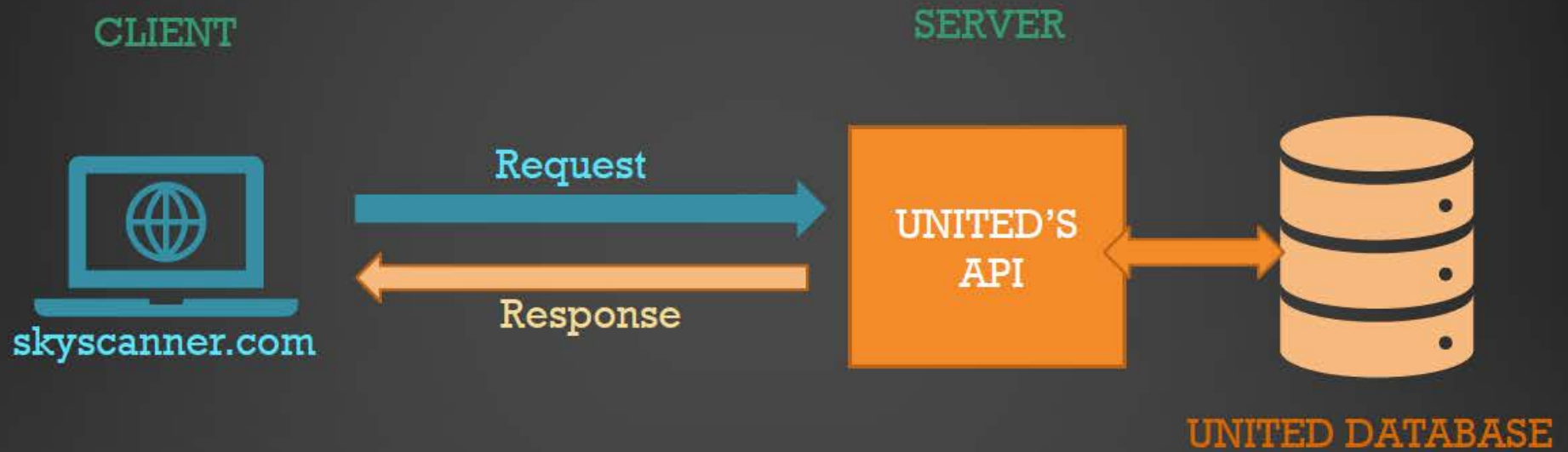


API

WHAT IS API ?

- Application Programming Interface (API) is a small piece of code that enables different applications and services to communicate and share information with each other.
- API also called Web Service.

API



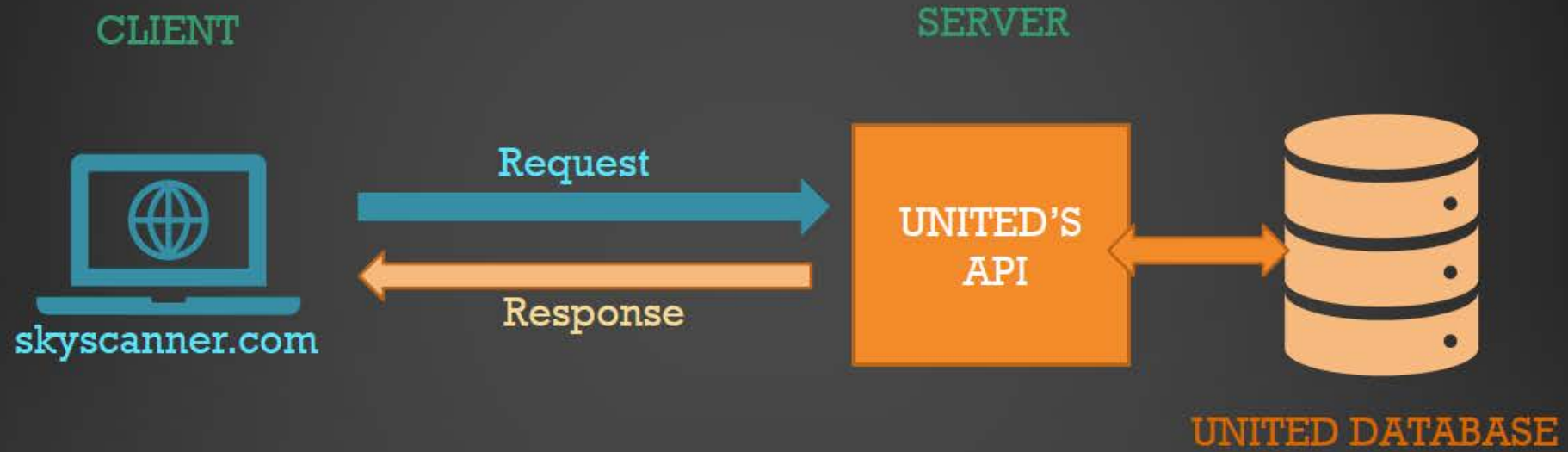
API

- There are 2 types of API
 1. SOAP (Simple Object Access Protocol)
 2. REST(Representational State of Transfer)

SOAP

- Soap (Simple Object Access Protocol)
- SOAP is for communication between applications
- SOAP is a format for sending messages
- SOAP communicates via internet
- SOAP is platform independent
- SOAP is based on XML

SOAP API



COMMUNICATION HAPPENS IN XML FORMAT

HOW DO WEB SERVICES COMMUNICATE WITH EACH OTHER?

- Request XML

- `<tripreq>`
 - `<source_city>DC</source_city>`
 - `<date>1/1/2016</date>`
- `</tripreq>`

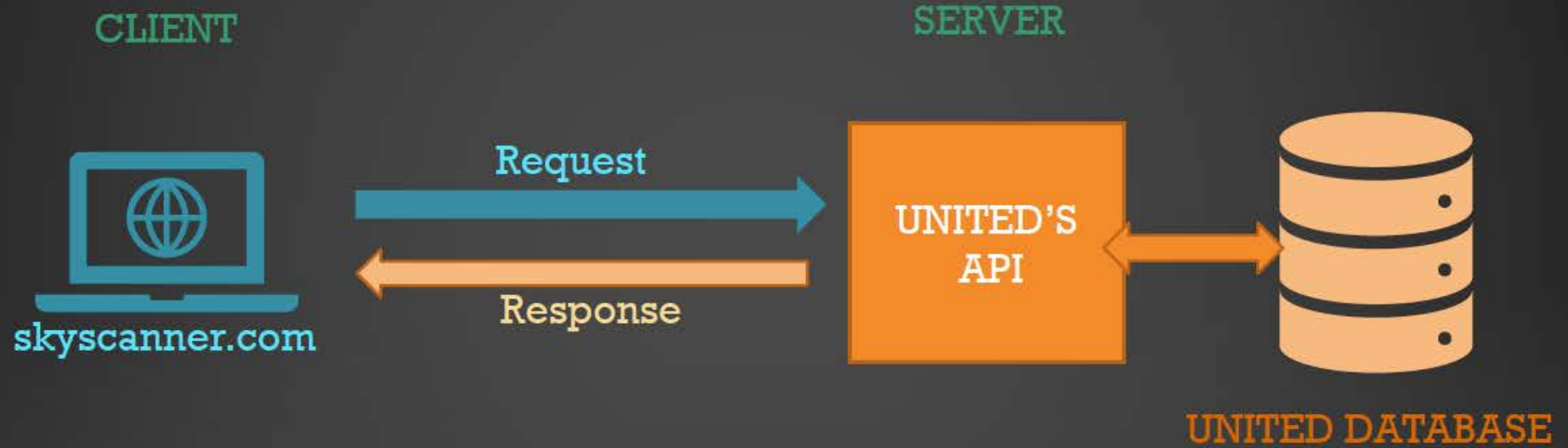
- Response XML

- `<tripresponse>`
 - `<provider_name>United</provider_name>`
 - `<cost>$1000</cost>`
- `</tripresponse>`

RESTWEB SERVICES

- REST(Representational State of Transfer) is a lightweight option for developing web services using the HTTP protocol.
 - It can structure data into XML or any other machine readable format, but usually JSON
 - Rest is very data driven, compared to SOAP, which is strongly function driven.

API

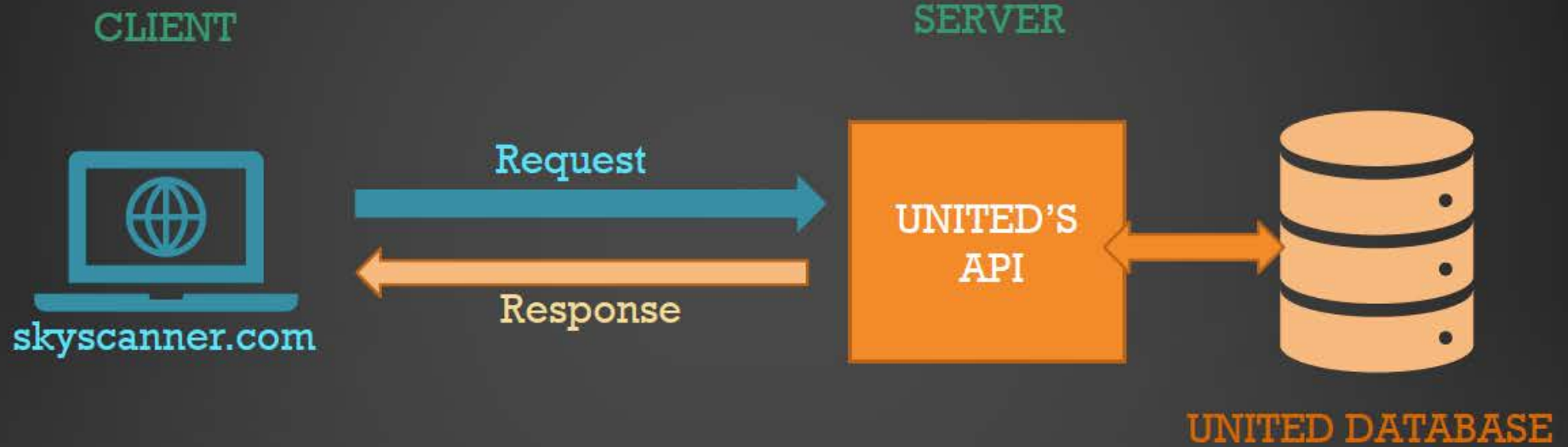


COMMUNICATION HAPPENS IN JSON OR XML FORMAT

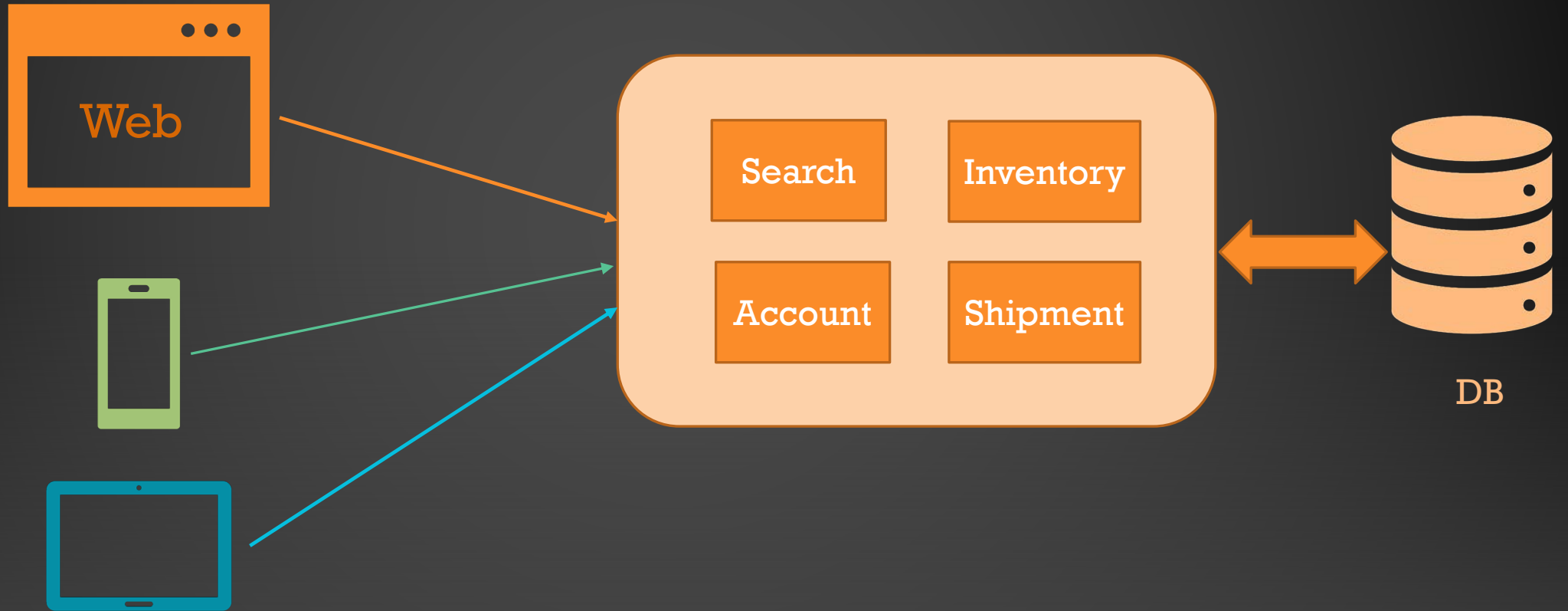
SOAP VS REST

- SOAP is not popular anymore
- 80% of the market is using REST
- SOAP is XML Response, REST IS XML and JSON
- REST is purely http protocol
 - We can hit the link on the browser and see the results.

API



API(MICROSERVICES)



SHORT 2



WHAT IS AN API TESTING?

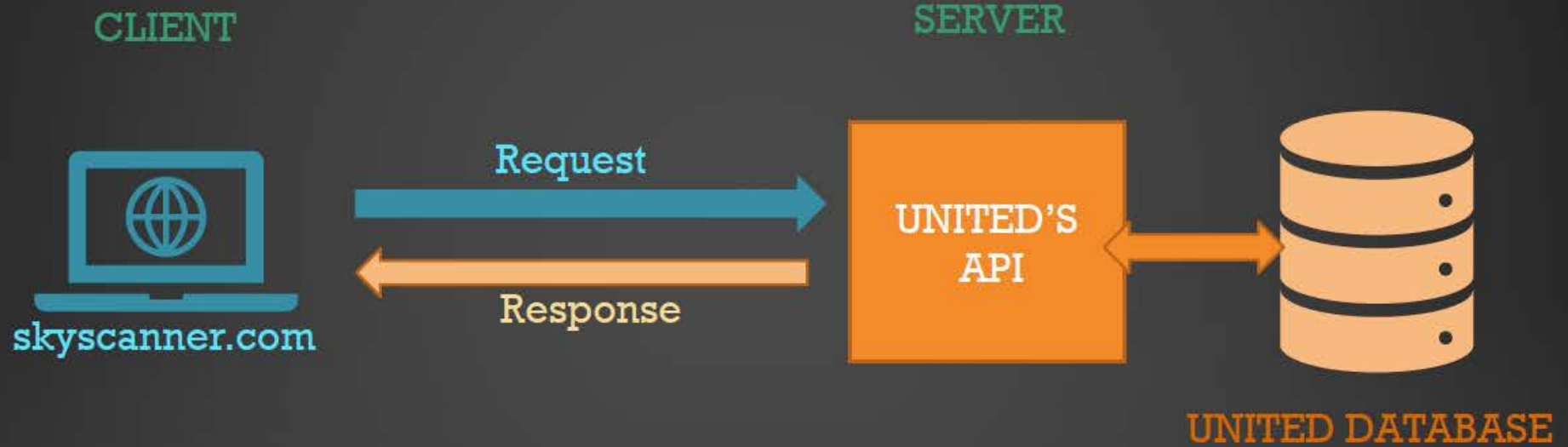
- API testing is entirely different from GUI testing and mainly concentrates on the business logic layer of the software architecture. This testing won't concentrate on the look and feel of an application.
- Instead of using standard user inputs(keyboard) and outputs, in API Testing, you use software to send calls to the API, get output, and note down the system's response.

WHAT IS AN API TESTING?

API Testing requires an application to interact with API. In order to test an API, you will need to

1. Use Testing Tool to drive the API
2. Write your own code to test the API

API



WHY API TESTING IS IMPORTANT?

- Faster to test than GUI testing
- Without a UI, it can be tested earlier in the life cycle
- Becoming more popular in the industry
- Time Efficiency vs. functional and validation testing
- Cost Effective / Reduces Testing Cost

HOW TO SEND A REQUEST ?

- When we send request, we need to know the API methods/endpoints that are available:
 - - read documentation about api methods
 - - Swagger tool, that has API methods and descriptions

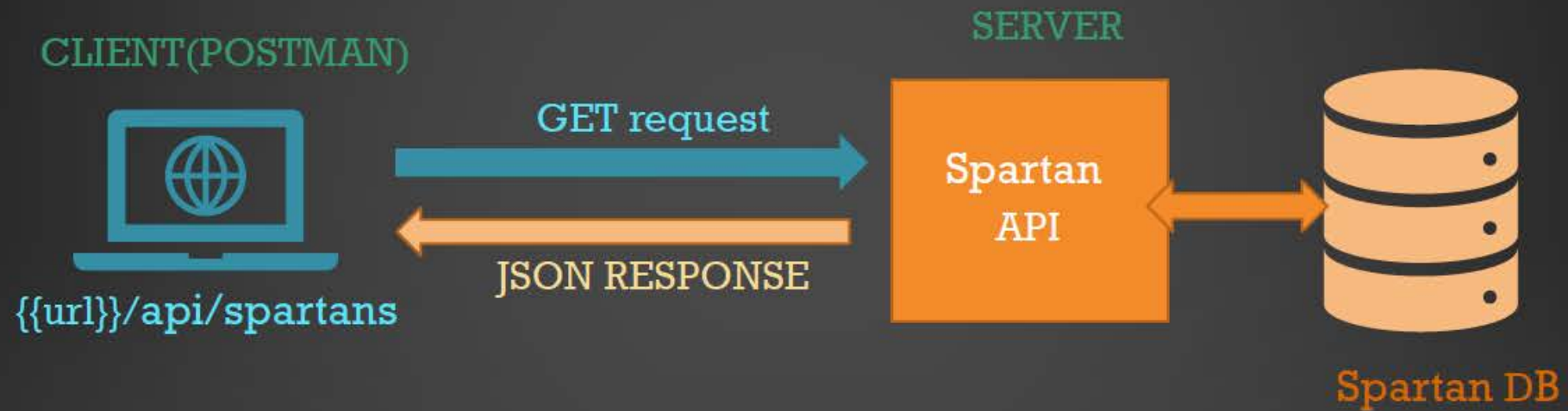
TYPES OF HTTP REQUESTS

- GET –Retrieves the data from a specified source
- POST-Sends new data to a specified source
- PUT-Updates info for a specified source
- DELETE-Removes data from a specified source

POSTMAN

- Is a RESTAPI client tool that helps to test REST API urls.
- It is popular for both developers and testers.
- We can use both manual and automation purposes.

POSTMAN



HTTP STATUS CODE

- 200 -> OK
- 400 -> CLIENT'S ERROR
- 500 -> SERVER/API'S ERROR

HTTP Status Codes		
Level 200 (Success) 200 : OK 201 : Created 203 : Non-Authoritative Information 204 : No Content	Level 400 400 : Bad Request 401 : Unauthorized 403 : Forbidden 404 : Not Found 409 : Conflict	Level 500 500 : Internal Server Error 503 : Service Unavailable 501 : Not Implemented 504 : Gateway Timeout 599 : Network timeout 502 : Bad Gateway

FIRST TEST CASE

- When I send a **GET** request to
- <http://54.204.128.200:8000/api/spartans>
- Then Response **STATUS CODE** must be **200**
- And I Should see all Spartans data in JSON format

HEADERS

- Additional information about request and response.
- It works like a map key&value structure

What we send with the headers ?

- Content types (application/json, application/xml, ...)
- Credentials, Authentication, (username, password, different types)

REQUEST HEADERS

- Credentials, Authentication, (username,password, different types)
- `Accept, application/json` → hey api, please send me json respond.
- `Accept, application/xml` → please send me xml response

RESPONSE HEADERS

- `Content-type, application/json` → hey client, I am sending you json body
- `Content-type, application/xml` → hey client, I am sending you xml body

EXAMPLE TEST CASE

Given Accept type application/xml

When user send GET request to api/spartans end point

Then response Content Type must be application/xml

And response body should be xml format

PARAMETERS

- Parameters are options you can pass with the endpoint to influence the response
- 2 Types of Parameters
 - Query Parameters
 - Path Parameters

PATH PARAMETER

- is a part of URL and followed by the end of full resource url
- 54.204.128.200:8000/api/spartans/{id}



Path parameter

QUERY PARAMETERS

- It is NOT part of url and passed in **key+value** format
- **?** means end of url

```
https://www.amazon.com/s?k=api
```