

**POSTMAN PLATFORM FOR API DEVELOPMENT IN THE MOBILE APPLICATION
"MUSICIANS OF RUSSIA"**

M. SHERSHNEU, A. OSKIN
Polotsk State University, Belarus

This article describes a modern way of testing software, in particular the server part of the application (API - application programming interface). There you can find an example of usage Postman in the development process of the server part of the mobile application "Musicians of Russia".

Introduction. Testing process is an essential part of creation software product. The main purpose of testing process is an investigation conducted to provide stakeholders with information about the quality of the software product under test. The following type of the software errors can be distinguished:

functional errors (adding goods to the basket order doesn't work, it's impossible to leave a comment on the user's post, the search by keywords doesn't work);

user interface errors (the text doesn't fit within the boundaries of the designated area, the image isn't displayed, the wrong size or font of the text);

logical errors (it's possible to select the date of birth in the future during the registration process, make an order without leaving contact details for communication);

content errors (spelling and punctuation errors);

usability errors (clearing the filled form fields during validation data process, it's impossible to save your current progress, not user friendly interface);

security errors (sql-injections, public access to the private data) [1].

There are a lot of different tools for the software testing. In more details we will consider the testing process of the API with usage of Postman tools. Thanks to the Postman we are able to find and prevent functional, logical and security errors, and on the next step we will figure out how to do it.

Main Postman features. Postman is one of the most popular tool which is used in API testing. The application allows developers easily create, share, test and document API. In fact it's very useful, because developers can create and save HTTP requests, as well as read their responses. Also we are able to create different test scenarios, which allow us to increase the coverage of the application source code. There are some advantages of the Postman:

always around - in order to use Postman it's enough to login - with your account, what simplify access to the files anytime, anywhere;

collections usage - the Postman allows users to create collections for the API calls. Each collection may contains several queries. It helps you better to organize your test instructions;

collaboration - collections can be imported and exported. A direct link is also can be used to exchange collections;

creation of environments - you are able to use the same collections for different test environments, what allow to prevent test duplications;

tests creation - for every API call you are able to add control points, such as checking for a successful HTTP response status, which helps ensure test coverage;

automated testing - using Collection Runner or Newman, tests can be run in several iterations, saving your time fore repeated test cases;

debugging - the Postman console helps you verify what data what received during the API call, what makes debugging tests easier [2].

The most powerful features are collections and automated testing, we are during the development process.

There are several steps, which you need to do to make HTTP request with Postman:

- 1) select a GET request from the list of suggested request types;
- 2) in the address bar you need to insert the API url address that we are going to call;
- 3) click button Send;
- 4) after request submission we should see successful execution result, HTTP status 200 tells us about it;
- 5) in the result section you are able to see the array of users in the JSON format.

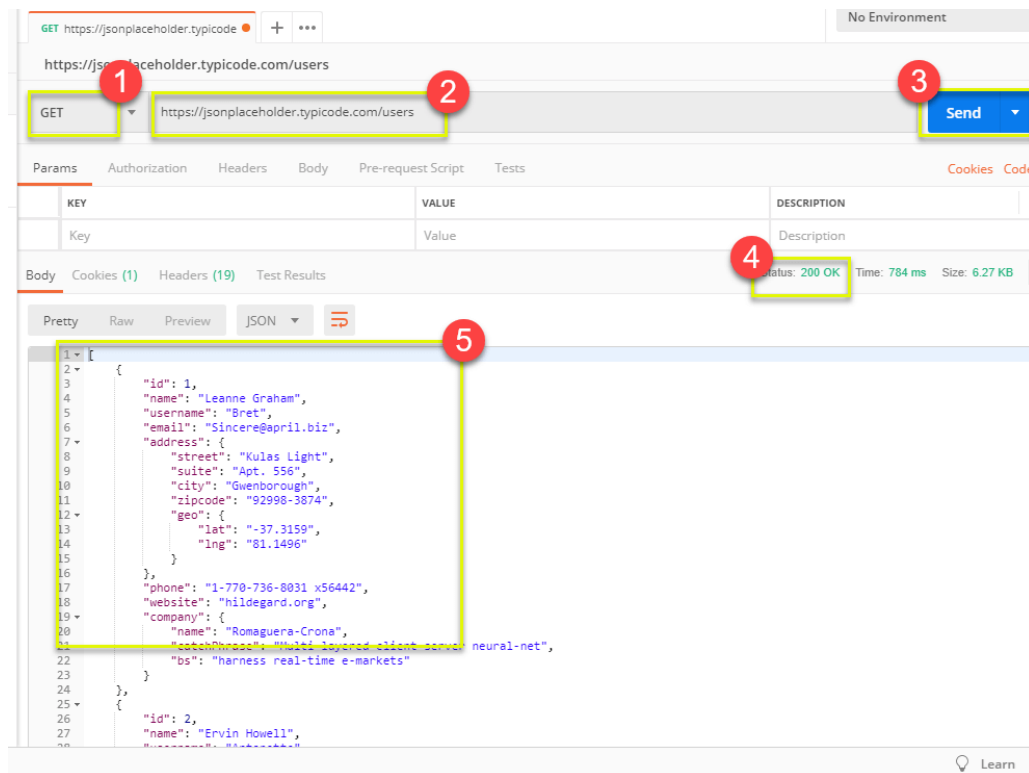


Figure 1. – Example of GET request execution with Postman

How do we use Postman in the "Musicians of Russia"?

The REST API (Representational State Transfer) model was chosen as the architectural solution for creation server part of the mobile application - there are the principles of building distributed hypermedia systems including universal methods for processing and transferring resource states via HTTP protocol [3]. Resource information management is entirely based on the data transfer protocol. The most common protocol is HTTP. We have next methods for the HTTP protocol to proceed data: GET (receive), PUT (add, replace), POST (add, change), DELETE (delete) [3]. All methods combined into the CRUD (Create-Read-Update-Delete) actions.

During the development process User entity was created. There you can find API methods, which are presented in the Table 1.

Table 1. – HTTP methods for the User entity

HTTP method	URL	Description
GET	/users	Get list of all users
GET	/users/:userId	Get user by id
POST	/users	Create a new user
PATCH	/users	Update user profile
DELETE	/users/:userId	Remove user by id

Next consider an example of execution HTTP request for the Users entity using Postman tools. In order to create a new user, we need to perform a POST request with next URL address /api/v1/user/1, where 1 is a unique identifier, which we assign to each user during the creation step. In the body request we pass all necessary parameters, in our case we need to pass the user’s name. Figure 2 show us the result of successful execution POST request.

In case the query was executed with an error, for example validation error, we are able to see the error message in the output window. Figure 3 shows us the result of the POST request with an error message.

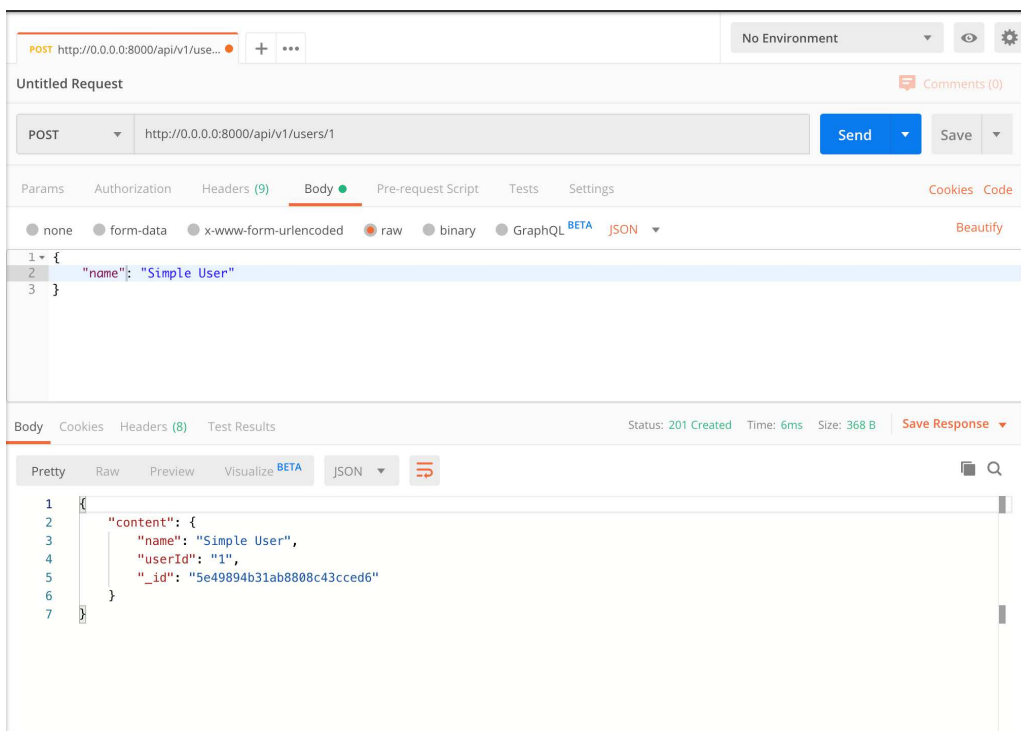


Figure 2. – Example of POST request execution with Postman

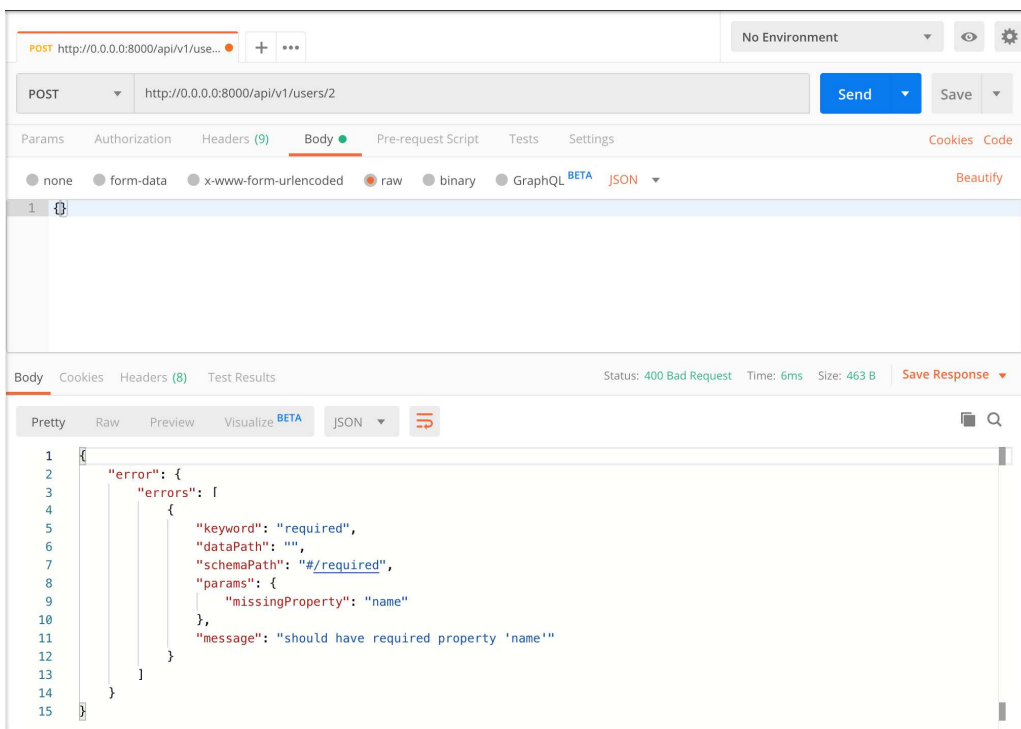


Figure 3. – Example of POST request execution with validation error

Conclusion. In the article was presented Postman application, the advantages of using the tool to test the API. Also the way of usage Postman was described during the development of the server part of the real mobile application "Musicians of Russia".

REFERENCES

1. Guru99. Postman Tutorial for Beginners with API Testing Example [Electronic resource]. - Mode of access: <https://guru99.com/postman-tutorial.html>. Date of access: 22.02.2020;
2. Wikipedia. Software testing [Electronic resource]. - Mode of access: https://en.wikipedia.org/wiki/software_testing. Date of access: 22.02.2020;
3. Wikipedia. REST [Electronic resource]. - Mode of access: <https://en.wikipedia.org/wiki/rest>. Date of access: 22.02.2020.