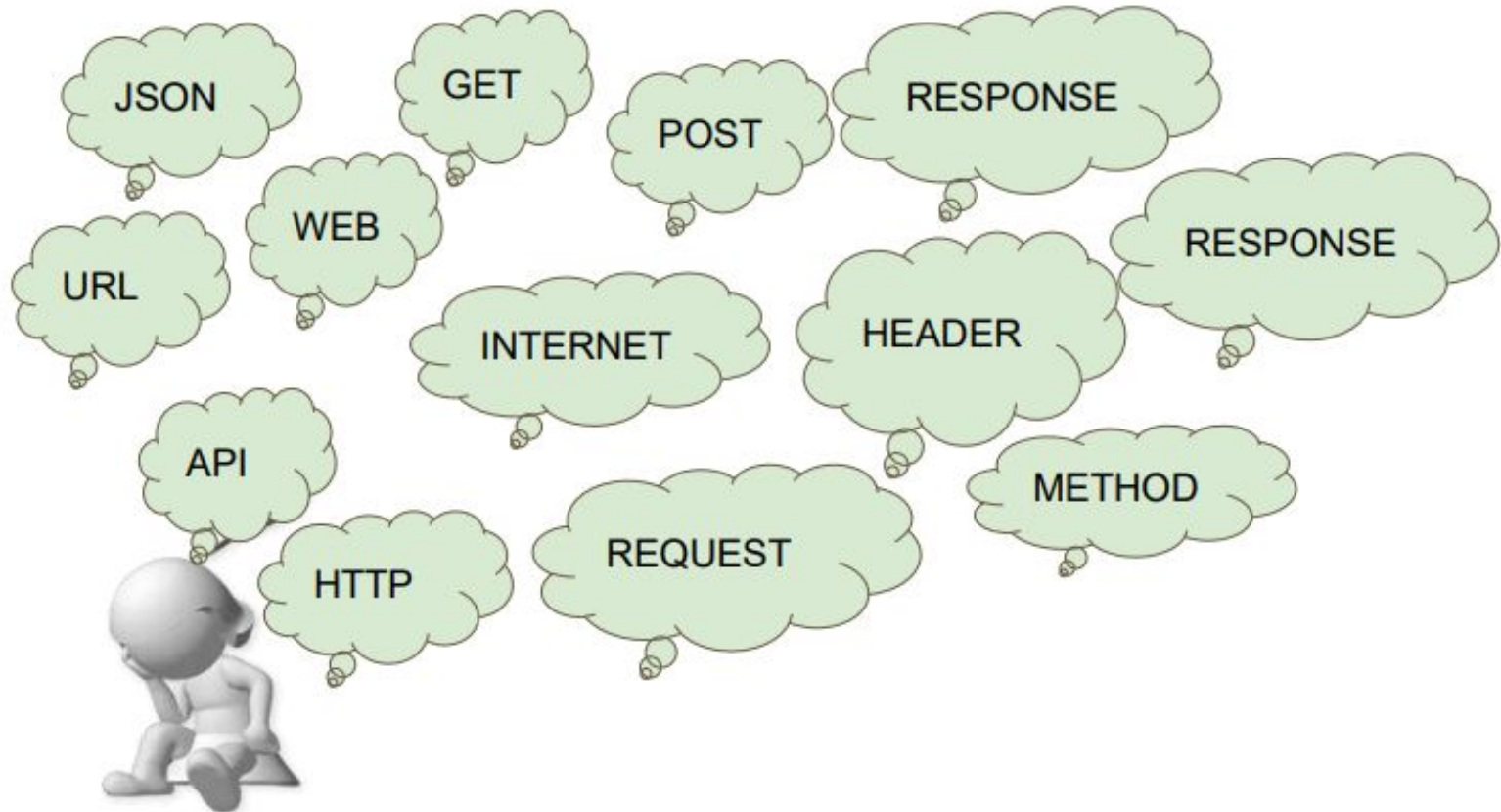# API

Muhammad Verly

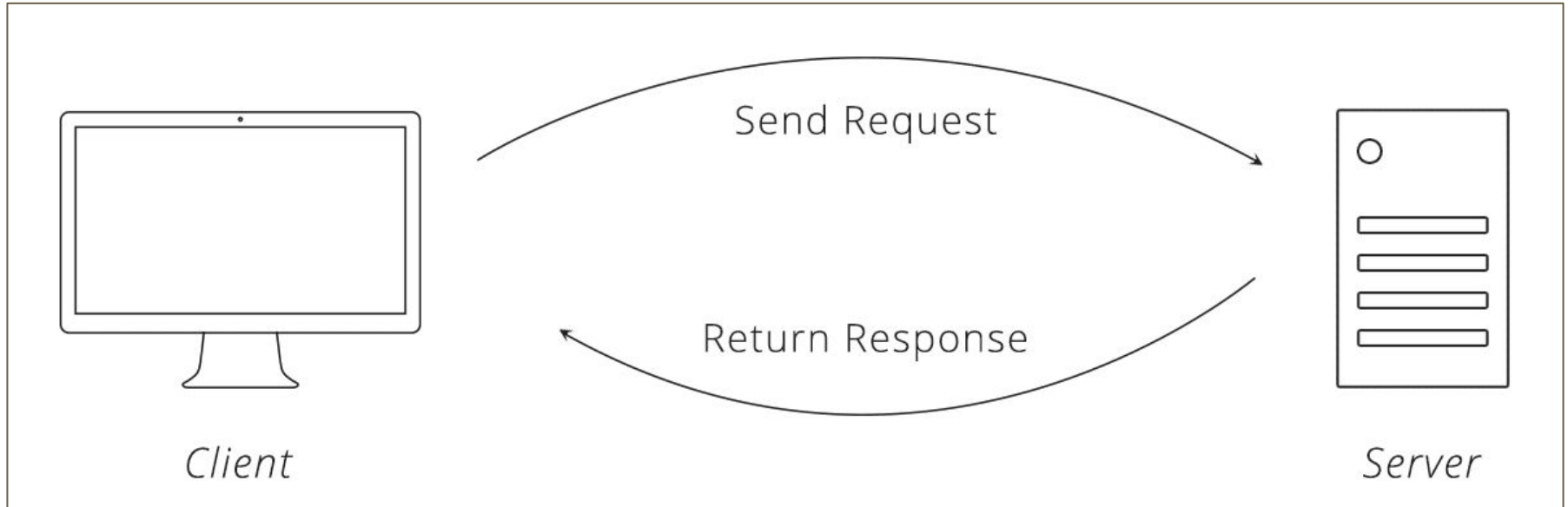# What is it ?

WEB - REST - API - JSON

- WEB - Set of Http endpoints

- REST - Descriptive url, nours and variable, emphasis on readability. (Representational State Transfer)

- API - Application Programming Interface

- JSON - Javascript Object Notation

REST API Implementation

Let's talk about **CURD** Operation.

- C - Create
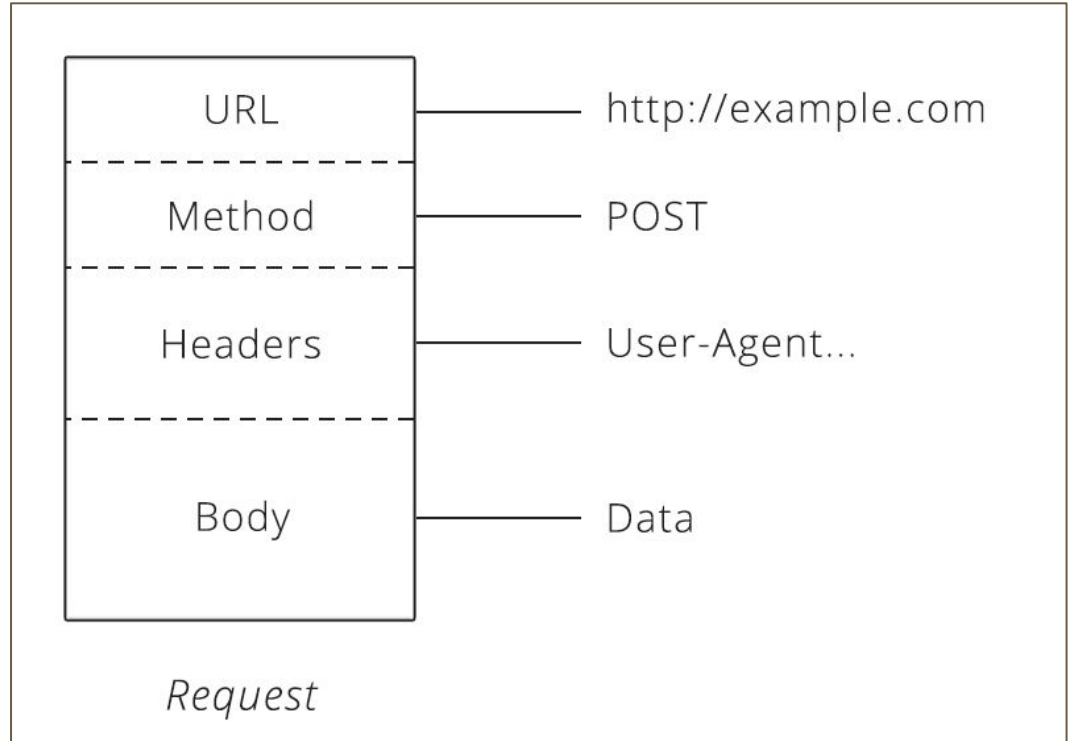- U - Update
- R - Read
- D - Delete

Client - Server Communication

What is " Request " ?

- URL
- Method
- Header
- Body

URL	http://example.com
Method	POST
Headers	User-Agent...
Body	Data

Request

Request - Method

- GET - Read One or Many Object
- POST - Create New Object
- PUT - Update Object
- DELETE - Delete Object

HTTP Request Example:

GET /doc/test.html HTTP/1.1 ⟶ Request Line

Host: www.test101.com
Accept: image/gif, image/jpeg, */*
Accept-Language: en-us
Accept-Encoding: gzip, deflate ⟶ Request Headers
User-Agent: Mozilla/4.0
Content-Length: 35

⟶ A blank line separates header & body

bookId=12345&author=Tan+Ah+Teck ⟶ Request Message Body

Request Message Header

HTTP Request Example: Cont.

```
HTTP/1.1 200 OK
Date: Sun, 08 Feb xxxx 01:11:12 GMT
Server: Apache/1.3.29 (Win32)
Last-Modified: Sat, 07 Feb xxxx
ETag: "0-23-4024c3a5"
Accept-Ranges: bytes
Content-Length: 35
Connection: close
Content-Type: text/html

<h1>My Home page</h1>
```

Status Line

Response Headers

Response Message Header

A blank line separates header & body

Response Message Body
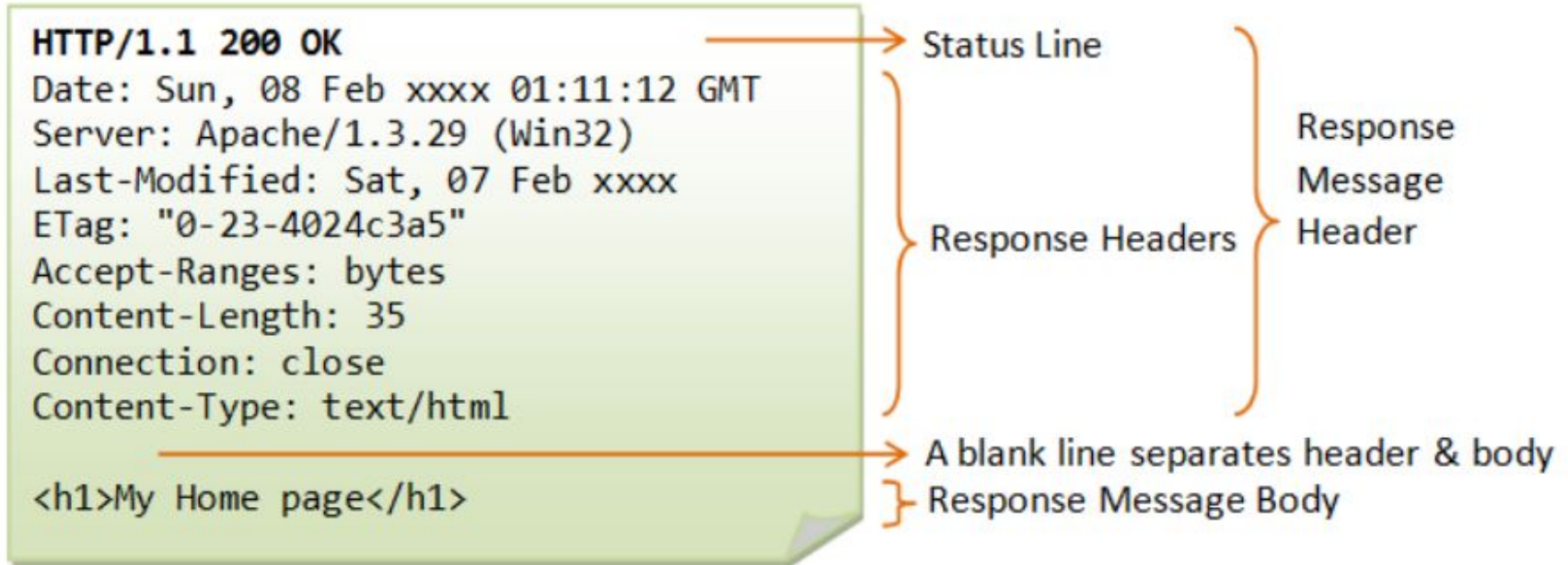
HTTP REST Request:

GET https://www.myhost.com/api/v1/user/1/cities

Read, All the cities for user whose id is 1

GET /user/1/cities http/1.1
host: https://www.myhost.com/api/v1
Content-Type: application/json
Accept-Language: us-en
state_id: 2

HTTP REST API Request

CURD map Methods

	CURD Operation	HTTP Method	URL	Action
1.1	Read	GET	/user	List Existing Users
1.2	Read	GET	/user/1	Get Details of User #1
2	Create	POST	/user	Create New User
3	Update	PUT	/user/5	Update User #5
4	Delete	DELETE	/user/7	Delete User #7

What is "Response"?

- Status Code
- Headers
- Body

Status Code	200 (success!)
Headers	Content-type: text
Body	Data
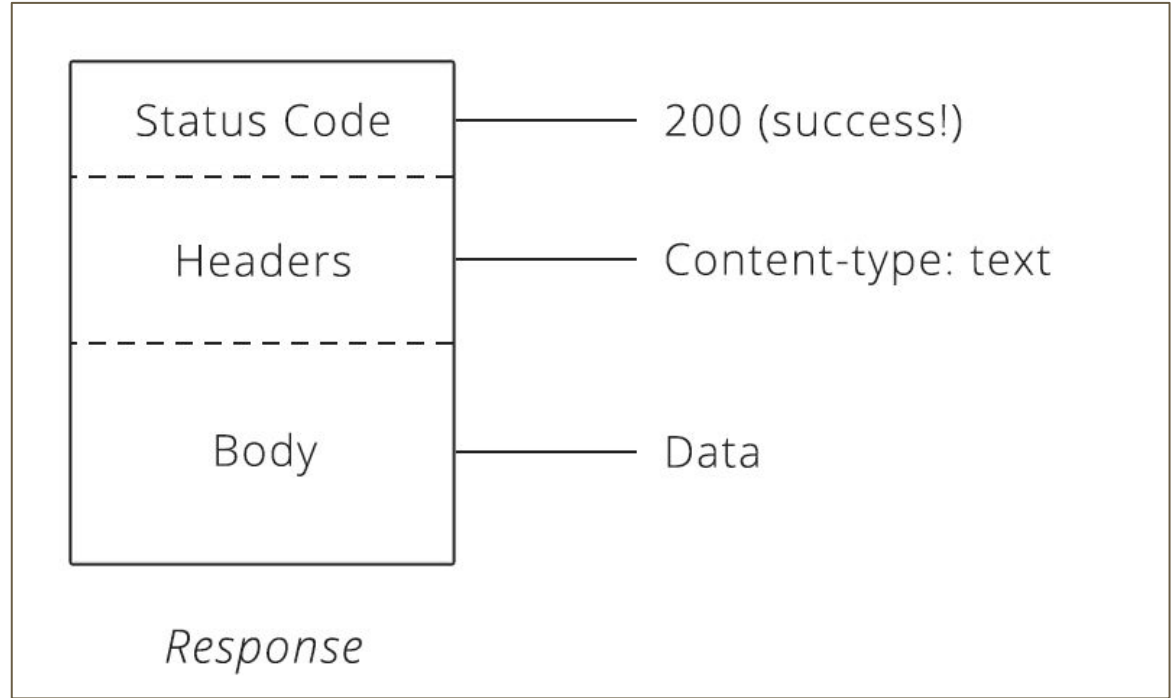
Response

Response - Status Code

- 2xx - Success
- 3xx - Redirection
- 4xx - Client Error
- 5xx - Server Error

Response - Status Code

100 Continue   101 Switching Protocols   102 Processing (WebDAV)

2xx Success

★ 200 OK   ★ 201 Created   202 Accepted
203 Non-Authoritative Information   ★ 204 No Content   205 Reset Content
206 Partial Content   207 Multi-Status (WebDAV)   208 Already Reported (WebDAV)
226 IM Used

3xx Redirection

300 Multiple Choices   301 Moved Permanently   302 Found
303 See Other   ★ 304 Not Modified   305 Use Proxy
306 (Unused)   307 Temporary Redirect   308 Permanent Redirect (experimental)

4xx Client Error

★ 400 Bad Request   ★ 401 Unauthorized   402 Payment Required
★ 403 Forbidden   ★ 404 Not Found   405 Method Not Allowed
406 Not Acceptable   407 Proxy Authentication Required   408 Request Timeout
★ 409 Conflict   410 Gone   411 Length Required
412 Precondition Failed   413 Request Entity Too Large   414 Request-URI Too Long
415 Unsupported Media Type   416 Requested Range Not Satisfiable   417 Expectation Failed
418 I'm a teapot (RFC 2324)   420 Enhance Your Calm (Twitter)   422 Unprocessable Entity (WebDAV)
423 Locked (WebDAV)   424 Failed Dependency (WebDAV)   425 Reserved for WebDAV
426 Upgrade Required   428 Precondition Required   429 Too Many Requests
431 Request Header Fields Too Large   444 No Response (Nginx)   449 Retry With (Microsoft)
450 Blocked by Windows Parental Controls (Microsoft)   451 Unavailable For Legal Reasons   499 Client Closed Request (Nginx)

5xx Server Error

★ 500 Internal Server Error   501 Not Implemented   502 Bad Gateway
503 Service Unavailable   504 Gateway Timeout   505 HTTP Version Not Supported

Response - Status Code - 2xx - Success

- 200 - ok
- 201 - Created
- 204 - No Content

Response - Status Code - 3xx - Redirection
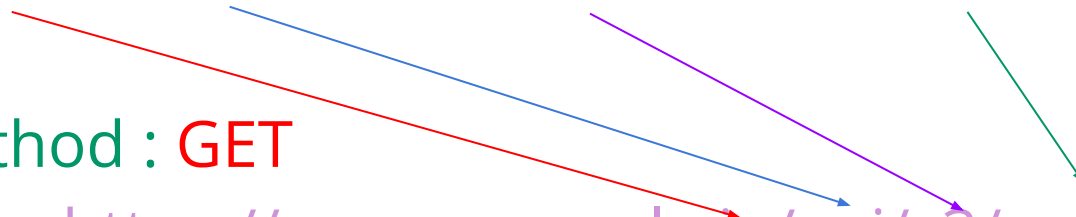
- 304 - No Modified

Response - Status Code - 4xx - Client Error

- 400 - Bad Request
- 403 - Forbidden
- 404 - Not Found
- 409 - Conflict

Response - Status Code - 5xx - Server Error

- 500 - Internal Server Error

API - Structure

- << Host >>/api/<< version >>/<< relevant Model >>/<< rest >>
- Request
    - Method : GET
    - URL : https://www.example.io/api/v3/user/4
- Response
    - Status Code : 200 (ok)
    - Body : { _id : 4, name : "User 4" }

Q & A

Thank You