

Data Science





API : Application Programming Interface



Why API ?

Why we need API ?

- We need only a chunk of huge dataset
- Data is very dynamic i.e. it changes very frequently.

Lets take an example -

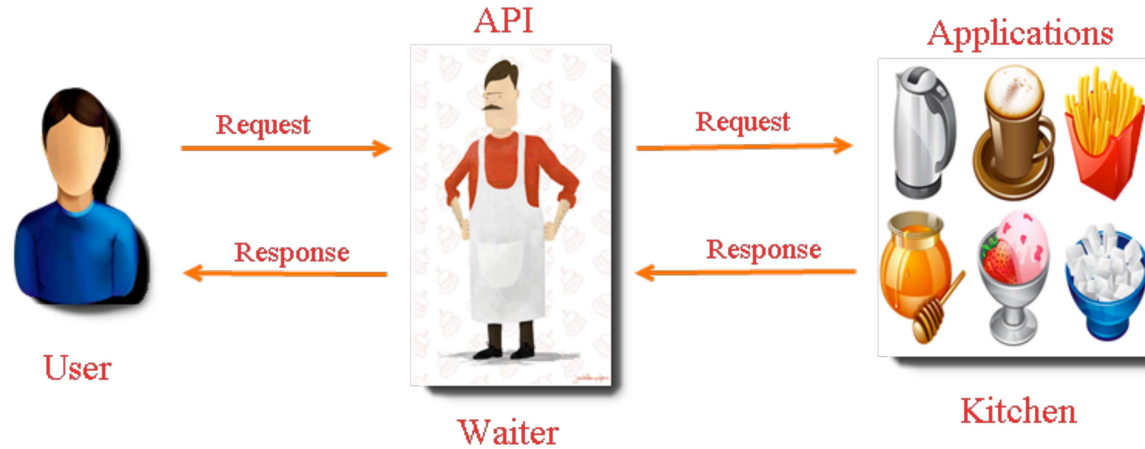


Image Source : <http://www.tothenew.com/blog/api-testing-using-rest-client/>



Examples



Example of well-known APIs



- Google Maps API
- Facebook
- Weather API
- Youtube APIs
- Twitter APIs

Elements of an API

- Access
- Request
 - Methods
 - Parameters
- Response



HTTP

API



- In order to get data using API, we need to make an API request call to retrieve data from any website or its server.
- Like we do while visiting any website, we enter a URL and then hit enter.
- URL is reference to a specific web page
- URL consists of 2 parts
 - Protocol identifier : http or https
 - Host name : codingninja.in, amazon.in

HTTP



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- Protocols are nothing but a set of rules which defines how to format and transmit the request to server and how to receive response from server.
 - The communication between client (i.e. web browser) and server on internet happens using HTTP
 - Information is exchanged in the form of hypertext documents
 - A web browser may be the client, and an application on a computer that hosts a web site may be the server.
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- A solid orange horizontal bar spanning the width of the slide at the bottom.

Methods of HTTP

- GET
- POST



HTTP Libraries

HTTP Libraries

- `httplib`
- `urllib`
- `requests`

requests

- It is an HTTP library written in Python.
- It allows us to send HTTP requests using our python code and we can access the response also.

Response object Attributes

- status_code
 - 200 - Successful
 - 404 - fail
- encoding
- url
- text
- headers



JSON File Format

JSON



- JSON - JavaScript Object Notation
- The most common formats for information retrieved, in APIs are JSON and XML.
- It is a lightweight, text-based, human-readable file format, and can be edited using a text editor.
- It has 2 parts -
 - Key
 - Value

JSON Data Types

- Primitive data types -
 - number
 - string
 - boolean
 - null
- Complex data types -
 - Array
 - Object

JSON → Python



<u>JSON</u>	<u>Python</u>
• Object	dict
• number	int, float
• boolean (true, false)	boolean (True, False)
• string	str
• Array	list, tuple
• null	None