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 -

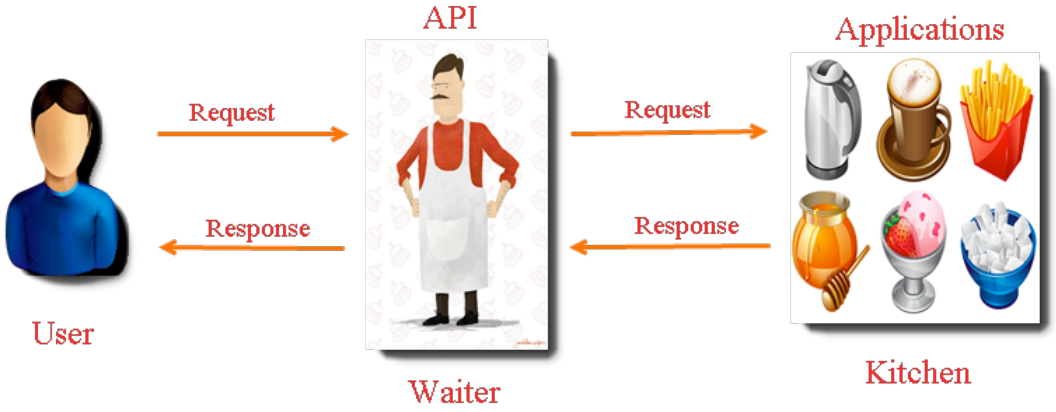

Image Source : http://www.tothenew.com/blog/api-testing-using-rest-client/

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 : codingninjas.in, amazon.in

HTTP

- 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.

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

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