What is API?

In this lesson:

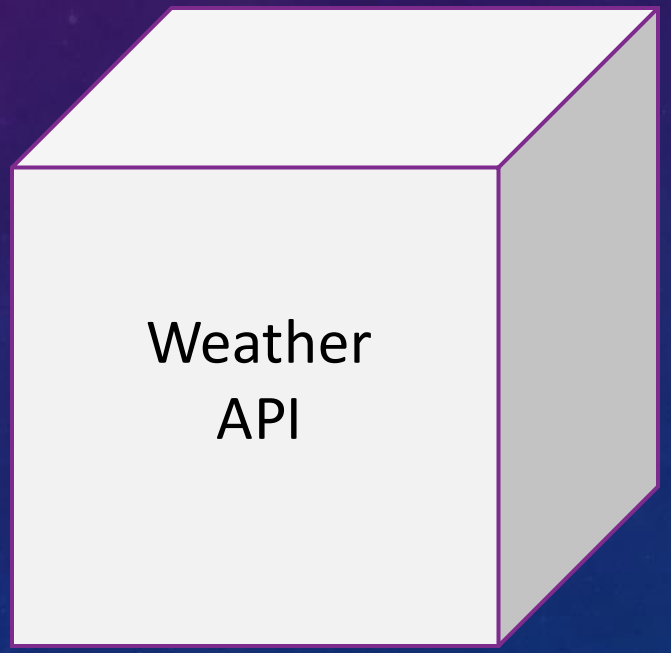
- What is API
- API methods, request and response codes
- What is Client-Server applications
- Why do we need to test API

API

(Application Programming Interface)

{“cityName”: “New-York”}

Request



Response


```
{
  “currentTemperature”: 70,
  “humidity”: “45%”
  “forecast”: {
        “tomorrow”: 75,
        “dayAfterTomorrow”: 60
    }
}
```


Types of API requests

GET — Get or request specific data from API

POST

PUT — Send data to a API to create/update a resource

DELETE — Removes specified resource

Typical API request

API URL	Https link to API. Usually called API End-point
Headers	Usually it’s Content-Type or Authorization token
Method	GET, POST, PUT, DELETE
Body	JSON object with requested data

HTTP response status codes

2xx (200, 201, 204, …)	Success!
3xx (300, 301, 302, …)	Redirection
4xx (400, 401, 404, …)	Client Error
5xx (500, 501, 502, …)	Server Error

Client - Server

Client - Server

Web-browser
(client)

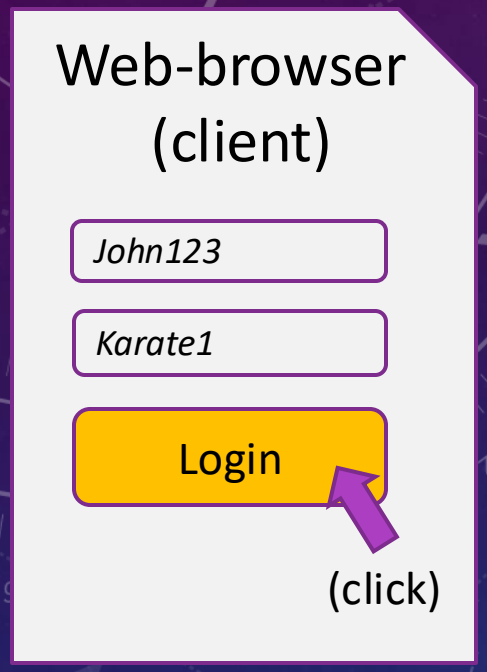
username

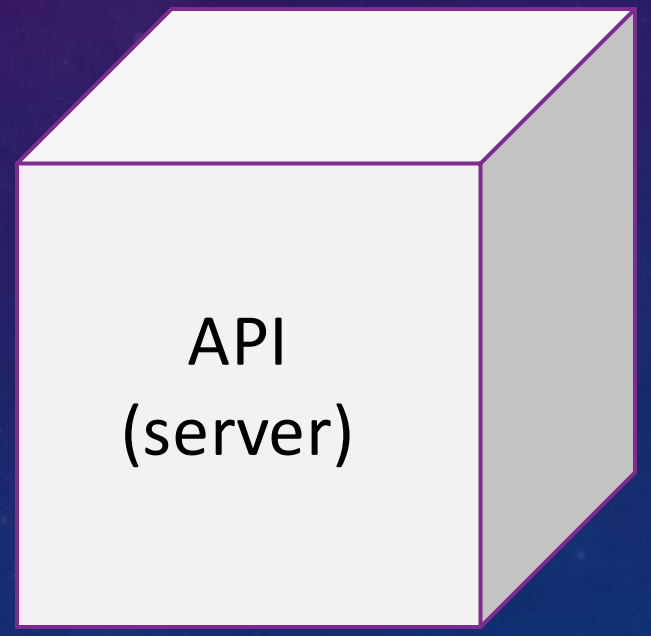
password

Login

API
(server)

Client - Server





Client - Server

Web-browser (client)

Loading…

```
{
   “userName”: “John123”,
   “password”: “Karate1”
}
```

Request

Response (Status 200)

```
{
   “firstName”: “John”,
   “lastName”: “Smith”,
   “age”: 35,
   “accessToken”: “AKD3862Dib@9347”
}
```

API (server)

Client - Server

Web-browser (client)

Welcome,
John Smith

Your age is:
35

```
{
   “userName”: “John123”,
   “password”: “Karate1”
}
```

Request

Response (Status 200)

```
{
   “firstName”: “John”,
   “lastName”: “Smith”,
   “age”: 35,
   “accessToken”: “AKD3862Dib@9347”
}
```

API
(server)

Why do we need to test APIs?

To verify that API follows defined contract and the logic of the API (server) is matching the expected result

Contract

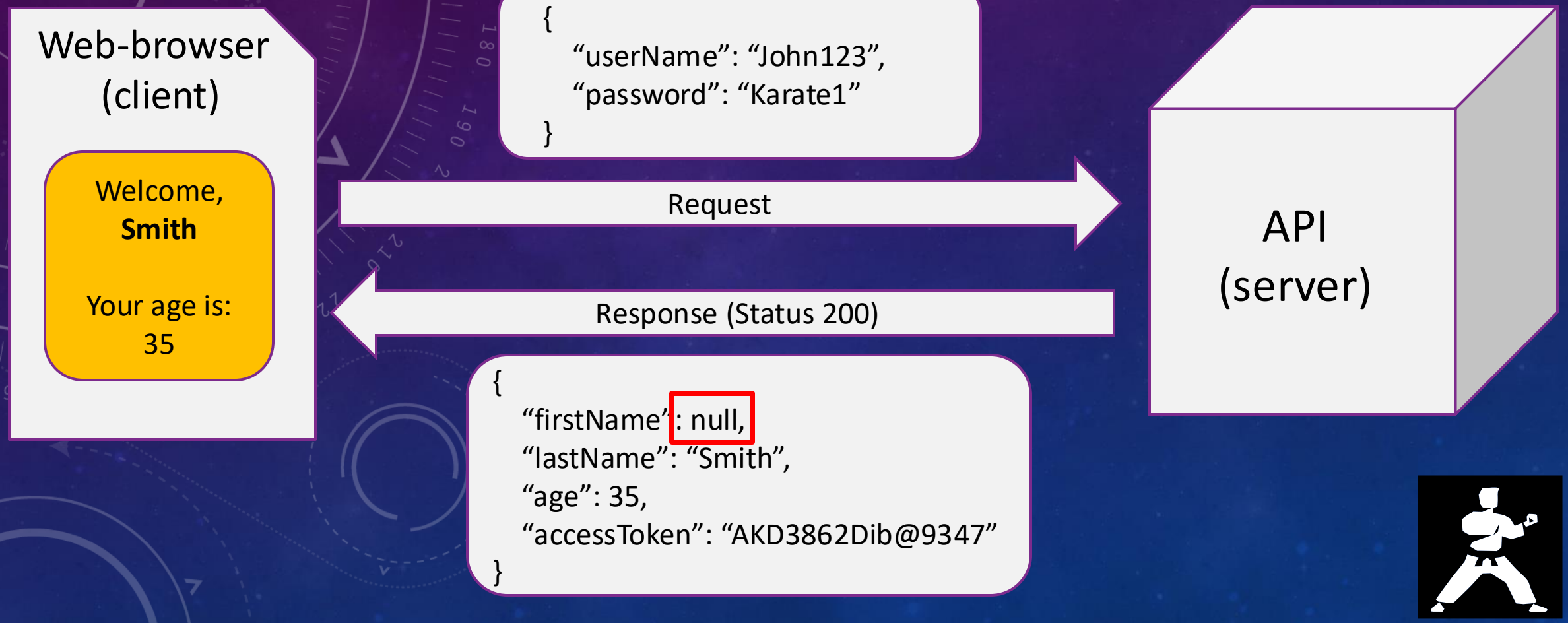
Web-browser
(client)

Valid request:
username: String
password: String

Valid response:
firstName: String
lastName: String
age: Number
accessToken: String

API
(server)

Server broke the contract



Server broke the contract

Web-browser (client)

Welcome, **John Smith**

Your age is: *error*

```
{
   “userName”: “John123”,
   “password”: “Karate1”
}
```

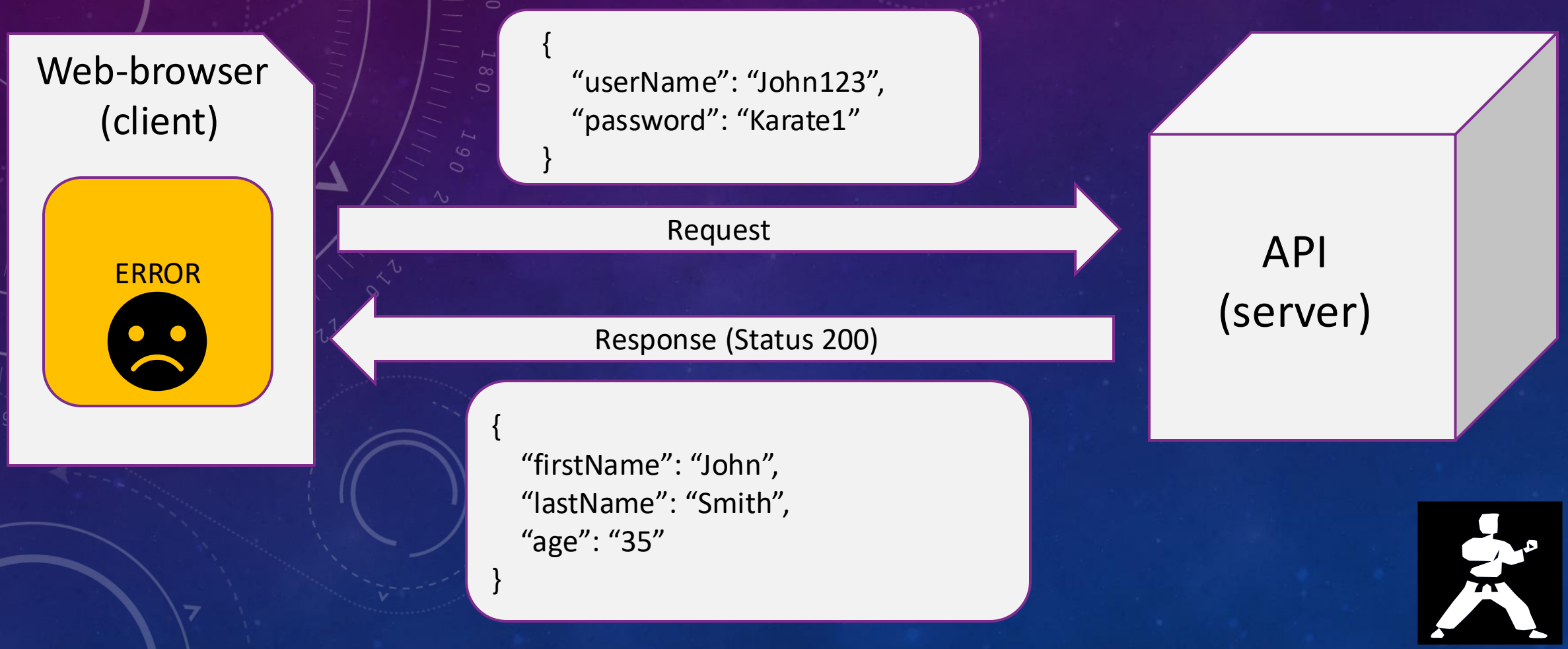
Request

Response (Status 200)

```
{
   “firstName”: “John”,
   “lastName”: “Smith”,
   “age”: “35”,
   “accessToken”: “AKD3862Dib@9347”
}
```

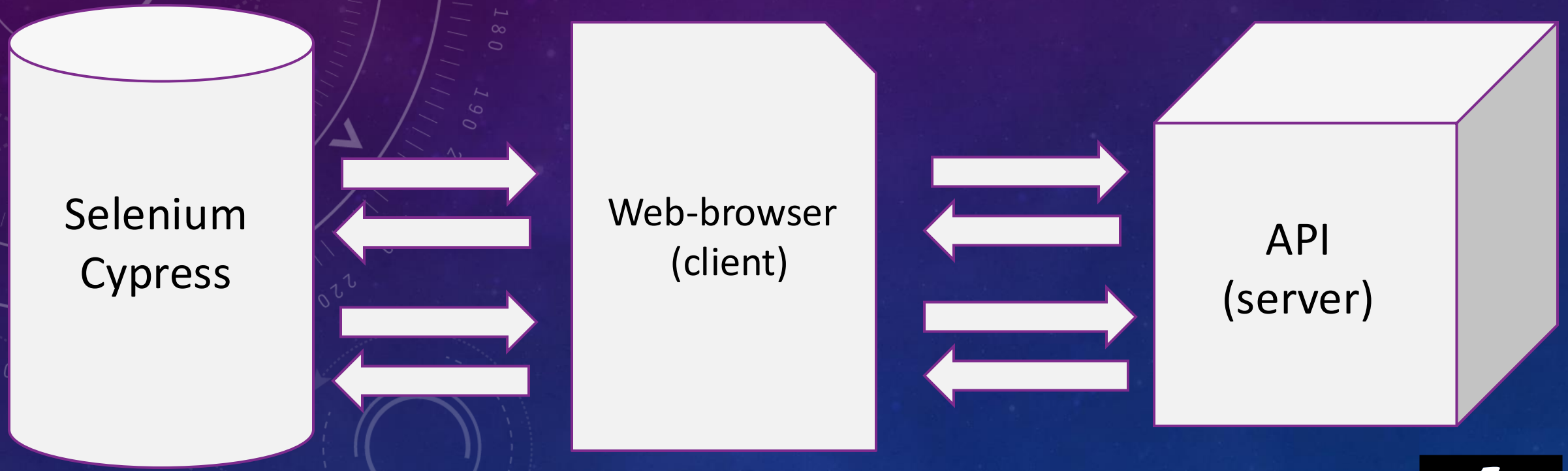
API (server)

Server broke the contract



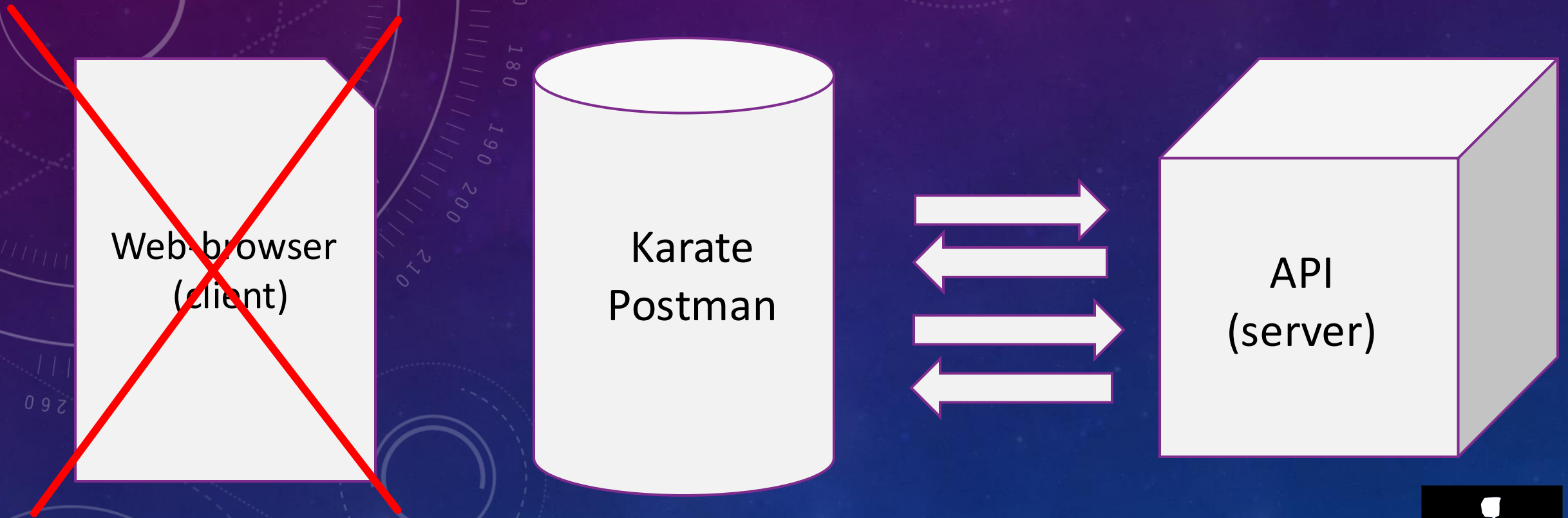
UI Automation

Functional end-to-end testing



VERY SLOW :(

API Automation



LIGHTNING SPEED ☺

Summary

- API – Application Programming Interface (black box)
- Method types: Get, Post, Put, Delete
- Typical request has: URL, Headers, Request type, Body
- Status codes: 2xx (Success), 3xx (Redirect), 4xx (Client error), 5xx (Server error)
- The purpose of API automation is to verify that API follows the defined contract and the logic of the API (server) is matching the expected result
- API automated tests are MUCH faster than UI automation