

МІНІСТЕРСТВО ОСВІТИ І НАУКИ УКРАЇНИ
НАЦІОНАЛЬНИЙ ТЕХНІЧНИЙ УНІВЕРСИТЕТ УКРАЇНИ
«КИЇВСЬКИЙ ПОЛІТЕХНІЧНИЙ ІНСТИТУТ ІМЕНІ ІГОРЯ
СІКОРСЬКОГО»

Факультет інформатики та обчислювальної техніки
Кафедра інформатики та програмної інженерії

Лабораторна робота №4
з курсу «Сучасні технології розробки WEB-застосувань на платформі
Microsoft.NET»
на тему: «Реалізація REST веб-API»

Викладач:

Бардін В.

Виконав студент:

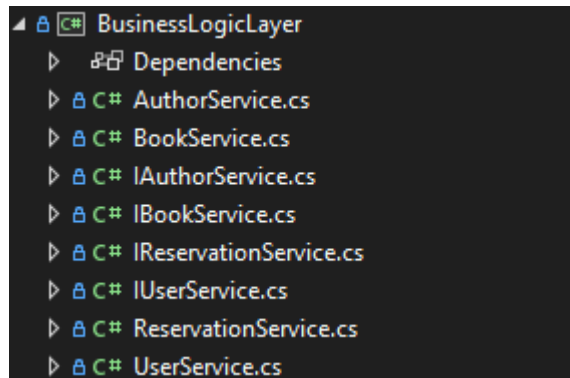
Лазюта Олексій

групи ІІІ-15 ФІОТ

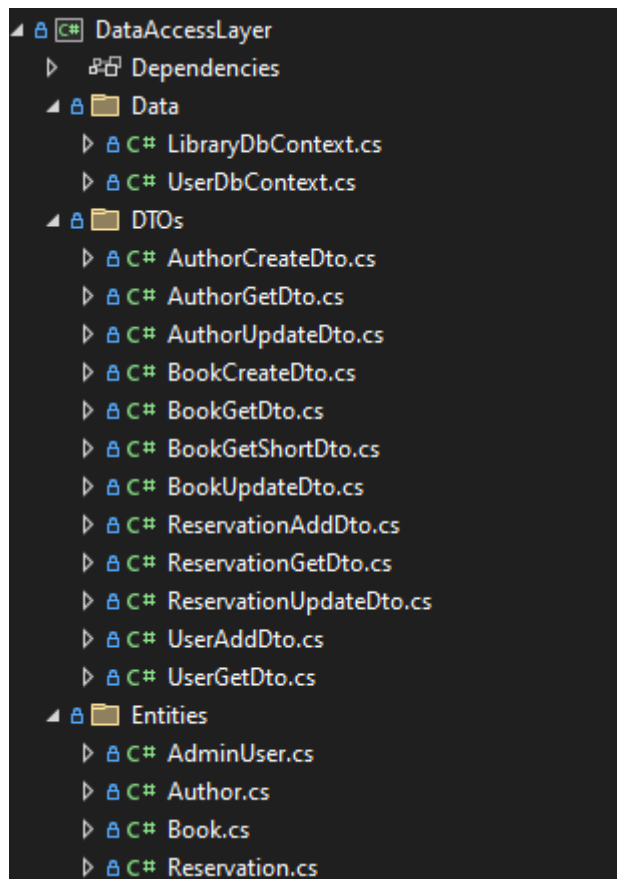
Київ-2023

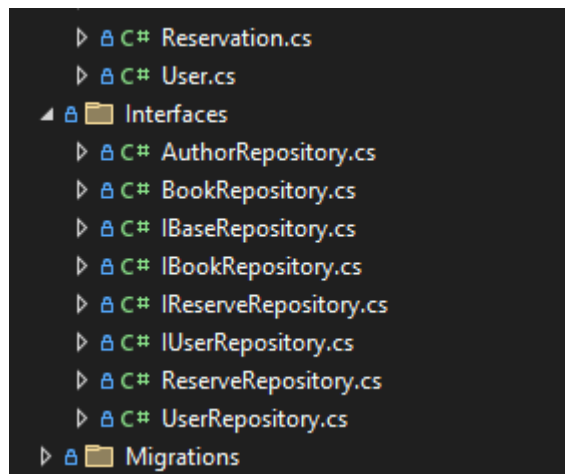
Структура проекту:

1. Business Logic Layer:

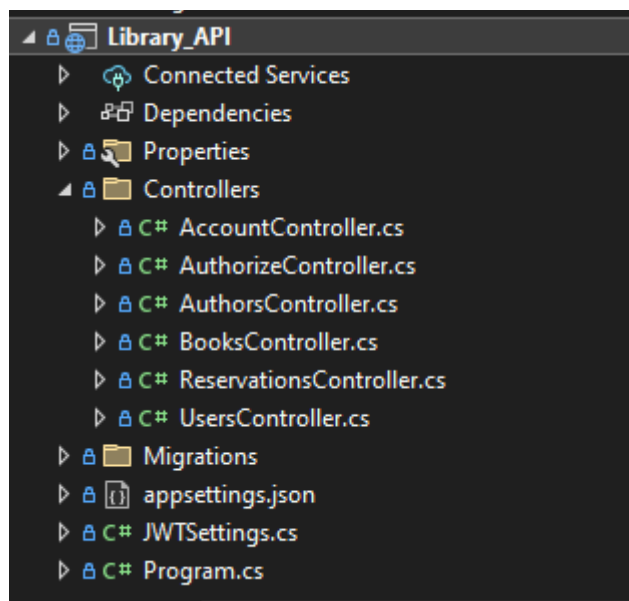


2. Data Access Layer





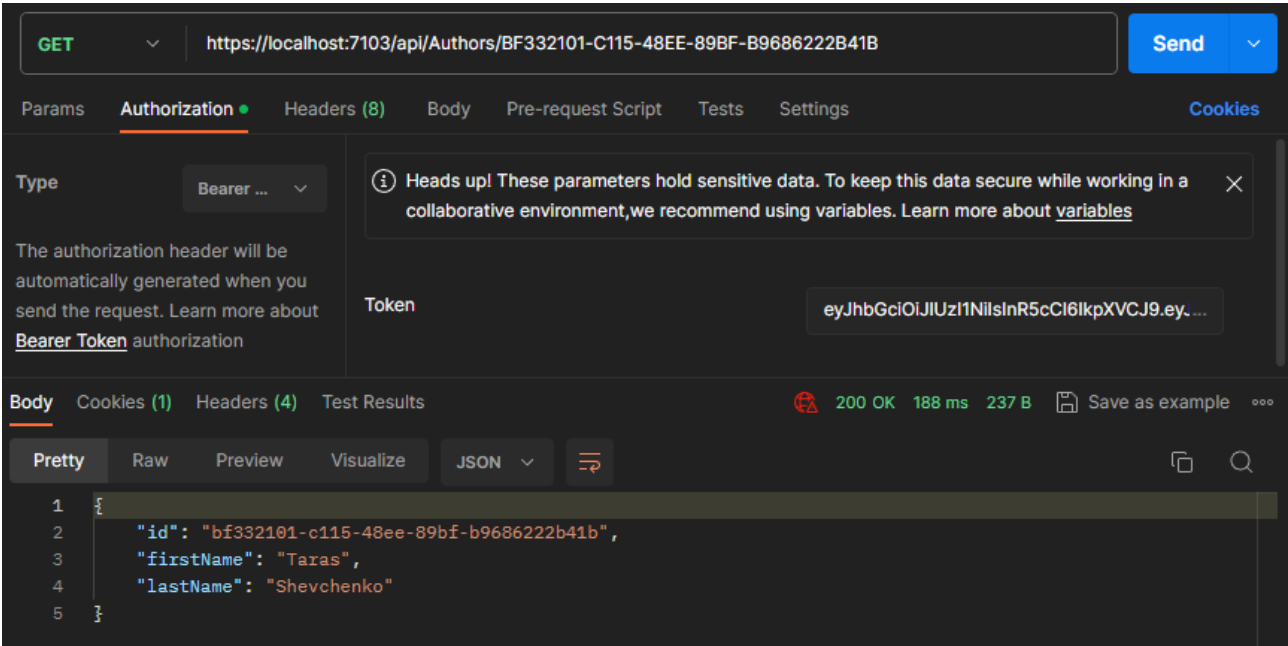
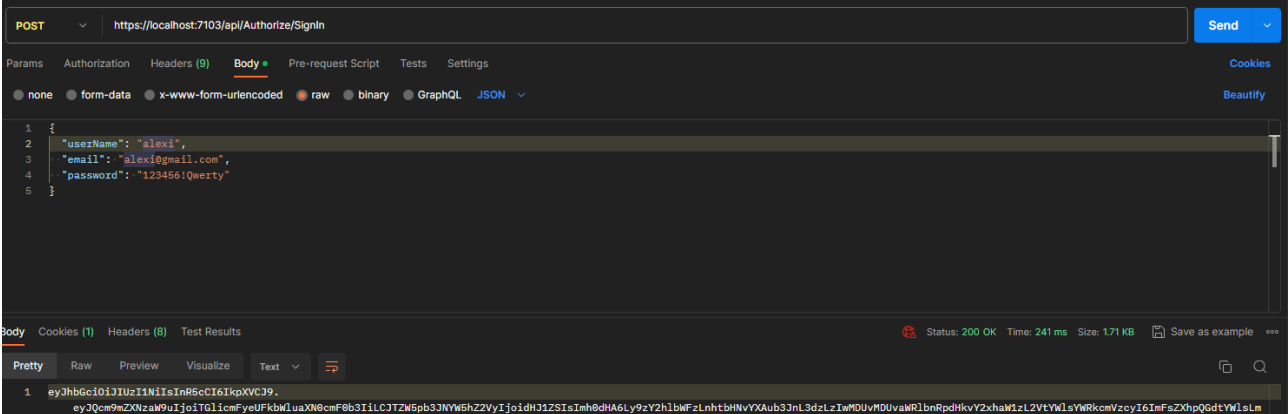
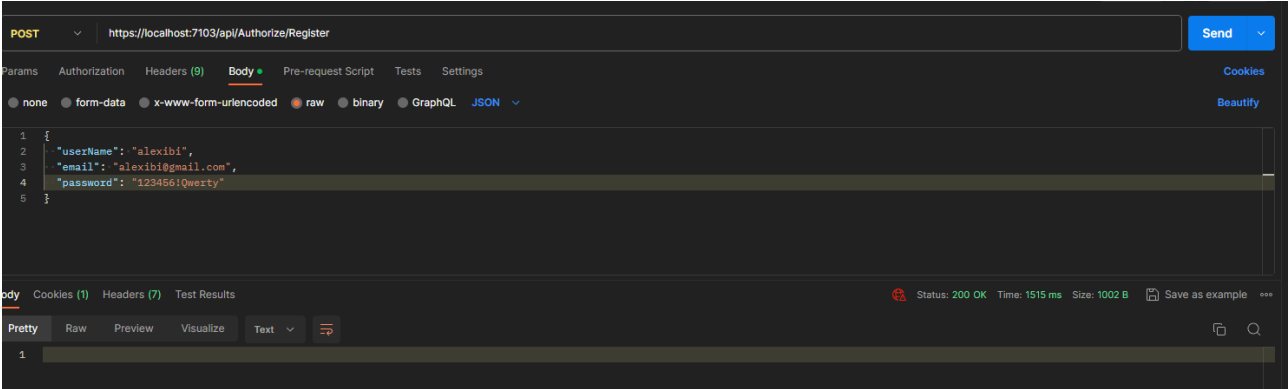
3. Presentation Layer:



Отримане апі згенероване за допомогою Swagger:

Authorize		^
POST	/api/Authorize/Register	✓
POST	/api/Authorize/SignIn	✓
Authors		^
GET	/api/Authors/{id}	✓
PUT	/api/Authors/{id}	✓
DELETE	/api/Authors/{id}	✓
POST	/api/Authors	✓
Books		^
GET	/api/Books	✓
POST	/api/Books	✓
GET	/api/Books/{id}	✓
PUT	/api/Books/{id}	✓
DELETE	/api/Books/{id}	✓
GET	/api/Books/name/{name}	✓
GET	/api/Books/author/{lastName}	✓
GET	/api/Books/category/{category}	✓
Reservations		^
GET	/api/Reservations	✓
POST	/api/Reservations	✓
GET	/api/Reservations/{id}	✓
PUT	/api/Reservations/{id}	✓
Users		^
GET	/api/Users	✓
POST	/api/Users	✓
GET	/api/Users/{id}	✓
PUT	/api/Users/{id}	✓
DELETE	/api/Users/{id}	✓

Експортоване апи в Postman:



PUT ▼ https://localhost:7103/api/Authors/C3AFAE68-F86A-41A2-BF9E-08DC0A3AFA78 Send ▼

Params Authorization ● Headers (10) **Body** ● Pre-request Script Tests Settings Cookies

● none ● form-data ● x-www-form-urlencoded ● **raw** ● binary ● GraphQL **JSON** ▼ Beautify

```
1 {
2   "firstName": "Joe",
3   "lastName": "Biden"
4 }
```

Body Cookies (1) Headers (4) Test Results 🌐 200 OK 64 ms 230 B 💾 Save as example ⋮

Pretty Raw Preview Visualize **JSON** ▼ 🔍

```
1 {
2   "id": "c3afae68-f86a-41a2-bf9e-08dc0a3afa78",
3   "firstName": "Joe",
4   "lastName": "Biden"
5 }
```

POST ▼ https://localhost:7103/api/Authors Send ▼

Params Authorization ● Headers (10) **Body** ● Pre-request Script Tests Settings Cookies

● none ● form-data ● x-www-form-urlencoded ● **raw** ● binary ● GraphQL **JSON** ▼ Beautify

```
1 {
2   "firstName": "Igor",
3   "lastName": "Franko"
4 }
```

Body Cookies (1) Headers (4) Test Results 🌐 200 OK 25 ms 188 B 💾 Save as example ⋮

Pretty Raw Preview Visualize **JSON** ▼ 🔍

```
1 {
2   "firstName": "Igor",
3   "lastName": "Franko"
4 }
```

HTTP Authors / Authors/{id} Save

DELETE https://localhost:7103/api/Authors/9E3FC0EF-44AF-4431-AD92-EC5FF0A0B425 Send

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

Type Bearer ...

The authorization header will be automatically generated when you send the request. Learn more about [Bearer Token](#) authorization

Heads up! These parameters hold sensitive data. To keep this data secure while working in a collaborative environment, we recommend using variables. Learn more about [variables](#)

Token eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCJ9.eyJ...

Body Cookies (1) Headers (4) Test Results 200 OK 42 ms 232 B Save as example

Pretty Raw Preview Visualize JSON

```
1 {
2   "id": "9e3fc0ef-44af-4431-ad92-ec5ff0a0b425",
3   "firstName": "Igor",
4   "lastName": "Franko"
5 }
```

GET https://localhost:7103/api/Books Send

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

Type Bearer ...

The authorization header will be automatically generated when you send the request. Learn more about [Bearer Token](#) authorization

Heads up! These parameters hold sensitive data. To keep this data secure while working in a collaborative environment, we recommend using variables. Learn more about [variables](#)

Token eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCJ9.eyJ...

Body Cookies (1) Headers (4) Test Results 200 OK 29 ms 467 B Save as example

Pretty Raw Preview Visualize JSON

```
1 [
2   {
3     "id": "a2ca288e-c2ba-4abf-a69d-9ab77600dfda",
4     "authorId": "bf332101-c115-48ee-89bf-b9686222b41b",
5     "title": "Bible",
6     "category": "religious",
7     "availableSamples": 2
8   },
9   {
10    "id": "fe6e6b72-e3d4-4d38-a15c-cd566cf50e15",
11    "authorId": "c3afae68-f86a-41a2-bf9e-08dc0a3afa78",
12    "title": "winnie pooh",
13    "category": "children",
14    "availableSamples": 12
15  }
16 ]
```


HTTP Books / Books/id

GET https://localhost:7103/api/Books/A2CA288E-C2BA-4ABF-A69D-9AB77600DFDA Send

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

Query Params

Key	Value	Description	...	Bulk Edit
Key	Value	Description		

Body Cookies (1) Headers (4) Test Results 200 OK 51 ms 268 B Save as example

Pretty Raw Preview Visualize JSON

```
1 {
2   "title": "Bible",
3   "category": "religious",
4   "availableSamples": 2,
5   "authorInfo": {
6     "firstName": "Taras",
7     "lastName": "Shevchenko"
8   }
9 }
```

HTTP Books / Books/id

PUT https://localhost:7103/api/Books/A2CA288E-C2BA-4ABF-A69D-9AB77600DFDA Send

Params Authorization Headers (10) Body Pre-request Script Tests Settings Cookies

none form-data x-www-form-urlencoded raw binary GraphQL JSON Beautify

```
1 {
2   "title": "Bible",
3   "category": "religious",
4   "availableSamples": 5
5 }
```

Body Cookies (1) Headers (4) Test Results 200 OK 31 ms 303 B Save as example

Pretty Raw Preview Visualize JSON

```
1 {
2   "id": "a2ca288e-c2ba-4abf-a69d-9ab77600dfda",
3   "authorId": "bf332101-c115-48ee-89bf-b9686222b41b",
4   "title": "Bible",
5   "category": "religious",
6   "availableSamples": 5
7 }
```

HTTP

Books / name/{name}

Save

GET

https://localhost:7103/api/Books/name/Bible

Send

Params

Authorization

Headers (8)

Body

Pre-request Script

Tests

Settings

Cookies

Type

Bearer ...

Heads up! These parameters hold sensitive data. To keep this data secure while working in a collaborative environment,we recommend using variables. Learn more about [variables](#)

The authorization header will be automatically generated when you send the request. Learn more about [Bearer Token](#) authorization

Token

eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCJ9.eyJ...

Body

Cookies (1)

Headers (4)

Test Results

200 OK

21 ms

305 B

Save as example

Pretty

Raw

Preview

Visualize

JSON

```
1 [
2   {
3     "id": "a2ca288e-c2ba-4abf-a69d-9ab77600dfda",
4     "authorId": "bf332101-c115-48ee-89bf-b9686222b41b",
5     "title": "Bible",
6     "category": "religious",
7     "availableSamples": 5
8   }
9 ]
```

HTTP

Books / author/{author}

Save

GET

https://localhost:7103/api/Books/author/Shevchenko

Send

Params

Authorization

Headers (8)

Body

Pre-request Script

Tests

Settings

Cookies

Type

Bearer ...

Heads up! These parameters hold sensitive data. To keep this data secure while working in a collaborative environment,we recommend using variables. Learn more about [variables](#)

The authorization header will be automatically generated when you send the request. Learn more about [Bearer Token](#) authorization

Token

eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCJ9.eyJ...

Body

Cookies (1)

Headers (4)

Test Results

200 OK

52 ms

305 B

Save as example

Pretty

Raw

Preview

Visualize

JSON

```
1 [
2   {
3     "id": "a2ca288e-c2ba-4abf-a69d-9ab77600dfda",
4     "authorId": "bf332101-c115-48ee-89bf-b9686222b41b",
5     "title": "Bible",
6     "category": "religious",
7     "availableSamples": 5
8   }
9 ]
```

HTTP

Books / category/{category}

Save

GET

https://localhost:7103/api/Books/category/religious

Send

ParamsAuthorization • Headers (8)BodyPre-request ScriptTestsSettingsCookies

Type

Bearer ...

Heads up! These parameters hold sensitive data. To keep this data secure while working in a collaborative environment,we recommend using variables. Learn more about [variables](#)

The authorization header will be automatically generated when you send the request. Learn more about [Bearer Token](#) authorization

Token

eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCJ9.eyJ...

BodyCookies (1)Headers (4)Test Results

200 OK16 ms305 B

Save as example

Pretty

Raw

Preview

Visualize

JSON

1

[

2

{

3

"id": "a2ca288e-c2ba-4abf-a69d-9ab77600dfda",

4

"authorId": "bf332101-c115-48ee-89bf-b9686222b41b",

5

"title": "Bible",

6

"category": "religious",

7

"availableSamples": 5

8

}

9

]

HTTP

Reservations / Reservations

Save

GET

https://localhost:7103/api/Reservations

Send

ParamsAuthorization • Headers (8)BodyPre-request ScriptTestsSettingsCookies

Type

Bearer ...

Heads up! These parameters hold sensitive data. To keep this data secure while working in a collaborative environment,we recommend using variables. Learn more about [variables](#)

BodyCookies (1)Headers (4)Test Results

200 OK112 ms512 B

Save as example

Pretty

Raw

Preview

Visualize

JSON

1

[

2

{

3

"bookInfo": {

4

"title": "Bible"

5

},

6

"userInfo": {

7

"firstName": "ellie",

8

"lastName": "williams"

9

},

10

"reserveDate": "2024-01-02T17:29:25.659",

11

"returnDate": "2024-01-02T17:29:25.659",

12

"isClosed": false

13

},

14

{

15

"bookInfo": {

16

"title": "Bible"

17

},

18

"userInfo": {

19

"firstName": "ellie",

20

"lastName": "williams"

21

},

22

"reserveDate": "2024-01-03T10:31:17.445",

23

"returnDate": "2024-01-03T10:31:17.445"

HTTP

Reservations / Reservations

Save

POST

https://localhost:7103/api/Reservations

Send

Params

Authorization

Headers (10)

Body

Pre-request Script

Tests

Settings

Cookies

none

form-data

x-www-form-urlencoded

raw

binary

GraphQL

JSON

Beautify

```
6  {
7    "firstName": "ellie",
8  },
9  "reserveDate": "2024-01-03T10:28:03.077Z",
10 "returnDate": "2024-01-03T10:28:03.077Z"
11 }
```

Body

Cookies (1)

Headers (4)

Test Results

200 OK

106 ms

314 B

Save as example

Pretty

Raw

Preview

Visualize

JSON

```
1  {
2    "bookInfo": {
3      "title": "Bible"
4    },
5    "userInfo": {
6      "firstName": "ellie",
7      "lastName": "williams"
8    },
9    "reserveDate": "2024-01-03T10:28:03.077Z",
10   "returnDate": "2024-01-03T10:28:03.077Z"
11 }
```

HTTP

Reservations / Reservations/{id}

Save

GET

https://localhost:7103/api/Reservations/83C09551-C12B-4BB3-9525-D5DFEC5487DD

Send

Params

Authorization

Headers (8)

Body

Pre-request Script

Tests

Settings

Cookies

Type

Bearer ...

Heads up! These parameters hold sensitive data. To keep this data secure while working in a collaborative environment, we recommend using variables. Learn more about [variables](#)

Token

eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCJ9.eyJ...

The authorization header will be automatically generated when you send the request. Learn more about [Bearer Token](#) authorization

Body

Cookies (1)

Headers (4)

Test Results

200 OK

31 ms

328 B

Save as example

Pretty

Raw

Preview

Visualize

JSON

```
1  {
2    "bookInfo": {
3      "title": "Bible"
4    },
5    "userInfo": {
6      "firstName": "ellie",
7      "lastName": "williams"
8    },
9    "reserveDate": "2024-01-03T10:31:17.445",
10   "returnDate": "2024-01-03T10:31:17.445",
11   "isClosed": true
12 }
```

HTTP

Reservations / Reservations/{id}

Save

PUT

https://localhost:7103/api/Reservations/83C09551-C12B-4BB3-9525-D5DFEC5487DD

Send

Params

Authorization

Headers (10)

Body

Pre-request Script

Tests

Settings

Cookies

none

form-data

x-www-form-urlencoded

raw

binary

GraphQL

JSON

Beautify

```
1 {
2   "reserveDate": "2024-01-03T10:31:17.445Z",
3   "returnDate": "2024-01-03T10:31:17.445Z",
4   "isClosed": false
5 }
```

Body

Cookies (1)

Headers (4)

Test Results

200 OK

64 ms

247 B

Save as example

Pretty

Raw

Preview

Visualize

JSON

```
1 {
2   "reserveDate": "2024-01-03T10:31:17.445Z",
3   "returnDate": "2024-01-03T10:31:17.445Z",
4   "isClosed": false
5 }
```

HTTP

Users / Users

Save

GET

https://localhost:7103/api/Users

Send

Params

Authorization

Headers (8)

Body

Pre-request Script

Tests

Settings

Cookies

Type

Bearer ...

The authorization header will be automatically generated when you

Token

subbCaQlUllzIdNlkeD5eCilgoreXVCiQyOy

Heads up! These parameters hold sensitive data. To keep this data secure while working in a collaborative environment, we recommend using variables. Learn more about [variables](#)

Body

Cookies (1)

Headers (4)

Test Results

200 OK

25 ms

466 B

Save as example

Pretty

Raw

Preview

Visualize

JSON

```
1 [
2   {
3     "id": "9a954a43-838e-46b9-9c12-0a0e7bf65869",
4     "firstName": "ellie",
5     "lastName": "williams",
6     "phone": 456123412
7   },
8   {
9     "id": "60a24f1a-0bbb-480a-baaa-250e52552b44",
10    "firstName": "Tacitus",
11    "lastName": "Cilgore",
12    "phone": 123456780
13  },
14  {
15    "id": "19ae1342-c356-430f-9623-adb168bd13b3",
16    "firstName": "john",
17    "lastName": "marston",
18    "phone": 123132321
19  }
20 ]
```

HTTP Users / **Users** Save

POST https://localhost:7103/api/Users Send

Params **Authorization** Headers (10) Body Pre-request Script Tests Settings Cookies

Type Bearer ...

The authorization header will be automatically generated when you send the request. Learn more about [Bearer Token](#) authorization

Heads up! These parameters hold sensitive data. To keep this data secure while working in a collaborative environment, we recommend using variables. Learn more about [variables](#)

Token eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCJ9.eyJ...

Body Cookies (1) Headers (4) Test Results 200 OK 25 ms 208 B Save as example

Pretty Raw Preview Visualize JSON

```
1 {
2   "firstName": "Arthur",
3   "lastName": "Morgan",
4   "phone": 123456780
5 }
```

HTTP Users / **Users/{id}** Save

GET https://localhost:7103/api/Users/60A24F1A-0BBB-480A-BAAA-250E52552B44 Send

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

Type Bearer ...

The authorization header will be automatically generated when you send the request. Learn more about [Bearer Token](#) authorization

Heads up! These parameters hold sensitive data. To keep this data secure while working in a collaborative environment, we recommend using variables. Learn more about [variables](#)

Token eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCJ9.eyJ...

Body Cookies (1) Headers (4) Test Results 200 OK 43 ms 254 B Save as example

Pretty Raw Preview Visualize JSON

```
1 {
2   "id": "60a24f1a-0bbb-480a-baaa-250e52552b44",
3   "firstName": "Tacitus",
4   "lastName": "Cilgore",
5   "phone": 123456780
6 }
```

HTTP Users / Users/{id} Save

PUT ▼ https://localhost:7103/api/Users/60A24F1A-0BBB-480A-BAAA-250E52552B44 Send ▼

Params Authorization Headers (10) **Body** Pre-request Script Tests Settings Cookies

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

```
1 {
2   "firstName": "Tacitus",
3   "lastName": "Cilgore",
4   "phone": 123456780
5 }
```

Body Cookies (1) Headers (4) Test Results 200 OK 47 ms 254 B Save as example

Pretty Raw Preview Visualize **JSON** ▼

```
1 {
2   "id": "60a24f1a-0bbb-480a-baaa-250e52552b44",
3   "firstName": "Tacitus",
4   "lastName": "Cilgore",
5   "phone": 123456780
6 }
```

HTTP Users / Users/{id} Save

DELETE ▼ https://localhost:7103/api/Users/60A24F1A-0BBB-480A-BAAA-250E52552B44 Send ▼

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

Type Bearer ... ▼

The authorization header will be automatically generated when you send the request. Learn more about [Bearer Token](#) authorization

Token eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCJ9.eyJ...

Heads up! These parameters hold sensitive data. To keep this data secure while working in a collaborative environment, we recommend using variables. Learn more about [variables](#)

Body Cookies (1) Headers (4) Test Results 200 OK 30 ms 254 B Save as example

Pretty Raw Preview Visualize **JSON** ▼

```
1 {
2   "id": "60a24f1a-0bbb-480a-baaa-250e52552b44",
3   "firstName": "Tacitus",
4   "lastName": "Cilgore",
5   "phone": 123456780
6 }
```