

APIs

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What are APIs?

- The method in which web applications connect to each other to communicate data
- Able to be accessed using programming tools to obtain, update, or delete data.
- Application Protocol Interfaces

Types of APIs

REST

1

Works the same way as typing
a link into a browser

Websocket

2

Streaming data, communication
of live data

Webhook

3

Application sends request to
you to notify of data change



REST API Request Types



1

GET

Used to obtain data

2

POST

Used to create/update data

3

PATCH

Used to update data

4

DELETE

Used to delete data



GET vs POST

GET

No data is sent in payload

Any data to be sent is a Query
Parameter

POST

Data is sent in the payload

Query Parameters can be used

Parts of a Request

General

Request URL: <https://example.com/>

Request Method: GET

Status Code: 200

Remote Address: 93.184.216.34:443

Referrer Policy: strict-origin-when-cross-origin

Response Headers

accept-ranges: bytes

age: 562463

cache-control: max-age=604800

content-encoding: gzip

content-length: 648

content-type: text/html; charset=UTF-8

date: Sat, 28 Jan 2023 00:01:26 GMT

etag: "3147526947"

expires: Sat, 04 Feb 2023 00:01:26 GMT

last-modified: Thu, 17 Oct 2019 07:18:26 GMT

server: ECS (chb/0286)

vary: Accept-Encoding

x-cache: HIT

Request Headers

:authority: example.com

:method: GET

:path: /

:scheme: https

accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/avif,image/webp,image/apng,*/*;q=0.8,application/signed-exchange;v=b3;q=0.9

accept-encoding: gzip, deflate, br

accept-language: en-US,en;q=0.9

cache-control: no-cache

pragma: no-cache

sec-ch-ua: "Not7A Brand";v="8", "Chromium";v="108", "Google Chrome";v="108"

sec-ch-ua-mobile: 0

sec-ch-ua-platform: "macOS"

sec-fetch-dest: document

sec-fetch-mode: navigate

sec-fetch-site: none

sec-fetch-user: ?1

upgrade-insecure-requests: 1

user-agent: Mozilla/5.0 (Macintosh; Intel Mac OS X 10_15_7) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/108.0.0.0 Safari/537.36

URL

Request Method

Status Code

Request Headers

Authorization

Cookies



URL Query Parameters

`mygreatapi.com/users?api_key=hacktheram&count=3`

Always preface parameters with ?
Separate Parameters with &
Assign Parameters with =

API Authorization

- If its a public API, you do not need to provide any authorization
- If you are dealing with a service that has
 - Authentication
 - Rate Limiting
 - User Data

You will need a KEY

- Usually sent in the Query Parameters or a Header with Authorization Title
- OAuth2
- API Key

Response Codes



200

Good!

Request made successfully

404

Not Found

The api endpoint you are trying
to reach does not exist

403

Forbidden

You forgot an API key or
authorization!



APIs in Code

- Python: Requests Module
 - `requests.get()`
 - `requests.session()`
- JavaScript: `fetch()` function
 - Cool shortcut with Google Chrome



GitHub **public-apis/public-apis**

List of APIs that you can use in projects

API Documentation

Get some facts

Retrieve one or more `Facts`.

Endpoint

`GET /facts/random`

Query parameters

Parameter	Type	Default	Limit	Description
animal_type	Comma-separated String	'cat'		Type of animal the fact will describe
amount	Number	1	500	Number of <code>Facts</code> to retrieve. If set to one, response will be a fact object. If many, response will be an array of <code>Facts</code>