# REST API
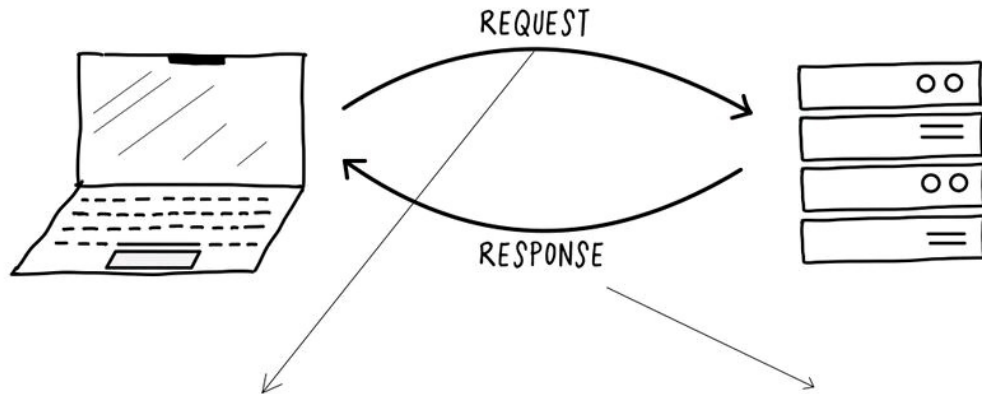
REST STANDS FOR REPRESENTATIONAL STATE TRANSFER

REST APIS OPERATE ON A SIMPLE REQUEST/RESPONSE SYSTEM

REQUEST

RESPONSE

**CLIENT CAN MAKE A REQUEST USING HTTP METHODS**

THESE METHODS ARE:
GET, POST, PUT, PATCH, DELETE, HEAD, TRACE, OPTIONS, CONNECT

HTTP REQUEST CONTAINS

REQUEST METHOD    HTTP HEADERS    BODY

**SERVER RETURNS A RESPONSE WITH AN HTTP STATUS CODE**

POPULAR HTTP STATUS CODE:
EX, 200, 202, 403, 404, 500 ETC
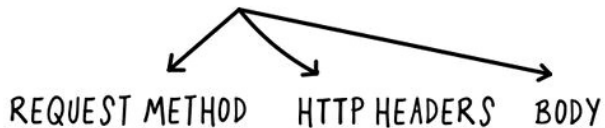
HTTP RESPONSE CONTAINS

STATUS CODE    HTTP HEADERS    RESPONSE BODY

★ REST API CONSTRAINTS ★

**CLIENT-SERVER ARCHITECTURE**
- NO THIRD PARTY INTERPRETATION

**LAYERING**
- MULTIPLE INTERMEDIARIES BETWEEN CLIENT AND SERVER

**UNIFORM INTERFACE**
- FOLLOW A COMMON PROTOCOL

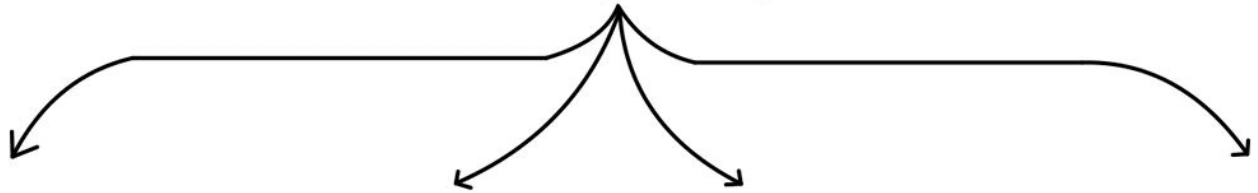**CACHEABILITY**
- RESPONSE CAN BE CACHEABLE

**STATELESSNESS**
- THERE IS NO STATE. CLIENT AND SERVER ARE COMPLETELY SEPARATED

# HTTP HEADERS

CLIENT AND SERVER CAN PASS THE EXTRA BIT OF INFORMATION WITH THE REQUEST AND RESPONSE USING HTTP HEADERS

DIVIDED INTO FOUR PARTS

### REQUEST HEADERS
- CLIENT TO SERVER

### RESPONSE HEADERS
- SERVER TO CLIENT

### REPRESENTATION HEADERS
- INFORMATION ABOUT THE BODY OF THE RESOURCE

### PAYLOAD HEADERS
- INFORMATION ABOUT THE PAYLOAD DATA

## WIDELY USED HTTP HEADERS

### Accept
TYPE OF DATA CLIENT CAN UNDERSTAND

### Content-Type
SPECIFIES THE MEDIA TYPE OF THE RESOURCE

### Accept-Encoding
WHICH ENCODING METHOD CLIENT CAN UNDERSTAND

### Host
SPECIFIES THE DOMAIN NAME

### Authorization
USED TO PASS CREDENTIALS SO THAT SERVER CAN AUTHENTICATE

### Access-Control-Allow-Origin
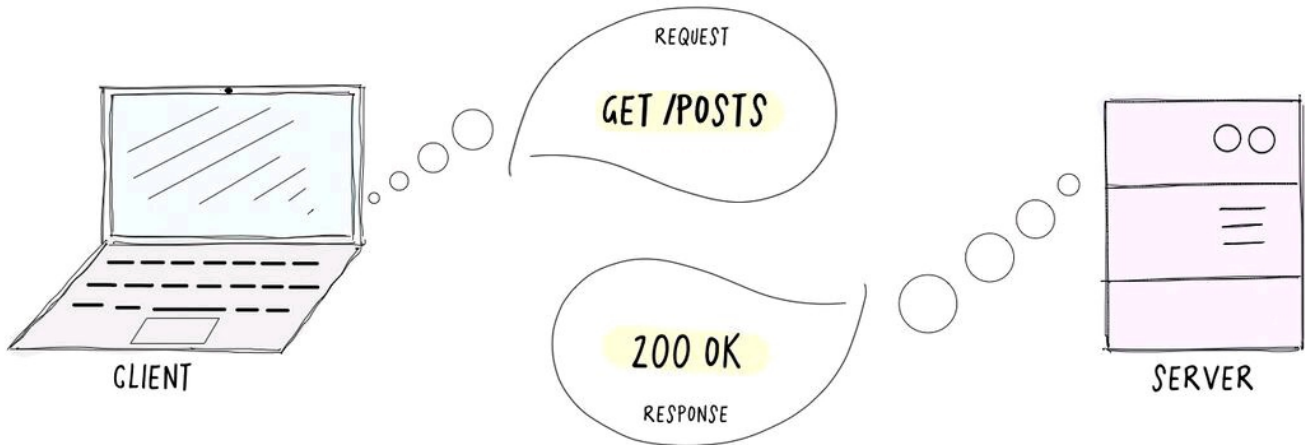WHICH ORIGIN IS ALLOWED TO ACCESS THE RESOURCES

### Accept-Language
CLIENT IS EXPECTING THE RESPONSE IN THE MENTIONED LANGUAGE

### Access-Control-Allow-Methods
WHICH METHODS ARE ALLOWED TO ACCESS THE CROSS-ORIGIN RESOURCES

# HTTP STATUS CODES

REQUEST

GET /POSTS

200 OK

RESPONSE

CLIENT

SERVER

★ SERVER ALWAYS RETURNS HTTP STATUS CODE WITH THE RESPONSE ★

## SUCCESSFUL RESPONSES

200 OK
EVERYTHING IS FINE

201 CREATED
NEW RESOURCE WAS CREATED

## REDIRECTION MESSAGES

301 MOVED PERMANENTLY
THE RESOURCE HAS BEEN MOVED PERMANENTLY TO THE NEW URL

## CLIENT ERROR

400 BAD REQUEST
INVALID SYNTAX

401 UNAUTHORIZED
CREDENTIALS ARE INCORRECT

403 FORBIDDEN
YOU DON'T HAVE PERMISSION TO ACCESS THE RESOURCES
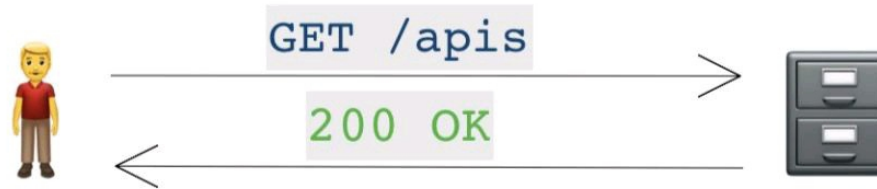
404 NOT FOUND
INVALID URL

429 TOO MANY REQUESTS
USER HAS SENT TOO MANY REQUESTS IN A GIVEN AMOUNT OF TIME

## SERVER ERROR

500 INTERNAL SERVER ERROR
SERVER DOES NOT KNOW HOW TO HANDLE THE UNEXPECTED SITUATION

# HTTP Request Methods

GET /apis

200 OK

**GET**

The GET method is the most common of all these request methods.
It is used to fetch the desired resources from the server.

**POST**

The POST method is used to submit the information to the server.
As we're submitting data, the POST method often changes the state of the server.

**PUT**

The PUT method is used whenever you need to change the resource. The resource, which is already a part of resource collection.

**PATCH**

The PATCH request method is used to modify only the necessary part of the data or response.
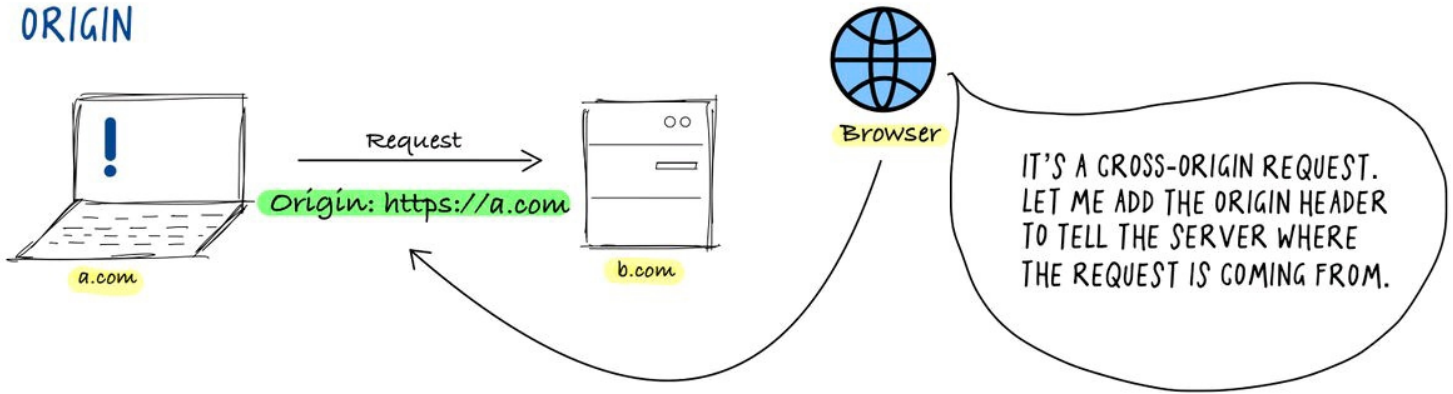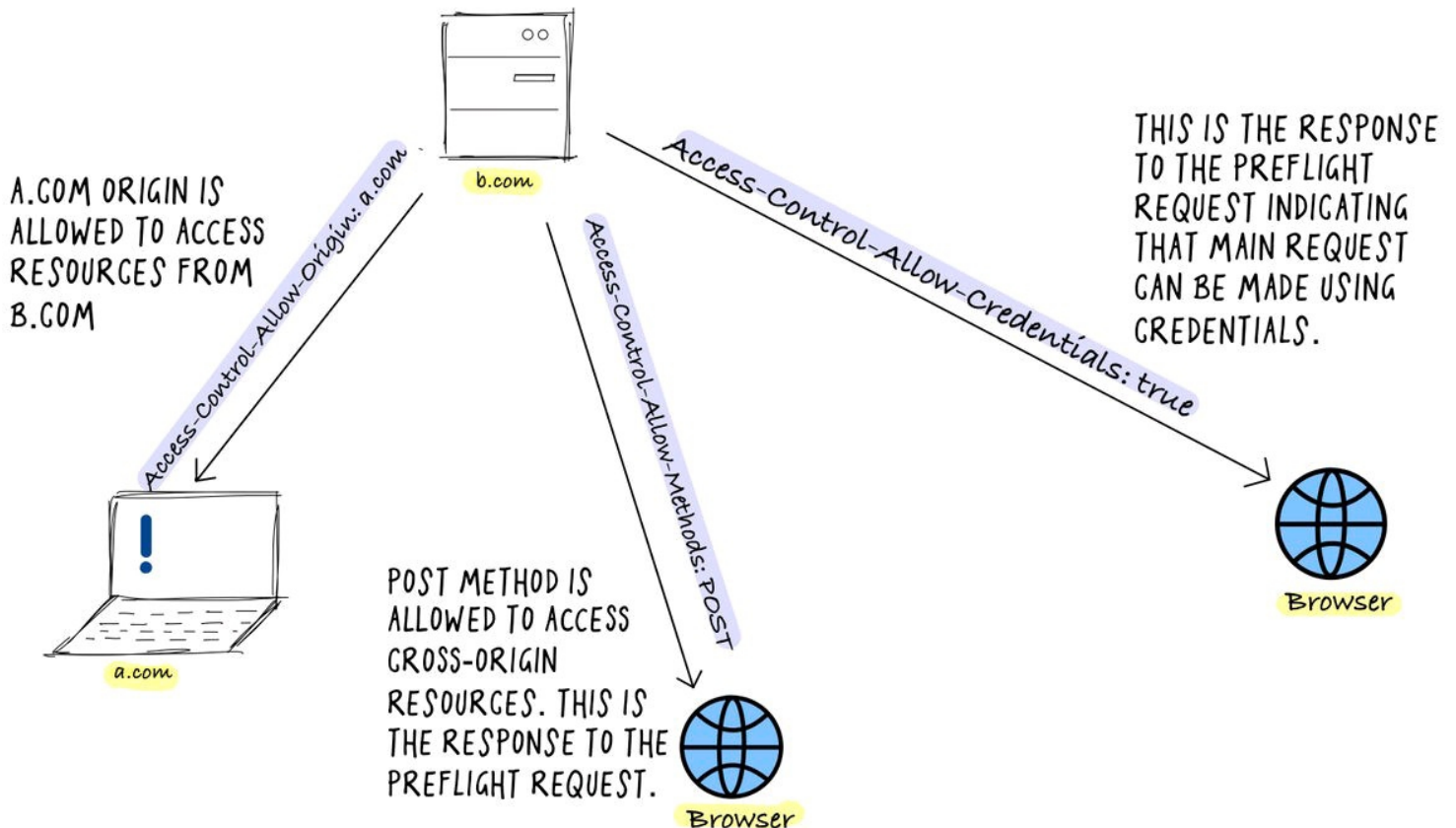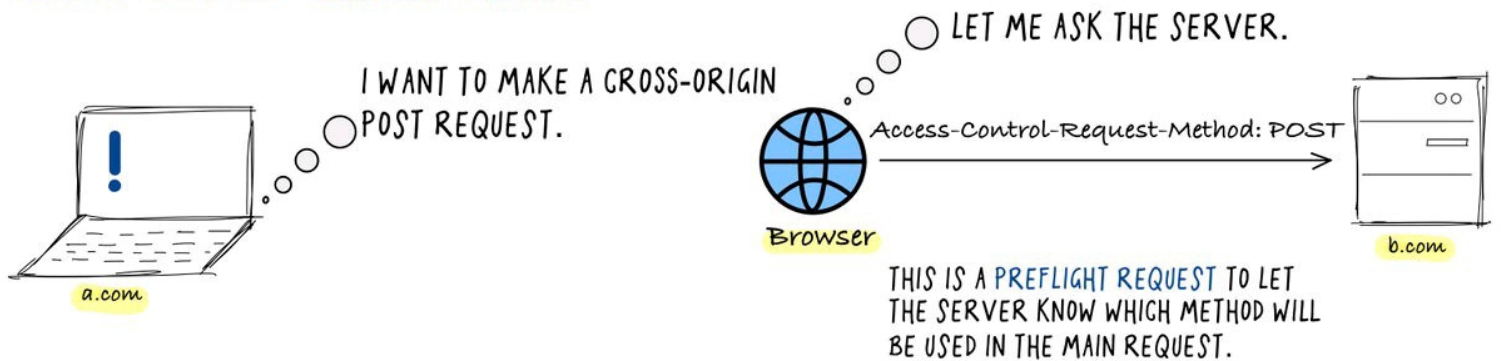The PATCH method doesn't modify the entire response.

**DELETE**

As the name says, the DELETE request method is used to delete the specified resource. It requests that the origin server delete the resource identified by the Request-URL.
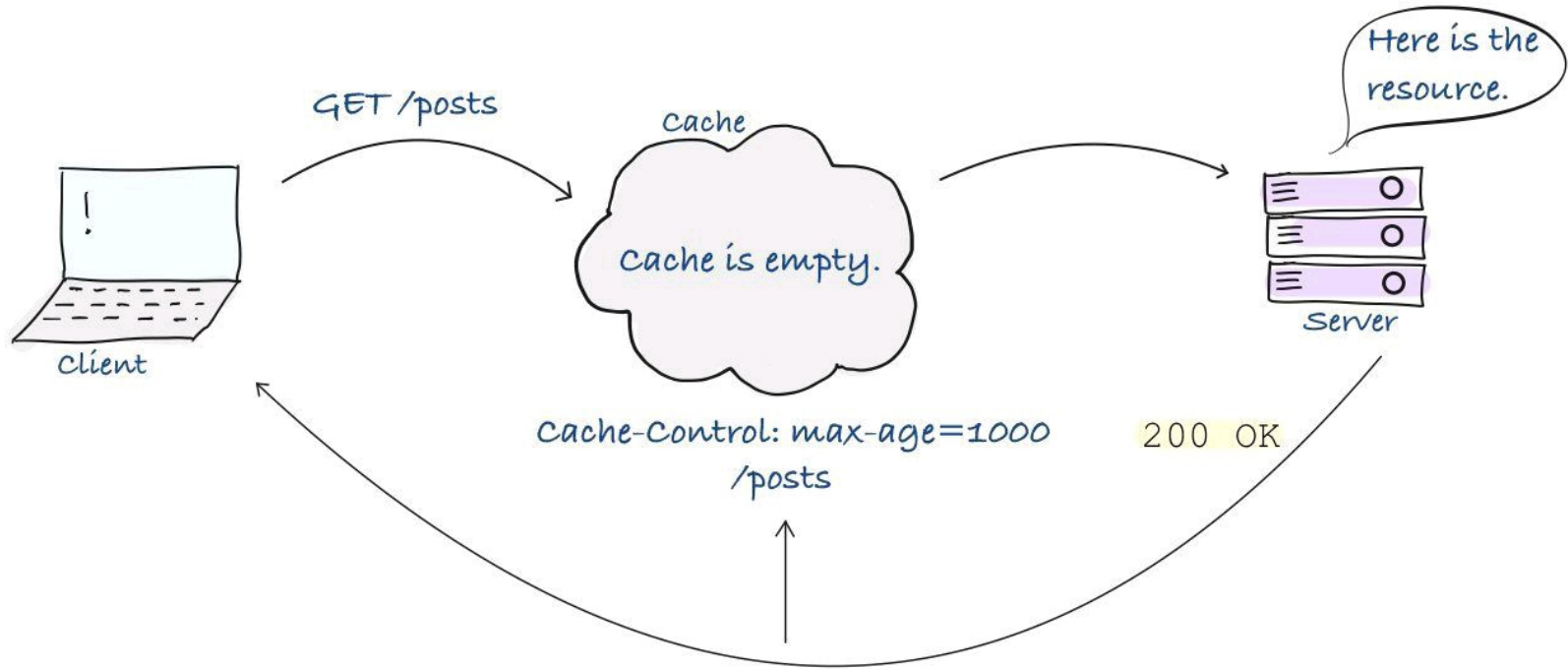
# Access Control HTTP Headers

## ORIGIN

Request

Origin: https://a.com

a.com

b.com

Browser

IT'S A CROSS-ORIGIN REQUEST. LET ME ADD THE ORIGIN HEADER TO TELL THE SERVER WHERE THE REQUEST IS COMING FROM.

## ACCESS-CONTROL-REQUEST-METHOD

I WANT TO MAKE A CROSS-ORIGIN POST REQUEST.

a.com

LET ME ASK THE SERVER.

Access-Control-Request-Method: POST

Browser

b.com

THIS IS A PREFLIGHT REQUEST TO LET THE SERVER KNOW WHICH METHOD WILL BE USED IN THE MAIN REQUEST.

b.com

A.COM ORIGIN IS ALLOWED TO ACCESS RESOURCES FROM B.COM

Access-Control-Allow-Origin: a.com

Access-Control-Allow-Methods: POST

Access-Control-Allow-Credentials: true

THIS IS THE RESPONSE TO THE PREFLIGHT REQUEST INDICATING THAT MAIN REQUEST CAN BE MADE USING CREDENTIALS.

a.com

Browser

POST METHOD IS ALLOWED TO ACCESS CROSS-ORIGIN RESOURCES. THIS IS THE RESPONSE TO THE PREFLIGHT REQUEST.

Browser