

# REST API based Employee Management App

## General Info

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The application is secured and access is restricted for some resources. Some endpoints are not exposed to the public by default. You must login with your user account and have required permissions to access secured endpoints. The permission to access these endpoints is provided by means of ROLES which are assigned to users. That means even if the user is authenticated i.e. the user is logged in with username and password, he will not be able to access protected resources if he doesn't have permission, the role or authority needed.

## Software components

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The application has been built using Spring Boot 2.7.1 with the following Maven dependencies.

- Spring Web
- Spring Data JPA
- Spring Security
- H2 Database

Java Version: 17

## Application endpoints for different operations

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### Assumptions

Hostname: localhost

Port: 8086

Roles/Authorities: USER, ADMIN, GUEST

### Public/Guest endpoints

<http://localhost:8086/api/roles/list> // view all roles

<http://localhost:8086/api/roles/add> // add a role

<http://localhost:8086/api/users/list> // view all users

<http://localhost:8086/api/users/add> // add a user

All operations are permitted. Roles and Users can be created, viewed etc.

<http://localhost:8086/h2-console> // h2 database access portal

## User endpoints

A user can access all public endpoints. In addition to that he can access the following endpoints.

<http://localhost:8086/api/employees/list> // view all employees

<http://localhost:8086/api/employees/get/1> // view an employee by id

<http://localhost:8086/api/employees/update> // update an employee's data

<http://localhost:8086/api/employees/search/gl> // search employees by firstName: gl

<http://localhost:8086/api/employees/sort?order=asc> // sort employees in ASC or DSC order

## Admin endpoints

An admin can access all public endpoints and users' specific endpoints. In addition to that he can access the following endpoints.

<http://localhost:8086/api/employees/add> // add an employee

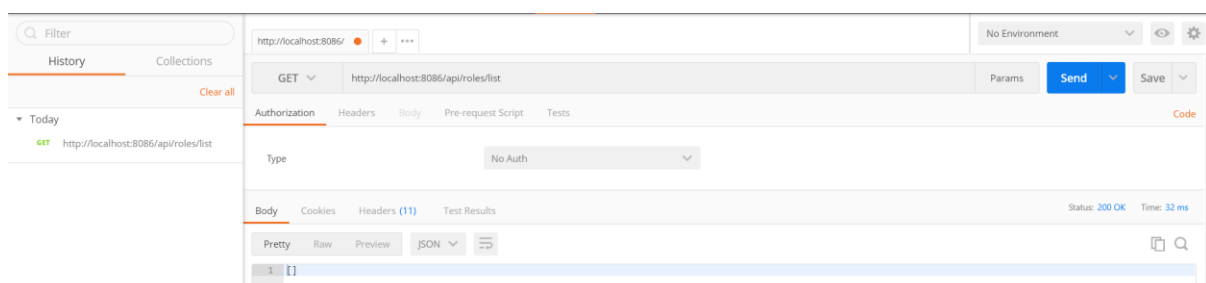
<http://localhost:8086/api/employees/delete/1> // delete an employee by id

## Screenshots: Application Testing

### Creating a role

Let us see the list of available roles first.

<http://localhost:8086/api/roles/list> (GET request)



No roles as of now.

Create three roles: USER, ADMIN, GUEST

<http://localhost:8086/api/roles/add> (POST request)

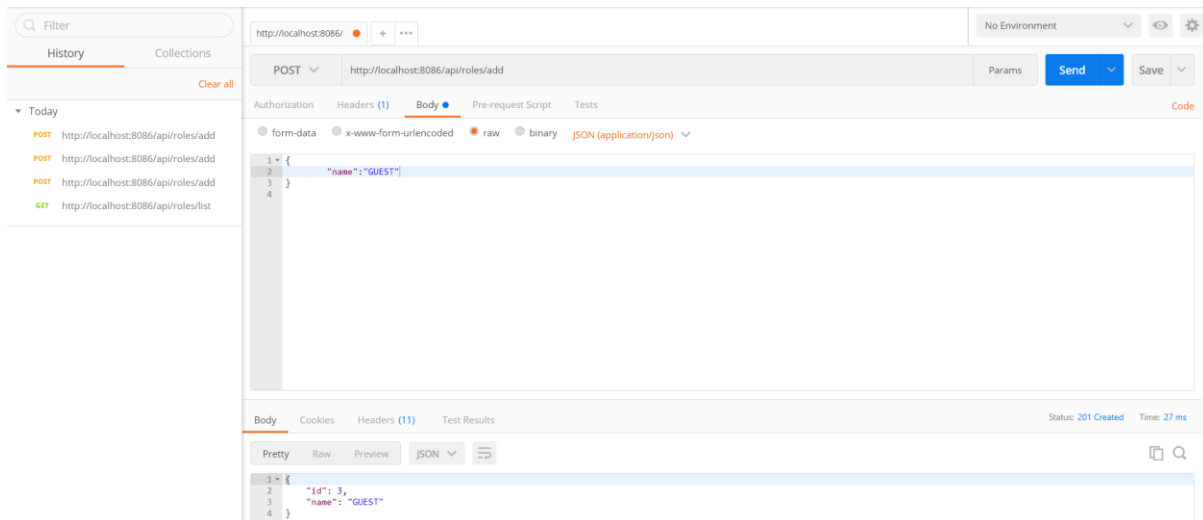
<pre>{   "name": "USER" }</pre>	<pre>{   "name": "ADMIN" }</pre>	<pre>{   "name": "GUEST" }</pre>
---------------------------------	----------------------------------	----------------------------------

The screenshot shows the Postman interface for a POST request to `http://localhost:8086/api/roles/add`. The request body is a JSON object: `{ "name": "USER" }`. The response status is `201 Created` (highlighted with a red box) and the response body is `{ "id": 1, "name": "USER" }` (also highlighted with a red box). The response time is `125 ms`.

Created a role USER with id = 1

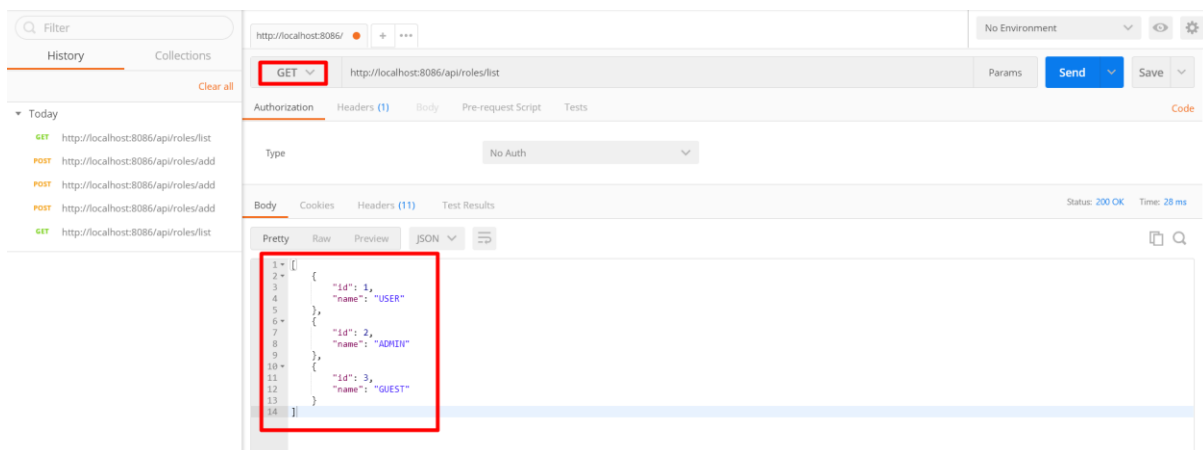
The screenshot shows the Postman interface for a POST request to `http://localhost:8086/api/roles/add`. The request body is a JSON object: `{ "name": "ADMIN" }`. The response status is `201 Created` and the response body is `{ "id": 2, "name": "ADMIN" }`. The response time is `33 ms`.

Created a role ADMIN with id = 2



Created a role GUEST with id = 3

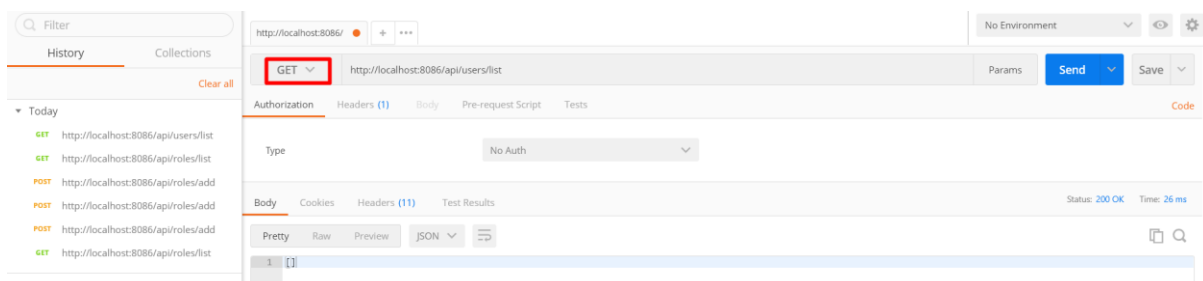
See the list of roles.



## Creating a user

Let us see the list of users.

<http://localhost:8086/api/users/list> (GET request)



No user as of now.

Create three users: tanuj (admin), prithvi(user), homi(guest)

<pre>{   "username": "tanuj",   "password": "pass",   "roles": [     {       "id": 2,       "name": "ADMIN"     }   ] }</pre>	<pre>{   "username": "prithvi",   "password": "pass",   "roles": [     {       "id": 1,       "name": "USER"     }   ] }</pre>	<pre>{   "username": "homi",   "password": "pass",   "roles": [     {       "id": 3,       "name": "GUEST"     }   ] }</pre>
---	--	--

<http://localhost:8086/api/users/add> (POST request)

The screenshot shows a Postman interface with a POST request to `http://localhost:8086/api/users/add`. The request body is a JSON object:

```
{
  "username": "tanuj",
  "password": "pass",
  "roles": [
    {
      "id": 2,
      "name": "ADMIN"
    }
  ]
}
```

The response body (Status: 201 Created, Time: 146 ms) is a JSON object:

```
{
  "id": 1,
  "username": "tanuj",
  "password": "$2a$10$yffvq2.u8gQ0wH6z52w9uCuAMIGK0xSD57Q9G58tUzvQfndc8/6",
  "roles": [
    {
      "id": 2,
      "name": "ADMIN"
    }
  ]
}
```

Created user *tanuj* with id = 1

The screenshot shows a Postman interface with a POST request to `http://localhost:8086/api/users/add`. The request body is a JSON object:

```
{
  "username": "prithvi",
  "password": "pass",
  "roles": [
    {
      "id": 1,
      "name": "USER"
    }
  ]
}
```

The response body (Status: 201 Created, Time: 121 ms) is a JSON object:

```
{
  "id": 2,
  "username": "prithvi",
  "password": "$2a$10$zjohP4icn2wQakGr9vAQ0YxIgxKLI0qE17obrQAhvsgJI6w.njue",
  "roles": [
    {
      "id": 1,
      "name": "USER"
    }
  ]
}
```

Created user *prithvi* with id = 2

Filter  
History Collections  
Clear all

Today

- POST http://localhost:8086/api/users/add
- POST http://localhost:8086/api/users/add
- POST http://localhost:8086/api/users/add
- GET http://localhost:8086/api/users/list
- GET http://localhost:8086/api/roles/list
- POST http://localhost:8086/api/roles/add
- POST http://localhost:8086/api/roles/add
- POST http://localhost:8086/api/roles/add
- GET http://localhost:8086/api/roles/list

Authorization Headers (1) Body Pre-request Script Tests

form-data x-www-form-urlencoded raw binary JSON (application/json)

```
1 {
2   "username": "homi",
3   "password": "pass",
4   "roles": [
5     {
6       "id": 3,
7       "name": "GUEST"
8     }
9   ]
10 }
```

Body Cookies Headers (11) Test Results

Status: 201 Created Time: 114 ms

Pretty Raw Preview JSON

```
1 {
2   "id": 3,
3   "username": "homi",
4   "password": "$2a$10$1fcr20zyCdmMFQ16IfbMS01c7HvveqkTHSnu0F18aAThVRbMk/35",
5   "roles": [
6     {
7       "id": 3,
8       "name": "GUEST"
9     }
10   ]
11 }
```

Created user *homi* with id = 3

See the list of users again.

Filter  
History Collections  
Clear all

Today

- GET http://localhost:8086/api/users/list
- POST http://localhost:8086/api/users/add
- POST http://localhost:8086/api/users/add
- POST http://localhost:8086/api/users/add
- GET http://localhost:8086/api/roles/list
- POST http://localhost:8086/api/roles/add
- POST http://localhost:8086/api/roles/add
- POST http://localhost:8086/api/roles/add
- GET http://localhost:8086/api/roles/list

Body Cookies Headers (11) Test Results

Status: 200 OK Time: 34 ms

Pretty Raw Preview JSON

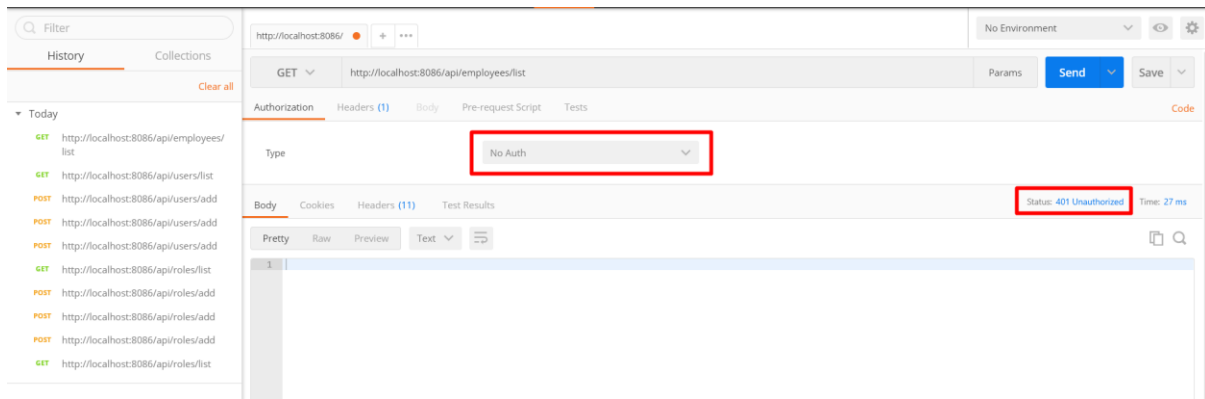
```
1 [
2   {
3     "id": 1,
4     "username": "tanuj",
5     "password": "$2a$10$yfvvq2.vBgQ0wH6zS2v9uCXAH1GKDhXS057Q9G58tUzVQfndc8/6",
6     "roles": [
7       {
8         "id": 2,
9         "name": "ADMIN"
10      }
11    ]
12  },
13  {
14    "id": 2,
15    "username": "prithvi",
16    "password": "$2a$10$cjohP4icIn2mQak6r9vAQ0Yx1xgKLIkqE17obr0AhvsgjI6e.njue",
17    "roles": [
18      {
19        "id": 1,
20        "name": "USER"
21      }
22    ]
23  },
24  {
25    "id": 3,
26    "username": "homi",
27    "password": "$2a$10$1fcr20zyCdmMFQ16IfbMS01c7HvveqkTHSnu0F18aAThVRbMk/35",
28    "roles": [
29      {
30        "id": 3,
31        "name": "GUEST"
32      }
33    ]
34  }
35 ]
```

Three users with different authorities are available now.

## Viewing employee list

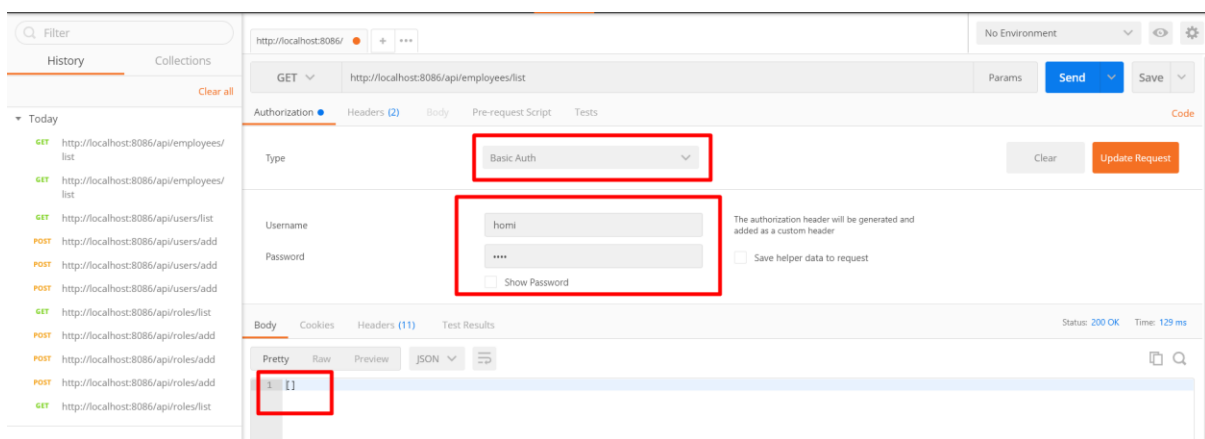
<http://localhost:8086/api/employees/list> (GET request)

Try to access with normal user without any authentication.



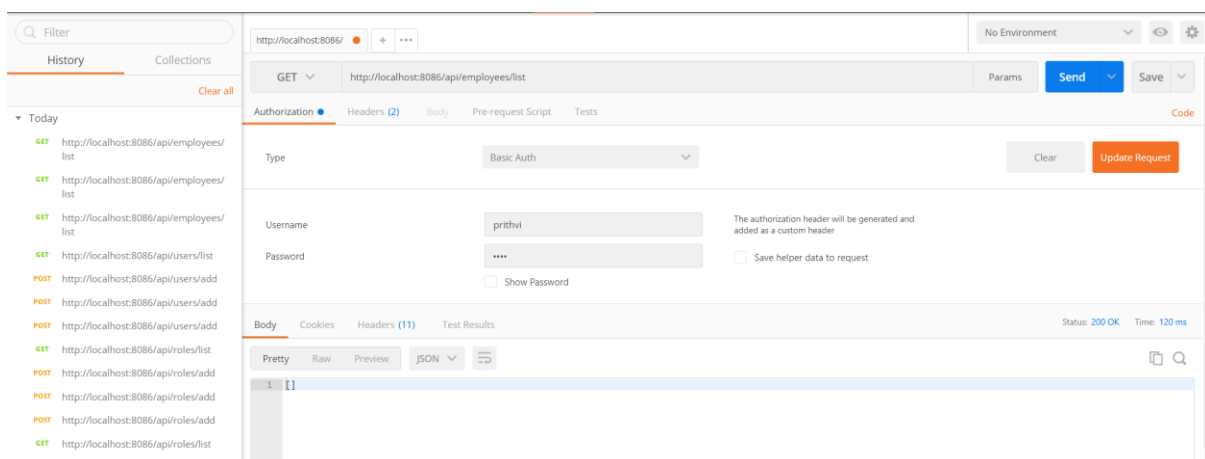
As we can see, there is nothing in the response section of postman app. It is because this endpoint is protected, it means only authenticated users are allowed to see the screen if they have permission(role) to access it.

Login with user homi(guest).



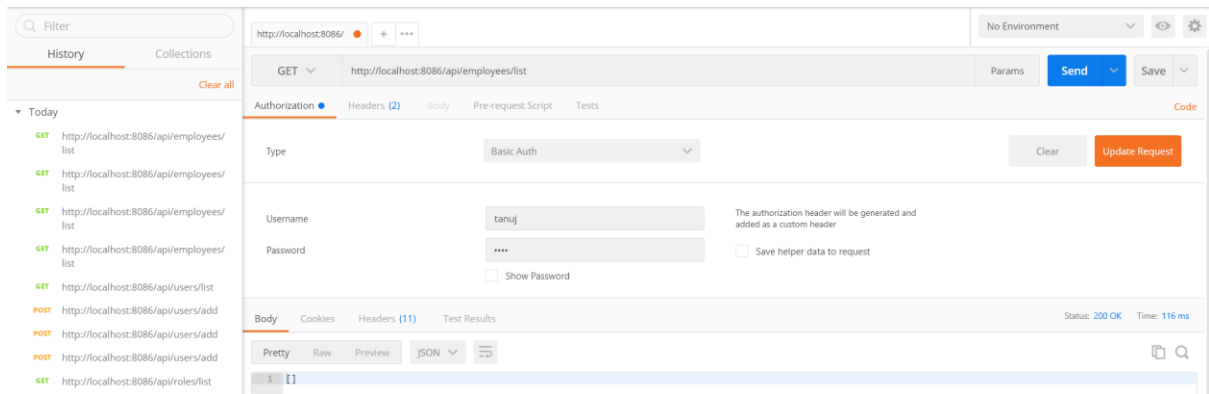
homi can see the list. We can see there is no employee record as of now.

Login with user prithvi(user).



He can also access the employee list.

Login with user tanuj(admin).



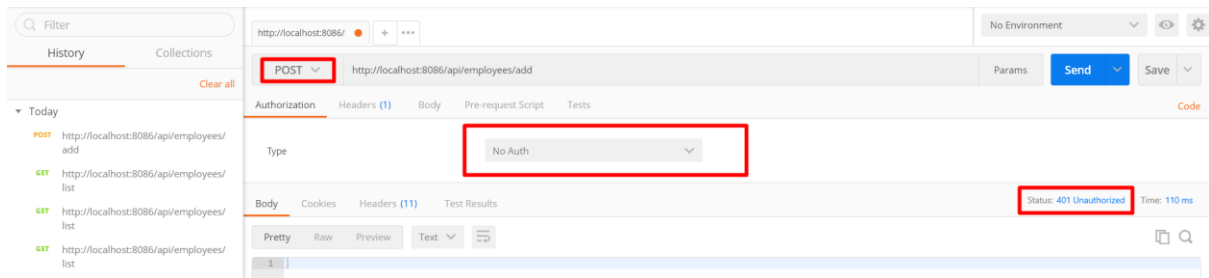
The employee list is visible to user tanuj also.

It is the expected behavior of the application that any authenticated user can see employee list but not unauthenticated visitors.

## Adding an employee

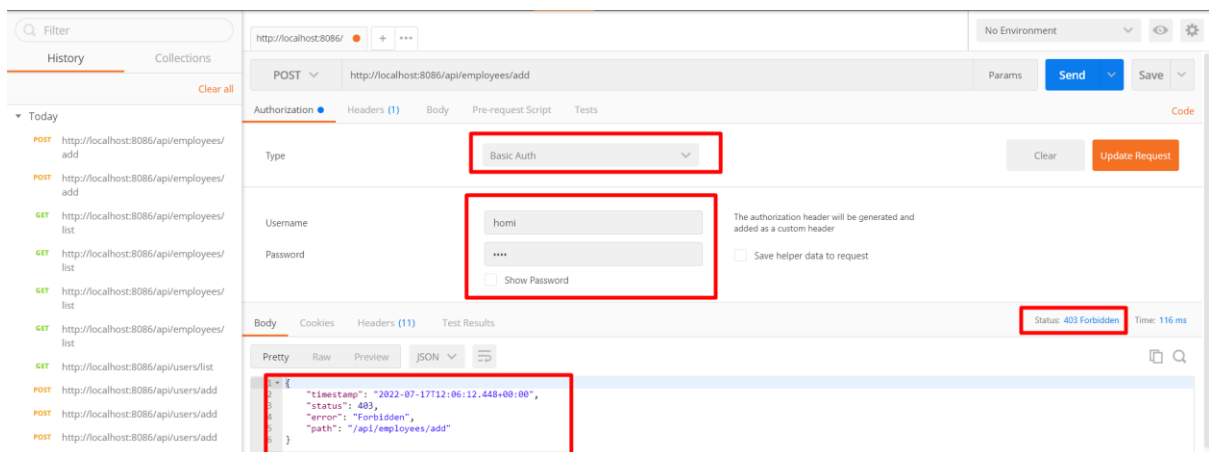
<http://localhost:8086/api/employees/add> (POST request)

Unauthenticated user tries to add an employee.



He cannot access the endpoint.

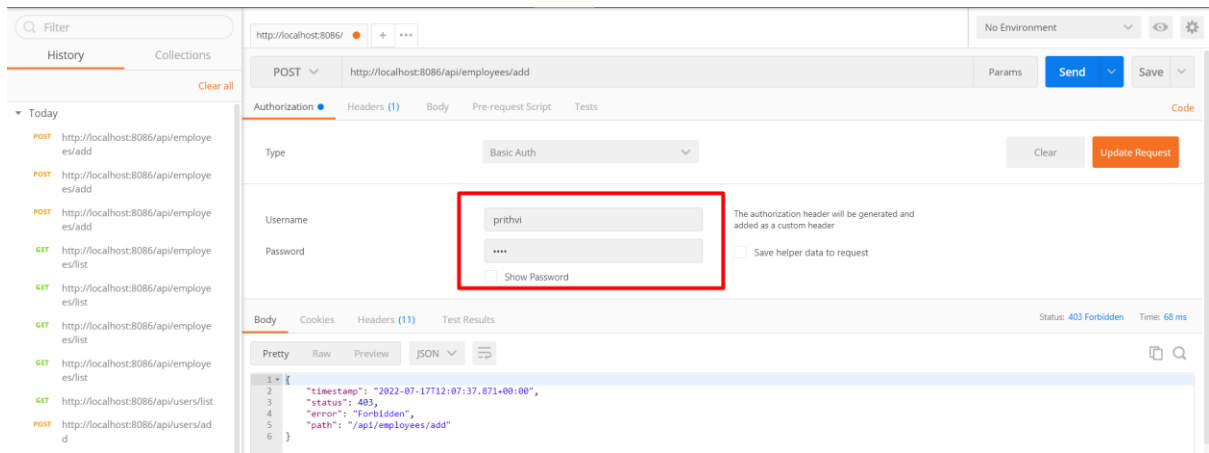
User home(guest) tries to add an employee.



Though he is authenticated he cannot access the endpoint for adding an employee.

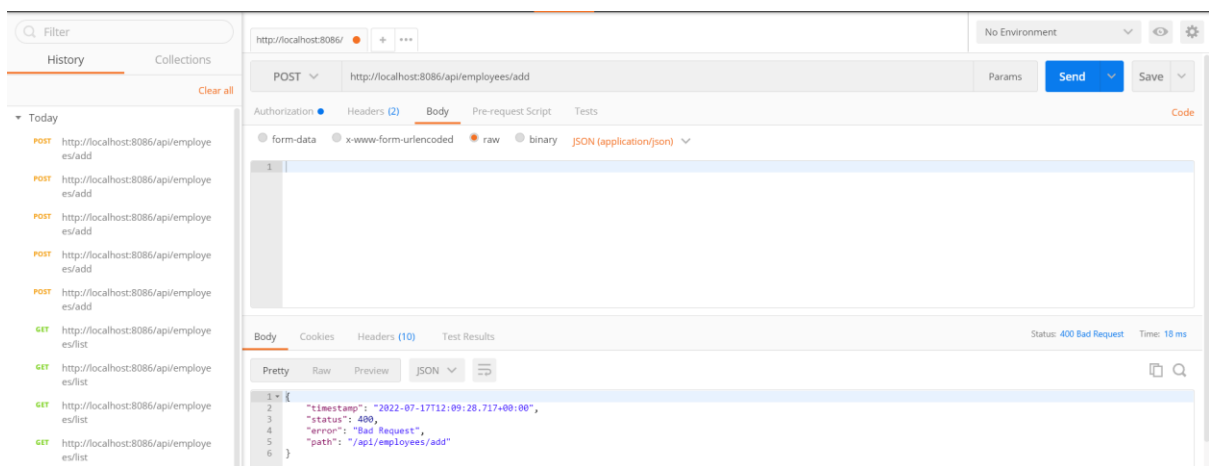
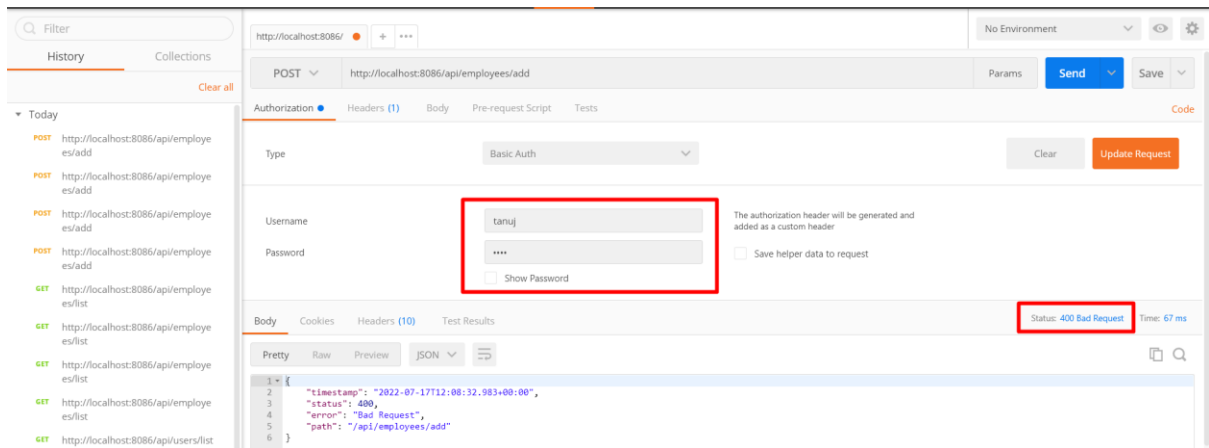
User prithvi(user) tries to add an employee.





He is also authenticated but cannot access the endpoint.

User tanuj(admin) tries to add an employee.



He can access the endpoint for adding an employee. He is not getting 403 Forbidden response status. This is the expected behavior of the application: only ADMIN user can add an employee.

Add some employees.

<pre>{   "firstName": "tanuj",   "lastName": "paraste",   "email": "tanuj@gmail.com" }</pre>	<pre>{   "firstName": "tanuj",   "lastName": "kumar",   "email": "tanuj@gmail.com" }</pre>	<pre>{   "firstName": "prakash",   "lastName": "singh",   "email": "prit@gmail.com" }</pre>
<pre>{   "firstName": "rahul",   "lastName": "pandey",   "email": "homi@gmail.com" }</pre>	<pre>{   "firstName": "ashoka",   "lastName": "choudhary",   "email": "ashoka@gmail.com" }</pre>	<pre>{   "firstName": "kamal",   "lastName": "raj",   "email": "raj@gmail.com" }</pre>

The screenshot shows a Postman interface with a POST request to `http://localhost:8086/api/employees/add`. The request body is a JSON object: `{ "firstName": "tanuj", "lastName": "paraste", "email": "tanuj@gmail.com" }`. The response is a JSON object: `{ "id": 1, "firstName": "tanuj", "lastName": "paraste", "email": "tanuj@gmail.com" }`. The status is 201 Created.

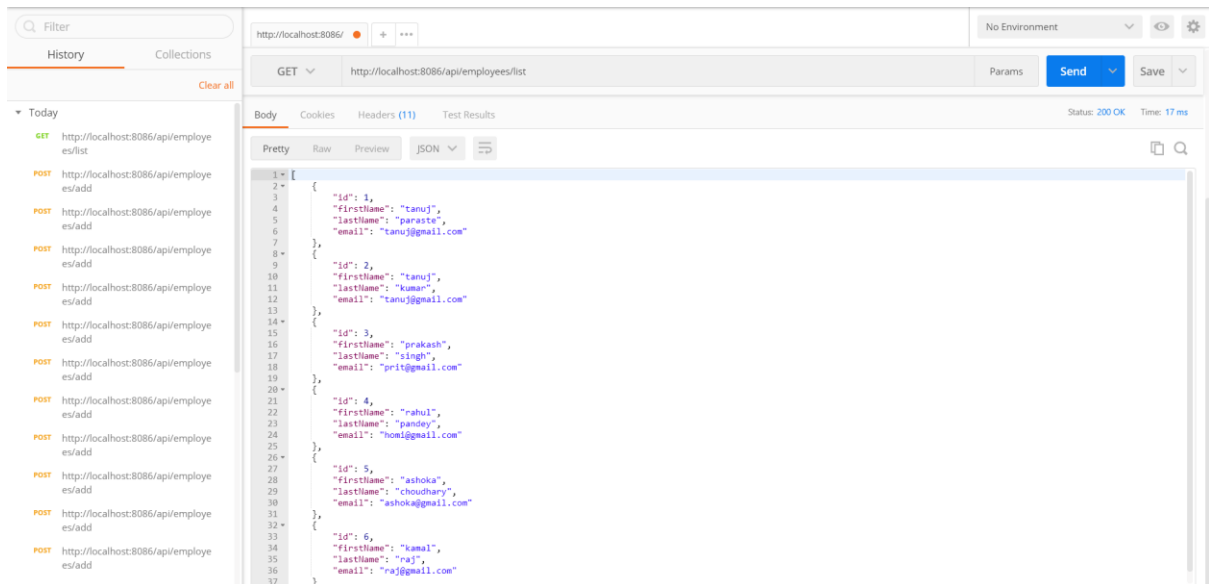
Employee *tanuj paraste* was added with id = 1

The screenshot shows a Postman interface with a POST request to `http://localhost:8086/api/employees/add`. The request body is a JSON object: `{ "firstName": "tanuj", "lastName": "kumar", "email": "tanuj@gmail.com" }`. The response is a JSON object: `{ "id": 2, "firstName": "tanuj", "lastName": "kumar", "email": "tanuj@gmail.com" }`. The status is 201 Created.

Employee *tanuj kumar* was added with id = 2

Adding other employees as ...

List of all employees.

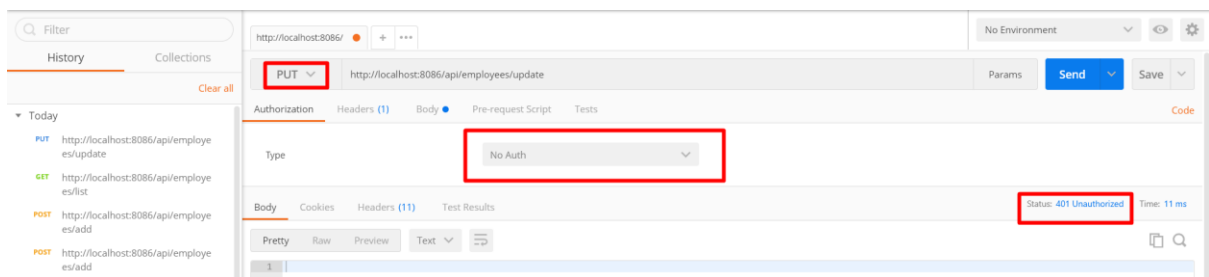


There are 6 employees in the list.

## Updating an employee

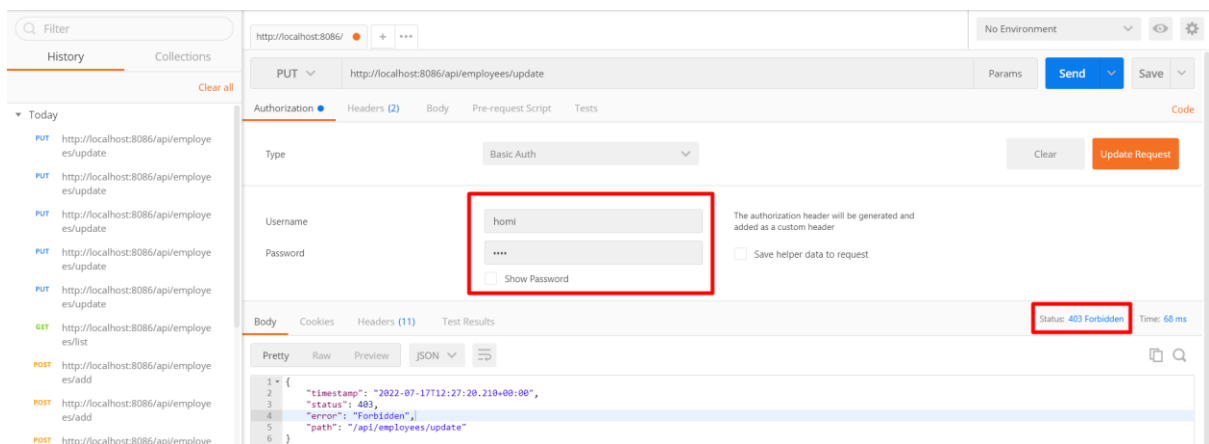
<http://localhost:8086/api/employees/update> (PUT request)

Try to update employee records by using normal user without authentication.



He cannot access the endpoint.

User homi(guest) tries to access after getting authenticated.



He cannot access because he does not have authority for updating records.

User prithvi(user) tries to update records.

PUT http://localhost:8086/api/employees/update

Authorization: Basic Auth

Username: prithvi

Password: \*\*\*\*

Show Password

Status: 400 Bad Request Time: 17 ms

```
1 {
2   "timestamp": "2022-07-17T12:24:26.155+00:00",
3   "status": 400,
4   "error": "Bad Request",
5   "path": "/api/employees/update"
6 }
```

PUT http://localhost:8086/api/employees/update

Body: raw

Status: 400 Bad Request Time: 25 ms

```
1 {
2   "timestamp": "2022-07-17T12:25:35.638+00:00",
3   "status": 400,
4   "error": "Bad Request",
5   "path": "/api/employees/update"
6 }
```

As we can see, user prithvi has permission to update employee data.

Let us update data for an employee named rahul. See in the list below, the email id does not look fine.

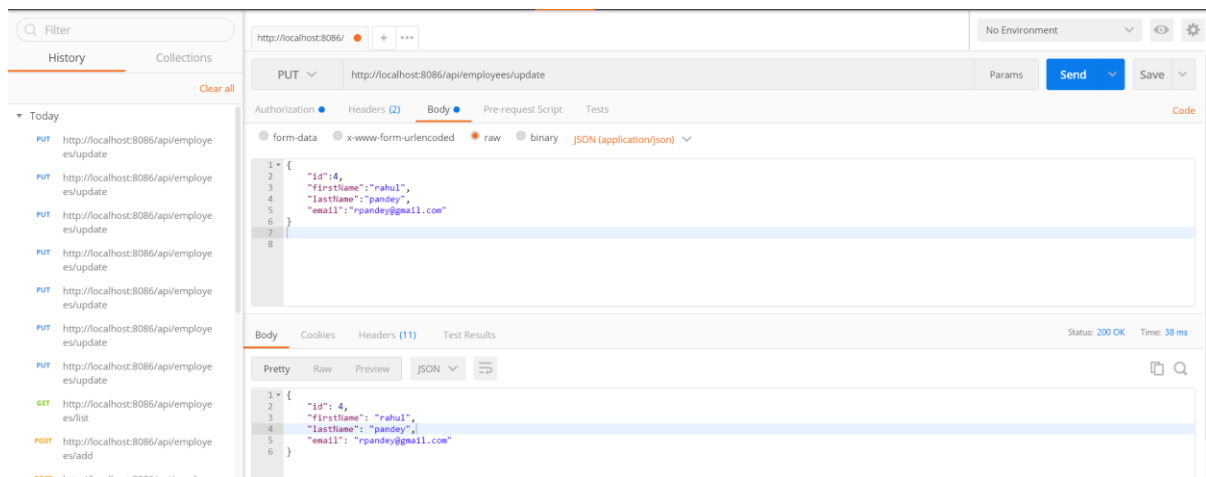
GET http://localhost:8086/api/employees/list

Status: 200 OK Time: 17 ms

```
1 [
2   {
3     "id": 1,
4     "firstName": "tanuj",
5     "lastName": "paraste",
6     "email": "tanuj@gmail.com"
7   },
8   {
9     "id": 2,
10    "firstName": "tanuj",
11    "lastName": "kumar",
12    "email": "tanuj@gmail.com"
13  },
14  {
15    "id": 3,
16    "firstName": "prakash",
17    "lastName": "singh",
18    "email": "prit@gmail.com"
19  },
20  {
21    "id": 4,
22    "firstName": "rahul",
23    "lastName": "pandey",
24    "email": "hcm@gmail.com"
25  },
26  {
27    "id": 5,
28    "firstName": "ashoka",
29    "lastName": "choudhary",
30    "email": "ashok@gmail.com"
31  },
32  {
33    "id": 6,
34    "firstName": "kamal",
35    "lastName": "raj",
36    "email": "raj@gmail.com"
37  }
38 ]
```

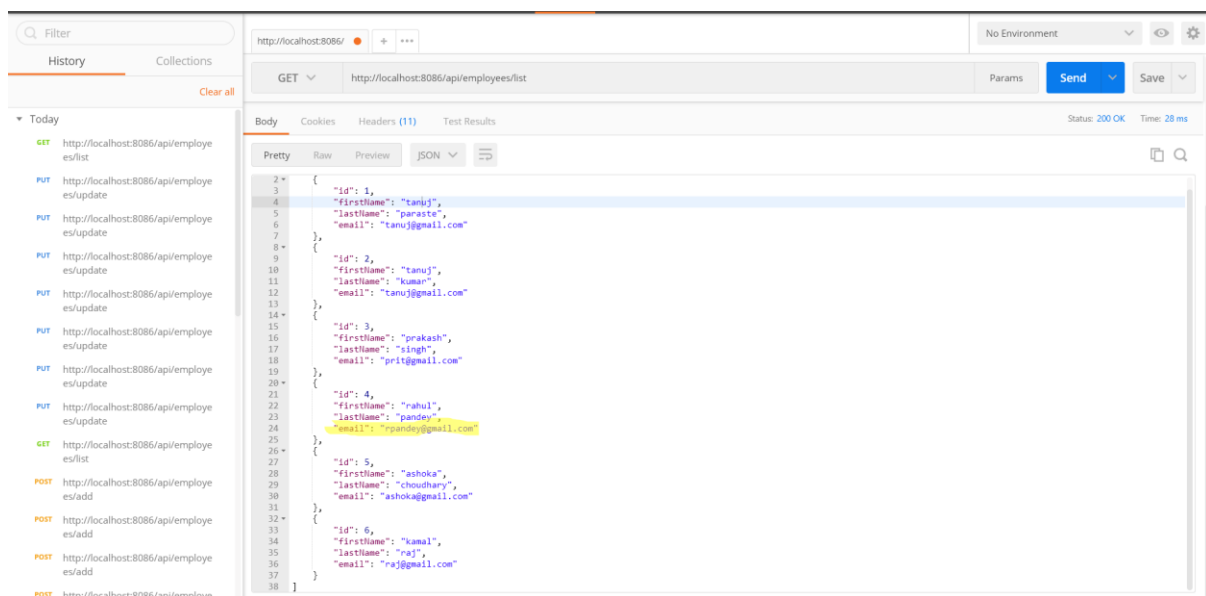
Updating record for employee id = 4

```
{
  "id":4,
  "firstName":"rahul",
  "lastName":"pandey",
  "email":"rpandey@gmail.com"
}
```



Updated the record.

Let us look at employee list again.



Email for employee id = 4 has been updated from [homi@gmail.com](mailto:homi@gmail.com) to [rpandey@gmail.com](mailto:rpandey@gmail.com)

Now,

Use user tanuj(admin) to update email for id = 2 to [tanuj2@gmail.com](mailto:tanuj2@gmail.com)

Filter History Collections

Clear all

Today

- GET http://localhost:8086/api/employees/list
- PUT http://localhost:8086/api/employees/update
- PUT http://localhost:8086/api/employees/update
- PUT http://localhost:8086/api/employees/update
- PUT http://localhost:8086/api/employees/update
- PUT http://localhost:8086/api/employees/update
- PUT http://localhost:8086/api/employees/update
- PUT http://localhost:8086/api/employees/update
- PUT http://localhost:8086/api/employees/update
- PUT http://localhost:8086/api/employees/update

PUT http://localhost:8086/api/employees/update

Authorization Headers (2) Body Pre-request Script Tests

Type Basic Auth

Username tanuj

Password \*\*\*\*

☐ Show Password

The authorization header will be generated and added as a custom header

☐ Save helper data to request

Body Cookies Headers (11) Test Results

Status: 200 OK Time: 28 ms

Pretty Raw Preview JSON

```
1 {
2   {
3     "id": 1,
4     "first_name": "tanuj",
5   }
6 }
```

Filter History Collections

Clear all

Today

- GET http://localhost:8086/api/employees/list
- PUT http://localhost:8086/api/employees/update
- PUT http://localhost:8086/api/employees/update
- PUT http://localhost:8086/api/employees/update
- PUT http://localhost:8086/api/employees/update
- PUT http://localhost:8086/api/employees/update
- PUT http://localhost:8086/api/employees/update
- PUT http://localhost:8086/api/employees/update
- PUT http://localhost:8086/api/employees/update
- PUT http://localhost:8086/api/employees/update

PUT http://localhost:8086/api/employees/update

Authorization Headers (2) Body Pre-request Script Tests

Type form-data x-www-form-urlencoded raw binary JSON (application/json)

1 {
2 {
3 "id": 2,
4 "first\_name": "tanuj",
5 "last\_name": "kumar",
6 "email": "tanuj2@gmail.com"
7 }
8 }

Body Cookies Headers (11) Test Results

Status: 200 OK Time: 28 ms

Pretty Raw Preview JSON

```
1 {
2   {
3     "id": 1,
4     "first_name": "tanuj",
5     "last_name": "kumar",
6     "email": "tanuj2@gmail.com"
7   }
8 }
```

Press Send.

Filter History Collections

Clear all

Today

- PUT http://localhost:8086/api/employees/update
- GET http://localhost:8086/api/employees/list
- PUT http://localhost:8086/api/employees/update
- PUT http://localhost:8086/api/employees/update
- PUT http://localhost:8086/api/employees/update
- PUT http://localhost:8086/api/employees/update
- PUT http://localhost:8086/api/employees/update
- PUT http://localhost:8086/api/employees/update
- PUT http://localhost:8086/api/employees/update
- PUT http://localhost:8086/api/employees/update

PUT http://localhost:8086/api/employees/update

Authorization Headers (2) Body Pre-request Script Tests

Type form-data x-www-form-urlencoded raw binary JSON (application/json)

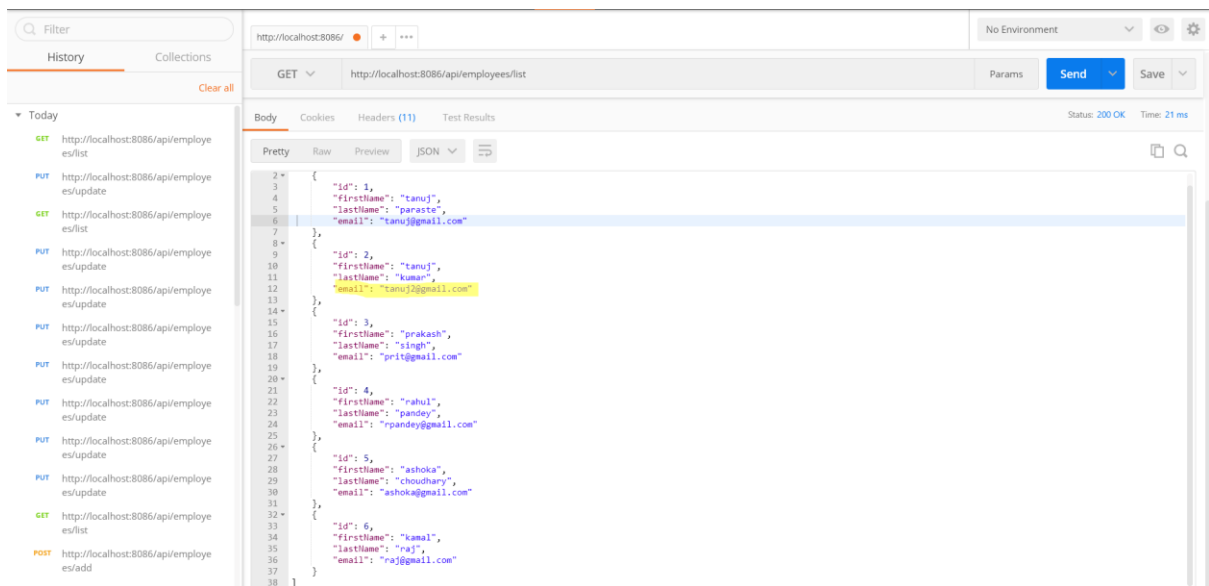
1 {
2 {
3 "id": 2,
4 "first\_name": "tanuj",
5 "last\_name": "kumar",
6 "email": "tanuj2@gmail.com"
7 }
8 }

Body Cookies Headers (11) Test Results

Status: 200 OK Time: 124 ms

Pretty Raw Preview JSON

```
1 {
2   {
3     "id": 2,
4     "first_name": "tanuj",
5     "last_name": "kumar",
6     "email": "tanuj2@gmail.com"
7   }
8 }
```

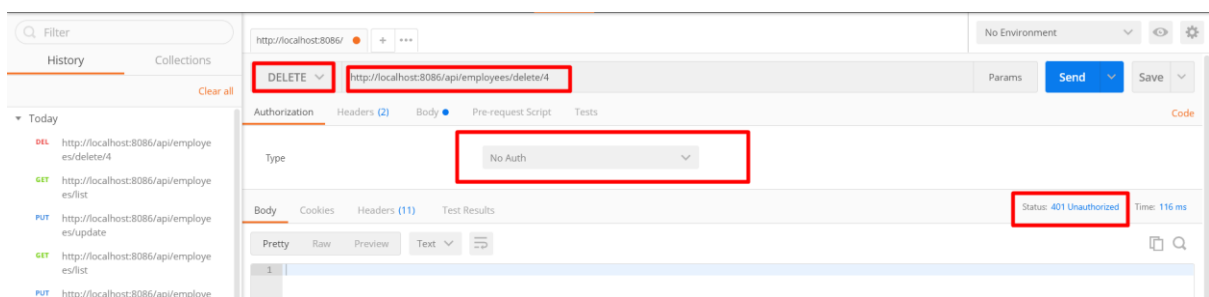


Record has been updated successfully.

## Deleting an employee by id

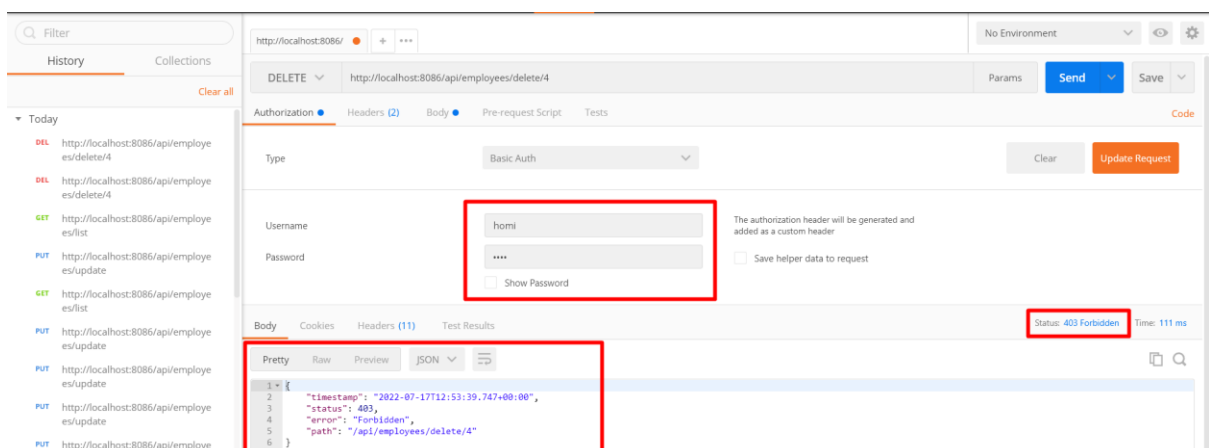
<http://localhost:8086/api/employees/delete/1> (DELETE request)

Try deleting employee with id = 4 by using an unauthenticated user.



Unauthenticated users cannot access the endpoint.

Use homi(guest) tries to delete.



homi is authenticated but not authorized to access the resource.

User prithvi(user) tries to delete emp id = 4

The screenshot shows a Postman interface for a DELETE request to `http://localhost:8086/api/employees/delete/4`. The request is configured with Basic Authentication for the user 'prithvi'. The response status is **403 Forbidden** with a response time of 116 ms. The JSON response body is as follows:

```
{
  "timestamp": "2022-07-17T12:55:26.972+00:00",
  "status": 403,
  "error": "Forbidden",
  "path": "/api/employees/delete/4"
}
```

He is also a verified user but does not have access to delete endpoint.

User tanuj(admin) tries to delete the record.

The screenshot shows a Postman interface for a DELETE request to `http://localhost:8086/api/employees/delete/4`. The request is configured with Basic Authentication for the user 'tanuj'. The response status is **200 OK** with a response time of 75 ms. The text response body is `Deleted employee id - 4`.

tanuj could delete the record for emp id = 4 because only user with authority ADMIN can delete the record.

New employee list:

The screenshot shows a Postman interface for a GET request to `http://localhost:8086/api/employees/list`. The response status is **200 OK** with a response time of 15 ms. The JSON response body is an array of employee records:

```
[
  {
    "id": 1,
    "firstName": "tanuj",
    "lastName": "paraste",
    "email": "tanuj@gmail.com"
  },
  {
    "id": 2,
    "firstName": "tanuj",
    "lastName": "kumar",
    "email": "tanuj@gmail.com"
  },
  {
    "id": 3,
    "firstName": "prakash",
    "lastName": "singh",
    "email": "prit@gmail.com"
  },
  {
    "id": 5,
    "firstName": "ashoka",
    "lastName": "choudhary",
    "email": "ashoka@gmail.com"
  },
  {
    "id": 6,
    "firstName": "kamal",
    "lastName": "raj",
    "email": "raj@gmail.com"
  }
]
```

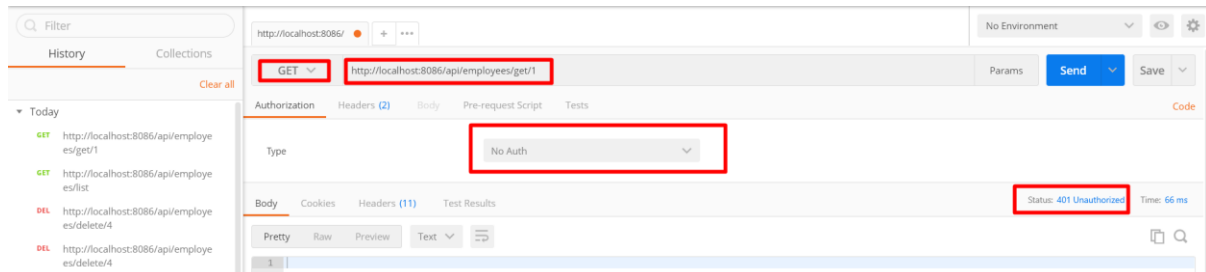


The list has 5 employees now.

## Viewing an employee by id

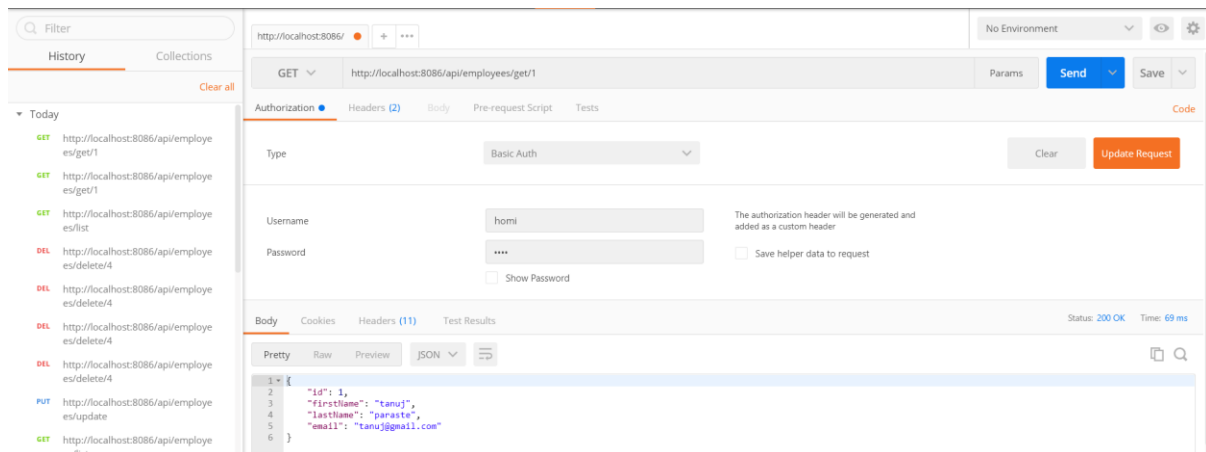
<http://localhost:8086/api/employees/get/1> (GET request)

Unauthenticated user wants to view employee id = 1



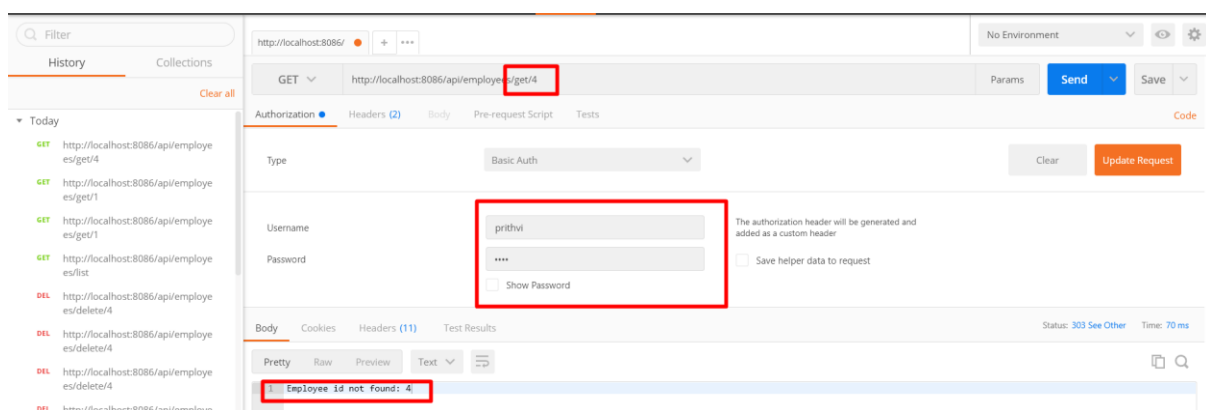
He is unauthorized to view.

User homi(guest) wants to view employee id = 1



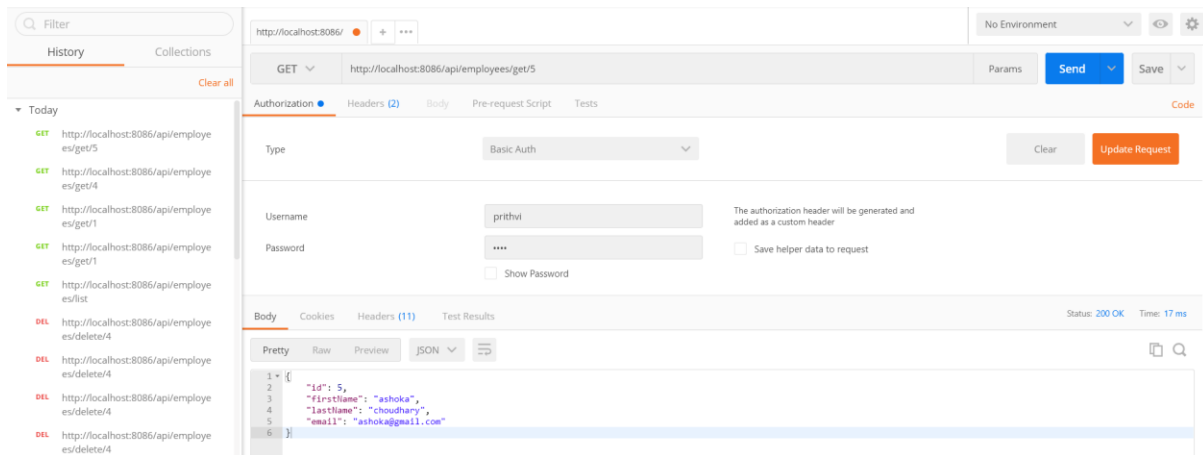
Only verified users have the authority to see an employee by id, hence homi could see employee id = 1.

User prithvi(user) wants to view employee id = 4



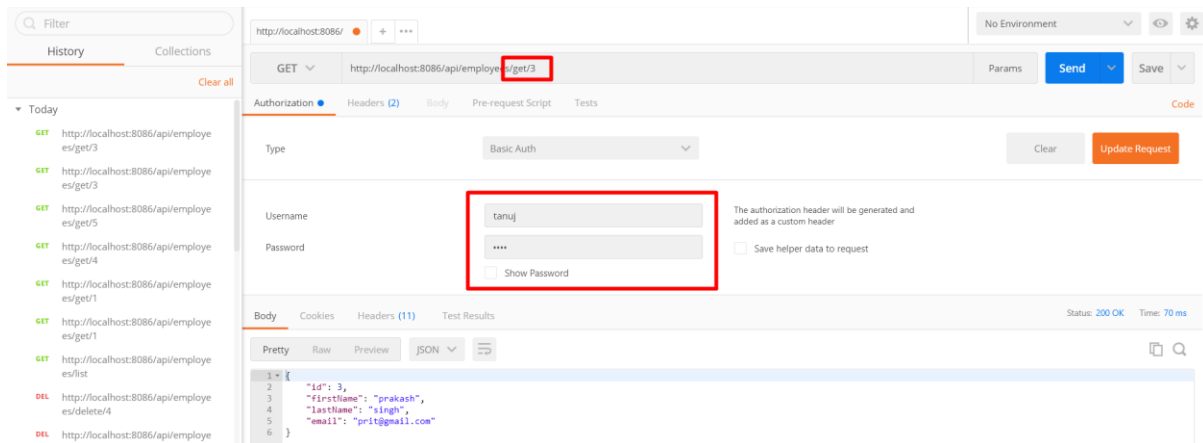
Seems employee id = 4 is not available.

Let us see employee id = 5



prithvi is authenticated hence he can fetch an employee's detail by id.

User tanuj(admin) would like to call employee id = 3 for a meeting but he does not know his name. He is searching the employee list.

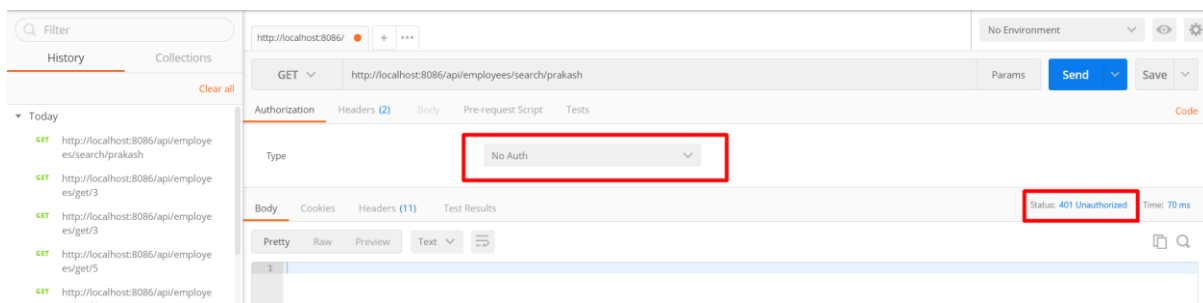


Now, he knows that he should call *prakash singh*.

## Searching an employee by firstname

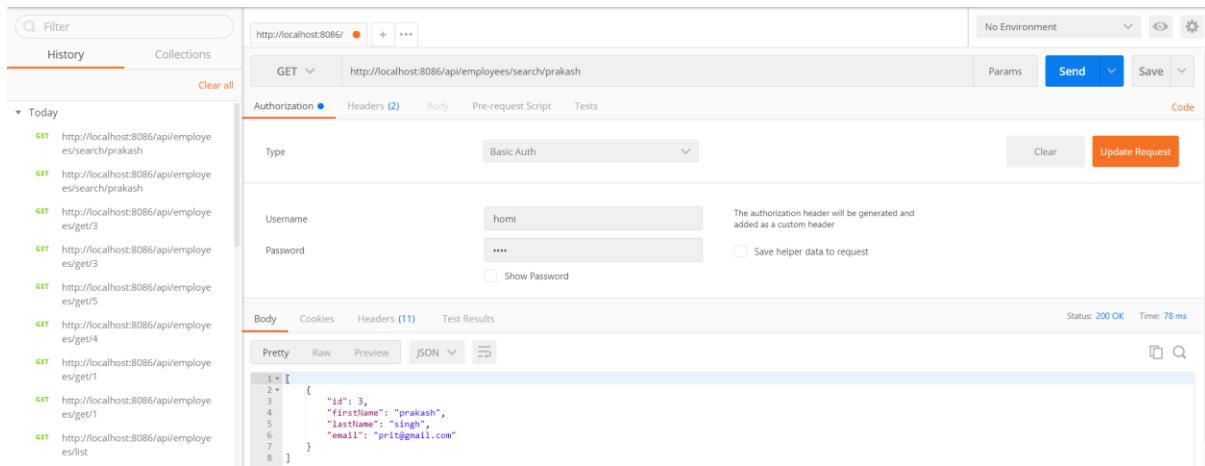
<http://localhost:8086/api/employees/search/prakash> (GET request)

Unauthenticated user tries to search for firstName *prakash*



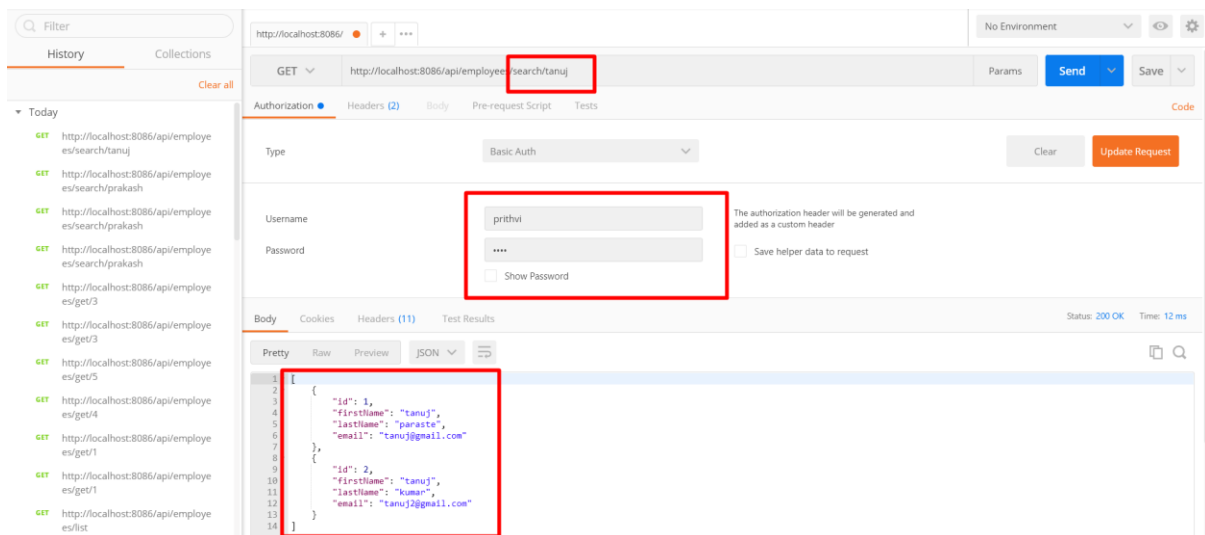
He is not permitted.

User homi(guest) searches for an employee having firstName *prakash*



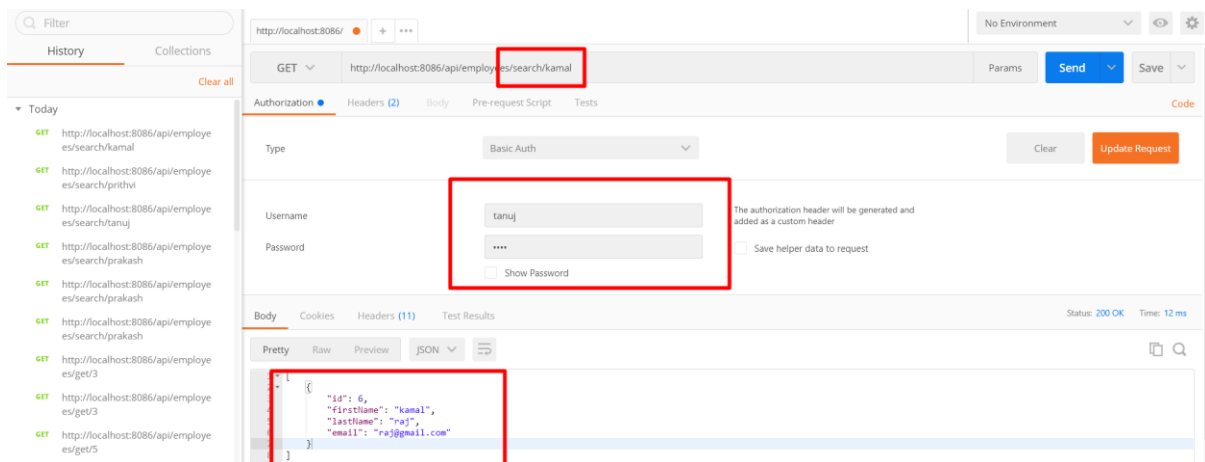
He can do so because all verified users are allowed to search for an employee based on firstname.

User prithvi(user) is looking for employees with firstname *tanuj*



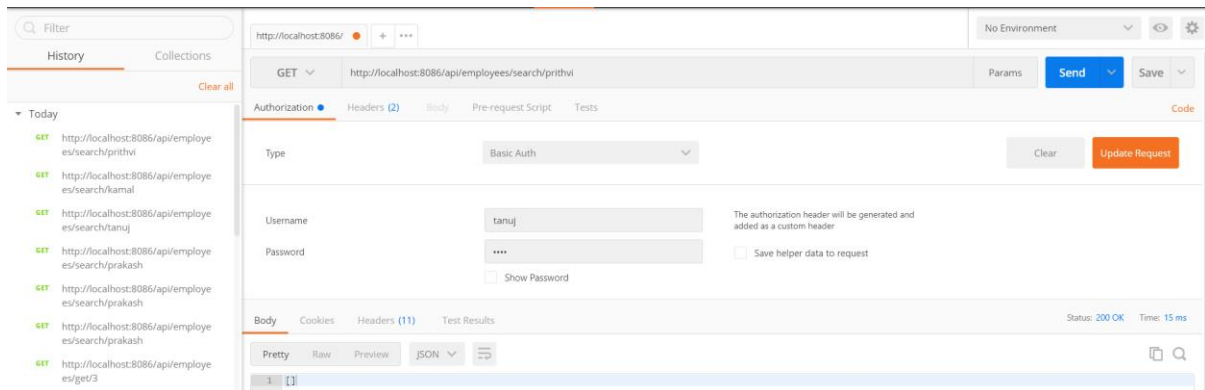
He found two employees with two records, GREAT.

User tanuj(admin) is looking for *kamal's employee id*.



He found; it is 6.

tanuj searches if there is any employee having firstname *prithvi*.



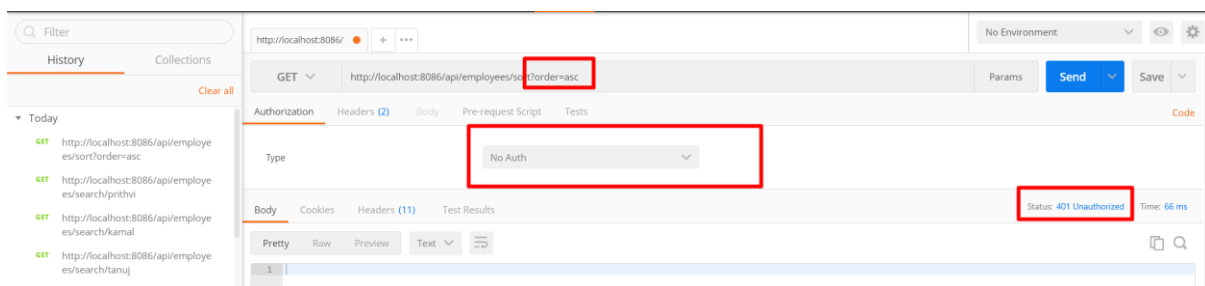
No there is no employee with that record.

## Viewing ordered employee list

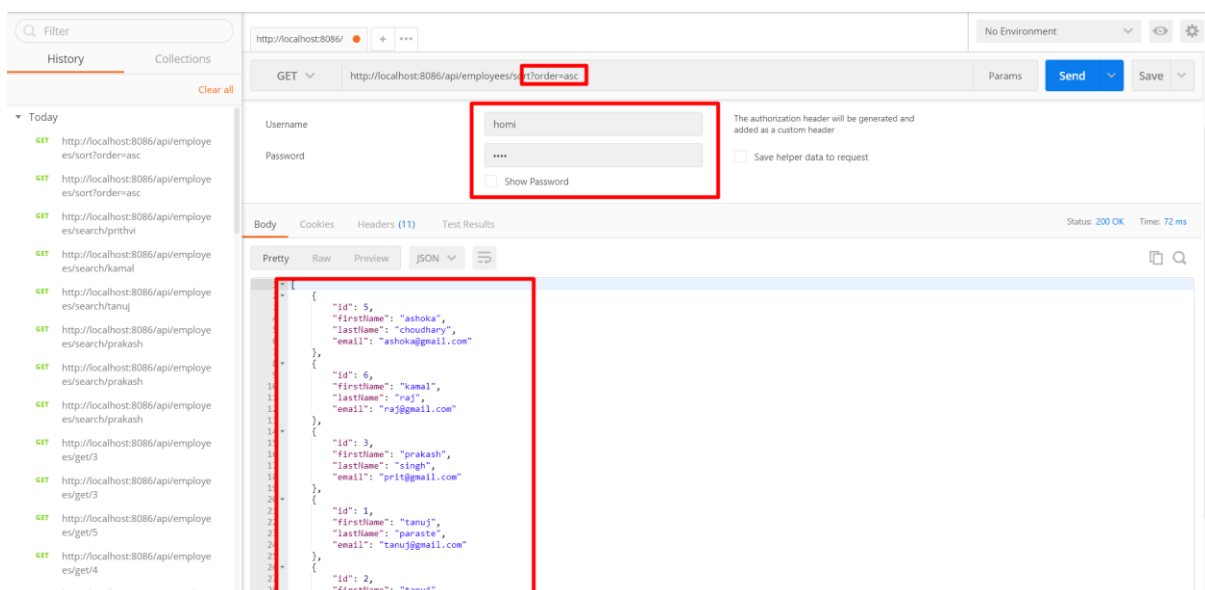
The employee list can be sorted on firstname in ascending or descending order.

<http://localhost:8086/api/employees/sort?order=asc> (GET request)

Unauthorized users cannot access this endpoint as can be seen in the screenshot below.



User homi(guest) wants to see the employee list in dictionary order.



He can get the list because he is authenticated and has permission.

User prithvi(user) wants the list in descending order.

Filter

History Collections

Clear all

Today

- GET http://localhost:8086/api/employees?sort?order=desc
- GET http://localhost:8086/api/employees?sort?order=asc
- GET http://localhost:8086/api/employees?sort?order=asc
- GET http://localhost:8086/api/employees/search/prithvi
- GET http://localhost:8086/api/employees/search/kamal
- GET http://localhost:8086/api/employees/search/tanuj
- GET http://localhost:8086/api/employees/search/prakash
- GET http://localhost:8086/api/employees/search/prakash
- GET http://localhost:8086/api/employees/search/prakash
- GET http://localhost:8086/api/employees/get/3
- GET http://localhost:8086/api/employees/get/3
- GET http://localhost:8086/api/employees/get/5
- GET http://localhost:8086/api/employees/get/5

http://localhost:8086/

GET http://localhost:8086/api/employees?sort?order=desc

Params Send Save

Username prithvi

Password \*\*\*\*

Show Password

The authorization header will be generated and added as a custom header

Save helper data to request

Status: 200 OK Time: 69 ms

Body Cookies Headers (11) Test Results

Pretty Raw Preview JSON

```
1 {
2   {
3     "id": 1,
4     "firstName": "tanuj",
5     "lastName": "paraste",
6     "email": "tanuj@gmail.com"
7   },
8   {
9     "id": 2,
10    "firstName": "tanuj",
11    "lastName": "kuman",
12    "email": "tanuj2@gmail.com"
13  },
14  {
15    "id": 3,
16    "firstName": "prakash",
17    "lastName": "singh",
18    "email": "priti@gmail.com"
19  },
20  {
21    "id": 6,
22    "firstName": "kamal",
23    "lastName": "raj",
24    "email": "raj@gmail.com"
25  },
26  {
27    "id": 5,
28    "firstName": "ashoka"
```

He gets it.

Admin users are also allowed to sort the list.

Filter

History Collections

Clear all

Today

- GET http://localhost:8086/api/employees?sort?order=asc
- GET http://localhost:8086/api/employees?sort?order=asc
- GET http://localhost:8086/api/employees?sort?order=desc
- GET http://localhost:8086/api/employees?sort?order=desc
- GET http://localhost:8086/api/employees/search/prithvi
- GET http://localhost:8086/api/employees/search/kamal
- GET http://localhost:8086/api/employees/search/tanuj
- GET http://localhost:8086/api/employees/search/prakash
- GET http://localhost:8086/api/employees/search/prakash
- GET http://localhost:8086/api/employees/search/prakash
- GET http://localhost:8086/api/employees/get/3
- GET http://localhost:8086/api/employees/get/3
- GET http://localhost:8086/api/employees/get/5
- GET http://localhost:8086/api/employees/get/5

http://localhost:8086/

GET http://localhost:8086/api/employees?sort?order=asc

Params Send Save

Username tanuj

Password \*\*\*\*

Show Password

The authorization header will be generated and added as a custom header

Save helper data to request

'tanuj' has ADMIN authority

Status: 200 OK Time: 68 ms

Body Cookies Headers (11) Test Results

Pretty Raw Preview JSON

```
1 {
2   {
3     "id": 5,
4     "firstName": "ashoka",
5     "lastName": "choudhary",
6     "email": "ashoka@gmail.com"
7   },
8   {
9     "id": 6,
10    "firstName": "kamal",
11    "lastName": "raj",
12    "email": "raj@gmail.com"
13  },
14  {
15    "id": 3,
16    "firstName": "prakash",
17    "lastName": "singh",
18    "email": "priti@gmail.com"
19  },
20  {
21    "id": 1,
22    "firstName": "tanuj",
23    "lastName": "paraste",
24    "email": "tanuj@gmail.com"
25  },
26  {
27    "id": 2,
28    "firstName": "tanuj",
```