

Flutter & Dart Complete Guide

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DAFL 3
API

Lecture 6



Chapter
06

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Introduction

Introduction

What is REST API?

Definition:

A *REST* (Representational State Transfer) API lets two systems talk to each other over HTTP, like a waiter taking your order at a restaurant.





Rest Apis

Rest API

Key Concepts

Resources

- *What are they?*
Resources are like nouns: "Users," "Products," "Cats with funny hats."

URL for a resource:

`GET /users/123`

- *(Fetch details of user #123)*

Roast:

- REST resources act like VIPs:

You must approach with the exact ID and format, or they'll ignore you.



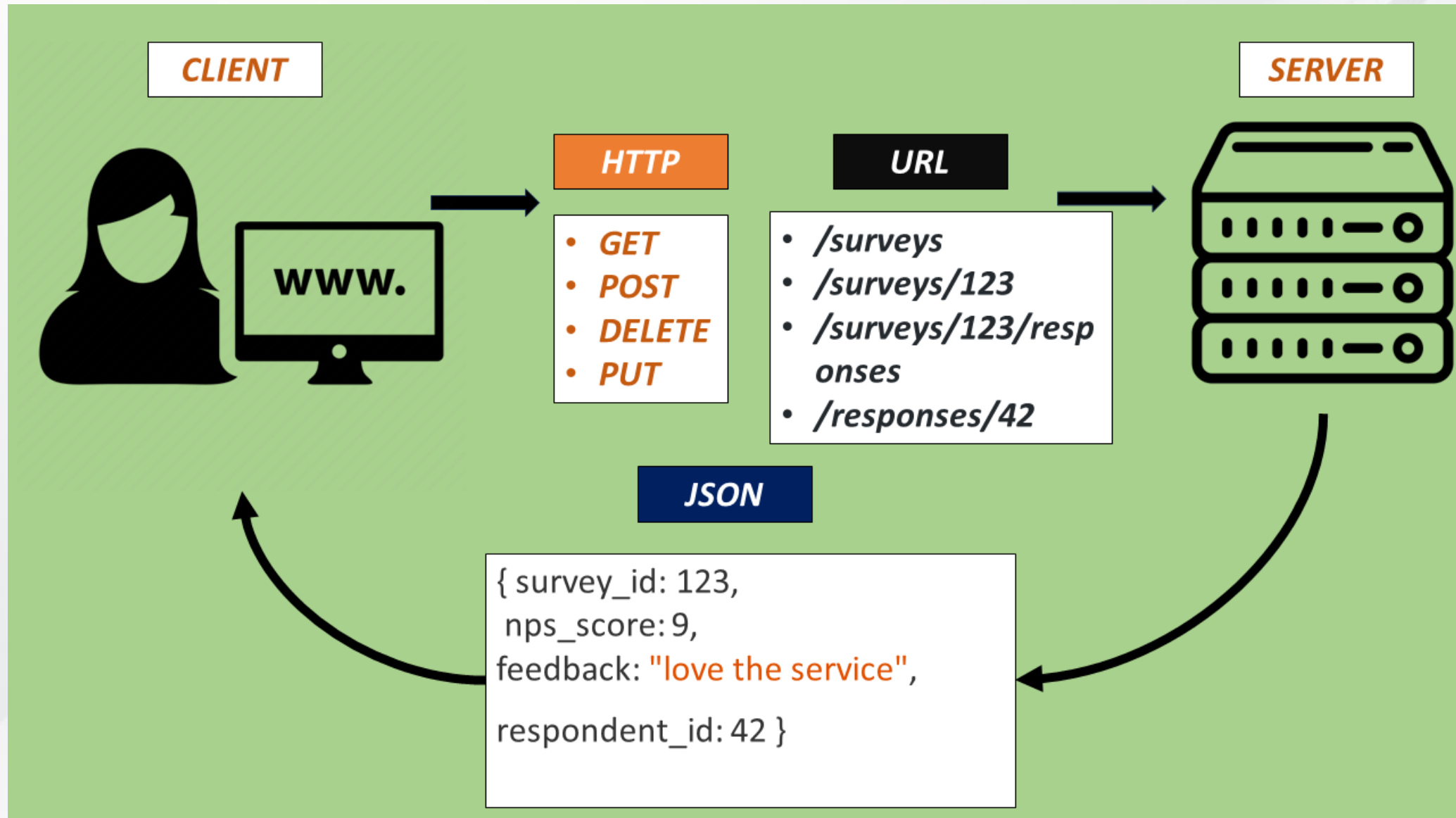
Rest API

HTTP Methods

REST uses HTTP methods to interact with resources. Think of them like verbs:

HTTP Method	Action	Example
GET	Fetch data (Read)	GET /users (Get all users)
POST	Create data	POST /users (Add a new user)
PUT	Replace data (Overwrite)	PUT /users/123 (Replace user #123)
DELETE	Remove data	DELETE /users/123 (Delete user #123)
PATCH	Update part of data	PATCH /users/123 (Change name only)





REST API

1. Fetch all books:

Client:

GET /books

Server Response:

```
json  
[  
  {"id": 1, "title": "1984"},  
  {"id": 2, "title": "The Catcher in the Rye"}  
]
```

Roast: "You asked for *all books*. Hope you have storage for the 10GB response."



REST API

Add a new book:

Client:

POST /books

```
{  
  "title": "Harry Potter"  
}
```

Roast: REST doesn't know how to spell "magic." It just blindly saves whatever you send.

Server Response:

```
json  
  
{  
  "id": 3,  
  "title": "Harry Potter"  
}
```



Status Codes

Code	Meaning	Roast
200	OK	<i>Congrats, you didn't screw up.</i>
201	Created	<i>Wow, you made something. Clap, clap!</i>
400	Bad Request	<i>Your input is garbage.</i>
401	Unauthorized	<i>No key? No entry.</i>
404	Not Found	<i>You lost something? So did the server.</i>
500	Internal Server Error	<i>You broke it. The server hates you now.</i>



Fake Store API Flutter Application

Project

Problem Story: The FakeStore API Application

You have been hired as a **backend developer** for a new startup called **FakeStore CLI Services**. The company's mission is to create a command-line tool that interacts with the [FakeStore API](#) to enable users to manage their shopping experience directly from the terminal.

Your task is to create a **Flutter application** that provides users with the following features:



Project

1. Login:

Users should be able to log in using their username and password to authenticate with the FakeStore API. Upon successful login, they receive a token, which will be displayed.

2. View Product Categories:

Users can fetch and view a list of product categories available in the store.

3. View Products by Category:

Users can choose a specific category and view all products under that category. Each product should display its:

- a. ID
- b. Title
- c. Price



Project

User-Friendly Experience:

The application should use a **menu-based system** to guide users through the options.

Error Handling:

The application must handle errors gracefully. For example:

- Invalid credentials during login.
- Network issues or timeouts.
- Invalid inputs, such as choosing a non-existent category.

Code Requirements:

- Follow **OOP principles** by dividing responsibilities into classes like `ApiClient`, `AuthService`, and `ProductService`.
- Use the **Dio** package for HTTP requests.
- Ensure the application is modular, readable, and maintainable.



Project

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Project

- Add the **dio** package to your **pubspec.yaml**:

```
dependencies:  
  dio: ^5.0.0
```



User login

```
fetch('https://fakestoreapi.com/auth/login',{
  method:'POST',
  body:JSON.stringify({
    username: "mor_2314",
    password: "83r5^_"
  })
})
.then(res=>res.json())
.then(json=>console.log(json))
```

Hide output

```
//output
{
  token: "eyJhbGciOiJIUzI1NiIsInR"
```

Products

Get all products

```
fetch('https://fakestoreapi.com/products')  
  .then(res=>res.json())  
  .then(json=>console.log(json))
```

Hide output

```
//output  
[  
  {  
    id:1,  
    title:'...',  
    price:'...',  
    category:'...',  
    description:'...',  
    image:'...'  
  },  
  /*...*/  
  {  
    id:30,  
    title:'...',  
    price:'...',  
    category:'...',  
    description:'...',  
    image:'...'  
  }  
]
```

Get all categories

```
fetch('https://fakestoreapi.com/products/categories')  
  .then(res=>res.json())  
  .then(json=>console.log(json))
```

Hide output

```
//output  
[  
  "electronics",  
  "jewelery",  
  "men's clothing",  
  "women's clothing"  
]
```

<https://www.figma.com/design/jDCfm30VHot486hrCqrCsX/Grocery-App--Big-Cart---Community-?node-id=2464-1073&p=f&t=tZJLKJnXI7erYLxH-0>

Splash1-4

Get Discounts On All Products

Lorem ipsum dolor sit amet, consetetur
sodipscing elitr, sed diam nonumy



Get started

Splash1-3

Buy Premium Quality Fruits

Lorem ipsum dolor sit amet, consetetur
sodipscing elitr, sed diam nonumy



Get started

Splash1-2



Splash1-1



Auth1-welcome

A mobile app interface for a grocery store. The top half features a large image of a woman smiling while pushing a shopping cart filled with various fruits and vegetables in a grocery store aisle. Below the image, the word "Welcome" is displayed in a bold, sans-serif font. Underneath, there is a line of placeholder text: "Lorem ipsum dolor sit amet, consetetur sadipscing elitr, sed diam nonumy". At the bottom, there is a white button with the Google logo and the text "Continue with google". Below this button, there is a link that says "Already have an account ? login".

9:41

Welcome

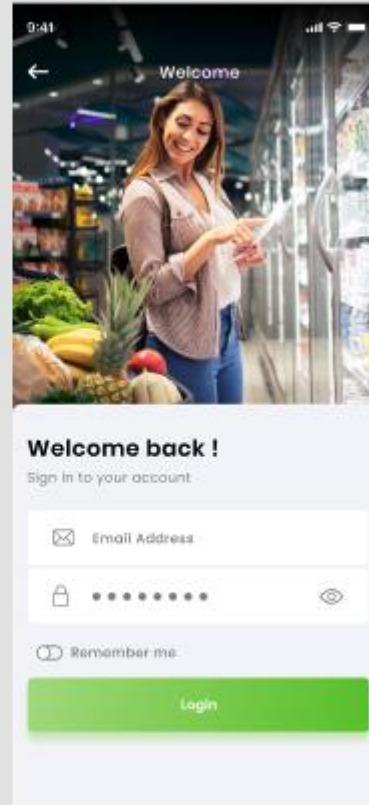
Welcome

Lorem ipsum dolor sit amet, consetetur sadipscing elitr, sed diam nonumy

 Continue with google

Already have an account ? [login](#)

Auth1-login

A mobile app interface for a grocery store, showing the login screen. The top half features a large image of a woman smiling while looking at a smartphone in a grocery store aisle. Below the image, the text "Welcome back !" is displayed in a bold, sans-serif font. Underneath, there is a line of placeholder text: "Sign in to your account". Below this, there are two input fields: the first is labeled "Email Address" and the second is for a password, represented by a series of dots and a toggle icon. Below the password field, there is a checkbox labeled "Remember me". At the bottom, there is a large green button with the text "login".

9:41

Welcome

Welcome back !

Sign in to your account

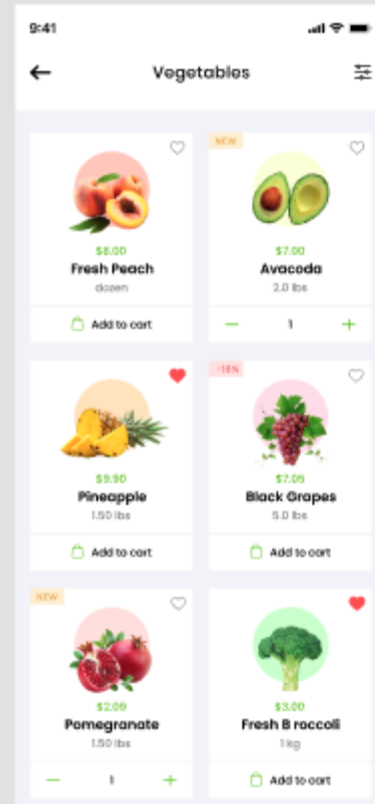
 Email Address

 •••••••• 

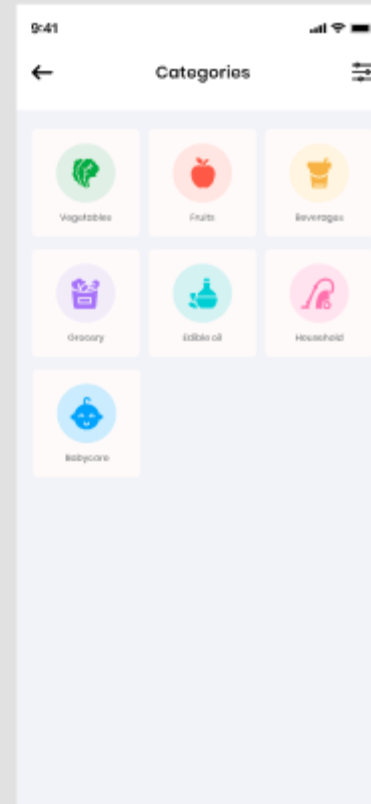
☐ Remember me

login

Products



Category



product detail

9:41

←



\$2.22

Organic Lemons

1.50 lbs

4.5 ★★★★★ (89 reviews)

Organic Mountain works as a seller for many organic growers of organic lemons. Organic lemons are easy to spot in your produce aisle. They are just like regular lemons, but they will usually have a few more scars on the outside of the lemon skin. Organic lemons are considered to be the world's finest lemon for juicing [more](#)

Quantity

−

3

+

Add to cart

cart

9:41

←

Shopping Cart



\$2.22 x 4

Fresh Broccoli

1.50 lbs

+

5

−



\$2.22 x 4

Black Grapes

5.0 lbs

+

5

−



\$2.22 x 4

Avocado

1.50 lbs

+

5

−



\$2.22 x 4

Pineapple

4.0 lbs

+

5

−

Subtotal

\$56.7

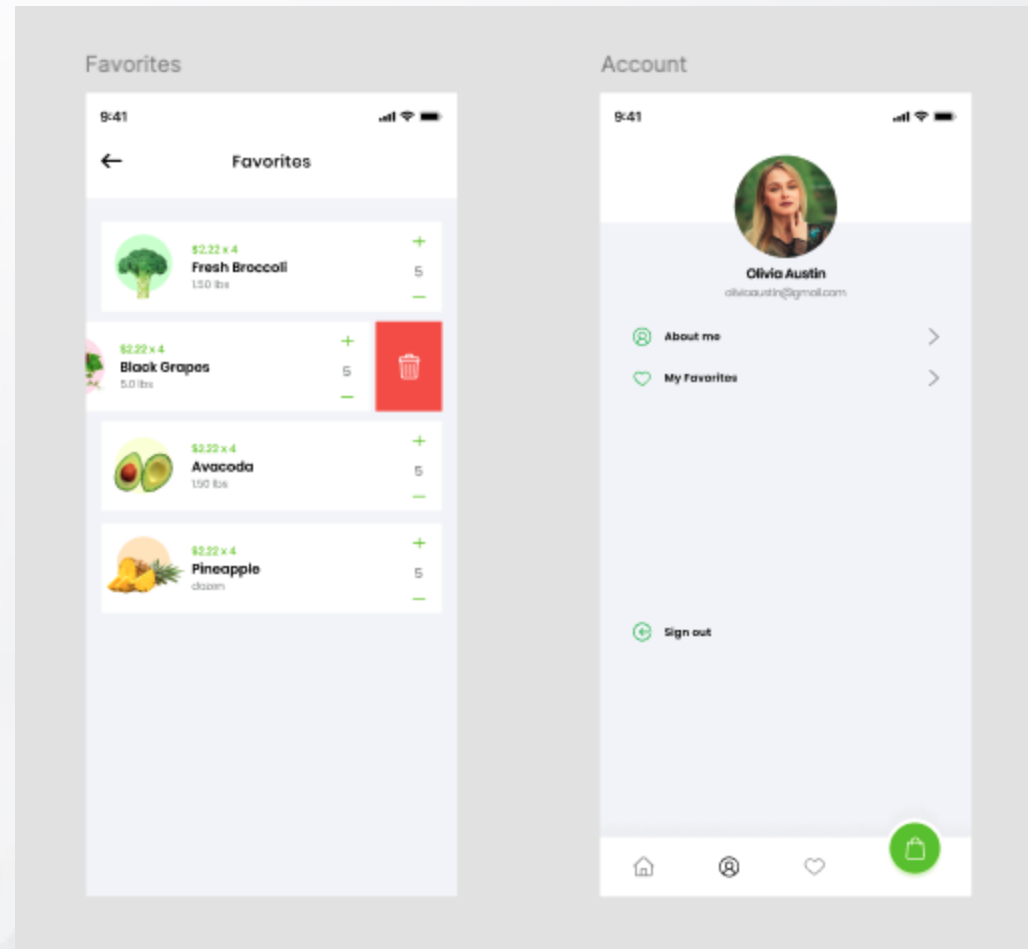
Shipping charges

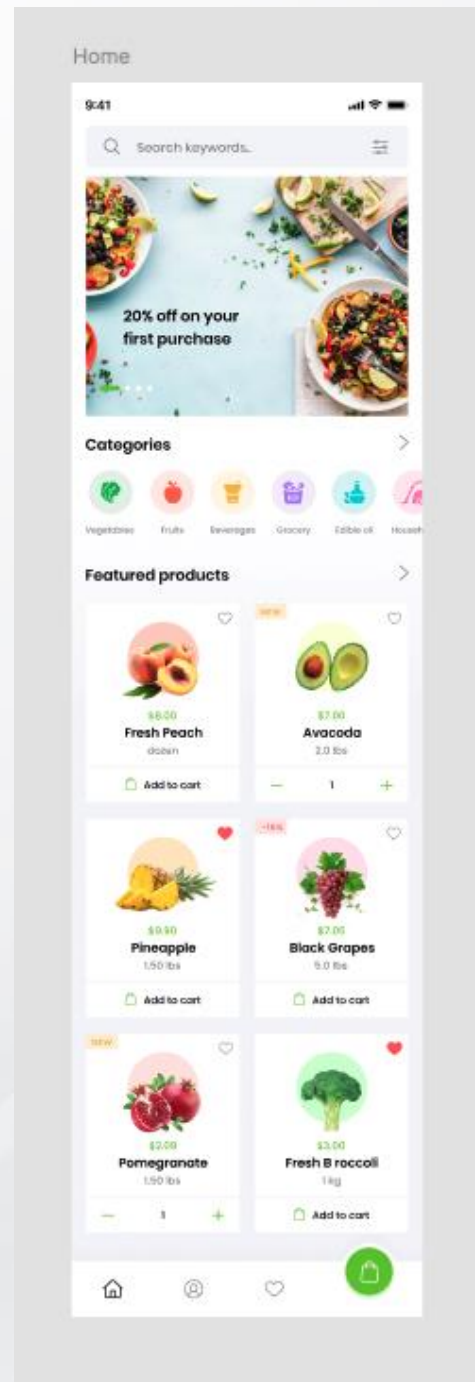
\$0.0

Total

\$58.2

Checkout





About me

9:41   



About me

Personal Details



Russell Austin



russell.partner@gmail.com



+1 202 555 0142

Change Password



Current password



•••••



Confirm password

Save settings

GET

https://fakestoreapi.com/products

Send

Params

Authorization

Headers (7)

Body

Scripts

Settings

Cookies

Query Params

	Key	Value	Description	...	Bulk Edit
	Key	Value	Description		

Body

Cookies

Headers (14)

Test Results

200 OK

302 ms

4.95 KB

Save Response

...

{ } JSON

Preview

Visualize

1

[

2

{

3

"id": 1,

4

"title": "Fjallraven - Foldsack No. 1 Backpack, Fits 15 Laptops",

5

"price": 109.95,

6

"description": "Your perfect pack for everyday use and walks in the forest. Stash your laptop (up to 15 inches) in the padded sleeve, your everyday",

7

"category": "men's clothing",

8

"image": "https://fakestoreapi.com/img/81fPKd-2AYL._AC_SL1500_.jpg",

9

"rating": {

10

"rate": 3.9,

11

"count": 120

12

}

13

},

14

{

15

"id": 2,

16

"title": "Mens Casual Premium Slim Fit T-Shirts ",

17

"price": 22.3,

18

"description": "Slim-fitting style, contrast raglan long sleeve, three-button henley placket, light weight & soft fabric for breathable and comfortable wearing. And Solid stitched shirts with round neck made for durability and a great fit for casual fashion wear and diehard baseball fans. The Henley style round neckline includes a three-button placket.",

19

"category": "men's clothing",

20

"image": "https://fakestoreapi.com/img/71-3HjGNDUL._AC_SY879._SX._UX._SY._UY_.jpg",

21

"rating": {

22

"rate": 4.1,

23

"count": 259

24

}

25

}

GET
https://fakestoreapi.com/products/1
Send

Params
Authorization
Headers (7)
Body
Scripts
Settings
Cookies

Query Params

	Key	Value	Description	⋮ Bulk Edit
	Key	Value	Description	

Body
Cookies
Headers (14)
Test Results
↺
200 OK
• 275 ms
• 959 B
🌐
📄 Save Response
⋮

{{ JSON
▶ Preview
🔗 Visualize
▼
🔍
📄
🔗

```

1  {
2    "id": 1,
3    "title": "Fjallraven - Foldsack No. 1 Backpack, Fits 15 Laptops",
4    "price": 109.95,
5    "description": "Your perfect pack for everyday use and walks in the forest. Stash your laptop (up to 15 inches) in the padded sleeve, your everyday",
6    "category": "men's clothing",
7    "image": "https://fakestoreapi.com/img/81fPKd-2AYL._AC_SL1500_.jpg",
8    "rating": {
9      "rate": 3.9,
10     "count": 120
11   }
12 }

```

<https://fakestoreapi.com/users/1>

Save

Share

GET

<https://fakestoreapi.com/users/1>

Send

Params

Authorization

Headers (7)

Body

Scripts

Settings

Cookies

Query Params

	Key	Value	Description	...	Bulk Edit
	Key	Value	Description		

Body

Cookies

Headers (14)

Test Results

200 OK

190 ms

889 B

{ } JSON

Preview

Visualize

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

```

{
  "address": {
    "geolocation": {
      "lat": "-37.3159",
      "long": "81.1496"
    },
    "city": "kilcoole",
    "street": "new road",
    "number": 7682,
    "zipcode": "12926-3874"
  },
  "id": 1,
  "email": "john@gmail.com",
  "username": "johnd",
  "password": "m38rmF$",
  "name": {
    "firstname": "john",
    "lastname": "doe"
  },
  "phone": "1-570-236-7033",
  "__v": 0
}

```



fake api / New Request

DELETE



https://fakestoreapi.com/users/1

Params

Authorization

Headers (7)

Body

Scripts

Settings

Query Params

	Key	Value	Description
	Key	Value	Description

What is Next ?



Thank You