

- I. (5 points) Create an API that allows shortening long URLs into a shorter form and provides visit statistics. The shortened link should be a random string of uppercase and lowercase alphabet characters, 10 characters long.

After going to the shortened URL, we are redirected to the target page, and the application increments the visit counter.

All CRUD operations must be implemented.

Updating and deleting is only possible for password-protected links. The user can define the password when shortening the link.

You can update the link name and target URL.

If an incorrect password is sent when attempting to update or delete, we return the 403 Forbidden code with the reason header "wrong password".

Sample requests and responses:

CREATE

new link (without password)

```
Request:
POST /api/links

Body:
{
  "name": "PJAiT",
  "targetUrl": "https://pja.edu.pl/"
}

Response:
201 Created,
location:
  http://localhost:8080/api/links/abCdEFGHiJ

Body:
{
  "id": "abCdEFGHiJ",
  "name": "PJAiT",
  "targetUrl": "https://javastart.pl",
  "redirectUrl":
    "http://localhost:8080/red/abCdEFGHiJ",
  "visits": 0
}
```

new link (with password)

```
Request:
POST /api/links
{
  "name": "PJAiT",
  "password": "abc123",
  "targetUrl": "https://pja.edu.pl/"
}

Response:
201 Created,
location:
  http://localhost:8080/api/links/abCdEFGHiJ
{
  "id": "abCdEFGHiJ",
  "name": "PJAiT",
  "targetUrl": "https://pja.edu.pl/",
  "redirectUrl":
    "http://localhost:8080/red/abCdEFGHiJ",
  "visits": 0
}
```

READ

get link information (existing link)

```
Request:
GET /api/links/abCdEFGHiJ

Response:
200 OK
{
  "id": "abCdEFGHiJ",
  "name": "PJAiT",
  "targetUrl": "https://pja.edu.pl/",
  "redirectUrl":
    "http://localhost:8080/red/abCdEFGHiJ",
  "visits": 3
}
```

get link information (non-existent link)

```
Request:
GET /api/links/12345

Response:
404 Not Found
```

redirect (existing link)

```
Request:
GET /red/abCdEFGHiJ

Response:
302 Found https://pja.edu.pl/
```

redirect (non-existent link)

```
Request:
GET /red/12345

Response:
404 Not Found
```

UPDATE*update (existing link, correct password)*

```
Request:
PATCH /api/links/abCdEFGHiJ
{
  "name": "PJWSTK",
  "password": "abc123"
}
```

```
Response:
204 No Content
```

update (non-existent link)

```
Request:
PATCH /api/links/12345
{
  "name": "PJAIT ",
  "password": "abc123"
}
```

```
Response:
404 Not Found
```

update (existing link, incorrect/missing pass)

```
Request:
PATCH /api/links/abCdEFGHiJ
{
  "targetUrl": "https://google.com/",
  "password": "xyz123"
}
```

or

```
PATCH /api/links/abCdEFGHiJ
{
  "targetUrl": "https://google.com/",
}
```

```
Response:
403 Forbidden
reason: wrong password
```

DELETE*remove (existing link, correct password)*

```
Request:
DELETE /api/links/abCdEFGHiJ
pass: abc123
```

```
Response:
204 No Content
```

remove (non-existent link)

```
Request:
DELETE /api/links/12345
pass: abc123
```

```
Response:
204 No Content
```

remove (existing link, incorrect/missing pass)

```
Request:
DELETE /api/links/abCdEFGHiJ
pass: abc123
```

or

```
Request:
DELETE /api/links/abCdEFGHiJ
```

```
Response:
403 Forbidden
reason: wrong password
```

Information about links and the number of visits is to be stored in the H2 database.

Send the solution as a ZIP archive called *sXXXXXX-TPO10.zip*, where *sXXXXXX* is your index number.