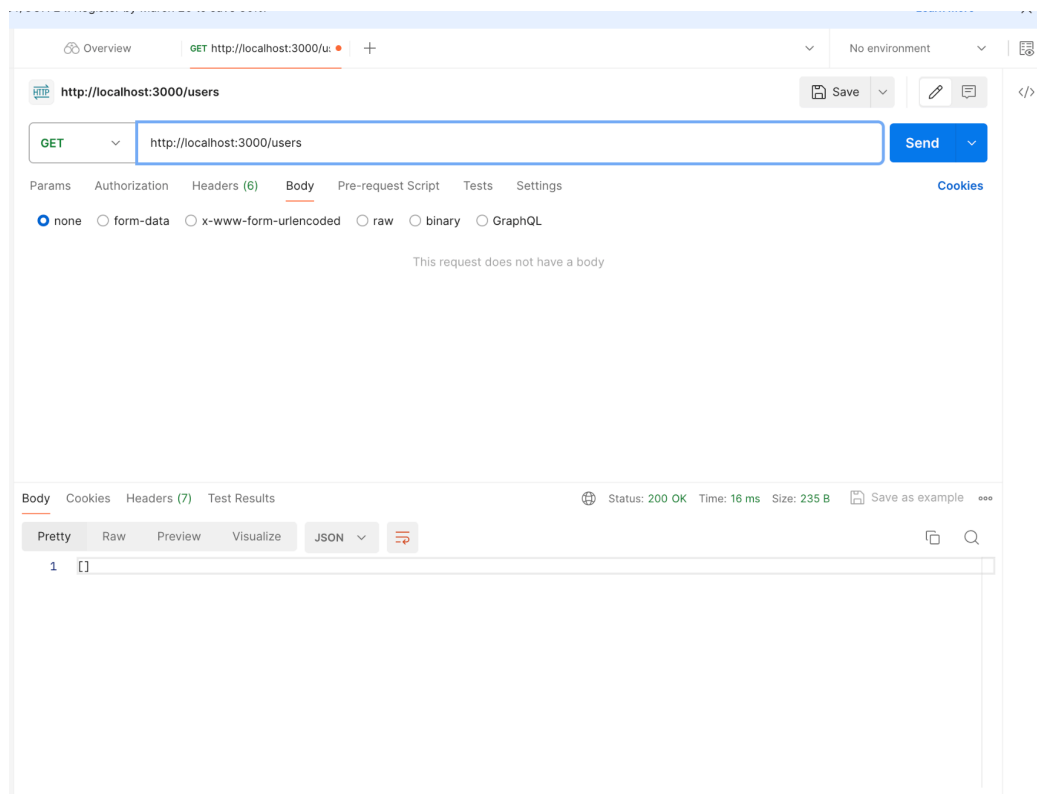
☒ none☐ form-data☐ x-www-form-urlencoded☐ raw☐ binary☐ GraphQL

This request does not have a body

BodyCookiesHeaders (5)Test ResultsStatus: 200 OKTime: 15 msSize: 145 BSave as example

PrettyRawPreviewVisualizeText

```
1
```



## Вывод

В результате выполнения домашней работы были освоены основы express и sequelize.